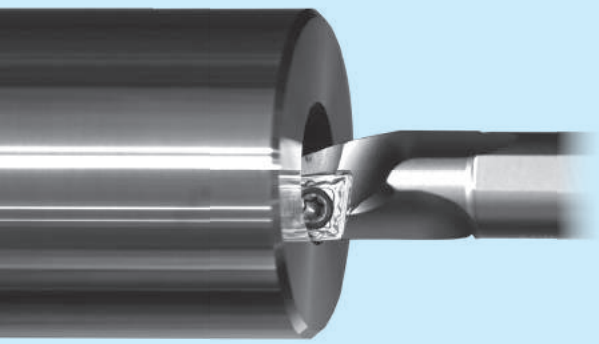
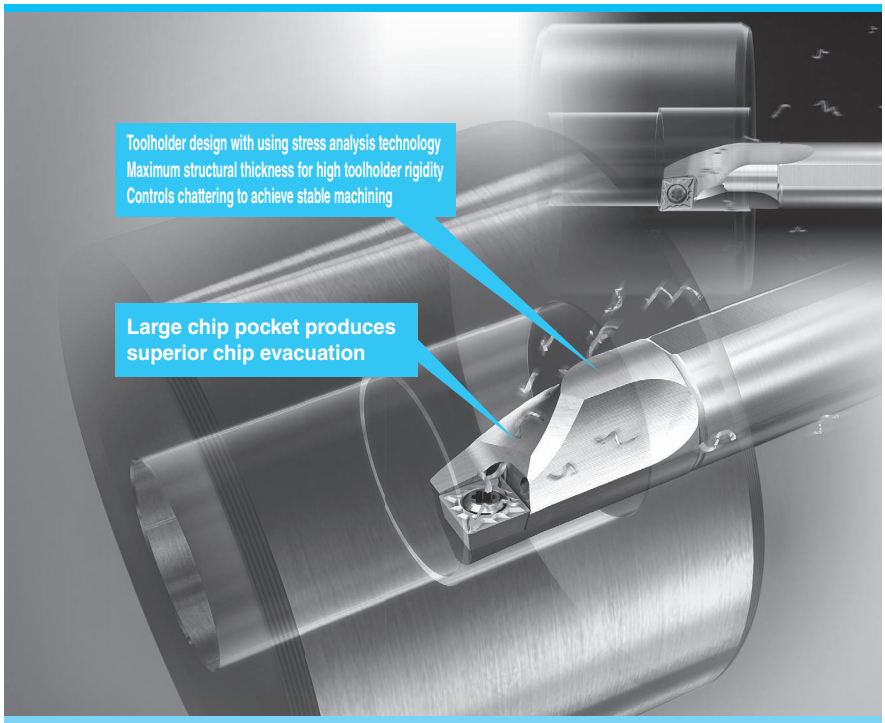
Boring

F

F1~F95

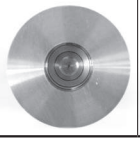
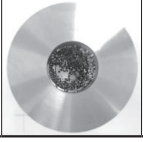
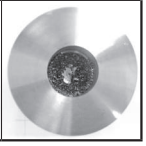


Dynamic Bar

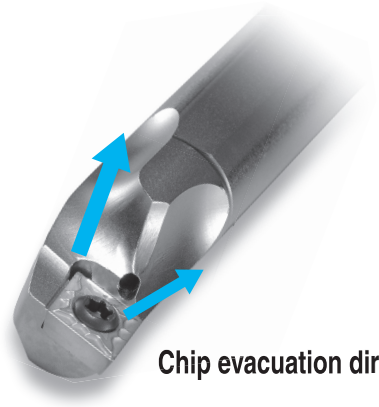


Dynamic design by using the latest computer simulation technology

Superior chip evacuation (External coolant)

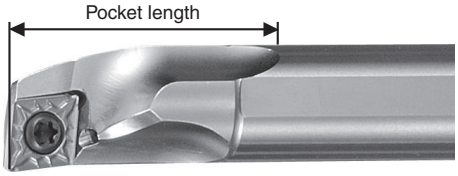
	Dynamic Bar	Competitor A	Competitor B
Inside the workpiece			

In the products of competitor A and B chips remain inside the workpiece, but chips from the Dynamic Bar are all evacuated from the workpiece.



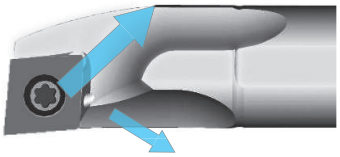
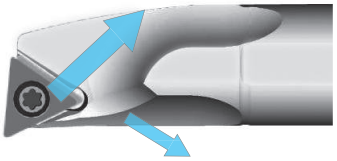
Chip evacuation direction

Comparison of pocket length



Description	Pocket length (mm)	
	Dynamic Bar	Competitor A
A16-SCLPR09-18 type	37	29
A20-SCLCR09-22 type	48	32

Chip evacuation direction

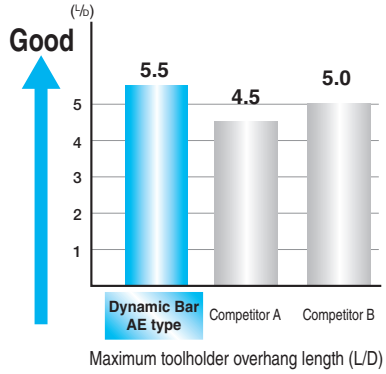
SCLC(P) type	STLB(P) type
	
Better evacuation by backward chip flow	

The Dynamic Bar achieves superior chip evacuation

High rigidity and chattering resistance are ensured by using a special alloy and with help of stress analysis technology.

Previously unattained surface finish and dimensional accuracy are now achieved.

Comparison of vibration tendency

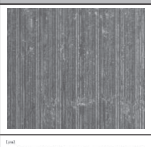
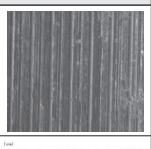
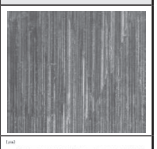
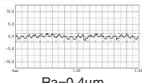
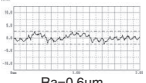
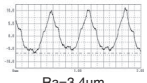
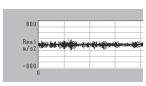
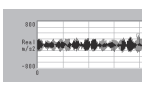
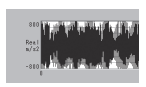


Maximum toolholder overhang length (L/D)

<Cutting Conditions>
SCM415
Vc=150m/min
ap=0.5mm
f=0.1mm/rev
S16-SCLPR09 type
CPMH090304L-Y

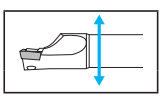
Comparison of surface finish

Vibration of the Dynamic Bar was minimal even at high cutting speeds, enabling stable machining.

	Dynamic Bar	Competitor A	Competitor B
Surface wall			
Surface Roughness	 Ra=0.4μm Rz=2.3μm	 Ra=0.6μm Rz=3.6μm	 Ra=3.4μm Rz=14.0μm
Oscillatory waveform			

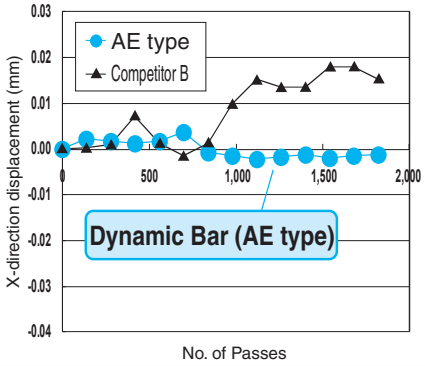
<Cutting Conditions>
SCM415
Vc=210m/min
ap=0.5mm
f=0.1mm/rev
A16Q-SCLPR09-18 type
CPMT090304XP(PV7020)
L/D=4
External coolant

Direction of vibration measurement



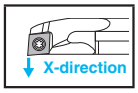
Cutting Point Precision

The AE Dynamic Bar maintains precise cutting edge positional accuracy through the use of a special alloy, thereby achieving high precision machining.



<Cutting Conditions>
SCM435
Vc=180m/min
ap=2mm
f=0.2mm/rev
S/A16Q-SCLPR09-18 type
CPMH090308(CA5525)
L/D=4
External coolant

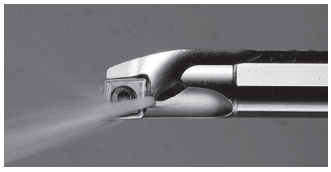
Direction of measurement



Toolholder Lineup

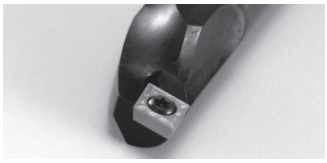
· Excellent Bar (AE type)

Excellent Bar with coolant hole (internal coolant) (A..AE) enables better chip evacuation.



· Steel Shank Bar

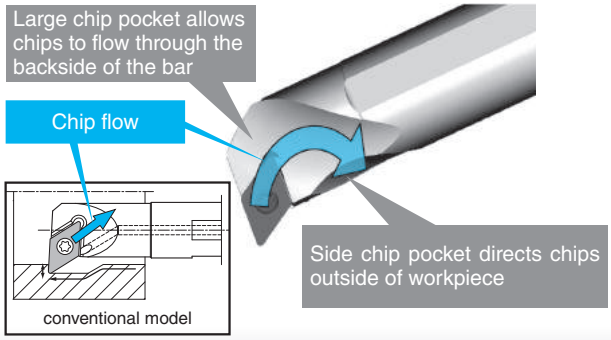
The steel shank bar (without coolant hole) provides superior cost performance



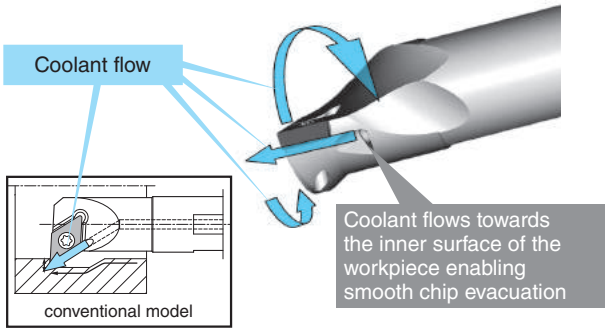
Advantages of Dynamic Bar SDUC

New design and concept focusing on chip evacuation

New design Streamlined pocket enables effective chip evacuation



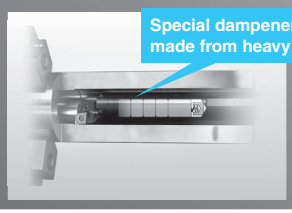
New concept Coolant flows toward the workpiece's inner surface



AD Bars Interchangeable Head Boring Bars with Anti-vibration Dampener System

F65

The AD (Advanced Dampener) system enables a maximum overhang of 6 times L/D.
Highly efficient machining : The anti-vibration dampener effect enables large cutting-depths and high feed rates. Applicable for a variety of machining conditions due to the interchangeable head design.

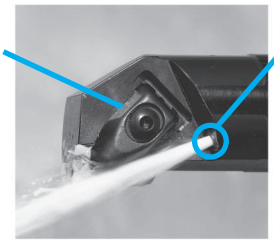


Double Clamp Boring Bars for Negative Inserts

Stable machining is realized in Double Clamp and Direction adjustment mechanism coolant hole.

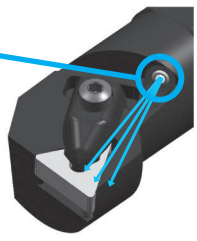
Improved Clamping Rigidity

Firmly clamp the insert in two directions with one action. Along with improving the accuracy of the insert position, long tool life can be achieved.



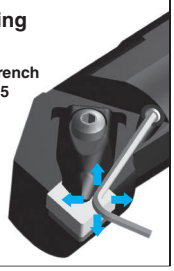
Direction adjustment mechanism coolant hole

Discharge direction of coolant is adjustment flexible focusing on coolant to edge reliably builds up
*Not applicable to high-pressure coolant



Nozzle setting

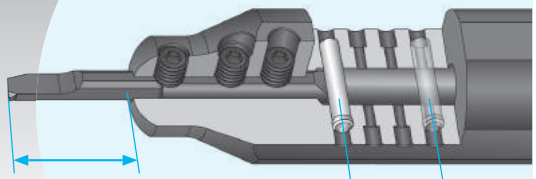
Adjust by using wrench etc. that enters ø2.5 or less holes.



Easy adjustment and high precision EZ Bars

Kyocera's original EZ adjust structure
· Easy adjustment and high precision
· EZ Bars prevent deviation with high-rigidity clamping
Wide range of items applicable to various applications
MEGACOAT PR1225 for stable machining and extended tool life

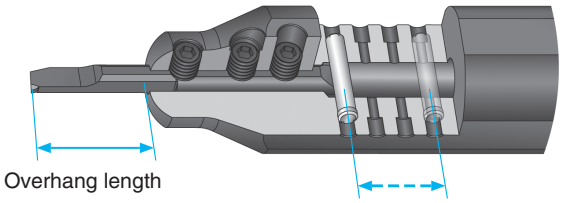
Kyocera's original EZ adjust structure



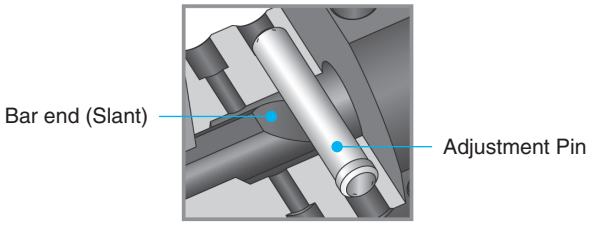
EZ adjust structure

Bar overhang is adjustable by replacing adjustment pin.
Internal coolant sleeve (EZH-CT) is available.

1 Easy adjustment and high precision



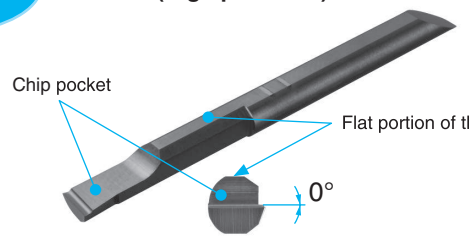
Excellent clamping force



Bar is firmly clamped on the slanted end by the Adjustment Pin

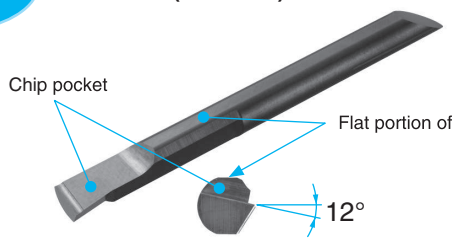
2 2 types of bars

Precision-oriented — **HP (High precision)**



F14

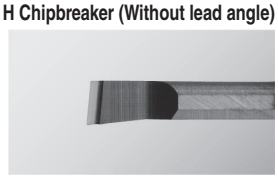
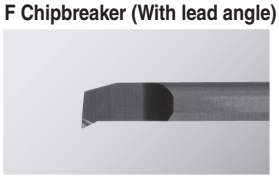
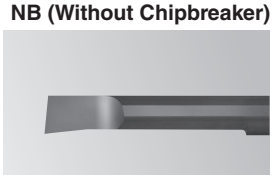
Cost-oriented — **ST (Standard)**



F16

* Chip pocket angles are different.
* Even when using a same sleeve, the Min. Bore Dia. can be different depending on which bar to attach.

3 3 Chipbreakers for various applications

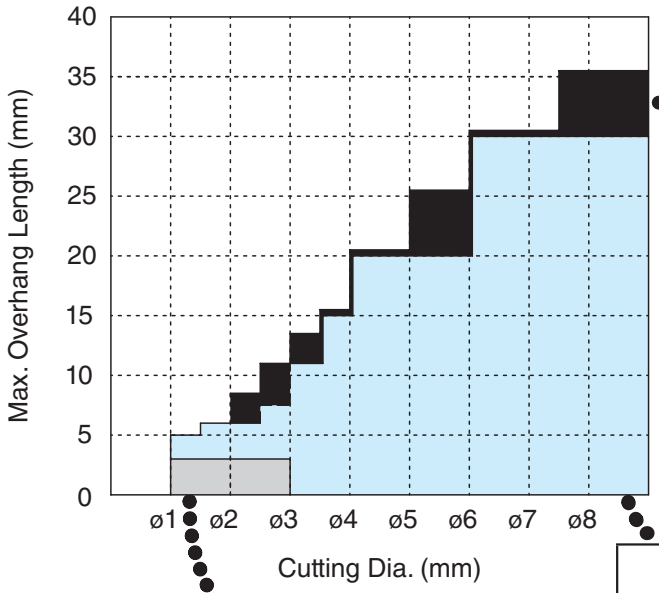
H Chipbreaker (Without lead angle)	F Chipbreaker (With lead angle)	NB (Without Chipbreaker)
		
Tough edge (General purpose)	Sharp cutting (For finishing)	Non-ferrous Metals

· 2 types of corner-R for each chipbreaker
H Chipbreaker : 0.08mm, 0.15mm
F Chipbreaker : 0.05mm, 0.15mm
NB (Without Chipbreaker) : 0.05mm(PR1225)
0.035mm(PCD·CBN)
* Lineup depend on description

Along with the solid type, EZVB (for Boring , Internal Facing and Copying) and indexable type "EZ Bar PLUS"are added to the lineup

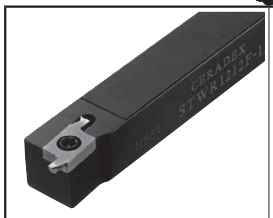
● Guide for usage (Adjustable overhang type)

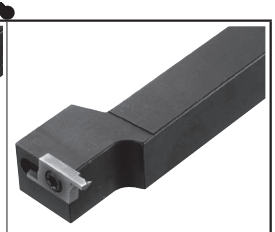
Solid Tip-Bars Type : Min. Bore Dia. ø1~



Easy adjustment and high precision
EZ Bars

F12





Twin-Bars F37~F38

SVN F32

Square Shank (Straight)

S-SVN F33

Round Shank (Standard)

SVNS F32

System Tip-Bars F30

Boring Bar Identification System (Round Shank)

Shank Type	Bar Length	Clamping System	Insert Shape	Hand of Tool	Others
S Steel A Steel (with Coolant Hole) C Carbide E Carbide (with Coolant Hole)	F : 80 G : 90 H : 100 J : 110 K : 125 L : 140 M : 150 N : 160 P : 170 Q : 180 R : 200 S : 250 T : 300 U : 350 V : 400 W : 450 Y : 500 X : Special	C : Top Clamp M : Multi Lock P : Pin Lock or Lever Lock S : Screw Clamp W : Wedge Lock	C : 80° Rhombic D : 55° Rhombic J : 70° Rhombic R : Round S : 90° Square T : 60° Triangle V : 35° Rhombic W : 80° Trigon	R : Right-hand L : Left-hand	Manufacture's Option: Optional Mark or Number Example A(N) : Dynamic Bar AE : Excellent Bar which is Dynamic Bar type E : Excellent Bar

S	12	M	-	S	C	L	P	R	09	-	16	
	Shank Dia.			Cutting Edge Angle			Insert Relief Angle		Insert Size		Min. Bore Dia.	

Cutting Edge Angle

F	K	L	P
90°	75°	95°	117.5°
Q	**S**	**U**	**W**
107.5°	45°	93°	60°
Y	**X**	**Z**	
85°	110°	93°(95°)	

Insert Relief Angle

AN

B : 5° Positive
C : 7° Positive
D : 15° Positive
E : 20° Positive
N : 0° Negative
P : 11°Positive

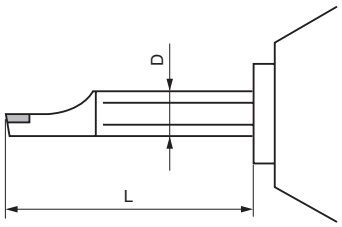
Insert Size

C, D,J,Y, S, T, R, V (L)

● Anti-vibration interchangeable head mechanism Boring Bar " AD Bars ", for the identification system for boring bars with interchangeable head See Page F65

Guide Line for Overhang Length of Boring Bar (Workpiece Material : S45C)

Overhang Length (L / D)	Shank Material
3	Steel
4	Steel (Dynamic Bar)
5	Excellent
5.5	Excellent (Dynamic Bar)
6	AD Bars (with Anti-vibration Dampener System)
7	Carbide



Carbide Shank Boring Bar

◯Short Shank Series

Short Shank Types with length of 1/2 and 2/3 of standard type are available. (-1/2 or -2/3 is shown at the end of the description). When installing on machines, no additional machining (to change toolholder length) is required.


Standard Size

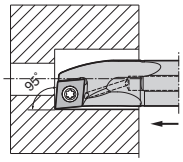
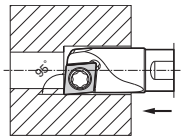
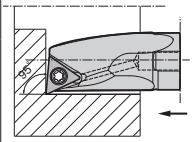
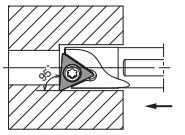
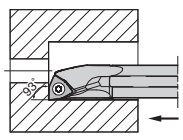
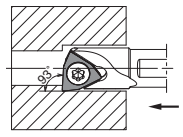

2/3 Size


1/2 Size

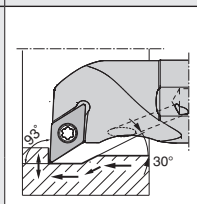
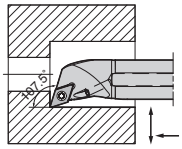
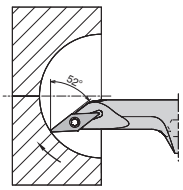
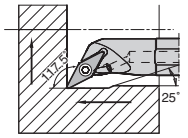
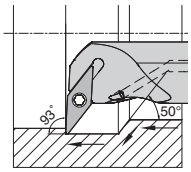
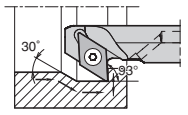
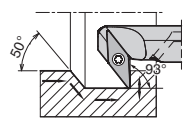
Solid Tip-Bars for Micro Boring

Applications	Solid Tip-Bars Type	Shape	Shank Type Max. Overhang Length (L/D)	Min. Bore Dia. DMIN 1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	See Page for Toolholders	Summary
Boring	**EZB-HP** EZ Bars → F14		Solid L/D=~5			●	●	●	●	●		●		●				F24~F29	
	NEW **EZB-HP-LT** EZ Bars (Long Type) → F15		Solid			●	●	●	●	●		●		●					
	EZB-ST EZ Bars → F16		Solid L/D=~5			●	●	●	●	●	●		●		●		●		
	EZB-NB EZ Bars (MEGACOAT) → F17		Solid L/D=~5			●	●	●	●	●	●		●		●		●		
	CBN **EZB-NB** EZ Bars PCD → F17		Solid L/D=~5					●		●		●		●		●			
	TWB Twin-Bars → F37		Solid	●	●	●	●	●										F37	
	TWBT Twin-Bars → F38		Solid	●	●	●	●	●										F38	
	VNB-S System Tip-Bars → F30		Solid	●	●	●	●	●	●	●								F32 F33	
	VNB System Tip-Bars → F31		Solid			●		●		●		●		●		●			
	VNBX-S System Tip-Bars → F34		Solid	●	●	●		●	●	●								F35	
	PSB-S Tip-Bars → F39		Solid L/D=~5			●		●		●		●		●		●		F86	
Back Boring	**VNBT** System Tip-Bars → F31		Solid							●		●						F32 F33	
	PSBT-S Tip-Bars → F39		Solid L/D=~5							●		●						F86	
Copying	NEW **EZVB** EZ Bars → F22		Solid						●		●		●		●			F25~F29	

Dynamic Bar / EZ Bar PLUS

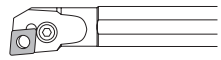
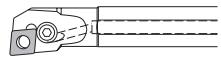
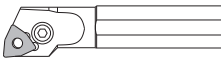
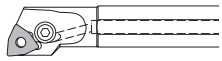
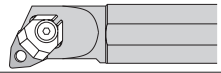
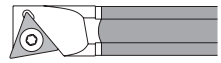
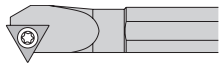
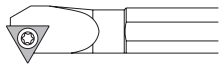
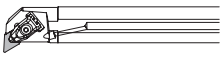
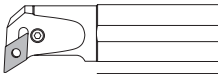
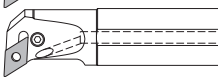
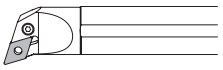
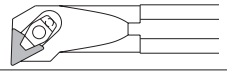
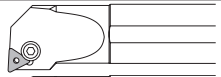
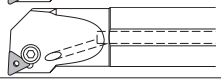
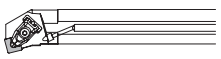
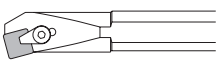
Applications	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Min. Bore Dia. DMIN 5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50	See Page for Toolholders
Boring / Internal Facing		A...SCLC-AE	Excellent L/D=~5.5	●						●	●		●		●		●				●							F41
		S...SCLC-AE	Excellent L/D=~5.5		○	●	●	●	●																			
		S...SCLC-A	Steel L/D=~4		○					●	●		●		●		●				●							
		C...SCLC-AN	Carbide L/D=~7		○	●	●	●	●																			
		E...SCLC-A(N)	Carbide L/D=~7	●						●	●		●		●		●				●							
		A...SCLP-AE	Excellent L/D=~5.5	●							●		●	●	●		●				●							F43
		S...SCLP-A	Steel L/D=~4		○						●		●	●	●		●				●							
		E...SCLP-A(N)	Carbide L/D=~7	●							●		●	●	●		●				●							
	EZ Bar PLUS 	NEW S...SCLC-EZ(P)	Steel L/D=~3		○	●	●	●	●	●																	F19
		NEW C...SCLC-EZ(P)	Carbide L/D=~5		○	●	●	●	●	●																	
		A...STLP-AE	Excellent L/D=~5.5	●						●	●		●	●	●		●		●		●							F51
		S...STLB-AE			○				●																			
		S...STLB(P)-A	Steel L/D=~4		○				●	●	●		●	●	●		●				●							
		E...STLP-A(N)	Carbide L/D=~7	●						●	●		●	●	●		●		●		●							
		C...STLB-AN			○				●																			
		A...STLC-AE	Excellent L/D=~5.5	●						●	●		●		●		●											F49
		S...STLC-A	Steel L/D=~4		○					●	●		●		●		●											
	EZ Bar PLUS 	NEW S...STLB(P)-EZP	Steel L/D=~3		○				●	●																	F20
		NEW C...STLB(P)-EZP	Carbide L/D=~5		○				●	●																	
Boring		S...SWUB-AE	Excellent L/D=~5.5		○		●	●	●																			F61
		A...SWUB(P)-AE	Excellent L/D=~5.5	●						●	●		●		●		●											
		S...SWUB(P)-A	Steel L/D=~4		○		●	●	●	●	●		●		●		●											
		C...SWUB-AN	Carbide L/D=~7		○		●	●	●																			
		E...SWUB(P)-A(N)	Carbide L/D=~7	●						●	●		●		●		●											
	EZ Bar PLUS 	NEW S...SWUB-EZP	Steel L/D=~3		○		●	●	●																		F21
		NEW C...SWUB-EZP	Carbide L/D=~5		○		●	●	●																			

Dynamic Bar

Applications	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Min. Bore Dia. DMIN 5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50	See Page for Toolholders
Copying		**A...SDUC-AE**	Excellent L/D=~5.5	●									●	●		●		●			●		●				**F45**
		S...SDUC-A	Steel L/D=~4		○								●	●		●		●			●		●				
		E...SDUC-A	Carbide L/D=~7	●									●	●		●		●			●		●				
		**A...SDQC-AE**	Excellent L/D=~5.5	●								●		●		●			●			●					**F46**
		S...SDQC-A	Steel L/D=~4		○							●		●		●			●			●					
		E...SDQC-A	Carbide L/D=~7	●								●		●		●			●			●					
		**A...SVJB(C)-AE**	Excellent L/D=~5.5	●										●		●			●			●				●	●	**F54**
		A...SVJP-AE		●										●														
		S...SVJB(C)-A	Steel L/D=~4		○									●		●			●			●				●	●	
		S...SVJP-A			○									●														
		**A...SVPC(B)-AE**	Excellent L/D=~5.5	●									●		●		●			●			●			●		**F56**
		S...SVPC(B)-A	Steel L/D=~4		○								●		●		●			●			●			●		
		E...SVPC(B)-A	Carbide L/D=~7	●									●		●		●			●			●					
		**A...SVUB(C)-AE**	Excellent L/D=~5.5	●										●		●			●						●	●	**F59**
		S...SVUB(C)-A	Steel L/D=~4		○									●		●			●						●	●	
		E...SVUB(C)-A	Carbide L/D=~7	●											●				●		●	29			●			
Back Copying		**A...SDZC-AE**	Excellent L/D=~5.5	●									●	●		●		●			●			●			**F47**
		S...SDZC-A	Steel L/D=~4		○								●	●		●		●			●			●			
		E...SDZC-A	Carbide L/D=~7	●									●	●		●		●			●						
		**A...SVZB(C)-AE**	Excellent L/D=~5.5	●										●		●			●						●	●	**F59**
		S...SVZB(C)-A	Steel L/D=~4		○									●		●			●						●	●	

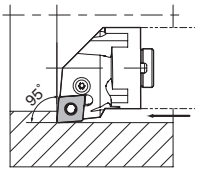
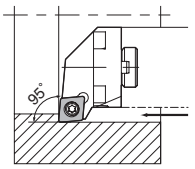
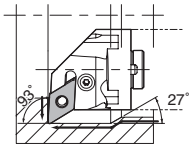
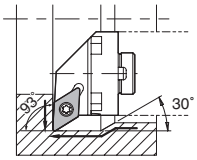
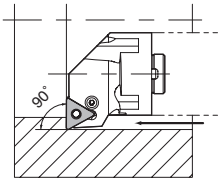
For Min. Bore Dia. øA, the figure under ● may be applied depending on the toolholder type.

Boring Bars

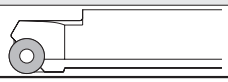
Applications	Boring Bar Type	Shape	Shank Type / Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. DMIN 5	6	7	8	10	12	14	16	18	20	25	30	32	40	50	63	See Page for Toolholders
Boring / Internal Facing	A...DCLN12		Steel L/D=~3	●		Negative													●	●	●		F69
	S...PCLN○○		Steel L/D=~3		○	Negative										●	● 27		●	●	●		F70
	A...PCLN09		Steel L/D=~3	●		Negative										●	● 27		●				
	A...DWLN08		Steel L/D=~3	●		Negative													●	●	●		F79
	S...PWLN○○		Steel L/D=~3		○	Negative										●	● 27		●	●	●		F78 F80
	A...PWLN06		Steel L/D=~3	●		Negative										●	● 27		●				F78
	S...WWLN08-E		Excellent L/D=~5		○	Negative											● 28		● 34	●			F80
	C...STXP(B)		Carbide L/D=~7		○	Positive			● 7.5	● 9	● 11												F53
	C...SJLC		Carbide L/D=~7		○	Positive	● 5.5																F48
Copying	S...STWP-E		Excellent L/D=~5		○	Positive						●		●		●	●		●				F52
	S...STWP		Steel L/D=~3		○	Positive						●		●		●	●						
	A...DDUN15		Steel L/D=~3	●		Negative														●	●	●	F72
	S...PDUN11		Steel L/D=~3		○	Negative											● 27		●	●			F71
	A...PDUN11		Steel L/D=~3	●		Negative											● 27		●	●			
	S...PDUN15		Steel L/D=~3		○	Negative													●	● 44	● 54		F73
	S...PDQN15		Steel L/D=~3		○	Negative													●	● 44	● 54		F73
Back Copying	C...STZB		Carbide L/D=~7		○	Positive				● 8.5													F53
	C...SJZC		Carbide L/D=~7		○	Positive		● 6.5															F48
	S...PDZN15		Steel L/D=~3		○	Negative													●	● 44	● 54		F73
Boring	S...CTUP		Steel L/D=~3		○	Positive								●		●	● 27		● 34	● 43	●		F63
	A...DTFN○○		Steel L/D=~3	●		Negative													●	●	●		F76
	S...PTUN○○		Steel L/D=~3		○	Negative										●	●	●	●	●	●		F77
	A...PTUN11		Steel L/D=~3	●		Negative										●	●		●				
	A...DSKN12		Steel L/D=~3	●		Negative													●	●	●		F75
	S...SSKP		Steel L/D=~3		○	Positive										●	●						F62
	S...CSKP		Steel L/D=~3		○	Positive										●	● 27		● 34	● 43			

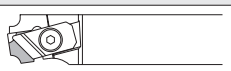
For Min. Bore Dia. øA, the figure under ● may be applied depending on the toolholder type.

AD Bars Interchangeable Head Boring Bars with Anti-vibration Dampener System

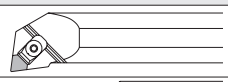
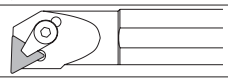
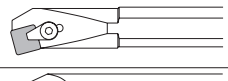
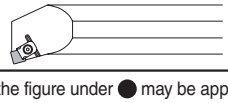
Applications	Boring Bar Type	Shape	Shank Type Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. DMIN 7	8	10	12	14	16	18	20	25	30	32	40	43	50	63	See Page for Toolholders
Boring / Internal Facing	HA-PCLN12		Anti-vibration Dampener System L/D=~5.5	●		Negative												●		●	●	F65
Boring / Internal Facing	HA-SCLC09		Anti-vibration Dampener System L/D=~6	●		Positive												●				F67
Copying	HA-PDUN15		Anti-vibration Dampener System L/D=~6	●		Negative													●	●	●	F66
Copying	HA-SDUC11		Anti-vibration Dampener System L/D=~6	●		Positive												●				F67
Boring	HA-PTFN16		Anti-vibration Dampener System L/D=~6	●		Negative												●		●	●	F66

Boring Toolholders for Bearing Machining (Square Shank)

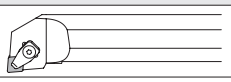
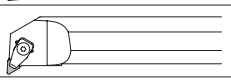
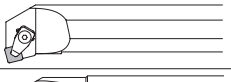
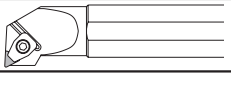
Applications	Boring Bar Type	Shape	Min. Bore Dia. DMIN 20	25	30	32	40	50	See Page for Toolholders
Boring	SRCP-B		●			●			F64

Applications	Boring Bar Type	Shape	Min. Bore Dia. DMIN 20	25	30	32	40	50	See Page for Toolholders
Round-Chamfering	CBSN-B		●						F64

Boring Bars for Ceramic / Solid CBN Tools (L/D=~3)

Applications	Boring Bar Type	Shape	Min. Bore Dia. DMIN 16	18	20	25	30	32	40	50	See Page for Toolholders
Boring / Internal Facing	S-CELN									●	F81
Boring	S-CTUP		●		●	● 27		● 34	● 43	●	F63
Boring	S-CSKP				●	● 27		● 34	● 43		F62
Boring	S-CSKN									●	F81

For Min. Bore Dia. øA, the figure under ● may be applied depending on the toolholder type.

Applications	Boring Bar Type	Shape	Min. Bore Dia. DMIN 20	25	30	32	40	50	See Page for Toolholders
Boring / Internal Facing	S-CCLN-GX						●	●	F82
Boring / Copying	S-CDUN-GX						●	●	F82
Boring	S-CSKN-GX						●	●	F82
Boring / Internal Facing	S-CCLN-A						●		F83
Boring	S-CTUN-A				●				F83

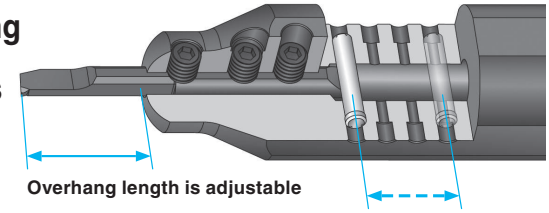
Easy adjustment and high precision EZ Bars

Kyocera's original EZ adjust structure

- Easy adjustment and high precision
- EZ Bars prevent deviation with high-rigidity clamping

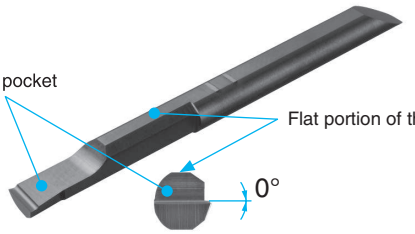
Wide range of items applicable to various applications

Kyocera's original EZ adjust structure



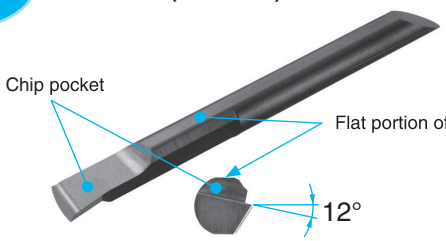
2 types of bars

Precision-oriented — HP (High precision)



F14

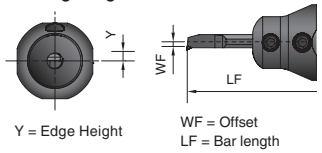
Cost-oriented — ST (Standard)



F16

● Bar Tolerance

Bar setting image



Bar Tolerance	Offset (WF)	Overall length (LF)	Edge Height (Y)	Min. Bore Dia.
Precision-oriented HP (High precision)	±0.025mm	±0.05mm	+0.05/0mm	Same as Shank Dia.
Cost-oriented ST (Standard)	±0.06mm	±0.1mm	+0.06/0mm	Not same as Shank Dia.

* See Page of “Dimension” for details.

Lineup expansion along with the solid type, indexable type "EZ Bar PLUS" is newly added

3 types of sleeve (EZH-CT , EZH-HP , EZH-ST)

EZH-CT

High precision , with coolant hole (Adjustable overhang length)

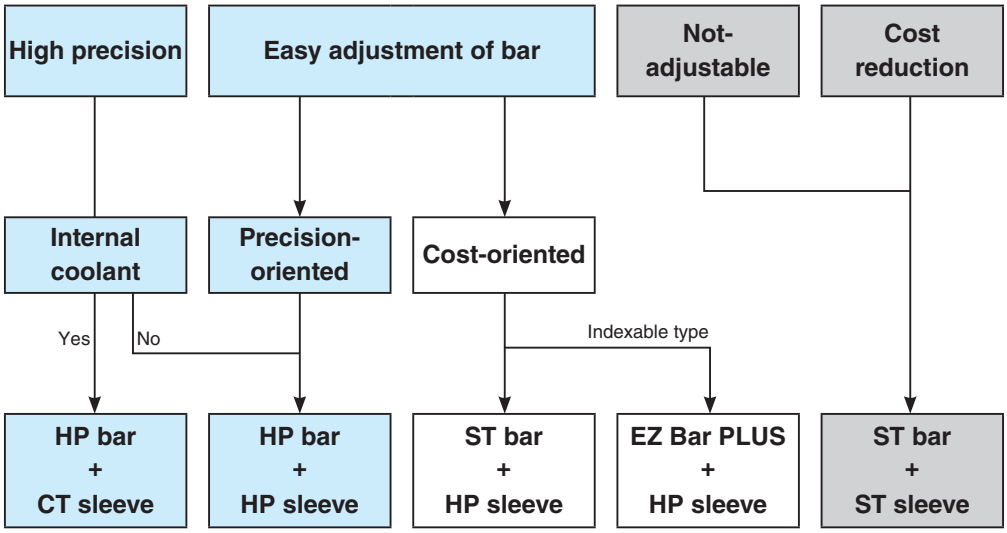
EZH-HP

Overhang length is adjustable (Adjustable overhang length)

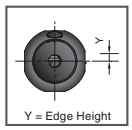
EZH-ST

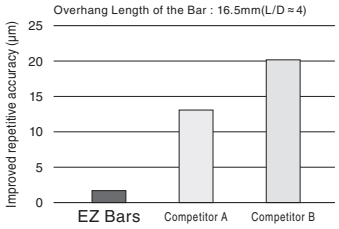
Not-adjustable

How to select bars and sleeves for each application



· Excellent repeat accuracy by the combination of HP bar + CT / HP sleeve

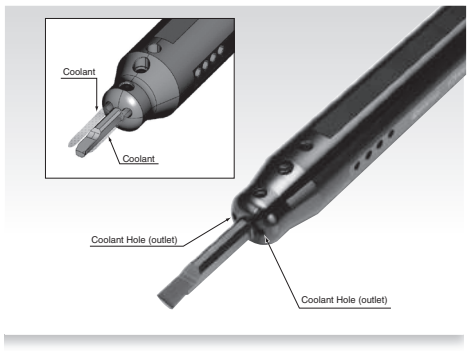




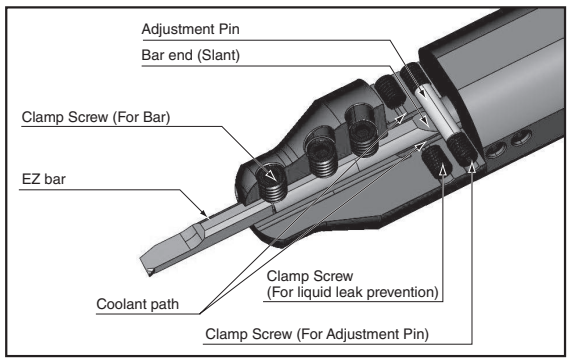
EZH-CT (high precision / with coolant hole) is added in the EZH sleeve lineup

Kyocera's unique EZ adjust structure and internal coolant system improve dimensional accuracy and surface roughness

Coolant discharge system of EZH-CT



Structure of EZH-CT



How to fix EZ Bars (EZH-CT sleeve)

● How to use adjustment pin and prevent liquid leak (Fig. 1)

(1) Put the adjustment pin into the hole according to the overhang length. Push it into the sleeve, using the wrench (LW-1.5).
(2) Tighten the clamp screw for the adjustment pin "HS3X4P" using the wrench "LW-1.5" from the both sides of the sleeve.
(3) Put the clamp screws "HS3X4P" into the holes for liquid leak prevention, using the wrench "LW-1.5" and fix them from the both sides of the sleeve.

● How to fix bar (Fig. 2)

(1) With the chip pocket upward, set the bar into the sleeve. Press the slant of the end of the bar with the adjustment pin. Make sure that the bar does not move (Fig. 3)
(2) Tighten the clamp screw with wrench (LW-2) and fix the bar.
(Use LW-1.5 if shank dia. is 3mm or less)

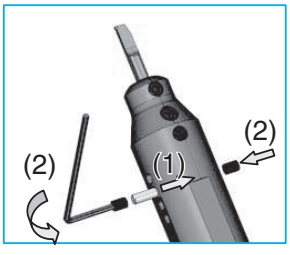


Fig. 1 How to use adjustment pin

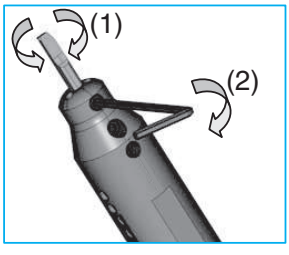


Fig. 2 How to fix bar

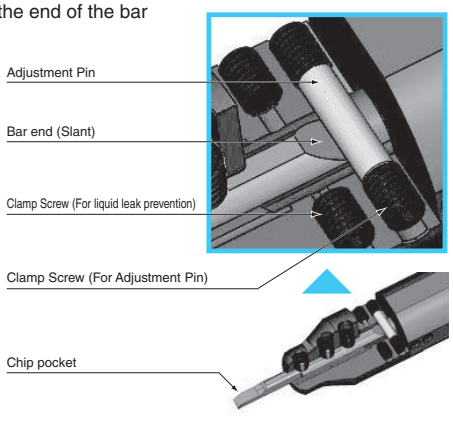
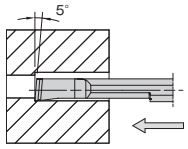


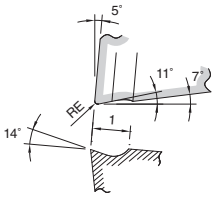
Fig. 3 Fixed bar

EZB-HP (Boring)

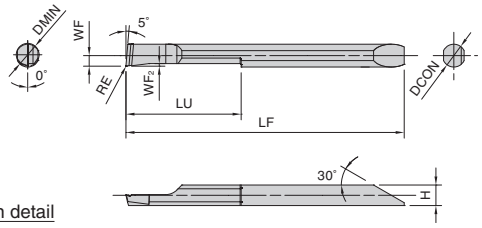


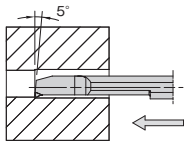
H Chipbreaker
- Without lead angle
- Tough edge (General purpose)

• Right-hand shown



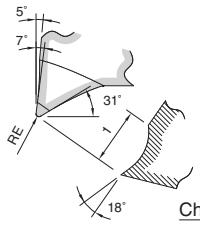
Chipbreaker in detail



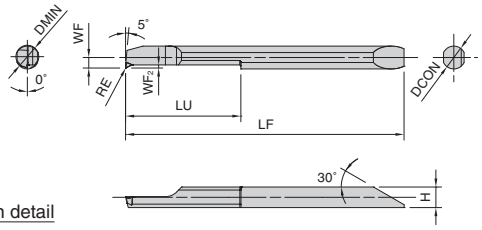


F Chipbreaker
- With lead angle
- Sharp cutting (For finishing)

• Right-hand shown



Chipbreaker in detail



EZ Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)							Grades		Applicable Sleeves
										MEGACOAT	Carbide	
		DMIN	DCON	H	LF	LU	WF	WF_2	RE	PR1225	GW05	F24~F29
EZBR	020020HP-008H	2	2	1.8	32	8	0.85	0.25	0.08 ±0.015	●	●	EZH020…
	025025HP-008H	2.5	2.5	2.3	35	10.5	1.1	0.25	0.08 ±0.015	●		EZH025…
	025025HP-015H								0.15 ±0.02	●		
	030030HP-008H	3	3	2.7	38.9	13	1.35	0.3	0.08 ±0.015	●	●	EZH030…
	030030HP-015H								0.15 ±0.02	●		
	035035HP-008H	3.5	3.5	3.2	41.9	15	1.6	0.4	0.08 ±0.015	●		EZH035…
	035035HP-015H								0.15 ±0.02	●		
	040040HP-008H	4	4	3.6	48.8	20	1.85	0.4	0.08 ±0.015	●	●	EZH040…
	040040HP-015H								0.15 ±0.02	●		
	050050HP-008H	5	5	4.6	58.1	25	2.35	0.5	0.08 ±0.015	●	●	EZH050…
	050050HP-015H								0.15 ±0.02	●		
	060060HP-008H	6	6	5.6	66.1	30	2.85	0.6	0.08 ±0.015	●	●	EZH060…
	060060HP-015H								0.15 ±0.02	●		
EZBR	020020HP-005F	2	2	1.8	32	8	0.85	0.25	0.05 ±0.01	●		EZH020…
	025025HP-005F	2.5	2.5	2.3	35	10.5	1.1	0.3	0.05 ±0.01	●		EZH025…
	025025HP-015F								0.15 ±0.02	●		
	030030HP-005F	3	3	2.7	38.9	13	1.35	0.4	0.05 ±0.01	●		EZH030…
	030030HP-015F								0.15 ±0.02	●		
	035035HP-005F	3.5	3.5	3.2	41.9	15	1.6	0.5	0.05 ±0.01	●		EZH035…
	035035HP-015F								0.15 ±0.02	●		
	040040HP-005F	4	4	3.6	48.8	20	1.85	0.5	0.05 ±0.01	●		EZH040…
	040040HP-015F								0.15 ±0.02	●		
	050050HP-005F	5	5	4.6	58.1	25	2.35	0.7	0.05 ±0.01	●		EZH050…
	050050HP-015F								0.15 ±0.02	●		
	060060HP-005F	6	6	5.6	66.1	30	2.85	0.9	0.05 ±0.01	●		EZH060…
	060060HP-015F								0.15 ±0.02	●		

Tolerance : Offset ±0.025mm (of the reference pin), overall length ±0.05mm, edge height +0.05/0mm

Recommended Cutting Conditions F18

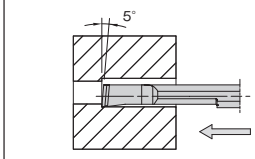
EZ Bars Identification System

EZ	B	R	020	020	HP	-	008	H
Symbol of EZ Bars	Applications	Insert Hand	Min. Bore Dia.	Shank Dia.	Symbol of Precision		Corner-R(RE)	Name of Chipbreaker
	B : Boring Bars	R : Right-hand	020 : 2mm 025 : 2.5mm ⋮	020 : 2mm 025 : 2.5mm ⋮	HP : High Precision ST : Standard		008 : 0.08mm 015 : 0.15mm ⋮	H : Without lead angle F : With lead angle NB : Without chipbreaker

● : Std. Item

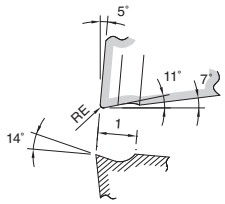
EZ Bars are sold in 1 piece boxes

EZB-HP (Boring, Long Type)

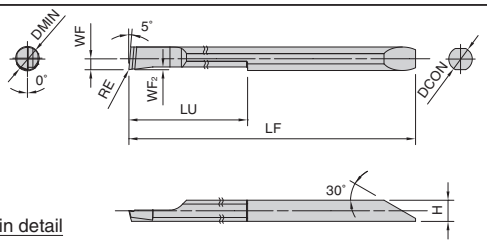


H Chipbreaker
- Without lead angle
- Tough edge (General purpose)

- Right-hand shown



Chipbreaker in detail



EZ Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)											Grades	Applicable Sleeves
							*Overhang Length							MEGACOAT	
		DMIN	DCON	H	LF	LU	No.1	No.2	No.3	No.4	WF	WF_2	RE	PR1225	F24~F29
EZBR	020020HP-008H-LT	2	2	1.8	36	12	12.5	8.5	-	-	0.85	0.25	0.08 ±0.015	●	EZH020…
	025025HP-008H-LT	2.5	2.5	2.3	39.5	15	15.5	11.5	-	-	1.1			●	EZH025…
	030030HP-008H-LT	3	3	2.7	47.9	18	*22.5*	18.5	14.5	-	1.35	0.3		●	EZH030…
	035035HP-008H-LT	3.5	3.5	3.2	51.9	21	*25.5*	21.5	17.5	-	1.6	0.4		●	EZH035…
	040040HP-008H-LT	4	4	3.6	60.8	28	*32.5*	28.5	24.5	20.5	1.85			●	EZH040…
	050050HP-008H-LT	5	5	4.6	73.1	35	*40.5*	35.5	30.5	25.5	2.35	0.5		●	EZH050…
	060060HP-008H-LT	6	6	5.6	83.1	42	*47.5*	42.5	37.5	32.5	2.85	0.6		●	EZH060…

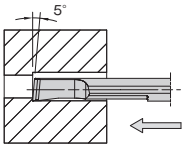
* In case of overhang length mentioned in italics, modified insert is required

Recommended Cutting Conditions F18

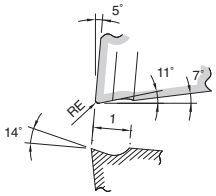
● : Std. Item

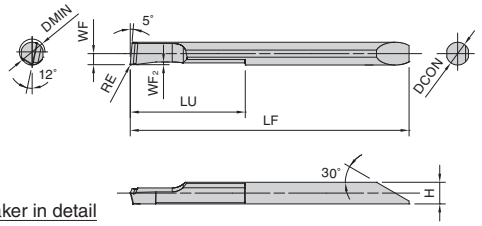
EZ Bars are sold in 1 piece boxes

EZB-ST (Boring)

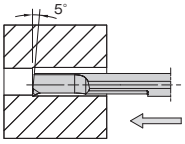


H Chipbreaker
- Without lead angle
- Tough edge (General purpose)
- Right-hand shown

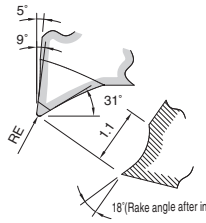


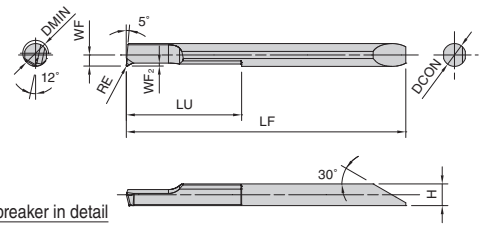


Chipbreaker in detail



F Chipbreaker
- With lead angle
- Sharp cutting (For finishing)
- Right-hand shown





Chipbreaker in detail

EZ Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)							Grades MEGACOAT	Applicable Sleeves F24~F29
		DMIN	DCON	H	LF	LU	WF	WF_2	RE	PR1225	
EZBR	020017ST-008H	2	1.7	1.5	27.3	7	0.79	0.19	0.08 ±0.015	●	EZH017…
	025020ST-008H	2.5	2	1.82	32	8	0.94	0.16	0.08 ±0.015	●	EZH020…
	025020ST-015H								0.15 ±0.02	●	
	030025ST-008H	3	2.5	2.3	35	10.5	1.19	0.15	0.08 ±0.015	●	EZH025…
	030025ST-015H								0.15 ±0.02	●	
	035030ST-008H	3.5	3	2.8	39	13	1.44	0.18	0.08 ±0.015	●	EZH030…
	035030ST-015H								0.15 ±0.02	●	
	040035ST-008H	4	3.5	3.3	42	15	1.69	0.24	0.08 ±0.015	●	EZH035…
	040035ST-015H								0.15 ±0.02	●	
	045040ST-008H	4.5	4	3.8	49	20	1.94	0.27	0.08 ±0.015	●	EZH040…
	045040ST-015H								0.15 ±0.02	●	
	055050ST-008H	5.5	5	4.8	58.2	25	2.44	0.33	0.08 ±0.015	●	EZH050…
	055050ST-015H								0.15 ±0.02	●	
	065060ST-008H	6.5	6	5.8	66.2	30	2.94	0.38	0.08 ±0.015	●	EZH060…
	065060ST-015H								0.15 ±0.02	●	
	075070ST-008H	7.5	7	6.8	74.2	35	3.44	0.44	0.08 ±0.015	●	EZH070…
	075070ST-015H								0.15 ±0.02	●	
EZBR	020017ST-005F	2	1.7	1.5	27.3	7	0.79	0.2	0.05 ±0.01	●	EZH017…
	025020ST-005F	2.5	2	1.82	32	8	0.94	0.16	0.05 ±0.01	●	EZH020…
	025020ST-015F								0.15 ±0.02	●	
	030025ST-005F	3	2.5	2.3	35	10.5	1.19	0.2	0.05 ±0.01	●	EZH025…
	030025ST-015F								0.15 ±0.02	●	
	035030ST-005F	3.5	3	2.8	39	13	1.44	0.26	0.05 ±0.01	●	EZH030…
	035030ST-015F								0.15 ±0.02	●	
	040035ST-005F	4	3.5	3.3	42	15	1.69	0.33	0.05 ±0.01	●	EZH035…
	040035ST-015F								0.15 ±0.02	●	
	045040ST-005F	4.5	4	3.8	49	20	1.94	0.31	0.05 ±0.01	●	EZH040…
	045040ST-015F								0.15 ±0.02	●	
	055050ST-005F	5.5	5	4.8	58.2	25	2.44	0.45	0.05 ±0.01	●	EZH050…
	055050ST-015F								0.15 ±0.02	●	
	065060ST-005F	6.5	6	5.8	66.2	30	2.94	0.59	0.05 ±0.01	●	EZH060…
	065060ST-015F								0.15 ±0.02	●	
	075070ST-005F	7.5	7	6.8	74.2	35	3.44	0.65	0.05 ±0.01	●	EZH070…
	075070ST-015F								0.15 ±0.02	●	

Tolerance : Offset ±0.06mm , overall length ±0.1mm, edge height +0.06/0mm

Recommended Cutting Conditions F18

● : Std. Item

EZ Bars are sold in 1 piece boxes

EZB-NB (Boring)

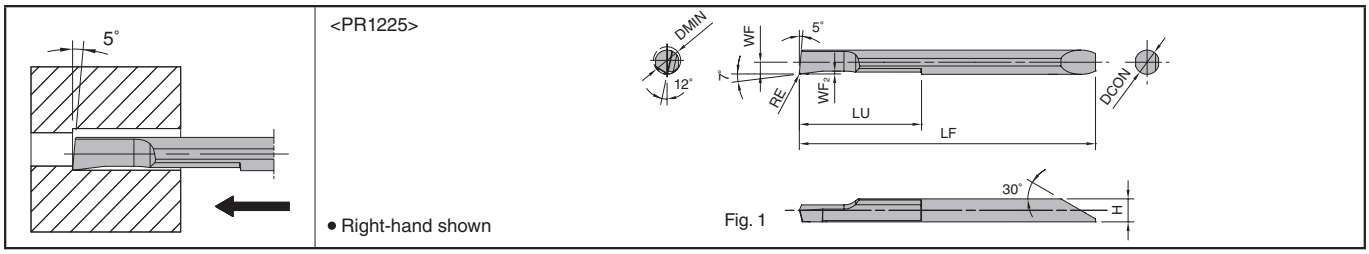


Fig. 1

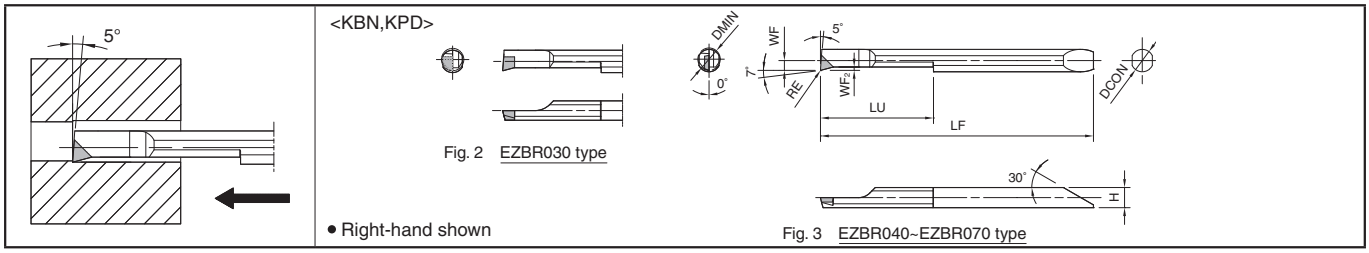


Fig. 2 EZBR030 type

Fig. 3 EZBR040~EZBR070 type

EZ Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)							Drawing	Grades			Applicable Sleeves ➡ F24~F29
											MEGA COAT	MEGA COAT CBN	PCD	
		DMIN	DCON	H	LF	LU	WF	WF_2	RE		PR1225	KBN05M	KPD001	
EZBR	020017-005NB	2	1.7	1.5	27.3	7	0.79	0.2	±0.015 0.05	Fig. 1	●			EZH017…
	025020-005NB	2.5	2	1.82	32	8	0.94	0.16			●			EZH020…
	030025-005NB	3	2.5	2.3	35	10.5	1.19	0.16			●			EZH025…
	035030-005NB	3.5	3	2.8	39	13	1.44	0.19			●			EZH030…
	040035-005NB	4	3.5	3.3	42	15	1.69	0.25			●			EZH035…
	045040-005NB	4.5	4	3.8	49	20	1.94	0.28			●			EZH040…
	055050-005NB	5.5	5	4.8	58.2	25	2.44	0.33			●			EZH050…
	065060-005NB	6.5	6	5.8	66.2	30	2.94	0.39			●			EZH060…
	075070-005NB	7.5	7	6.8	74.2	35	3.44	0.45			●			EZH070…
EZBR	030030-003NB	3	3	2.6	38.8	13	1.25	0.3	±0.015 0.035	Fig. 2		●		EZH030…
	040040-003NB	4	4	3.6	48.8	20	1.75	0.5		Fig. 3		●		EZH040…
	050050-003NB	5	5	4.6	58.1	25	2.25					●		EZH050…
	060060-003NB	6	6	5.6	66.1	30	2.75					●		EZH060…
	070070-003NB	7	7	6.6	74.1	35	3.25					●		EZH070…
EZBR	040040-003NB	4	4	3.6	48.8	20	1.75	0.5	±0.015 0.035	Fig. 3			●	EZH040…
	050050-003NB	5	5	4.6	58.1	25	2.25						●	EZH050…
	060060-003NB	6	6	5.6	66.1	30	2.75						●	EZH060…
	070070-003NB	7	7	6.6	74.1	35	3.25						●	EZH070…

Recommended Cutting Conditions ➡ F18

Edge Preparation

Grades	Edge Preparation	Remarks
PR1225	Sharp Edge	-
KBN05M	T00815	0.08mm x 15° Chamfered Cutting Edge
KPD001	Sharp Edge	-

● : Std. Item

EZ Bars are sold in 1 piece boxes

Recommended Cutting Conditions

H Chipbreaker (EZB-HP-H / EZB-ST-H)

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)		EZB020/025 type		EZB030/035 type		EZB040/045 type		EZB050/055/060/065/075 type		Remarks
	MEGACOAT	Carbide	ap (mm), f (mm/rev)								
	PR1225	**GW05**	ap	f	ap	f	ap	f	ap	f	
Carbon Steel / Alloy Steel	30~100	-	~0.3	~0.03	~0.4	~0.04	~0.45	~0.07	~0.5	~0.1	Coolant
Stainless Steel	30~80	-	~0.2	~0.02	~0.3	~0.03	~0.35	~0.05	~0.4	~0.07	
Non-ferrous Metals	-	~100	~0.3	~0.05	~0.4	~0.06	~0.45	~0.1	~0.5	~0.15	

H Chipbreaker [EZB-HP-H-LT (Long type)]

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)	EZB020/025/030/035 type		EZB040/050/060 type		Remarks
	MEGACOAT	ap (mm), f (mm/rev)				
	PR1225	ap	f	ap	f	
Carbon Steel / Alloy Steel	30~60	~0.3	~0.05	~0.4	~0.1	Coolant
Stainless Steel	20~40	~0.25	~0.05	~0.3	~0.07	

F Chipbreaker (EZB-HP-F / EZB-ST-F)

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)	EZB020/025 type		EZB030/035 type		EZB040/045 type		EZB050/055/060/065/075 type		Remarks
	MEGACOAT	ap (mm), f (mm/rev)								
	PR1225	ap	f	ap	f	ap	f	ap	f	
Carbon Steel / Alloy Steel	30~100	~0.2	~0.03	~0.2	~0.05	~0.3	~0.07	~0.3	~0.07	Coolant
Stainless Steel	30~80	~0.2	~0.02	~0.2	~0.03	~0.25	~0.05	~0.25	~0.05	

NB (Without chipbreaker)

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)	EZB020/025 type		EZB030/035 type		EZB040/045 type		EZB050/055/060/065/075 type		Remarks
	MEGACOAT	ap (mm), f (mm/rev)								
	PR1225	ap	f	ap	f	ap	f	ap	f	
Carbon Steel / Alloy Steel	30~100	~0.3	~0.03	~0.4	~0.04	~0.45	~0.07	~0.5	~0.1	Coolant
Stainless Steel	30~80	~0.2	~0.02	~0.3	~0.03	~0.35	~0.05	~0.4	~0.07	
Non-ferrous Metals	60~100	~0.3	~0.05	~0.4	~0.06	~0.45	~0.07	~0.5	~0.1	

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)		EZB030 type		EZB040/045 type		EZB050/060/070 type		Remarks
	MEGACOAT CBN	PCD	ap (mm), f (mm/rev)						
	KBN05M	**KPD001**	ap	f	ap	f	ap	f	
Non-ferrous Metals	-	~300	-	-	~0.45	~0.1	~0.5	~0.15	Coolant
Hard Materials	~100	-	~0.07	~0.03	~0.10	~0.05	~0.15	~0.07	

Compatibility of EZ Bars

EZ Bars are compatible with conventional Tip-Bars.

Sleeve \ Insert	EZB-HP	EZB-ST/NB	HPB (Discontinued Description)
EZH-CT/HP	✓	✓	✓*1 *2 (Compatible)
EZH-ST	✓	✓	✓*1 (Compatible)
PSH (Discontinued Description)	✓*1 (Compatible)	✓*1 (Compatible)	✓

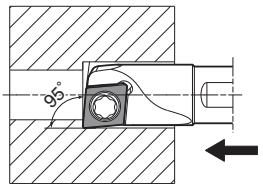
*1 Some diameter types of conventional Tip-Bars are incompatible.

*2 Use them without Adjustment Pins. Overhang length of bar is not adjustable.

EZ Bar PLUS (Indexable boring bar)

S-SCLC-EZ(P) NEW

Max. Overhang Length L/D=~3



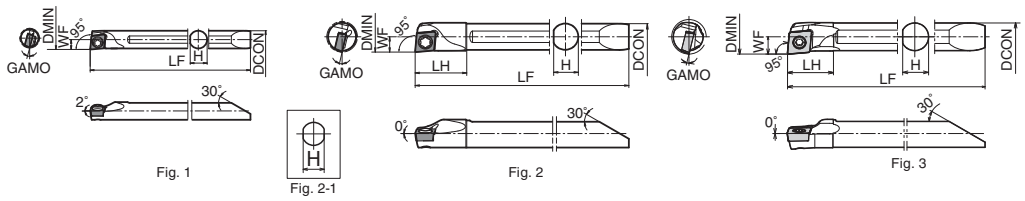


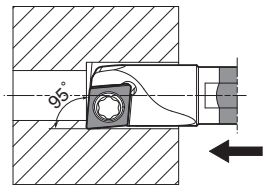
Fig. 1 Fig. 2-1 Fig. 2 Fig. 3

• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

C-SCLC-EZ(P) NEW

Max. Overhang Length L/D=~5



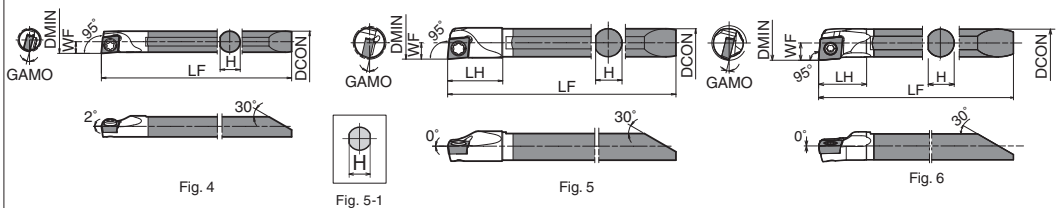


Fig. 4 Fig. 5-1 Fig. 5 Fig. 6

• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

	Description	Stock	Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeves F27
		R	DMIN	DCON	H	LF	LH	WF					Clamp Screw	Wrench	
Steel	S045X-SCLCR03-050EZ	●	5	4.5	4.3	42.4	-	2.5	15°	0.2	No	Fig. 1	SB-1635TR	FT-6	EZH045…
	S045X-SCLCR03-050EZP	●													
	S050X-SCLCR03-060EZP	●	6	5	4.7	48.4	9	3	13°			Fig. 2			EZH050…
	S060X-SCLCR04-070EZ	●	7	6	5.4	53.9	11.8	3.5				Fig. 2-1	SB-2035TR		EZH060…
	S060X-SCLCR04-070EZP	●			5.7	54.4	10					Fig. 2			
	S070X-SCLCR04-080EZP	●	8	7	6.7	60.4	10.3	4	11°						EZH070…
	S080X-SCLCR06-100EZP	●	10	8	7.5	69.5	13.3	5	14°	0.4		Fig. 3	SB-2545TR	FT-8	EZH080…
Carbide	C045X-SCLCR03-050EZ	●	5	4.5	4.3	51.4	-	2.5	15°	0.2	No	Fig. 4	SB-1635TR	FT-6	EZH045…
	C045X-SCLCR03-050EZP	●													
	C050X-SCLCR03-060EZP	●	6	5	4.7	58.4	9	3	13°			Fig. 5			EZH050…
	C060X-SCLCR04-070EZ	●	7	6	5.4	65.9	11.8	3.5				Fig. 5-1	SB-2035TR		EZH060…
	C060X-SCLCR04-070EZP	●			5.7	66.4	10					Fig. 5			
	C070X-SCLCR04-080EZP	●	8	7	6.7	74.4	11	4	11°						EZH070…
	C080X-SCLCR06-100EZP	●	10	8	7.5	85.5	14	5	14°	0.4		Fig. 6	SB-2545TR	FT-8	EZH080…

Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Finishing - Medium	Finishing
See Page	B53	B53	B53	B54	B54	B54	B54	B54, B55	B53, B54	B56
Insert / Toolholder Description	CF	PF	GF	WP(Wiper)	PP	GK	HQ	Standard	GQ	L-F
...-SCLCR03-...	CCGT0301..	CCGT0301..	-	-	-	-	-	-	-	CCGT0301..
...-SCLCR04-...	CCGT0401..	CCGT0401..	-	-	-	-	-	-	-	CCGT0401..
...-SCLCR06-...	-	CCGT0602..	CCGT0602..	CCMT0602..	CCMT0602..	CCMT0602..	CCMT0602..	CCGT0602..	CCGT0602..	-

Applications	Finishing / Precision	Low Feed	Low Feed / Precision	Cast Iron	Non-ferrous Metals	Hard Materials				
See Page	B55	B57, B58	B57	B60	C24	C14				
Insert / Toolholder Description	L-FSF	(E/F) L-U	FL-USF	Without chipbreaker	PCD	CBN				
...-SCLCR03-...	CCET0301..	-	-	-	-	CCMW0301..				
...-SCLCR04-...	CCET0401..	-	-	-	CCGW0401..	CCMW0401..				
...-SCLCR06-...	-	CCGT0602..	CCET0602..	CCGW0602..	CCMT0602.. CCGW0602..	CCMW0602..				

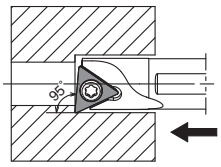
● : Std. Item

Recommended Cutting Conditions F94~F95
Applicable Sleeves F84~F88

EZ Bar PLUS (Indexable boring bar)

S-STLB(P)-EZP NEW

Max. Overhang Length L/D=~3



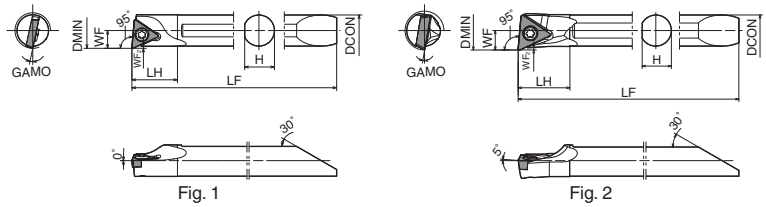


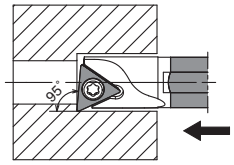
Fig. 1 Fig. 2

• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

C-STLB(P)-EZP NEW

Max. Overhang Length L/D=~5



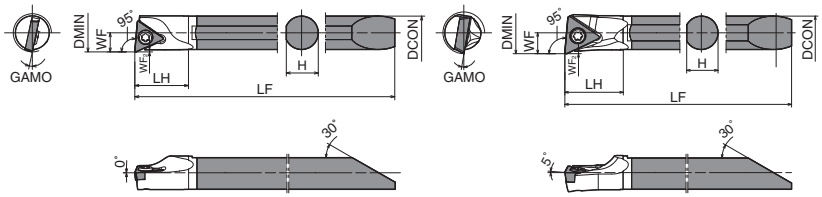


Fig. 3 Fig. 4

• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

	Description	Stock	Min. Bore Dia.	Dimension (mm)						GAMO	Std. Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeves
														Clamp Screw	Wrench	
		R	DMIN	DCON	H	LF	LH	WF	WF_2							
Steel	S070X-STLBR06-080EZP*	●	8	7	6.7	60.4	10.3	4	0.4	12°	0.2	No	Fig. 1	SB-2035TR	FT-6	EZH070…
Steel	S080X-STLPR09-100EZP	●	10	8	7.5	69.5	13.3	5	0.5	10°	0.4	No	Fig. 2	SB-2545TR	FT-8	EZH080…
Carbide	C070X-STLBR06-080EZP*	●	8	7	6.7	74.4	11	4	0.4	12°	0.2	No	Fig. 3	SB-2035TR	FT-6	EZH070…
Carbide	C080X-STLPR09-100EZP	●	10	8	7.5	85.5	14	5	0.5	10°	0.4	No	Fig. 4	SB-2545TR	FT-8	EZH080…

* TB□□060108.. type inserts can not be used.

Applicable Inserts

Applications	Minute ap	Finishing	* Finishing	Finishing	* Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Medium
See Page	B76, B80	B76, B80	B80	B80	B85	B81	B76	B81	B76, B82, B83	B84
Insert / Toolholder Description	CF	PF	WP(Wiper)	PP	R-P	GP	DP	HQ	L	L-H
...-STLBR06-...	TBGT0601..	TBGT0601..	-	-	-	-	TBMT0601..	-	TBGT0601..	-
...-STLPR09-...	TPGT0902..	TPGT0902..	TPMX0902..	TPMT0902..	TPEH0902..	TPMT0902..	-	TPMT0902..	TPGH0902..	TPGH0902..

Applications	Soft Steel / Finishing	Cast Iron	Non-ferrous Metals	Hard Materials
See Page	B81	B76, B86	C26, C27	C16
Insert / Toolholder Description	XP	Without chipbreaker	PCD	CBN
...-STLBR06-...	-	TBGW0601..	TBMT0601.. TBGW0601..	-
...-STLPR09-...	TPMT0902..	TPGB0902..	TPMH0902.. TPGB0902..	TPGB0902..

* Use Right-handed P Chipbreaker

For WP chipbreaker, cutting edge offsets or program corrections are required. R35

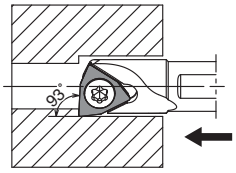
Recommended Cutting Conditions F94~F95
Applicable Sleeves F84~F88

● : Std. Item

EZ Bar PLUS (Indexable boring bar)

S-SWUB-EZP NEW

Max. Overhang Length L/D=~3



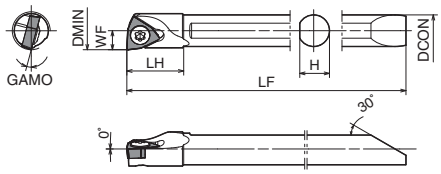


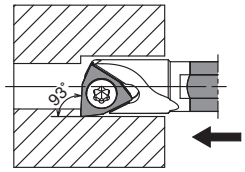
Fig.1

• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

C-SWUB-EZP NEW

Max. Overhang Length L/D=~5



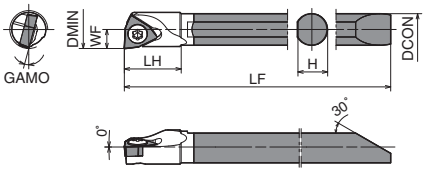


Fig.2

• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

	Description	Stock	Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeves ➡F27
													Clamp Screw	Wrench	
		R	DMIN	DCON	H	LF	LH	WF							
Steel	S050X-SWUBR06-060EZP	●	6	5	4.7	48.4	9	3	15°	0.2	No	Fig. 1	SB-2035TR	FT-6	EZH050…
	S060X-SWUBR06-070EZP	●	7	6	5.7	54.4	10	3.5	13°						EZH060…
	S070X-SWUBR08-080EZP	●	8	7	6.7	60.4	10.3	4	15°						EZH070…
Carbide	C050X-SWUBR06-060EZP	●	6	5	4.7	58.4	9	3	15°	0.2	No	Fig. 2	SB-2035TR	FT-6	EZH050…
	C060X-SWUBR06-070EZP	●	7	6	5.7	66.4	10	3.5	13°						EZH060…
	C070X-SWUBR08-080EZP	●	8	7	6.7	74.4	11	4	15°						EZH070…

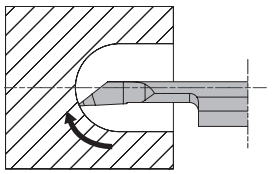
Applicable Inserts

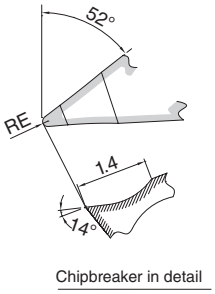
Applications	Minute ap	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hard Materials
See Page	B97	B97	B97	B98	B98	B98	C29	C18
Insert / Toolholder Description	CF	PF	L-DP	L-P	L-F	Without chipbreaker	PCD	CBN
...-SWUBR06-...	WBGT0601..	WBGT0601..	WBMT0601..	-	WBGT0601..	WBGW0601..	WBMT0601..	WBGW0601..
...-SWUBR08-...	-	WBGT0802..	WBMT0802..	WBET0802..	WBGT0802..	WBGW0802..	WBMT0802..	WBGW0802..

Recommended Cutting Conditions ➡F94~F95
Applicable Sleeves ➡F84, F85, F87, F88

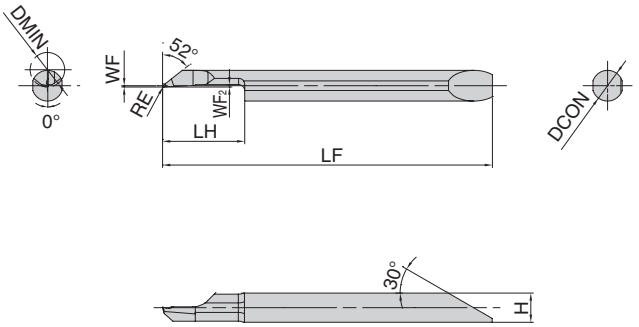
● : Std. Item

EZVB (Boring / Internal Facing / Copying) NEW





Chipbreaker in detail



• Right-hand shown

EZ Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)							Grades MEGACOAT	Applicable Sleeves F25~F29
		DMIN	DCON	H	LF	LH	WF	WF_2	RE	PR1225	
EZVBR	035030-010	3.5	3	2.8	38	8	0.17	0.22	0.1 ±0.015	●	EZH030…
	045040-010	4.5	4	3.8	43	10	0.17	0.26	0.1 ±0.015	●	EZH040…
	055050-010	5.5	5	4.8	50.2	12	0.17	0.29	0.1 ±0.015	●	EZH050…
	065060-010	6.5	6	5.8	55.2	14	0.17	0.32	0.1 ±0.015	●	EZH060…

Recommended Cutting Conditions

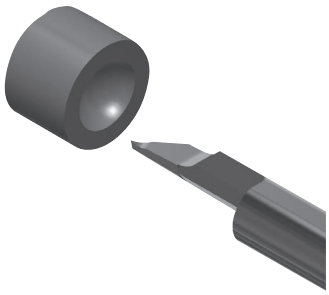
Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)	EZVB035 type		EZVB045 type		EZVB055/065 type		Remarks
	MEGACOAT	ap (mm), f (mm/rev)						
	PR1225	ap	f	ap	f	ap	f	
Carbon Steel / Alloy Steel	30~100	~0.05	~0.04	~0.07	~0.07	~0.1	~0.07	Coolant
Stainless Steel	30~80	~0.03	~0.03	~0.05	~0.05	~0.07	~0.05	

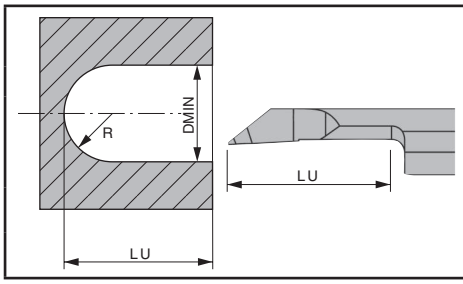
EZ Bars are sold in 1 piece boxes

● : Std. Item

Application of EZVB

1. Application Range



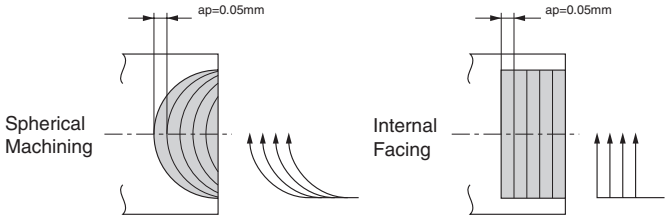


(mm)

Description		Min. Bore Dia. DMIN	R	LU
EZVBR	035030-010	3.5	1.75	8
	045040-010	4.5	2.25	10
	055050-010	5.5	2.75	12
	065060-010	6.5	3.25	14

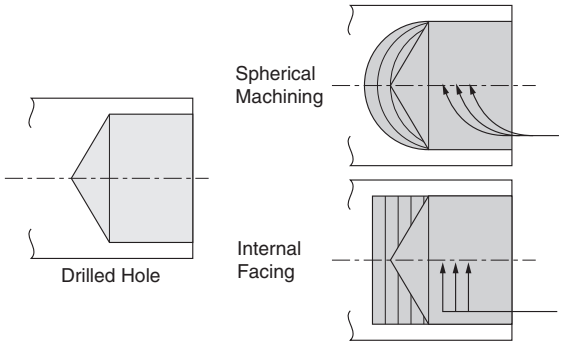
2. Application

Case with No Existing Hole



(Note) f shall be 0.03mm/rev or less at internal facing.

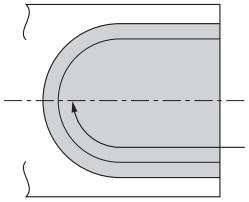
Case with Drilled Hole



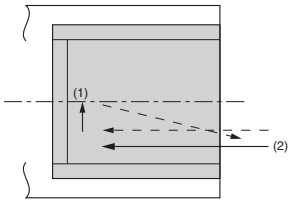
(Note) f shall be 0.03mm/rev or less at internal facing.

Finishing

Spherical Machining

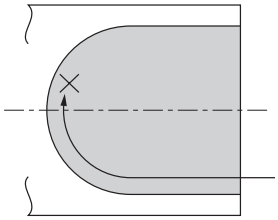


Internal Facing

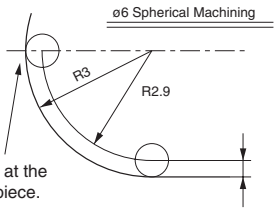


Machining Process
(1) Finish the internal face first.
(2) Next, finish the internal diameter.

3. Caution

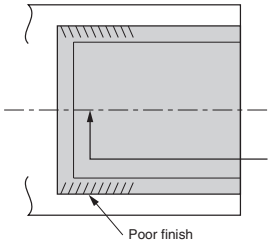


When machining past the center of the workpiece, insert may break.



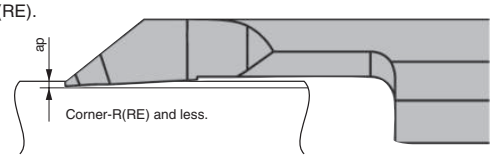
Fix the insert edge at the center of the workpiece.

Adjust the machining program to radius minus the value of corner-R (RE).



This type of machining is possible, but the chips might scratch the surface.

For internal profiling, ap should be less than the value of Corner-R(RE).



[Burrs may occur, if ap is bigger than Corner-R(RE)]

EZH-CT sleeve

Adjustable with Coolant Hole

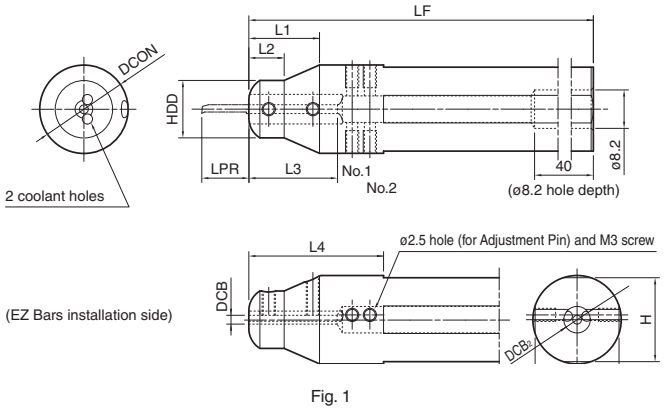


Fig. 1

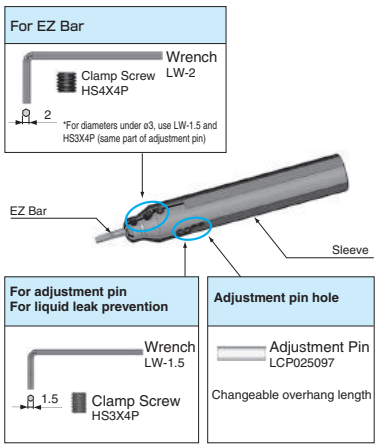
Sleeve Dimensions

Description		Stock	Dimension (mm)										Overhang Length of the Bar *2LPR(mm) Adjustment Pin Setting Position				Drawing	Applicable EZ Bars F14~F17 J30
			DCB	DCON	HDD	DCB_2	H	LF	L1	L2	*1L3	L4	No.1	No.2	No.3	No.4		
EZH	01719CT-120	●	1.7	19.05	13	6	18	120	16	8	16	30.5	7.5	3.5	-	-	Fig. 1	EZBR…017…
	01720CT-120	●		20			19	120										
	01722CT-135	●		22			21	135				41.5						
	01725.0CT-135	●		25			24	135				30.5						
	01725.4CT-120	●		25.4			24.4	120										
EZH	02019CT-120	●	2	19.05	13	6	18	120	16	8	20	30.5	8.5	4.5	-	-	Fig. 1	EZBR…020…
	02020CT-120	●		20			19	120										
	02022CT-135	●		22			21	135				41.5						
	02025.0CT-135	●		25			24	135				30.5						
	02025.4CT-120	●		25.4			24.4	120										
EZH	02519CT-120	●	2.5	19.05	13	6	18	120	16	8	20	30.5	11	7	-	-	Fig. 1	EZBR…025… EZTR…025-…
	02520CT-120	●		20			19	120										
	02522CT-135	●		22			21	135				41.5						
	02525.0CT-135	●		25			24	135				30.5						
	02525.4CT-120	●		25.4			24.4	120										

*1. L3 shows DCB length.
*2. LPR shows Overhang length of the EZB Bar when attached to sleeve.
· Choose sleeves (DCB) to meet with DCON dimension of bar.
· ø8.2 hole on the sleeve end is prepared hole for Rc1/8 threading. Please modify by additional processing if necessary. The body hardness is 42HRC.

Spare Parts Description (for EZH-CT Sleeves)

Description		Spare Parts: Adjustment Pin	Clamp Screw (for adjustment pin)	Wrench	Clamp Screw (for bar)	Wrench
EZH	017...CT-..	LCP025097	HS3X4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS3X4P	LW-1.5 Tightening Torque 1N·m
	020...CT-..					
	025...CT-..					
	030...CT-..					
EZH	035...CT-..	LCP025097	HS3X4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS4X4P (for bar)	LW-2 Tightening Torque 2N·m
	040...CT-..					
	050...CT-..					
	060...CT-..					
	070...CT-..					



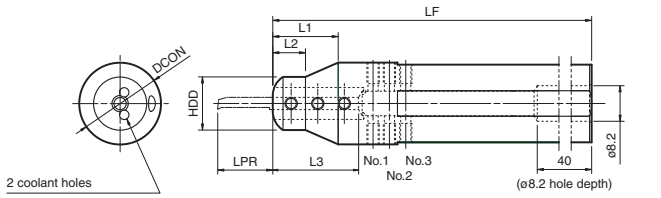
1) If shank dia. is ø2.5mm or less, Use clamp screw (HS3X4P)
For adjustment pin 2 pcs
For liquid leak prevention 2 pcs
For EZ Bar 2 pcs

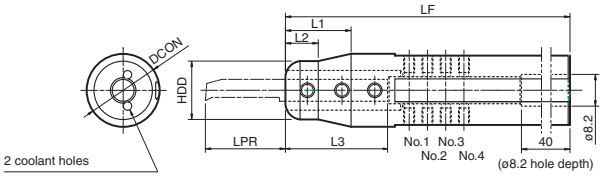
2) If shank dia. is ø3mm, Use clamp screw (HS3X4P)
For adjustment pin 2 pcs
For liquid leak prevention 4 pcs
For EZ Bar 3 pcs

● : Std. Item

EZH-CT sleeve

Adjustable with Coolant Hole





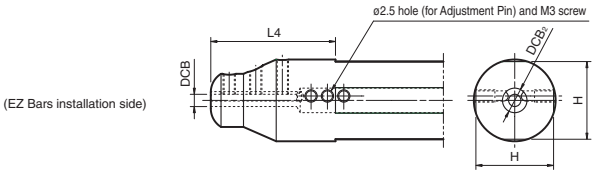
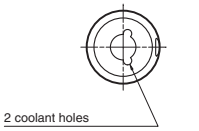


Fig. 2



EZH07..CT coolant hole shape is as shown on the figure above.

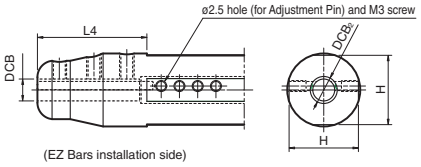


Fig. 3

Sleeve Dimensions

Description		Stock	Dimension (mm)										Overhang Length of the Bar *2LPR(mm) Adjustment Pin Setting Position				Drawing	Applicable EZ Bars / EZ Bar PLUS
			DCB	DCON	HDD	DCB_2	H	LF	L1	L2	*1L3	L4	No.1	No.2	No.3	No.4		
EZH	03019CT-120	●	3	19.05	13	6	18	120	16	8	21	30.5	13.5	9.5	5.5	-	Fig. 2	➡ F14~F17 F19~F22 ➡ G49, G74 ➡ J30
	03020CT-120	●		20			19	120										EZBR…030… EZVBR…030-… EZGR…030-… EZTR…030-…
	03022CT-135	●		22			21	135				41.5						
	03025.0CT-135	●		25			24	135				30.5						
	03025.4CT-120	●		25.4			24.4	120										
EZH	03519CT-120	●	3.5	19.05	13	6	18	120	16	8	21	31.1	15.5	11.5	7.5	-	Fig. 2	EZBR…035… EZTR…035-…
	03520CT-120	●		20			19	120										
	03522CT-135	●		22			21	135				41.5						
	03525.0CT-135	●		25			24	135				31.1						
	03525.4CT-120	●		25.4			24.4	120										
EZH	04019CT-120	●	4	19.05	13	6	18	120	16	8	22	32.7	20.5	16.5	12.5	8.5	Fig. 3	EZBR…040… EZVBR…040-… EZGR…040-… EZFGR…040-… EZTR…040-…
	04020CT-120	●		20			19	120										
	04022CT-135	●		22			21	135				41.5						
	04025.0CT-135	●		25			24	135				32.7						
	04025.4CT-120	●		25.4			24.4	120										
EZH	05019CT-120	●	5	19.05	16	6	18	120	18	9	26	30.0	25.5 (15.5)	20.5 (10.5)	15.5 (–)	10.5 (–)	Fig. 3	EZBR…050… EZVBR…050-… EZGR…050-… EZFGR…050-… EZTR…050-… _050X-…-060EZP
	05020CT-120	●		20			19	120										
	05022CT-135	●		22			21	135				44.0						
	05025.0CT-135	●		25			24	135				30.0						
	05025.4CT-120	●		25.4			24.4	120										
EZH	06019CT-120	●	6	19.05	16	7.4	18	120	18	9	28	30.0	30.5 (18.5)	25.5 (13.5)	20.5 (–)	15.5 (–)	Fig. 3	EZBR…060… EZVBR…060-… EZGR…060-… EZTR…060-… _060X-…-070EZ(P)
	06020CT-120	●		20			19	120										
	06022CT-135	●		22			21	135				41.5						
	06025.0CT-135	●		25			24	135				30.0						
	06025.4CT-120	●		25.4			24.4	120										
EZH	07019CT-120	●	7	19.05	16	7.4	18	120	18	9	29	30.0	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (–)	Fig. 3	EZBR…070… EZGR…070-… EZFGR…070-… EZTR…070-… _070X-…-080EZP
	07020CT-120	●		20			19	120										
	07022CT-135	●		22			21	135				44.0						
	07025.0CT-135	●		25			24	135				30.0						
	07025.4CT-120	●		25.4			24.4	120										

*1. L3 shows DCB length.
*2. LPR shows Overhang length of the EZB Bar when attached to sleeve. ( ) value indicates the overhang length when installed the steel boring bar (EZ Bar PLUS).
· Choose sleeves (DCB) to meet with DCON dimension of bar.
· ø8.2 hole on the sleeve end is prepared hole for Rc1/8 threading. Please modify by additional processing if necessary. The body hardness is 42HRC.

◆ For how to fix EZ Bars (EZH-CT sleeve), please refer to F13.

● : Std. Item

EZH-HP sleeve

Adjustable

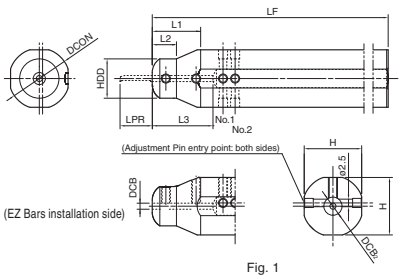


Fig. 1

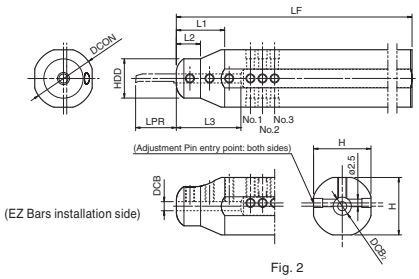


Fig. 2

Description		Stock	Dimension (mm)									Overhang Length of the Bar *2 LPR(mm) Adjustment Pin Setting Position				Drawing	Applicable EZ Bars ➡ F14~F17, F22 ➡ G49, G74 ➡ J30
			DCB	DCON	HDD	DCB2	H	LF	L1	L2	*1L3	No.1	No.2	No.3	No.4		
EZH	01716HP-100	●	1.7	16	13	6	15	100	16	8	16	7.5	3.5	-	-	Fig. 1	EZBR…017…
	01719HP-120	●		19.05			18	120									
	01720HP-120	●		20			19	120									
	01722HP-135	●		22			21	135									
	01725.0HP-135	●		25			24	135									
	01725.4HP-120	●		25.4			24.4	120									
EZH	02016HP-100	●	2	16	13	6	15	100	16	8	20	8.5	4.5	-	-	Fig. 1	EZBR…020…
	02019HP-120	●		19.05			18	120									
	02020HP-120	●		20			19	120									
	02022HP-135	●		22			21	135									
	02025.0HP-135	●		25			24	135									
	02025.4HP-120	●		25.4			24.4	120									
EZH	02516HP-100	●	2.5	16	13	6	15	100	16	8	20	11	7	-	-	Fig. 1	EZBR…025… EZTR…025-…
	02519HP-120	●		19.05			18	120									
	02520HP-120	●		20			19	120									
	02522HP-135	●		22			21	135									
	02525.0HP-135	●		25			24	135									
	02525.4HP-120	●		25.4			24.4	120									
EZH	03016HP-100	●	3	16	13	6	15	100	16	8	21	13.5	9.5	5.5	-	Fig. 2	EZBR…030… EZVBR…030-… EZGR…030-… EZTR…030-…
	03019HP-120	●		19.05			18	120									
	03020HP-120	●		20			19	120									
	03022HP-135	●		22			21	135									
	03025.0HP-135	●		25			24	135									
	03025.4HP-120	●		25.4			24.4	120									
EZH	03516HP-100	●	3.5	16	13	6	15	100	16	8	22	15.5	11.5	7.5	-	Fig. 2	EZBR…035… EZTR…035-…
	03519HP-120	●		19.05			18	120									
	03520HP-120	●		20			19	120									
	03522HP-135	●		22			21	135									
	03525.0HP-135	●		25			24	135									
	03525.4HP-120	●		25.4			24.4	120									
EZH	04016HP-100	●	4	16	13	6	15	100	16	8	24	20.5	16.5	12.5	8.5	Fig. 4	EZBR…040… EZVBR…040-… EZGR…040-… EZFGR…040-… EZTR…040-…
	04019HP-120	●		19.05			18	120									
	04020HP-120	●		20			19	120									
	04022HP-135	●		22			21	135									
	04025.0HP-135	●		25			24	135									
	04025.4HP-120	●		25.4			24.4	120									

*1. L3 shows DCB length.
*2. LPR shows Overhang length of the EZB Bar when attached to sleeve.
· Choose sleeves (DCB) to meet with DCON dimension of bar.

Sleeve Identification System

EZ H 017 16 HP - 100

Symbol of EZ Bars	Applications	Shank Dia. of EZ Bars	Sleeve Shank Dia.	Symbol of Precision		Overall length of sleeve
	H : Sleeve	017 : 1.7mm, 025 : 2.5mm…	16 : 16mm, 25.4 : 25.4mm…	CT : High precision, with coolant hole		100 : 100mm, 120 : 120mm…
				HP : High Precision	ST : Standard	

How to fix EZ Bars

■ How to use adjustment pin (Fig. 5)

(1) Put the adjustment pin into the hole.
(2) Push it into the sleeve, using the wrench (LW-1.5).
(3) Tightening the clamp screw (HS3X4P) with wrench (LW-1.5) to fix the adjustment pin.

■ How to fix bar (Fig. 6)

(1) With the chip pocket upward, set the bar into the sleeve. Press the slant of the end of the bar with the adjustment pin. Make sure that the bar does not move (Fig. 7)
(2) Tighten the clamp screw with wrench (LW-2) and fix the bar. (Use LW-1.5 if shank dia. is 3mm or less)

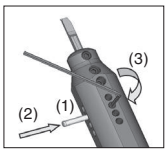


Fig. 5
How to use adjustment pin

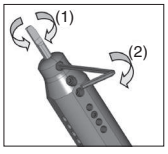


Fig. 6
How to fix bar

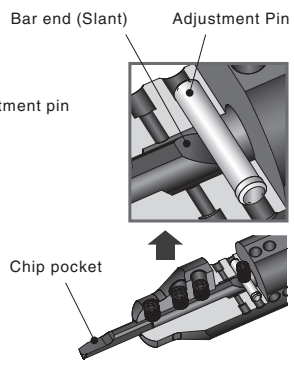


Fig. 7 Fixed bar

● : Std. Item

EZH-HP sleeve

Adjustable

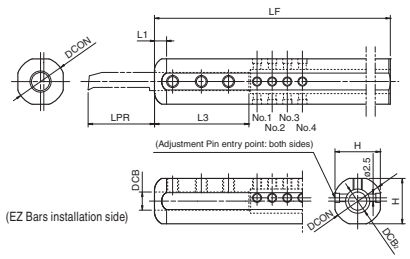


Fig. 3

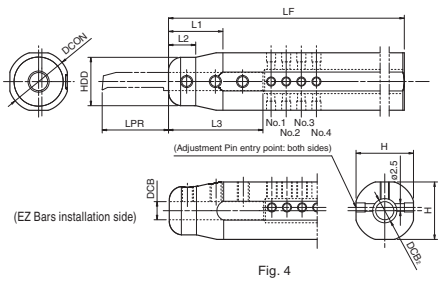
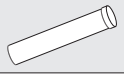


Fig. 4

Description		Stock	Dimension (mm)									Overhang Length of the Bar *2LPR(mm) Adjustment Pin Setting Position				Drawing	Applicable EZ Bars EZ Bar PLUS ➔ F14~F17 F19~F22 ➔ G49, G74 ➔ J30
			DCB	DCON	HDD	DCB_2	H	LF	L1	L2	*1L3	No.1	No.2	No.3	No.4		
EZH	04516HP-100	●	4.5	16	16	6	15	100	4	-	25.3	23 (14)	18.5 (9.5)	14 (–)	9.5 (–)	Fig. 3	_045X-...050EZ(P)
	04519HP-120	●		19.05			18	120	18	9						Fig. 4	
	04520HP-120	●		20			19	120									
	04522HP-135	●		22			21	135									
	04525.0HP-135	●		25			24	135									
	04525.4HP-120	●		25.4			24.4	120									
EZH	05016HP-100	●	5	16	16	6	15	100	4	-	29	25.5 (15.5)	20.5 (10.5)	15.5 (–)	10.5 (–)	Fig. 3	EZBR…050… EZVBR…050-… EZGR…050-… EZFGR…050-… EZTR…050-… _050X-…-060EZP
	05019HP-120	●		19.05			18	120	18	9						Fig. 4	
	05020HP-120	●		20			19	120									
	05022HP-135	●		22			21	135									
	05025.0HP-135	●		25			24	135									
	05025.4HP-120	●		25.4			24.4	120									
EZH	06016HP-100	●	6	16	16	8	15	100	4	-	31	30.5 (18.5)	25.5 (13.5)	20.5 (–)	15.5 (–)	Fig. 3	EZBR...060… EZVBR...060-… EZGR...060-… EZTR...060-… _060X-…-070EZ(P)
	06019HP-120	●		19.05			18	120	18	9						Fig. 4	
	06020HP-120	●		20			19	120									
	06022HP-135	●		22			21	135									
	06025.0HP-135	●		25			24	135									
	06025.4HP-120	●		25.4			24.4	120									
EZH	07016HP-100	●	7	16	16	8	15	100	4	-	33	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (–)	Fig. 3	EZBR…070… EZGR…070-… EZFGR…070-… EZTR…070-… _070X-…-080EZP
	07019HP-120	●		19.05			18	120	18	9						Fig. 4	
	07020HP-120	●		20			19	120									
	07022HP-135	●		22			21	135									
	07025.0HP-135	●		25			24	135									
	07025.4HP-120	●		25.4			24.4	120									
EZH	08019HP-120	●	8	19.05	16	8.4	18	120	18	9	37	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (–)	Fig. 4	_080X-…-100EZP
	08020HP-120	●		20			19	120									
	08022HP-135	●		22			21	135									
	08025.0HP-135	●		25			24	135									
	08025.4HP-120	●		25.4			24.4	120									

*1. L3 shows DCB length.
*2. LPR shows Overhang length of the EZB Bar when attached to sleeve. ( ) value indicates the overhang length when installed the steel boring bar (EZ Bar PLUS).
· Choose sleeves (DCB) to meet with DCON dimension of bar.

Spare Parts Description (for EZH-HP Sleeves)

Description		Spare Parts					Applicable EZ Bars EZ Bar PLUS	
		Adjustment Pin	Clamp Screw (for Adjustment Pin)	Wrench	Clamp Screw (for Bar)	Wrench		
								
EZH	017...HP-..	LCP025140	HS3X4P (for both Adjustment Pin and Bar)	LW-1.5 Tightening Torque 1N·m	HS3X4P	LW-1.5 Tightening Torque 1N·m	EZBR…017…	
	020...HP-..						EZBR…020…	
	025...HP-..						EZBR…025…	EZ_R…025-…
	030...HP-..						EZBR…030…	EZ_R…030-…
EZH	035...HP-..	LCP025140	HS3X4P	LW-1.5 Tightening Torque 1N·m	HS4X4P	LW-2 Tightening Torque 2N·m	EZBR…035…	EZ_R…035-…
	040...HP-..						EZBR…040…	EZ_R…040-…
	045...HP-..						_045X-…-050EZ(P)	
	050...HP-..						EZBR…050… _050X-…-060EZP	EZ_R…050-…
	060...HP-..						EZBR…060… _060X-…-070EZ(P)	EZ_R…060-…
	070...HP-..						EZBR…070… _070X-…-080EZP	EZ_R…070-…
	080...HP-..						_080X-…-100EZP	

● : Std. Item

EZH-ST sleeve

Not-adjustable

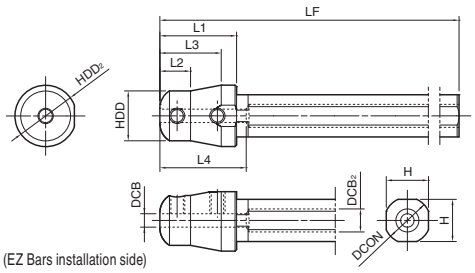


Fig. 1

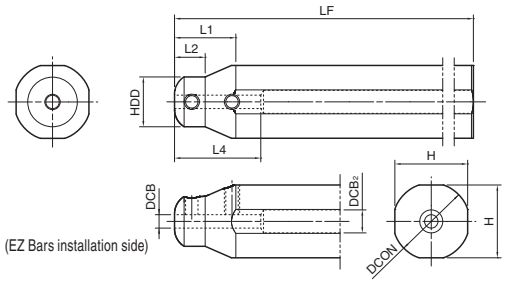


Fig. 2

Description		Stock	Dimension (mm)											Drawing	Applicable Bars ➡ F14~F17, F22 ➡ G49, G74 ➡ J30
			DCB	DCON	HDD	HDD₂	DCB₂	H	LF	L1	L2	L3	*L4		
EZH	01712ST-80	●	1.7	12	13	16	6	11	80	20	8	16	16	Fig. 1	EZBR…017…
	01716ST-100	●		16		-		15	100	16		-		Fig. 2	
	01719ST-120	●		19.05				18	120						
	01720ST-120	●		20				19	120						
	01722ST-135	●		22				21	135						
	01725.0ST-135	●		25				24	135						
	01725.4ST-120	●		25.4				24.4	120						
EZH	02012ST-80	●	2	12	13	16	6	11	80	20	8	16	20	Fig. 1	EZBR…020…
	02016ST-100	●		16		-		15	100	16		-		Fig. 2	
	02019ST-120	●		19.05				18	120						
	02020ST-120	●		20				19	120						
	02022ST-135	●		22				21	135						
	02025.0ST-135	●		25				24	135						
	02025.4ST-120	●		25.4				24.4	120						
EZH	02512ST-80	●	2.5	12	13	16	6	11	80	20	8	16	20	Fig. 1	EZBR…025… EZTR…025-…
	02516ST-100	●		16		-		15	100	16		-		Fig. 2	
	02519ST-120	●		19.05				18	120						
	02520ST-120	●		20				19	120						
	02522ST-135	●		22				21	135						
	02525.0ST-135	●		25				24	135						
	02525.4ST-120	●		25.4				24.4	120						
EZH	03012ST-80	●	3	12	13	16	6	11	80	20	8	16	21	Fig. 1	EZBR…030… EZVBR…030-… EZGR…030-… EZTR…030-…
	03016ST-100	●		16		-		15	100	16		-		Fig. 2	
	03019ST-120	●		19.05				18	120						
	03020ST-120	●		20				19	120						
	03022ST-135	●		22				21	135						
	03025.0ST-135	●		25				24	135						
	03025.4ST-120	●		25.4				24.4	120						
EZH	03512ST-80	●	3.5	12	13	16	6	11	80	20	8	16	22	Fig. 1	EZBR…035… EZTR…035-…
	03516ST-100	●		16		-		15	100	16		-		Fig. 2	
	03519ST-120	●		19.05				18	120						
	03520ST-120	●		20				19	120						
	03522ST-135	●		22				21	135						
	03525.0ST-135	●		25				24	135						
	03525.4ST-120	●		25.4				24.4	120						
EZH	04012ST-80	●	4	12	13	16	6	11	80	20	8	16	24	Fig. 1	EZBR…040… EZVBR…040-… EZGR…040-… EZFGR…040-… EZTR…040-…
	04016ST-100	●		16		-		15	100	16		-		Fig. 2	
	04019ST-120	●		19.05				18	120						
	04020ST-120	●		20				19	120						
	04022ST-135	●		22				21	135						
	04025.0ST-135	●		25				24	135						
	04025.4ST-120	●		25.4				24.4	120						

* L4 shows DCB length
· Choose sleeves (DCB) to meet with DCON dimension of bar.
· Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

● : Std. Item

EZH-ST sleeve

Not-adjustable

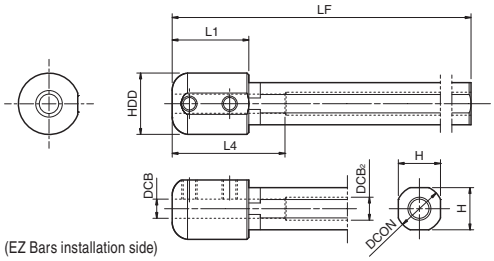


Fig. 3

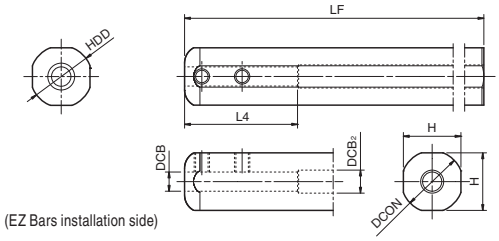


Fig. 4

Description		Stock	Dimension (mm)											Drawing	Applicable Bars F14~F17, F19~F22 G49, G74 J30
			DCB	DCON	HDD	HDD_2	DCB_2	H	LF	L1	L2	L3	*L4		
EZH	05012ST-80	●	5	12	16	-	6	11	80	20	-	-	29	Fig. 3	EZBR…050… EZVBR…050-… EZGR…050-… EZFGR…050-… EZTR…050-… _050X-…-060EZP
	05016ST-100	●		16				15	100	-				Fig. 4	
	05019ST-120	●		19.05				18	120	18	9			Fig. 2	
	05020ST-120	●		20				19	120						
	05022ST-135	●		22				21	135						
	05025.0ST-135	●		25				24	135						
	05025.4ST-120	●		25.4				24.4	120						
EZH	06012ST-80	●	6	12	16	-	8	11	80	20	-	-	31	Fig. 3	EZBR…060… EZVBR…060-… EZGR…060-… EZTR…060-… _060X-…-070EZ(P)
	06016ST-100	●		16				15	100	-				Fig. 4	
	06019ST-120	●		19.05				18	120	18	9			Fig. 2	
	06020ST-120	●		20				19	120						
	06022ST-135	●		22				21	135						
	06025.0ST-135	●		25				24	135						
	06025.4ST-120	●		25.4				24.4	120						
EZH	07012ST-80	●	7	12	16	-	8	11	80	20	-	-	33	Fig. 3	EZBR…070… EZGR…070-… EZFGR…070-… EZTR…070-… _070X-…-080EZP
	07016ST-100	●		16				15	100	-				Fig. 4	
	07019ST-120	●		19.05				18	120	18	9			Fig. 2	
	07020ST-120	●		20				19	120						
	07022ST-135	●		22				21	135						
	07025.0ST-135	●		25				24	135						
	07025.4ST-120	●		25.4				24.4	120						
EZH	08016ST-100	●	8	16	16	-	8.4	15	100	-	-	-	37	Fig. 4	_080X-…-100EZP
	08019ST-120	●		19.05				18	120	18	9			Fig. 2	
	08020ST-120	●		20				19	120						
	08022ST-135	●		22				21	135						
	08025.0ST-135	●		25				24	135						
	08025.4ST-120	●		25.4				24.4	120						

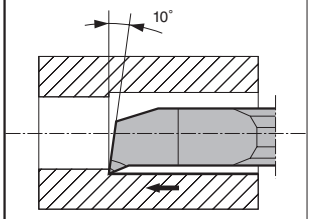
* L4 shows DCB length
· Choose sleeves (DCB) to meet with DCON dimension of bar.
· Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

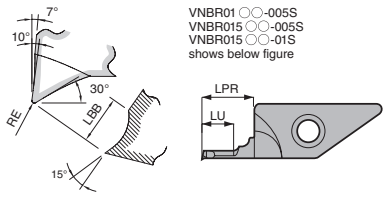
Spare Parts Description (for EZH-ST Sleeves)

Description		Spare Parts		Applicable EZ Bars		EZ Bar PLUS
		Clamp Screw	Wrench	EZB-HP EZB-HP-LT EZB-ST EZB-NB	EZG EZFG EZT EZVB	S/C-SCLC S/C-STLB(P) S/C-SWUB
						
EZH	017...ST-..	HS3X4P	LW-1.5 Tightening Torque 1N·m	EZBR…017…	-	-
	020...ST-..			EZBR…020…		
	025...ST-..			EZBR…025…	EZTR…025-…	-
	030...ST-..			EZBR…030…	EZ_R…030-…	-
EZH	035...ST-..	HS4X4P	LW-2 Tightening Torque 2N·m	EZBR…035…	EZTR…035-…	-
	040...ST-..			EZBR…040…	EZ_R…040-…	-
	050...ST-..			EZBR…050…	EZ_R…050-…	_050X-…-060EZP
	060...ST-..			EZBR…060…	EZ_R…060-…	_060X-…-070EZ(P)
	070...ST-..			EZBR…070…	EZ_R…070-…	_070X-…-080EZP
	080...ST-..			-	-	_080X-…-100EZP

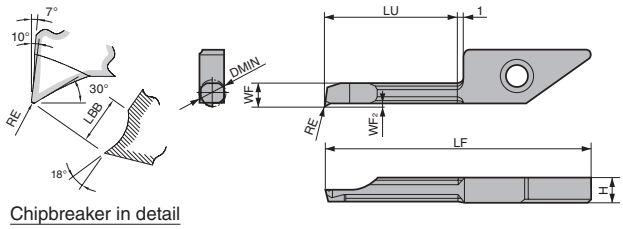
● : Std. Item

VNB-S (Boring) [Corner-R(RE) : Minus tolerance]





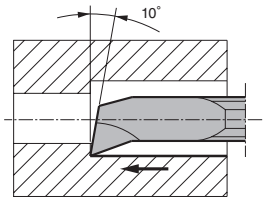
Chipbreaker in detail

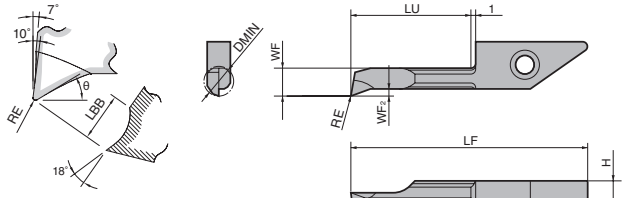


Chipbreaker in detail

●Right-hand shown

VNB (Boring)





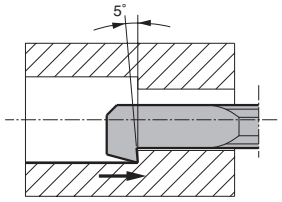
Chipbreaker in detail

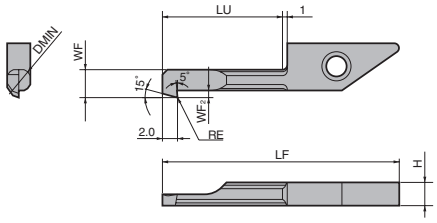
●Right-hand shown

–NB (without Chipbreaker) Top Shape

Top Shape	Grades
	Coated Carbide Carbide
	PCD

VNBT (Back Boring)





●Right-hand shown

Insert Dimensions (VNB-S)

Description		Min. Bore Dia.	Dimension (mm)								Grades				
											MEGA COAT	PVD	Carbide	PCD	
		DMIN	H	LF	LU	LPR	WF	WF_2	RE	LBB	PR1225	PR930	KW10	KPD001	KPD010
VNBR	0103-005S	1.0	3.9	26.5	3	7	0.85	0.2	+0 -0.02 0.05	0.7	●	●			
	0105-005S				5						●	●			
	01503-005S	1.5			3		1.3				●	●			
	01505-005S				5						●	●			
	0206-005S	2.0		28.1	6	-	1.8	0.25		0.8	●	●			
	025075-005S	2.5			7.5		2.1	0.4			●	●			
	0311-005S	3.0		30.8	11		2.6	0.4			●	●			
	03515-005S	3.5		34.8	15		3.0	0.5			●	●			
	0411-005S	4.0		30.8	11		3.5	0.5			●	●			
	0420-005S			39.8	20						●	●			
VNBR	01503-01S	1.5	3.9	26.5	3	7	1.3	0.2	+0 -0.03 0.1	0.7	●	●			
	01505-01S				5						●	●			
	0206-01S	2.0		28.1	6	-	1.8	0.25		0.8	●	●			
	025075-01S	2.5			7.5		2.1	0.4			●	●			
	0311-01S	3.0		30.8	11		2.6	0.4			●	●			
	03515-01S	3.5		34.8	15		3.0	0.5			●	●			
	0411-01S	4.0		30.8	11		3.5	0.5			●	●			
	0420-01S			39.8	20						●	●			
VNBR	0411-02S	4.0	3.9	30.8	11	-	3.5	0.5	+0 -0.04 0.2	0.8	●	●			
	0420-02S			39.8	20						●	●			

Recommended Cutting Conditions ➡ F36

System Tip-Bars are sold in 5 piece boxes

● : Std. Item

Insert Dimensions (VNB / VNB-NB / VNBT)

Description		Min. Bore Dia.	Dimension (mm)								Grades				
											MEGA COAT	PVD	Carbide	PCD	
		DMIN	H	LF	LU	WF	WF_2	RE	LBB	θ	PR1225	PR930	KW10	KPD001	KPD010
VNBR	0206-003	2	3.9	26.5	6	1.8	0.25	0.03	1.2	24°	●	●	●		
	0311-003	3		30.8	11	2.6	0.4		1.8		●	●	●		
	0411-003	4				3.5	0.5		2.7	23°	●	●	●		
	0420-003			39.8	20						●	●	●		
	0511-003	5		30.8	11	4.5	0.7		3.0		●	●	●		
	0520-003			39.8	20						●	●	●		
	0620-003	6				5.3	1.0			24°	●	●	●		
	0630-003			49.8	30						●	●	●		
	0720-003	7		39.8	20	6.2	1.0					●	●		
	0730-003			49.8	30							●	●		
VNBR	0206-01	2	3.9	26.5	6	1.8	0.25	0.1	1.2	24°	●	●	●		
	0311-01	3		30.8	11	2.6	0.4		1.8		●	●	●		
	0411-01	4				3.5	0.5		2.7	23°	●	●	●		
	0420-01			39.8	20						●	●	●		
	0511-01	5		30.8	11	4.5	0.7		3.0		●	●	●		
	0520-01			39.8	20						●	●	●		
	0620-01	6				5.3	1.0			24°	●	●	●		
	0630-01			49.8	30						●	●			
	0720-01	7		39.8	20	6.2	1.0					●	●		
	0730-01			49.8	30							●			
VNBR	0206-02	2	3.9	26.5	6	1.8	0.25	0.2	1.2	24°	●	●	●		
	0311-02	3		30.8	11	2.6	0.4		1.8		●	●	●		
	0411-02	4				3.5	0.5		2.7	23°	●	●	●		
	0420-02			39.8	20						●	●	●		
	0511-02	5		30.8	11	4.5	0.7		3.0		●	●	●		
	0520-02			39.8	20						●	●	●		
	0620-02	6				5.3	1.0			24°	●	●	●		
	0630-02			49.8	30						●	●	●		
	0720-02	7		39.8	20	6.2	1.0				●	●	●		
	0730-02			49.8	30						●	●	●		
VNBR	0206-003NB	2	3.9	26.5	6	1.8	0.25	0.03	-	15°		●	●		
	0311-003NB	3		30.8	11	2.6	0.4					●	●		
	0411-003NB	4				3.5	0.5					●	●		
	0420-003NB			39.8	20							●	●		
	0511-003NB	5		30.8	11	4.5	0.7					●	●		
	0520-003NB			39.8	20							●	●		
	0620-003NB	6				5.3	1.0					●	●		
	0630-003NB			49.8	30							●	●		
	0720-003NB	7		39.8	20	6.2	1.0					●	●		
	0730-003NB			49.8	30							●	●		
VNBR	0206-02NB	2	3.9	26.5	6	1.8	0.25	0.2	-	15°			●		
	0311-02NB	3		30.8	11	2.6	0.4						●		
	0411-02NB	4				3.5	0.5						●	●	●
	0420-02NB			39.8	20								●	●	●
	0511-02NB	5		30.8	11	4.5	0.7						●	●	●
	0520-02NB			39.8	20								●	●	●
	0620-02NB	6				5.3	1.0						●	●	●
	0630-02NB			49.8	30								●	●	●
	0720-02NB	7		39.8	20	6.2	1.0						●	●	●
	0730-02NB			49.8	30								●	●	□
VNBTR	0411-003	4	3.9	30.8	11	3.6	1.0	0.03	-	-		●	●		
	0420-003			39.8	20							●			
	0511-003	5		30.8	11	4.6	1.3					●	●		
	0520-003			39.8	20							●			
VNBTR	0411-01	4	3.9	30.8	11	3.6	1.0	0.1	-	-	●	●	●		
	0420-01			39.8	20						●	●			
	0511-01	5		30.8	11	4.6	1.3				●	●	●		
	0520-01			39.8	20						●	●			

Recommended Cutting Conditions F36

● : Std. Item
□ : Deleted from the next catalog

System Tip-Bars are sold in 5 piece boxes

SVN-N (without side stopper)

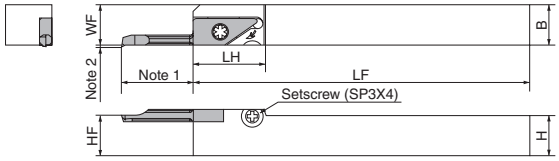


Fig. 1 (SVN-N)

SVNS-N (without side stopper / without setscrew)

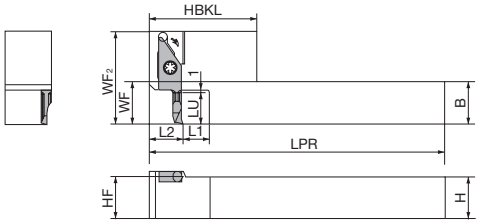


Fig. 2 (SVNS-N)

●Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Note 1 & Note 2 : For insert dimensions, see page F30~F31

Toolholder Dimensions

Description		Stock	Dimension (mm)									Drawing	Spare Parts			Applicable Inserts
			H=HF	B	LF LPR	LH HBKL	L1	L2	WF	WF_2	LU		Clamp Screw	Wrench	Setscrew	F30~F31 G51 G76 J34
SVNR	1010H-12N	●	10	10	100	22	-	-	10	-	-	Fig. 1	SB-3080TR	FT-10	SP3X4	VNBR....-...
	1212K-12N	●	12	12	125				12							VNBTR....-...
	1616K-12N	●	16	16					16							VNGR....-..
	2020K-12N	●	20	20					20							VNFGR....-..
	2525M-12N	●	25	25	150				25							VNTR...-..
SVNSR	1010K-12-06N	●	10	10	125	45	10	12	10	29	6	Fig. 2	SB-3080TR	LTW-10S	-	(VNBR..06-...)*
	1010K-12-11N	●	10	10	125		10	12	10	33	11					(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*
	1212M-12-06N	●	12	12	150		10	12	12	29	6					(VNBR..06-...)*
	1212M-12-11N	●	12	12	150		10	12	12	33	11					(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*
	1212M-12-20N	●	12	12	150		10	13	12	42	20					(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*
	1616M-12-06N	●	16	16	150		16	12	16	29	6					(VNBR..06-...)*
	1616M-12-11N	●	16	16	150		16	12	16	33	11					(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*
	1616M-12-20N	●	16	16	150		16	13	16	42	20					(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*

1. SVN-N / S-SVN-N / S-SVN-SN (without side stopper) retains high index accuracy by easy restraint.
2. SVN-N (without side stopper) has a setscrew SP3X4. Changing the setscrew SP3X4 to a screw HS3X4 (sold separately) enables the toolholder to be used as a binding effect toolholder similar to the side stopper toolholder.

* All system Tip-Bars Inserts are used with a SVNSR-N Toolholders. However, when setting the cutting edge at the face level of the toolholder as shown in Fig. 2, use the insert shown in ( ).
In these cases, the LU dimension of the toolholders corresponds to the LU dimension of the insert.

Spare Parts (Optional)

Screw Side Stopper	Wrench
	
HS3X4	LW-1.5

● : Std. Item

S-SVN-N Round Shank (Standard, without side stopper)

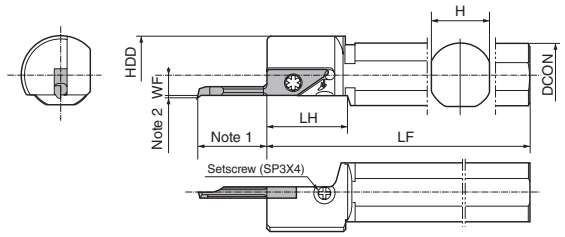


Fig. 1 (S-SVN-N)

S-SVN-SN Round Shank (Straight, without side stopper)

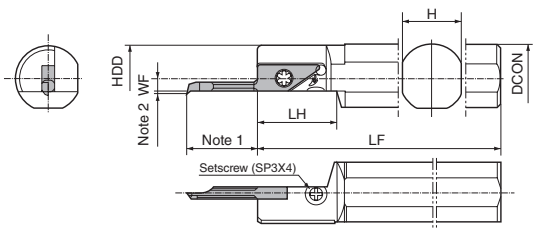


Fig. 2 (S-SVN-SN)

●Right-hand shown

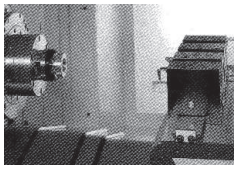
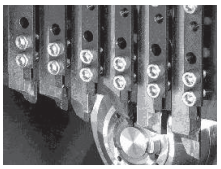
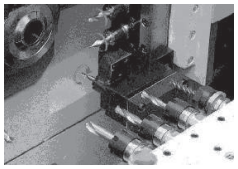
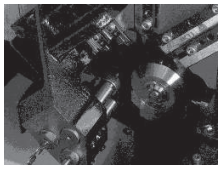
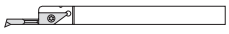
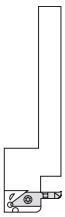
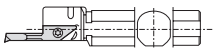
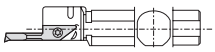
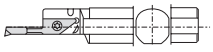
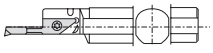
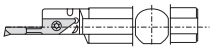
Right-hand Insert for Right-hand Toolholder.

Note 1 & Note 2 : For insert dimensions, see page F30~F31

Toolholder Dimensions

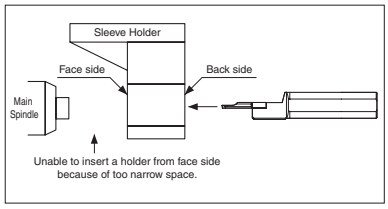
Description	Stock	Dimension (mm)							Drawing	Spare Parts					Applicable Inserts
		DCON	HDD	H	LF	LH	WF			Clamp Screw	Wrench	Screw Side Stopper	Setscrew	Wrench	
S12F-SVNR12N	●	12	20	11	80	23	4		Fig. 1	SB-3080TR	FT-10	-	SP3X4	-	F30~F31 G51 G76 J34
S14G-SVNR12N	●	14	20	13	90										
S16H-SVNR12N	●	16	24	15	100		6								
S19H-SVNR12N	●	19.05	24	17	100	24									
S19N-SVNR12N	●				160										
S20H-SVNR12N	●	20	24	18	100										
S25H-SVNR12N	●	25.4	30	23	100										
S25Q-SVNR12N	●				180										
S19H-SVNR12SN	●	19.05	18.5	17	100	23	4		Fig. 2	SB-3080TR	FT-10	-	SP3X4	-	VNBR....-.. VNBTR....-... VNGR....-.. VNFGR....-.. VNTR....-..
S20H-SVNR12SN	●	20	19.5	18											
S22K-SVNR12SN	●	22	21.5	20	125										
S25.0G-SVNR12SN	●	25	24.5	23	90										

Selection of System Tip-Bars

Gang-Type (Horizontal)	Gang-Type	Gang-Type (Front Loading Sleeve Type)	Gang-Type (Back Loading Sleeve Type)
			
Square Shank (Straight) 	Square Shank (L-shape) 	Square Shank ———	Square Shank ———
Round Shank (Standard) 		Round Shank (Standard) 	Round Shank (Standard) ———
Round Shank (Straight) 		Round Shank (Straight) 	Round Shank (Straight) 

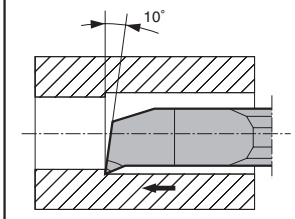
Q : There are standard types (head dia. is larger than shank) and straight types for round shanks. What is each one used for?

A : The straight type is used when it cannot be inserted from the face side of the sleeve holder and can be inserted only from the back side due to space limitation (Refer to Fig. below).
On the other hand, the standard type should be installed when it can be inserted from the face side, and the head end is used for positioning as stopper.

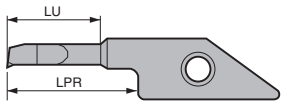


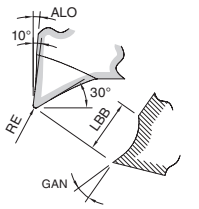
● : Std. Item

VNBX-S (Boring) [Corner-R(RE) : Minus tolerance]

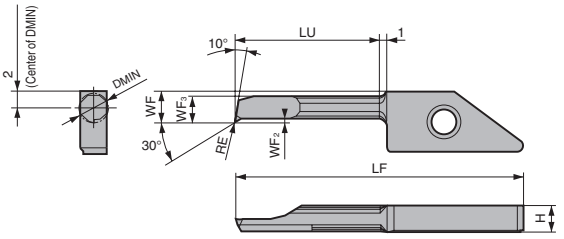


VNBXR0103 type
VNBXR0105 type
VNBXR01503 type
VNBXR01505 type
VNBXR03516 type
shows below figure





Chipbreaker in detail



● Right-hand shown

Insert Dimensions (VNBX-S)

Description		Min. Bore Dia.	Dimension (mm)											Grades PVD Coated Carbide		
		DMIN	H	LF	LU	LPR	WF	WF_2	WF_3	RE	LBB	ALO	GAN	PR930		
VNBXR	0103-005S	1.0	3.9	26.5	3	7	2.95	0.2	0.85	+0 -0.02 0.05	0.7	7°	15°	●		
	0105-005S				5									●		
	01503-005S	1.5			3				1.3					●		
	01505-005S				5									●		
	0206-005S	2.0			6	-	3	0.25	1.8		0.8	8°	18°	●		
	0311-005S	3.0		30.8	11		3.5	0.4	2.6					●		
	03511-005S	3.5					3.75	0.45	3.1					●		
	03516-005S			39.8	16	21								●		
	0411-005S	4.0		30.8	11	-	4	0.5	3.5					●		
	0420-005S			39.8	20									●		
VNBXR	01503-01S	1.5	3.9	26.5	3	7	2.95	0.2	1.3	+0 -0.03 0.1	0.7	7°	15°	●		
	01505-01S				5									●		
	0206-01S	2.0			6	-	3	0.25	1.8		0.8	8°	18°	●		
	0311-01S	3.0		30.8	11		3.5	0.4	2.6					●		
	03511-01S	3.5					3.75	0.45	3.1					●		
	03516-01S			39.8	16	21								●		
	0411-01S	4.0		30.8	11	-	4	0.5	3.5					●		
	0420-01S			39.8	20									●		
VNBXR	0411-02S	4.0	3.9	30.8	11	-	4	0.5	3.5	+0 -0.04 0.2				●		
	0420-02S			39.8	20									●		

Recommended Cutting Conditions F36

Attachment toolholder for VNBX-S System Tip-Bars

1. There are three different types of attachment toolholder for the VNBX-S System Tip-Bars (See Page **F35**).
   (1) SVNS-XN (without Side Stopper)
   (2) S-SVN-XN (without Side Stopper)
   (3) S-SVN-SXN (without Side Stopper)
2. Above toolholders assure high index accuracy by easy restraint.
3. Setscrews (SP3X4) are attached. Toolholders without Side Stopper can be used as a binding effect toolholder when removing the clamp screws and inserting screws (HS3X4 : sold separately) with a wrench (LW-1.5 : sold separately).

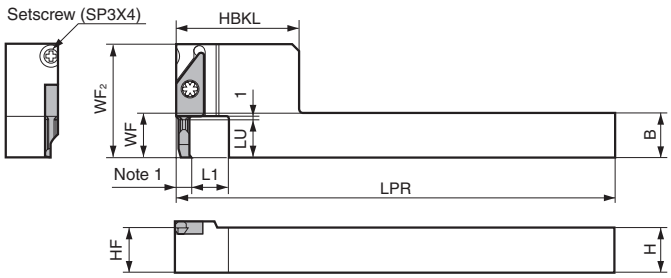
Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
HS3X4	LW-1.5

System Tip-Bars are sold in 5 piece boxes

● : Std. Item

SVNS-XN (Square Shank, L-shape)



●Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Note 1 : The dimension of Note 1 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions (L-shape square shank applicable to gang tool post)

Description		Stock	Dimension (mm)									Spare Parts			* Applicable Inserts
			H	HF	B	LPR	HBKL	L1	WF	WF_2	LU	Clamp Screw	Wrench	Setscrew	F34
SVNSR	1010K-12-06XN	●	10	10	10	125	45	10	10	29	6	SB-3080TR	LTW-10S	SP3X4	(VNBXR02..)
	1010K-12-11XN	●								33	11				(VNBXR..11..)
	1212M-12-06XN	●	12	12	12	150			12	29	6				(VNBXR02..)
	1212M-12-11XN	●								33	11				(VNBXR..11..)
	1212M-12-20XN	●								42	20				(VNBXR0420..)
	1616M-12-06XN	●	16	16	16			16	16	29	6				(VNBXR02..)
	1616M-12-11XN	●								33	11				(VNBXR..11..)
	1616M-12-20XN	●								42	20				(VNBXR0420..)

* All VNBXR Inserts can be attached to a SVNS-XN Toolholder. However, when setting the cutting edge at the face level of the toolholder as shown in Fig., use the insert shown in ( ).

S-SVN-XN (Round Shank, Standard type)

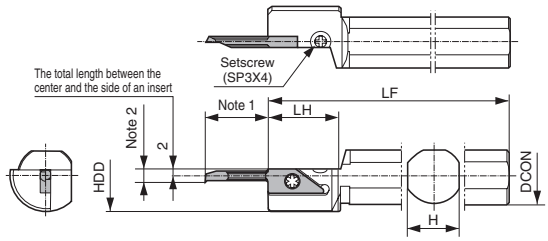


Fig. 1 (S-SVN-XN)

S-SVN-SXN (Round Shank, Straight type)

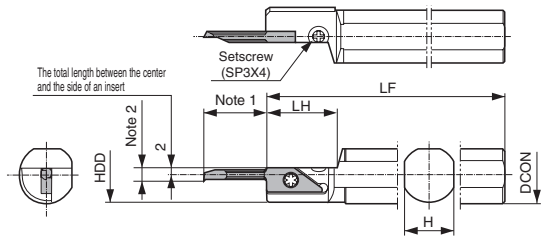


Fig. 2 (S-SVN-SXN)

●Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Note 1 : The dimension of Note 1 shows the applicable insert (VNBX) LU +1 mm.
Note 2 : The dimension of Note 1 is same size as the applicable insert (VNBX) WF.

Toolholder Dimensions (Holder center axis core and insert center are coaxial type)

Description		Stock	Dimension (mm)								Drawing	Spare Parts			Applicable Inserts
			DCON	HDD	H	LF	LH					Clamp Screw	Wrench	Setscrew	F34
S12F	-SVNR12XN	●	12	20	11	80	23				Fig. 1	SB-3080TR	FT-10	SP3X4	VNBXR...
S14G	-SVNR12XN	●	14		13	90									
S16H	-SVNR12XN	●	16	24	15	100									
S19H	-SVNR12XN	●	19.05		17		24								
S19N	-SVNR12XN	●				160									
S20H	-SVNR12XN	●	20		18	100									
S25H	-SVNR12XN	●	25.4	30	23										
S25Q	-SVNR12XN	●				180									
S19H	-SVNR12SXN	●	19.05	18.5	17	100	23				Fig. 2	SB-3080TR	FT-10	SP3X4	VNBXR...
S20H	-SVNR12SXN	●	20	19.5	18										
S22K	-SVNR12SXN	●	22	21.5	20	125									
S25.0G	-SVNR12SXN	●	25	24.5	23	90									

*Reminder of applicable insert.

● : Std. Item

System Tip-Bars Recommended Cutting Conditions

◆ Recommended Cutting Conditions (VNB-S)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						VNB01-S type VNB015-S type		VNB02-S type ~ VNB04-S type		Remarks
	MEGA COAT	PVD	Carbide	CBN	PCD						
	PR1225	PR930	KW10	KBN510	KPD001	KPD010	ap (mm), f (mm/rev)				
							ap	f	ap	f	
Carbon Steel / Alloy Steel	★ 30~120	☆ 30~100					~0.1	~0.01	~0.2	~0.03	Coolant
Stainless Steel	★ 30~100	☆ 30~80					~0.1	~0.01	~0.2	~0.02	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (VNB / VNB-NB / VNBT)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						VNB02 type		VNB03 type		VNB04 VNBT04 type		VNB05 VNB06 VNB07 VNBT05 type		Remarks
	MEGA COAT	PVD	Carbide	CBN	PCD										
	PR1225	PR930	KW10	KBN510	KPD001	KPD010	ap (mm), f (mm/rev)								
							ap	f	ap	f	ap	f	ap	f	
Carbon Steel / Alloy Steel	★ 30~120	☆ 30~100					~0.3	~0.03	~0.4	~0.04	~0.45	~0.07	~0.5	~0.1	Coolant
Stainless Steel	★ 30~100	☆ 30~80					~0.3	~0.02	~0.4	~0.03	~0.45	~0.05	~0.5	~0.07	
Non-ferrous Metals			☆ ~100		★ ~300	☆ ~300	~0.3	~0.05	~0.4	~0.06	~0.45	~0.1	~0.5	~0.15	

★ : 1st Recommendation ☆ : 2nd Recommendation

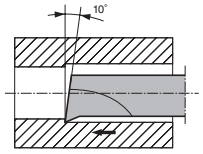
◆ Recommended Cutting Conditions (VNBX-S)

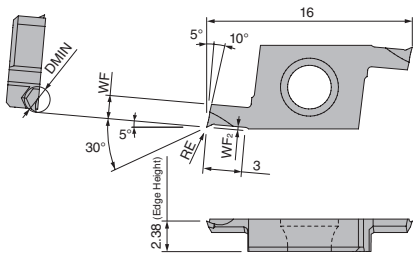
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)							VNBX01-S type VNBX015-S type		VNBX02-S type ~ VNBX04-S type		Remarks
	PVD Coated Carbide			Carbide	CBN	PCD						
	PR630	PR915	PR930	KW10	KBN510	KPD001	KPD010	ap (mm), f (mm/rev)				
								ap	f	ap	f	
Carbon Steel / Alloy Steel			★ 30~100					~0.1	~0.01	~0.2	~0.03	Coolant
Stainless Steel			★ 30~80					~0.1	~0.01	~0.2	~0.02	

★ : 1st Recommendation

Twin-Bars

TWB (Micro Boring, Horizontal type) [Corner-R(RE) Tolerance: +0/–0.02mm, +0/–0.03mm]





●Right-hand shown

Description		Min. Bore Dia.	Dimension (mm)			Grades	
						MEGACOAT NANO	PVD Coated Carbide
		DMIN	WF	WF_2	RE	PR1535	PR1025
TWBR	01003-005	1.0	0.85	0.2	+0 -0.02 0.05	●	●
	01503-005	1.5	1.30			●	●
	02003-005	2.0	1.75	0.25		●	●
	02503-005	2.5	2.10	0.3		●	●
	03003-005	3.0	2.40	0.4		●	●
TWBR	01503-010	1.5	1.30	0.2	+0 -0.03 0.1	●	●
	02003-010	2.0	1.75	0.25		●	●
	02503-010	2.5	2.10	0.3		●	●
	03003-010	3.0	2.40	0.4		●	●

STW (Square Shank for Horizontal type insert)

(For Left-hand toolholders for grooving, please see page **G78**.)

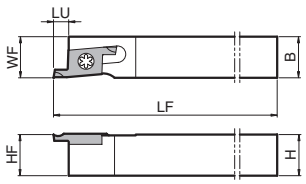


Fig. 1

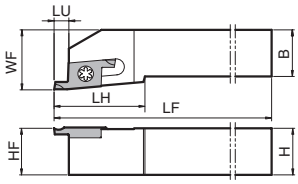


Fig. 2

●Right-hand shown

Right-hand Insert for Right-hand Toolholder, (Left-hand Insert for Left-hand Toolholder.)

Toolholder Dimensions

Description		Stock	Dimension (mm)							Drawing	Spare Parts		Applicable Inserts
			H	HF	B	LF	LH	WF	LU		Clamp Screw	Wrench	
STWR	1212F-15	●	12	12	12	85	-	12	3	Fig. 1	SB-3080TR	LTW-10S	F37
	1212K-15	●	12	12	12	125		12					TWBR○○○○○-○○○
	1616K-15	●	16	16	16			16					
	2020K-15	●	20	20	20		25	25		Fig. 2			
	2525M-15	●	25	25	25	150		32					

S-STW (Round Shank for Horizontal type insert)

(For Left-hand toolholders for grooving, please see page **G78**.)

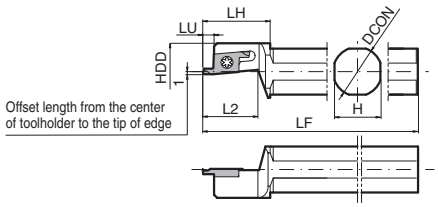


Fig. 1

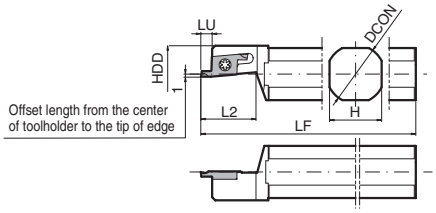


Fig. 2

●Right-hand shown

Right-hand Insert for Right-hand Toolholder, (Left-hand Insert for Left-hand Toolholder.)

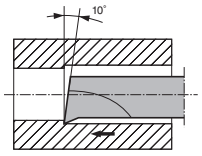
Toolholder Dimensions

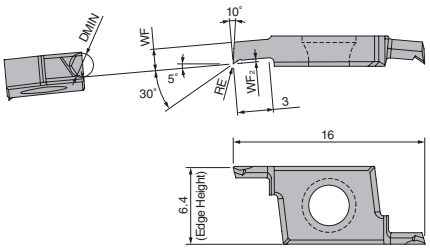
Description		Stock	Dimension (mm)							Drawing	Spare Parts		Applicable Inserts
			DCON	HDD	H	LF	L2	LH	LU		Clamp Screw	Wrench	
S12F-	STWR15	●	12	20	11	80	18	22	3	Fig. 1	SB-3080TR	LTW-10S	F37
S14H-	STWR15	●	14		13	100							TWBR○○○○○-○○○
S15F-	STWR15	●	15.875		15	85							
S16F-	STWR15	●	16										
S19G-	STWR15	●	19.05	18.5	17	90		-	3	Fig. 2			
S19K-	STWR15	●				120							
S20G-	STWR15	●	20	19.5	18	90							
S20K-	STWR15	●				120							
S22K-	STWR15	●	22	21.5	20	125	22						
S25.0J-	STWR15	●	25	24.5	23	110							
S25K-	STWR15	●	25.4	25	23	120							

● : Std. Item

Twin-Bars are sold in 5 piece boxes

TWBT (Micro Boring, Vertical type) [Corner-R(RE) Tolerance: +0/–0.02mm, +0/–0.03mm]

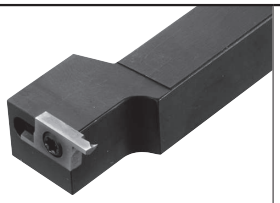


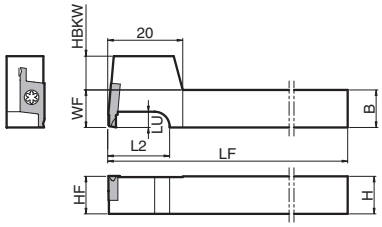


• Right-hand shown

Description		Min. Bore Dia.	Dimension (mm)			Grades	
						MEGACOAT NANO	PVD Coated Carbide
		DMIN	WF	WF_2	RE	PR1535	PR1025
TWBTR	01003-005	1.0	0.85	0.2	+0 -0.02	●	●
	01503-005	1.5	1.30			●	●
	02003-005	2.0	1.75	0.25	0.05	●	●
	02503-005	2.5	2.10	0.3		●	●
	03003-005	3.0	2.30	0.4		●	●
TWBTR	01503-010	1.5	1.30	0.2	+0 -0.03	●	●
	02003-010	2.0	1.75	0.25	0.1	●	●
	02503-010	2.5	2.10	0.3		●	●
	03003-010	3.0	2.30	0.4		●	●

STWS (Square shank for Vertical type insert, L-shape type)





• Right-hand shown

Toolholder Dimensions

Description		Stock	Dimension (mm)								Drawing	Spare Parts		Applicable Inserts
			H	HF	B	LF	L2	WF	HBKW	LU		Clamp Screw	Wrench	F38 G79
STWSR	1010JX-15T	●	10	10	10	120	16	10	9	3	-	SB-3080TR	LTW-10S	TWBTR ○○○○○-○○○ TWFGTR ○○○
	1212JX-15T	●	12	12	12			12	7					
	1616JX-15T	●	16	16	16		20	16	3					
STWSR	1010F-15T	●	10	10	10	85	16	10	9					
	1212F-15T	●	12	12	12			12	7					

Recommended Cutting Conditions (TWB / TWBT)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		TWBR01003 type TWBR01503 type TWBTR01003 type TWBTR01503 type		TWBR02003 type TWBR02503 type TWBR03003 type TWBTR02003 type TWBTR02503 type TWBTR03003 type		Remarks
	MEGACOAT NANO	PVD Coated Carbide	ap (mm), f (mm/rev)				
	PR1535	PR1025	ap	f	ap	f	
Carbon Steel / Alloy Steel	★ 30~100	☆ 30~100	~0.1	~0.01	~0.2	~0.03	Coolant
Stainless Steel	★ 30~80	☆ 30~80	~0.1	~0.01	~0.2	~0.02	

★ : 1st Recommendation

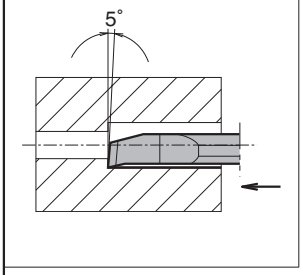
Twin-Bars are sold in 5 piece boxes

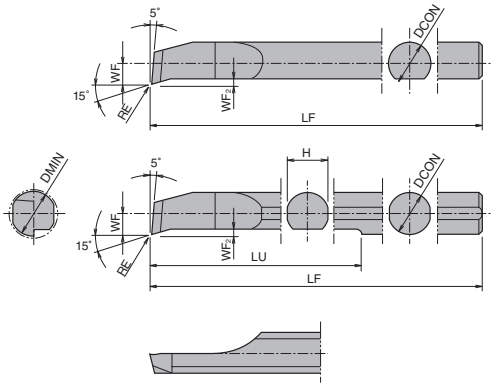
● : Std. Item

Tip-Bars

PSB-S (Boring) <Adjustable Overhang Length>

This insert will be switched to EZB (EZ Bars, see page F14~)

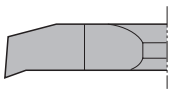
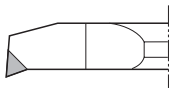




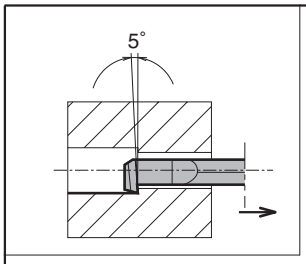
• Right-hand shown

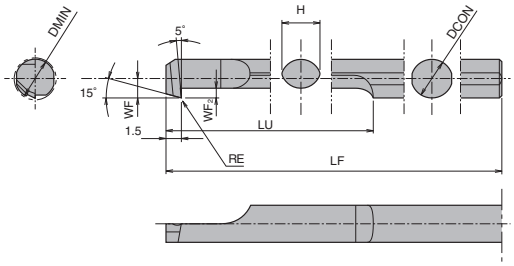
See Page for Applicable Sleeve F86

PSB$^{R}_{L}$0202 type
PSB$^{R}_{L}$0303 type
shows left figure

–NBS Type (without Chipbreaker) Top Shape	
Top Shape	Grades
	Coated Carbide Carbide
	CBN PCD

PSBT-S (Back Boring) <Adjustable Overhang Length>





• Right-hand shown

See Page for Applicable Sleeve F86

Tip-Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)							Grades											
										PVD Coated Carbide		Carbide		CBN				PCD			
		DMIN	DCON	H	LF	LU	WF	WF_2	RE	PR930		KW10		KBN510		KBN525		KPD001		KPD010	
										R	L	R	L	R	L	R	L	R	L	R	L
PSB$^{R}_{L}$	0202-50S	2	1.8	-	50	-	0.9	0.25	0.05	□	□	□									
	0303-50S	3	2.8				1.4	0.3		□	□	□	□								
	0404-60S	4	3.8	3.6	60	30	1.9	0.5		□	□	□	□								
	0505-70S	5	4.8	4.4	70	40	2.4			□	□	□	□								
	0606-70S	6	5.8	5.2		45	2.9			□	□	□	□								
	0707-80S	7	6.8	6.2	80	50	3.4			□	□	□	□								
PSB$^{R}_{L}$	0202-50NBS	2	1.8	-	50	-	0.9	0.25	0.05	□		□									
	0303-50NBS	3	2.8				1.4	0.3		□		□		□		□					
	0404-60NBS	4	3.8	3.6	60	30	1.9	0.5		□		□		□		□		□		□	
	0505-70NBS	5	4.8	4.4	70	40	2.4			□		□		□		□		□		□	□
	0606-70NBS	6	5.8	5.2		45	2.9			□		□		□		□		□		□	
	0707-80NBS	7	6.8	6.2	80	50	3.4			□		□		□		□		□		□	
PSBT$^{R}_{L}$	0415-60S	4	3.8	3.6	60	20	1.9	1.0	0.05	□		□									
	0515-70S	5	4.8	4.6	70		2.4	1.3		□	□	□									

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						PSB02 type		PSB03 type		PSB04 PSBT04 type		PSB05 PSB06 PSB07 PSBT05 type		Remarks
	PVD Coated Carbide		Carbide	CBN	PCD		ap (mm), f (mm/rev)								
	PR915	PR930	KW10	KBN510 KBN525	KPD001	KPD010	ap	f	ap	f	ap	f	ap	f	
Carbon Steel / Alloy Steel		★ 30~100					~0.3	~0.03	~0.4	~0.04	~0.45	~0.07	~0.5	~0.1	Coolant
Stainless Steel		★ 30~80					~0.3	~0.02	~0.4	~0.03	~0.45	~0.05	~0.5	~0.07	
Non-ferrous Metals			☆ ~100		★ ~300	☆ ~300	~0.3	~0.05	~0.4	~0.06	~0.45	~0.1	~0.5	~0.15	
Hard Materials				★ ~100			-	-	~0.07	~0.03	~0.10	~0.05	~0.15	~0.07	

★ : 1st Recommendation ☆ : 2nd Recommendation

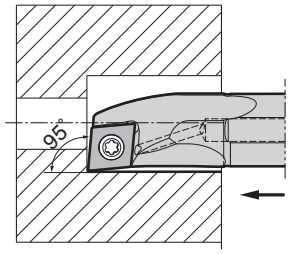
□ : Deleted from the next catalog

Tip-Bars are sold in 1 piece boxes

Dynamic Bar [CC□□ Insert]

A/S-SCLC-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~5.5



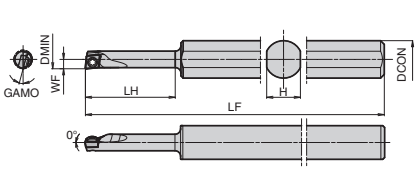


Fig. 1

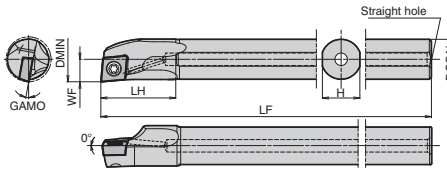


Fig. 2

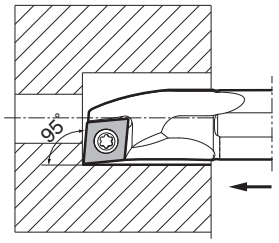
Shank Dia. DCON	Straight hole Dia.
ø8	ø2.5
ø10	ø3
ø12	ø4
ø16	ø5
ø20	
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SCLC-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~4



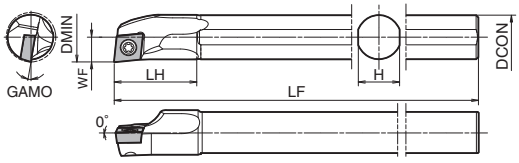


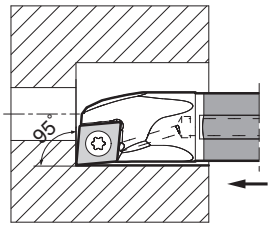
Fig. 3

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

C/E-SCLC-A(N) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~7



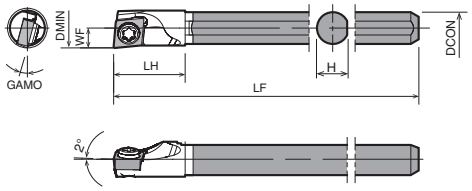


Fig. 4

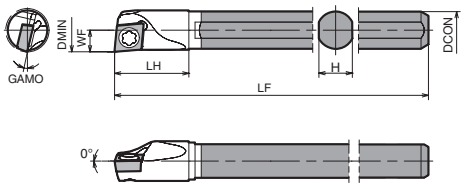


Fig. 5

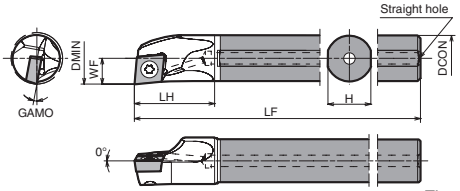


Fig. 6

Shank Dia. DCON	Straight hole Dia.
ø8	ø3
ø10	
ø12	ø4
ø16	
ø20	ø6
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	S10H-SCLCR/L03-05AE	●	●	5	10	9	100	24	2.5	15°	0.2	No	Fig. 1	SB-1635TR	FT-6
	S10H-SCLCR/L03-06AE	●	●	6				28	3	13°					
	S10H-SCLCR/L04-07AE	●	●	7				32	3.5					SB-2035TR	
	S10H-SCLCR/L04-08AE	●	●	8				37	4	11°					
	A08X-SCLCR/L06-10AE	●	●	10	8	7	120	16	5	14°	0.4	Yes	Fig. 2	SB-2545TR	FT-8
	A10L-SCLCR/L06-12AE	●	●	12	10	9	140	20	6	12°					
	A12M-SCLCR/L06-14AE	●	●	14	12	11	150	24	7	10°					
	A16Q-SCLCR/L09-18AE	●	●	18	16	15	180	30	9					SB-4065TR	FT-15
	A20R-SCLCR/L09-22AE	●	●	22	20	19	200	36	11	8°					
	A25S-SCLCR/L09-27AE	●	●	27	25	24	250	46	13.5	6°					
Steel	S08X-SCLCR/L06-10A	●	●	10	8	7	120	16	5	14°	0.4	No	Fig. 3	SB-2545TR	FT-8
	S10L-SCLCR/L06-12A	●	●	12	10	9	140	20	6	12°					
	S12M-SCLCR/L06-14A	●	●	14	12	11	150	24	7	10°					
	S16Q-SCLCR/L09-18A	●	●	18	16	15	180	30	9					SB-4065TR	FT-15
	S20R-SCLCR/L09-22A	●	●	22	20	19	200	36	11	8°					
	S25S-SCLCR/L09-27A	●	●	27	25	24	250	46	13.5	6°					
Carbide	C04G-SCLCR/L03-05AN	●	●	5	4	3.8	90	7	2.5	15°	0.2	No	Fig. 4	SB-1635TR	FT-6
	C05H-SCLCR/L03-06AN	●	●	6	5	4.4	100	9	3	13°			Fig. 5		
	C06J-SCLCR/L04-07AN	●	●	7	6	5.4	110	10	3.5					SB-2035TR	
	C07K-SCLCR/L04-08AN	●	●	8	7	6.4	125	11	4	11°					
	E08L-SCLCR/L06-10AN	●	●	10	8	7	140	14	5	14°	0.4	Yes	Fig. 6	SB-2545TR	FT-8
	E08L-SCLCR06-10AN2/3	●					90								
	E10N-SCLCR/L06-12AN	●	●	12	10	9	160	18	6	12°					
	E10N-SCLCR06-12AN2/3	●					105								
	E12Q-SCLCR/L06-14A	●	●	14	12	11	180	23	7	10°					
	E12Q-SCLCR 06-14A-2/3	●					120								
	E16X-SCLCR/L 09-18A	●	●	18	16	15	220	28	9					SB-4065TR	FT-15
	E16X-SCLCR 09-18A-2/3	●					145								
	E20S-SCLCR/L 09-22A	●	●	22	20	19	250	32	11	8°					
	E20S-SCLCR 09-22A-2/3	●					165								
	E25T-SCLCR/L 09-27A	●	●	27	25	24	300	38	13.5	6°					
	E25T-SCLCR 09-27A-2/3	●					200								

Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Finishing - Medium	Finishing / Precision
See Page	B53	B53	B53	B54	B54	B54	B54	B54, B55	B53, B54	B55, B56
Insert / Toolholder Description	CF	PF	GF	WP (Wiper)	PP	GK	HQ	Standard	GQ	R/L-F / -FSF
...-SCLCR/L03-...	CCGT0301..	CCGT0301..	-	-	-	-	-	-	-	CC □ T0301..
...-SCLCR/L04-...	CCGT0401..	CCGT0401..	-	-	-	-	-	-	-	CC □ T0401..
...-SCLCR/L06-...	-	CCGT0602..	CCGT0602..	CCMT0602..	CCMT0602..	CCMT0602..	CCMT0602..	CCGT0602..	CCGT0602..	-
...-SCLCR/L09-...	-	-	CCGT09T3..	CCMT09T3..	CCMT09T3..	CCMT09T3..	CCMT09T3..	CCGT09T3.. CCMT09T3..	CCGT09T3..	-

Applications	* Finishing	Low Feed	Low Feed / Precision	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
See Page	B57	B58, B59	B57	B55	B60	B60	B60	B60	C24	C14
Insert / Toolholder Description	R/L-P	(E/F) R/L-U	F R/L-USF	MQ	Without Chipbreaker	AP	A3	AH	PCD	CBN
...-SCLCR/L03-...	-	-	-	-	-	-	-	-	-	CCMW0301..
...-SCLCR/L04-...	-	-	-	-	-	-	-	-	CCGW0401..	CCMW0401..
...-SCLCR/L06-...	-	CCGT0602..	CCET0602..	-	CCGW0602..	CCGT0602..	-	-	CCMT0602.. CCGW0602..	CCMW0602..
...-SCLCR/L09-...	CCET09T3..	CCGT09T3..	CCET09T3..	CCMT09T3..	CCGW09T3..	CCGT09T3..	CCGT09T3..	CCGT09T3..	CCMT09T3.. CCGW09T3..	CCMW09T3..

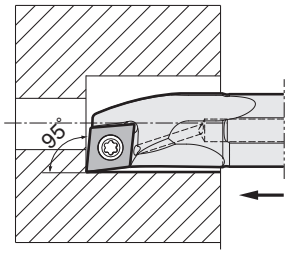
* When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Recommended Cutting Conditions F94~F95
Applicable Sleeves F85~F88

● : Std. Item

A-SCLP-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~5.5



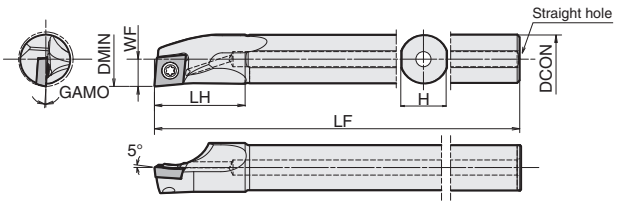


Fig. 1

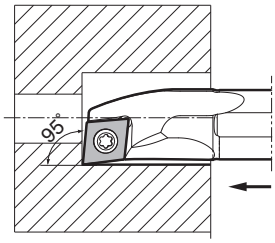
Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	ø5
ø20	
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SCLP-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~4



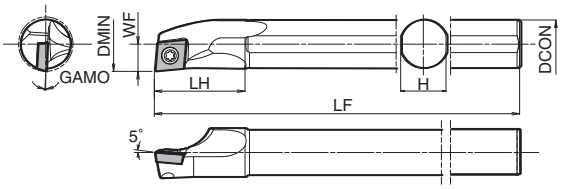


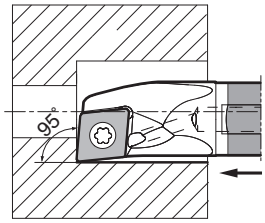
Fig. 2

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

E-SCLP-A(N) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~7



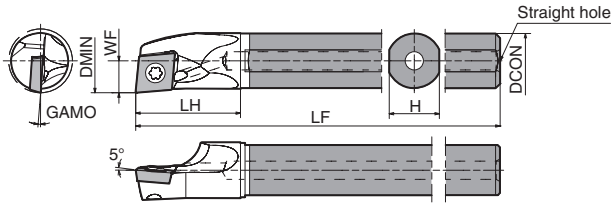


Fig. 3

Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	
ø20	ø6
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A10L-SCLP$^{R}_{L}$08-12AE	●	●	12	10	9	140	20	6	5°	0.4	Yes	Fig. 1	SB-3060TR	FT-10
	A12M-SCLP$^{R}_{L}$08-14AE	●	●	14	12	11	150	24	7	4°					
	A12M-SCLP$^{R}_{L}$09-16AE	●	●	16					8					SB-4065TR	FT-15
	A16Q-SCLP$^{R}_{L}$09-18AE	●	●	18	16	15	180	30	9	3.5°					
	A20R-SCLP$^{R}_{L}$09-22AE	●	●	22	20	19	200	36	11	2°					
	A25S-SCLP$^{R}_{L}$09-27AE	●	●	27	25	24	250	46	13.5	0°					
Steel	S10L-SCLP$^{R}_{L}$08-12A	●	●	12	10	9	140	20	6	5°	0.4	No	Fig. 2	SB-3060TR	FT-10
	S12M-SCLP$^{R}_{L}$08-14A	●	●	14	12	11	150	24	7	4°					
	S12M-SCLP$^{R}_{L}$09-16A	●	●	16					8					SB-4065TR	FT-15
	S16Q-SCLP$^{R}_{L}$09-18A	●	●	18	16	15	180	30	9	3.5°					
	S20R-SCLP$^{R}_{L}$09-22A	●	●	22	20	19	200	36	11	2°					
	S25S-SCLP$^{R}_{L}$09-27A	●	●	27	25	24	250	46	13.5	0°					
Carbide	E10N-SCLP$^{R}_{L}$08-12AN	●	●	12	10	9	160	18	6	5°	0.4	Yes	Fig. 3	SB-3060TR	FT-10
	E10N-SCLPR08-12AN2/3	●					105								
	E10N-SCLPR08-12AN1/2	●					80								
	E12Q-SCLP$^{R}_{L}$08-14A	●	●	14	12	11	180	23	7	4°					
	E12Q-SCLPR 08-14A-2/3	●					120								
	E12Q-SCLPR 08-14A-1/2	●					90								
	E12Q-SCLP$^{R}_{L}$09-16A	●	●	16	12	11	180	23	8	5°				SB-4065TR	FT-15
	E12Q-SCLPR 09-16A-2/3	●					120								
	E12Q-SCLPR 09-16A-1/2	●					90								
	E16X-SCLP$^{R}_{L}$ 09-18A	●	●	18	16	15	220	28	9	3.5°					
	E16X-SCLPR 09-18A-2/3	●					145								
	E16X-SCLPR 09-18A-1/2	●					110								
	E20S-SCLP$^{R}_{L}$ 09-22A	●	●	22	20	19	250	32	11	2°					
	E20S-SCLPR 09-22A-2/3	●					165								
	E20S-SCLPR 09-22A-1/2	●					125								
	E25T-SCLP$^{R}_{L}$ 09-27A	●	●	27	25	24	300	38	13.5	0°					
	E25T-SCLPR 09-27A-2/3	●					200								

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Medium	Finishing - Medium	Soft Steel / Finishing	Soft Steel / Finishing - Medium	Cast Iron	Non-ferrous Metals	Hard Materials
See Page	B61	B61	B61	B61	B61	B61	B61	B61	C25	C14
Insert / Toolholder Description	PP	GP	HQ	Standard	$^{R}_{L}$-Y	XP	XQ	Without Chipbreaker	PCD	CBN
...-SCLP$^{R}_{L}$08-...	CPMT0802..	CPMT0802..	CPMH0802..	CPMH0802..	CPMH0802..	CPMT0802..	-	CPMB0802..	CPMH0802..	CPGB0802..
...-SCLP$^{R}_{L}$09-...	CPMT0903..	CPMT0903..	CPMH0903..	CPMH0903..	CPMH0903..	CPMT0903..	CPMT0903..	CPMB0903..	CPMH0903..	CPGB0903..

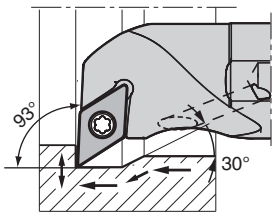
Recommended Cutting Conditions ➡ F94~F95
Applicable Sleeves ➡ F86~F88

● : Std. Item

Dynamic Bar [DC□□ Insert]

A-SDUC-AE Excellent Bar (Copying)

Max. Overhang Length L/D=~5.5



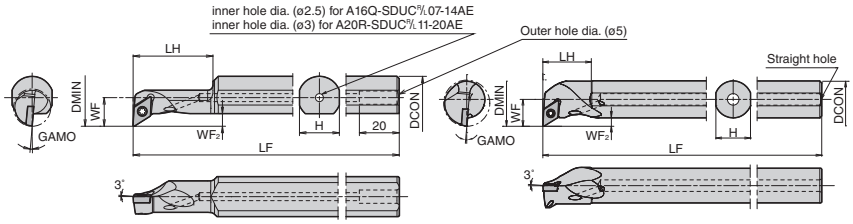


Fig. 1 Fig. 2

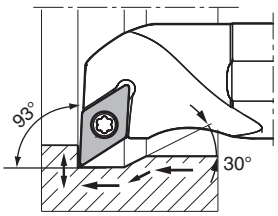
Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	ø5
ø20	
ø25	

● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SDUC-A Steel Bar (Copying)

Max. Overhang Length L/D=~4



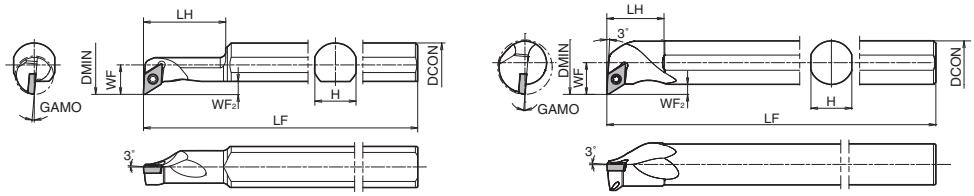


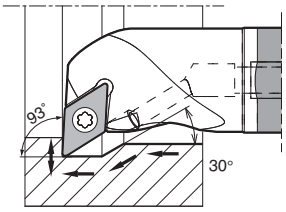
Fig. 3 Fig. 4

● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

E-SDUC-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D=~7



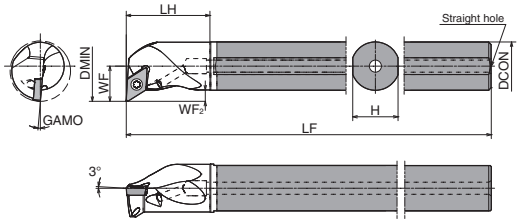


Fig. 5

Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	
ø20	ø6
ø25	

● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A10L-SDUC$^{R}_{L}$07-14AE	●	●	14	10	9	140	19	8.7	3.3	5°	0.4	Yes	Fig. 2	SB-2560TR	FT-8
	A16Q-SDUC$^{R}_{L}$07-14AE	●	●		16	15	180	28	10.8	4.4				Fig. 1		
	A12M-SDUC$^{R}_{L}$07-16AE	●	●	16	12	11	150	21	9.7	3.3				Fig. 2		
	A16Q-SDUC$^{R}_{L}$07-20AE	●	●	20	16	15	180		11.7							
	A20R-SDUC$^{R}_{L}$11-20AE	●	●		20	19	200	48	15.6	6.1				Fig. 1	SB-4065TR	FT-15
	A16Q-SDUC$^{R}_{L}$11-23AE	●	●	23	16	15	180	21	14.5					Fig. 2		
	A20R-SDUC$^{R}_{L}$11-27AE	●	●	27	20	19	200	23	16.5							
	A25S-SDUC$^{R}_{L}$11-32AE	●	●	32	25	24	250	24	19							
Steel	S10L-SDUC$^{R}_{L}$07-14A	●	●	14	10	9	140	19	8.7	3.3	5°	0.4	No	Fig. 4	SB-2560TR	FT-8
	S16Q-SDUC$^{R}_{L}$07-14A	●	●		16	15	180	28	10.8	4.4				Fig. 3		
	S12M-SDUC$^{R}_{L}$07-16A	●	●	16	12	11	150	21	9.7	3.3				Fig. 4		
	S16Q-SDUC$^{R}_{L}$07-20A	●	●	20	16	15	180		11.7							
	S20R-SDUC$^{R}_{L}$11-20A	●	●		20	19	200	48	15.6	6.1				Fig. 3	SB-4065TR	FT-15
	S16Q-SDUC$^{R}_{L}$11-23A	●	●	23	16	15	180	21	14.5					Fig. 4		
	S20R-SDUC$^{R}_{L}$11-27A	●	●	27	20	19	200	23	16.5							
	S25S-SDUC$^{R}_{L}$11-32A	●	●	32	25	24	250	24	19							
Carbide	E10N-SDUC$^{R}_{L}$07-14A	●	●	14	10	9	160	20	8.7	3.3	5°	0.4	Yes	Fig. 5	SB-2560TR	FT-8
	E10N-SDUCR 07-14A-2/3	●					105									
	E12Q-SDUC$^{R}_{L}$07-16A	●	●	16	12	11	180	23	9.7							
	E12Q-SDUCR 07-16A-2/3	●					120									
	E16X-SDUC$^{R}_{L}$07-20A	●	●	20	16	15	220	28	11.7							
	E16X-SDUCR 07-20A-2/3	●					145									
	E16X-SDUC$^{R}_{L}$11-23A	●	●	23			220		14.5	6.1					SB-4065TR	FT-15
	E16X-SDUCR 11-23A-2/3	●					145									
	E20S-SDUC$^{R}_{L}$11-27A	●	●	27	20	19	250	32	16.5							
	E20S-SDUCR 11-27A-2/3	●					165									
	E25T-SDUC$^{R}_{L}$11-32A	●	●	32	25	24	300	38	19							
	E25T-SDUCR 11-32A-2/3	●					200									

Applicable Inserts

Applications	Minute ap	Finishing	* Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium - Roughing	Finishing / Precision	Low Feed	Low Feed / Precision
See Page	B62	B62, B63	B63	B63	B64	B64	B64	B66, B67	B68, B69	B68
Insert / Toolholder Description	CF	CK	WP (Wiper)	PP	GK	HQ	Standard	$^{R}_{L}$ -F / -FSF	(E/F)$^{R}_{L}$-U	F$^{R}_{L}$-USF
...-SDUC$^{R}_{L}$07-...	DCGT0702..	DCGT0702..	DCMX0702..	DCMT0702..	DCMT0702..	DCMT0702..	DCGT0702..	DC□T0702..	DCGT0702..	DCET0702..
...-SDQC$^{R}_{L}$07-...										
...-SDZC$^{R}_{L}$07-...										
...-SDUC$^{R}_{L}$11-...	DCGT11T3..	DCGT11T3..	DCMX11T3..	DCMT11T3..	DCMT11T3..	DCMT11T3..	DCMT11T3.. DCGT11T3..	DC□T11T3..	DCGT11T3..	DCET11T3..
...-SDQC$^{R}_{L}$11-...										
...-SDZC$^{R}_{L}$11-...										

Applications	Low Feed	Soft Steel / Finishing	Soft Steel / Finishing - Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
See Page	B70, B71	B65	B65	B65	B71	B71	B71	B71	C25	C15
Insert / Toolholder Description	(E/F)$^{R}_{L}$-J	XP	XQ	MQ	Without Chipbreaker	AP	$^{R}_{L}$-A3	AH	PCD	CBN
...-SDUC$^{R}_{L}$07-...	DCET0702..	DCMT0702..	-	DCMT0702..	DCGW0702..	DCGT0702..	-	-	DCMT0702..	DCMW0702..
...-SDQC$^{R}_{L}$07-...										
...-SDZC$^{R}_{L}$07-...										
...-SDUC$^{R}_{L}$11-...	DC_T11T3..	DCMT11T3..	DCMT11T3..	DCMT11T3..	DCGW11T3..	DCGT11T3..	DCGT11T3..	DCGT11T3..	DCMT11T3..	DCMW11T3..
...-SDQC$^{R}_{L}$11-...										
...-SDZC$^{R}_{L}$11-...										

* For WP chipbreaker, cutting edge offsets or program corrections are required. See Page R35

Recommended Cutting Conditions F94~F95

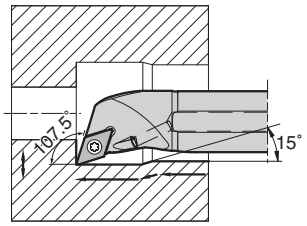
Applicable Sleeves F86~F88

● : Std. Item

Dynamic Bar [DC□□ Insert]

A-SDQC-AE Excellent Bar (Copying)

Max. Overhang Length L/D=~5.5



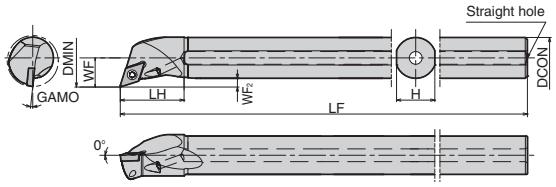


Fig. 1

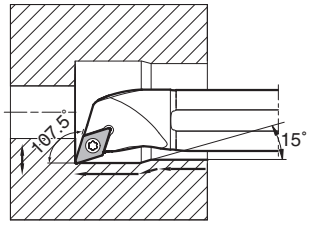
Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	ø5
ø20	
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SDQC-A Steel Bar (Copying)

Max. Overhang Length L/D=~4



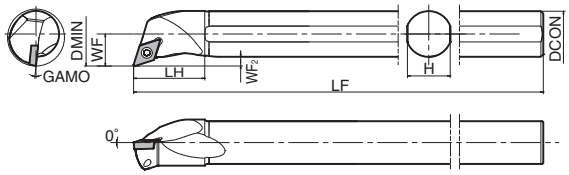


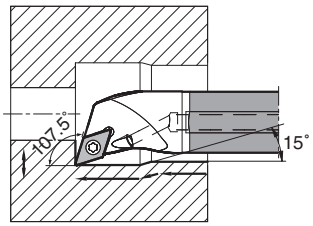
Fig. 2

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

E-SDQC-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D=~7



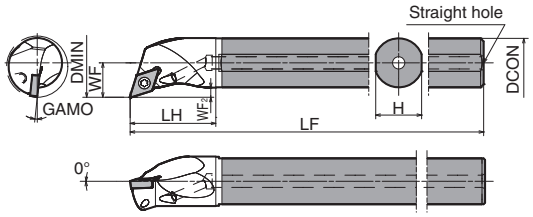


Fig. 3

Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	
ø20	ø6
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

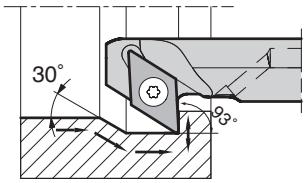
	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A10L -SDQC$^{R}_{L}$07-13AE	●	●	13	10	9	140	19	7.5	2.1	10°	0.4	Yes	Fig. 1	SB-2560TR	FT-8
	A12M-SDQC$^{R}_{L}$07-16AE	●	●	16	12	11	150	22	9.25	2.6	8°					
	A16Q-SDQC$^{R}_{L}$07-20AE	●	●	20	16	15	180	25	11.3		6°					
	A20R-SDQC$^{R}_{L}$11-25AE	●	●	25	20	19	200	31	14.4	3.7	5°				SB-4065TR	FT-15
	A25S-SDQC$^{R}_{L}$11-30AE	●	●	30	25	24	250	38	16.9		4°					
Steel	S10L-SDQC$^{R}_{L}$07-13A	●	●	13	10	9	140	19	7.5	2.1	10°	0.4	No	Fig. 2	SB-2560TR	FT-8
	S12M-SDQC$^{R}_{L}$07-16A	●	●	16	12	11	150	22	9.25	2.6	8°					
	S16Q-SDQC$^{R}_{L}$07-20A	●	●	20	16	15	180	25	11.3		6°					
	S20R-SDQC$^{R}_{L}$11-25A	●	●	25	20	19	200	31	14.4	3.7	5°				SB-4065TR	FT-15
	S25S-SDQC$^{R}_{L}$11-30A	●	●	30	25	24	250	38	16.9		4°					
Carbide	E10N-SDQC$^{R}_{L}$07-13A	●	●	13	10	9	160	20	7.5	2.1	10°	0.4	Yes	Fig. 3	SB-2560TR	FT-8
	E10N-SDQCR 07-13A-2/3	●					105									
	E12Q-SDQC$^{R}_{L}$07-16A	●	●	16	12	11	180	23	9.25	2.6	8°					
	E12Q-SDQCR 07-16A-2/3	●					120									
	E16X-SDQC$^{R}_{L}$07-20A	●	●	20	16	15	220	28	11.3	2.6	6°					
	E16X-SDQCR 07-20A-2/3	●					145									
	E20S-SDQC$^{R}_{L}$11-25A	●	●	25	20	19	250	32	14.4	3.7	5°				SB-4065TR	FT-15
	E20S-SDQCR 11-25A-2/3	●					165									
	E25T-SDQC$^{R}_{L}$11-30A	●	●	30	25	24	300	38	16.9	3.7	4°					
	E25T-SDQCR 11-30A-2/3	●					200									

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to A-SDQC-AE, S-SDQC-A and E-SDQC-A Toolholders.

● : Std. Item

A-SDZC-AE Excellent Bar (Back Boring)

Max. Overhang Length L/D=~5.5



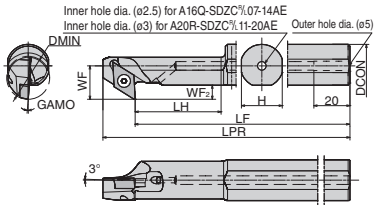


Fig. 1

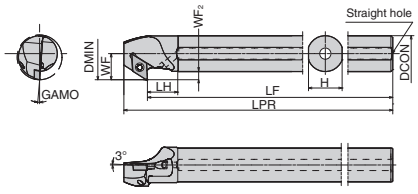


Fig. 2

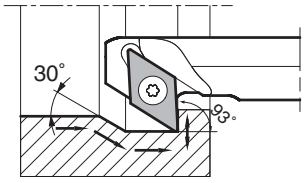
Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	ø5
ø20	
ø25	

• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

S-SDZC-A Steel Bar (Back Boring)

Max. Overhang Length L/D=~4



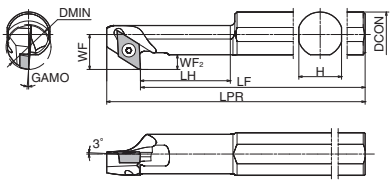


Fig. 3

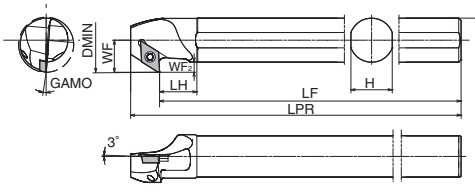


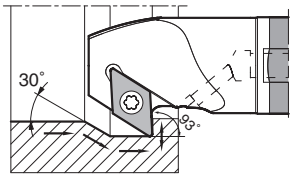
Fig. 4

• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

E-SDZC-A Carbide Shank Bar (Back Boring)

Max. Overhang Length L/D=~7



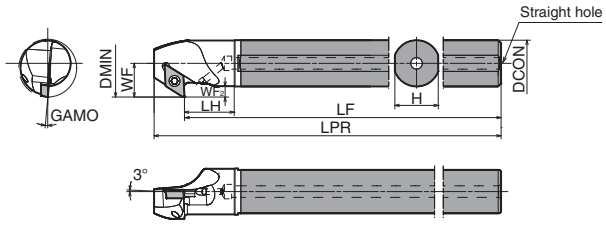


Fig. 5

Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	
ø20	ø6

• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LPR	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A10L-SDZC□07-14AE	●	●	14	10	9	140	130.5	14	8.7	3.3	5°	0.4	Yes	Fig. 2	SB-2545TR	FT-8
	A16Q-SDZC□07-14AE	●	●		16	15	180	170	30	10.8	4.4				Fig. 1		
	A12M-SDZC□07-16AE	●	●	16	12	11	150	139.5	14	9.7	3.3				Fig. 2	SB-2560TR	
	A16Q-SDZC□07-20AE	●	●	20	16	15	180	169.5		11.7							
	A20R-SDZC□11-20AE	●	●		20	19	200	185	40	15.6	6.1				Fig. 1	SB-4065TR	FT-15
	A16Q-SDZC□11-23AE	●	●	23	16	15	180	165	15	14.5					Fig. 2		
	A20R-SDZC□11-27AE	●	●	27	20	19	200	185		16.5							
	A25S-SDZC□11-32AE	●	●	32	25	24	250	235		19							
Steel	S10L-SDZC□07-14A	●	●	14	10	9	140	130.5	14	8.7	3.3	5°	0.4	No	Fig. 4	SB-2545TR	FT-8
	S16Q-SDZC□07-14A	●	●		16	15	180	170	30	10.8	4.4				Fig. 3		
	S12M-SDZC□07-16A	●	●	16	12	11	150	139.5	14	9.7	3.3				Fig. 4	SB-2560TR	
	S16Q-SDZC□07-20A	●	●	20	16	15	180	169.5		11.7							
	S20R-SDZC□11-20A	●	●		20	19	200	185	40	15.6	6.1				Fig. 3	SB-4065TR	FT-15
	S16Q-SDZC□11-23A	●	●	23	16	15	180	165	15	14.5					Fig. 4		
	S20R-SDZC□11-27A	●	●	27	20	19	200	185		16.5							
	S25S-SDZC□11-32A	●	●	32	25	24	250	235		19							
Carbide	E10N-SDZCR07-14A	●		14	10	9	160	150.5	10.5	8.7	3.3	5°	0.4	Yes	Fig. 5	SB-2545TR	FT-8
	E12Q-SDZCR07-16A	●		16	12	11	180	169.5	12.5	9.7						SB-2560TR	
	E16X-SDZCR07-20A	●		20	16	15	220	209.5	17.5	11.7							
	E16X-SDZCR11-23A	●		23				205	13	14.5	6.1					SB-4065TR	FT-15
	E20S-SDZCR11-27A	●		27	20	19	250	235	17	16.5							

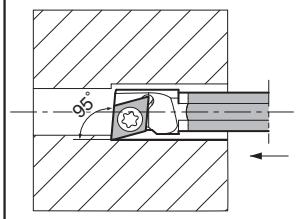
* For WP chipbreaker, cutting edge offsets or program corrections are required. See Page R35

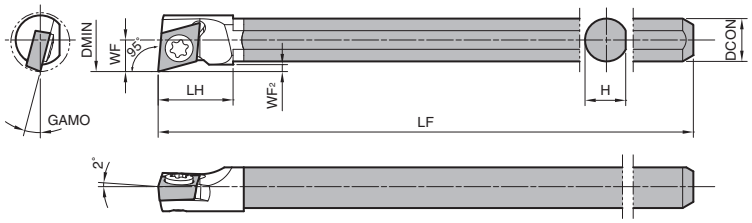
● : Std. Item

Boring Bar [JC□□ Insert]

C-SJLC Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~7



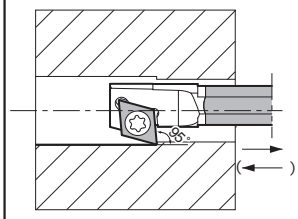


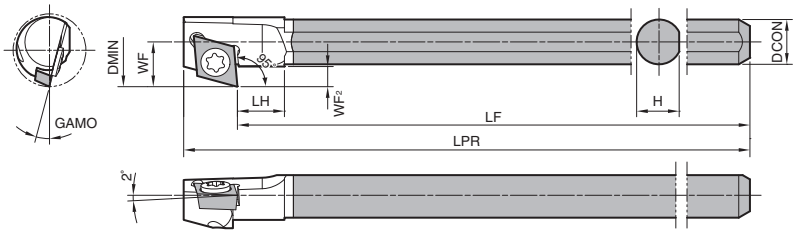
• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

C-SJZC Carbide Shank Bar (Back Boring)

Max. Overhang Length L/D=~7





• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

* When using Right-hand Toolholder, use Right-hand insert if machining from back to front in this direction (→).
Use Left-hand insert if machining from front to back in this direction (←).

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)							GAMO	Std. Corner-R(RE)	Spare Parts	
													Clamp Screw	Wrench
	R	L	DMIN	DCON	H	LPR	LF	LH	WF	WF_2				
C04X-SJLCR/L03-055	●	●	5.5	4	3.8	-	91	7	2.95	0.65	15°	0.03	SB-1635TR	FT-6
C04X-SJZCR/L03-065	●	●	6.5			93	88.1	4	4.0	1.8				

Applicable Inserts

Applications	Finishing	Finishing / Precision								
See Page	B73	B73								
Insert / Toolholder Description	R/L-F 	R/L-FSF 								
...-SJLCR/L03-...	JCGT0301..	JCET0301..								
...-SJZCR/L03-...	JCGT0301..	JCET0301..								

Recommended Cutting Conditions ➡ **F94~F95**
Applicable Sleeves ➡ **F85,F87,F88**

• Features of C-SJLC
1. Specially designed for minimized bore dia.
2. A relief angle of 15˚ ensures high flexibility of the tool pass during necking.
3. Retaining front relief angle 5˚ and good surface roughness during internal facing.

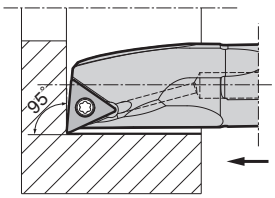
• Features of C-SJZC
1. Back boring bars for workpiece that require high concentric circle accuracy and when a change of chuck is not possible.
2. Available for back boring and necking.
3. Despite the small size of minimum boring dia. as ø6.5, the edge gap is retained as large as 1.8 mm.

● : Std. Item

DynamicBar [TC□□ Insert]

A-STLC-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~5.5



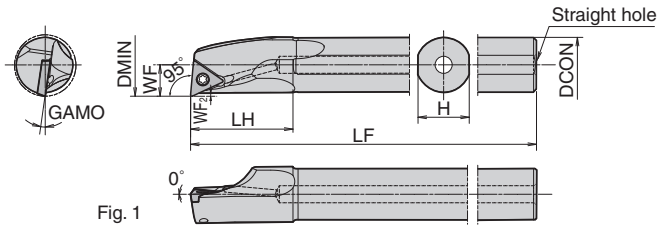


Fig. 1

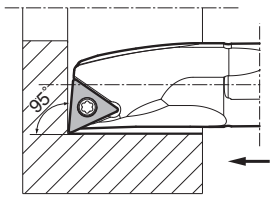
Shank Dia. DCON	Straight hole Dia.
ø8	ø2.5
ø10	ø3
ø12	ø4
ø16	ø5
ø20	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-STLC-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~4



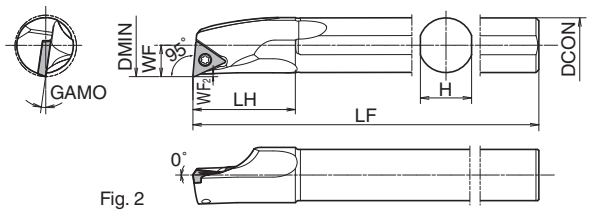


Fig. 2

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A08X-STLCR/L09-10AE	●	●	10	8	7	120	16	5	0.5	14°	0.4	Yes	Fig. 1	SB-2250TR	FT-7
	A10L-STLCR/L09-12AE	●	●	12	10	9	140	20	6.2	0.9	12°					
	A10L-STLCR/L11-12AE	●	●												SB-2560TR	FT-8
	A12M-STLCR/L11-14AE	●	●	14	12	11	150	24	7.2	0.7	10°					
	A16Q-STLCR/L11-18AE	●	●	18	16	15	180	30	9.2		8°					
	A20R-STLCR/L11-22AE	●	●	22	20	19	200	36	11.2		6°					
Steel	S08X-STLCR/L09-10A	●	●	10	8	7	120	16	5	0.5	14°	0.4	No	Fig. 2	SB-2250TR	FT-7
	S10L-STLCR/L09-12A	●	●	12	10	9	140	20	6.2	0.9	12°					
	S10L-STLCR/L11-12A	●	●												SB-2560TR	FT-8
	S12M-STLCR/L11-14A	●	●	14	12	11	150	24	7.2	0.7	10°					
	S16Q-STLCR/L11-18A	●	●	18	16	15	180	30	9.2		8°					
	S20R-STLCR/L11-22A	●	●	22	20	19	200	36	11.2		6°					

Applicable Inserts

Applications	* Finishing	Finishing - Medium								
See Page	B77	B77								
Insert / Toolholder Description	WP (Wiper)	HQ								
...-STLCR/L09-...	TCMX0902..	TCMT0902..								
...-STLCR/L11-...	TCMX1102..	TCMT1102..								

* For WP chipbreaker, cutting edge offsets or program corrections are required. See Page ➡ R35

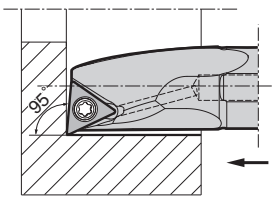
Recommended Cutting Conditions ➡ F94~F95
Applicable Sleeves ➡ F85~F88

● : Std. Item

Dynamic Bar [TB□□, TP□□ Insert]

A/S-STLB(P)-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~5.5



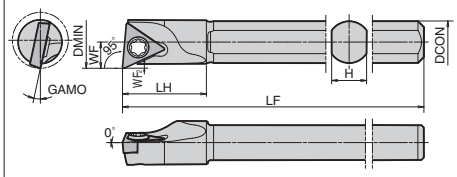


Fig. 1

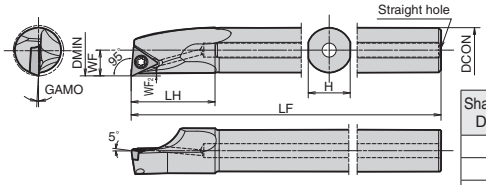


Fig. 2

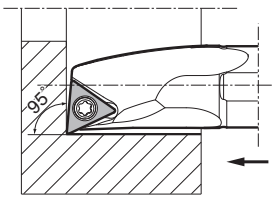
Shank Dia. DCON	Straight hole Dia.
ø8	ø2.5
ø10	ø3
ø12	ø4
ø16	ø5
ø20	
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-STLB(P)-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~4



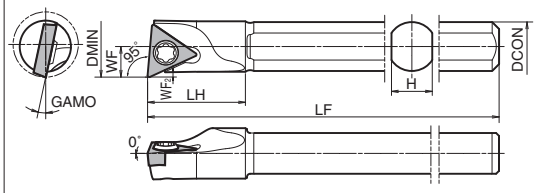


Fig. 3

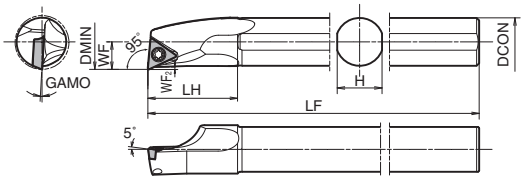


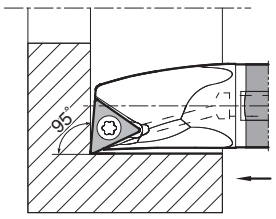
Fig. 4

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

C/E-STLB(P)-A(N) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~7



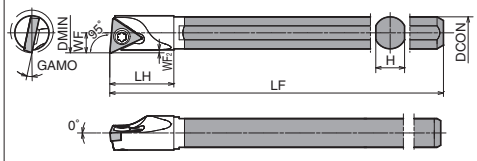


Fig. 5

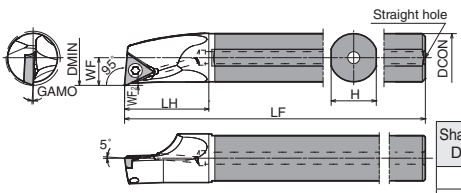


Fig. 6

Shank Dia. DCON	Straight hole Dia.
ø8	ø3
ø10	
ø12	ø4
ø16	
ø20	ø6
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Applicable Inserts

Applications	Minute ap	Finishing	* Finishing	* Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing / Precision
See Page	B76, B80	B76, B80	B80	B80	B80	B81	B76	B81	B76, B82, B83	B85
Insert / Toolholder Description	CF	PF	WP (Wiper)	R/L-WP (Wiper)	PP	GP	DP	HQ	R/L	R/L-FSF
...-STLBR/L06-...	TBGT0601..	TBGT0601..	-	-	-	-	TBMT0601..	-	TBGT0601..	-
...-STLPR/L08-...	TPGT0802..	-	-	-	-	-	-	-	TPGH0802..	TPET0802..
...-STLPR/L09-...	TPGT0902..	TPGT0902..	TPMX0902..	-	TPMT0902..	TPMT0902..	-	TPMT0902..	TPGH0902..	-
...-STLPR/L11-...	-	-	TPMX1103..	TPMX1103..	TPMT1103..	TPMT1103..	-	TPMT1103..	TPGH1103..	TPET1103..
...-STLPR/L16-...	-	-	-	-	-	TPMT1603..	-	TPMT1603..	TPGH1603..	-

Applications	* Finishing	Medium	Low Feed / Precision	Soft Steel / Finishing	Soft Steel / Finishing - Medium	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	
See Page	B85	B84	B86	B81	B81	B76, B86	B86	C26~C28	C16	
Insert / Toolholder Description	R/L-P	R/L-H	FR/L-USF	XP	XQ	Without Chipbreaker	AP	PCD	CBN	
...-STLBR/L06-...	-	-	-	-	-	TBGW0601..	-	TBMT0601.. TBGW0601..	-	
...-STLPR/L08-...	TPEH0802..	-	TPET0802..	-	-	TPGB0802..	-	TPMH0802.. TPGB0802..	TPGB0802..	
...-STLPR/L09-...	TPEH0902..	TPGH0902..	-	TPMT0902..	-	TPGB0902..	-	TPMH0902.. TPGB0902..	TPGB0902..	
...-STLPR/L11-...	TPEH1103..	TPGH1103..	TPET1103..	TPMT1103..	TPMT1103..	TPGB1103..	TPGT1103..	TPMH1103.. TPGB1103..	TPGB1103..	
...-STLPR/L16-...	-	TPGH1603..	-	TPMT1603..	TPMT1603..	TPGB1603..	-	TPMH1603.. TPGB1603..	TPGB1603..	

* For WP chipbreaker, cutting edge offsets or program corrections are required. See Page R35

* When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Recommended Cutting Conditions F94~F95
Applicable Sleeves F85~F88

Toolholder Dimensions

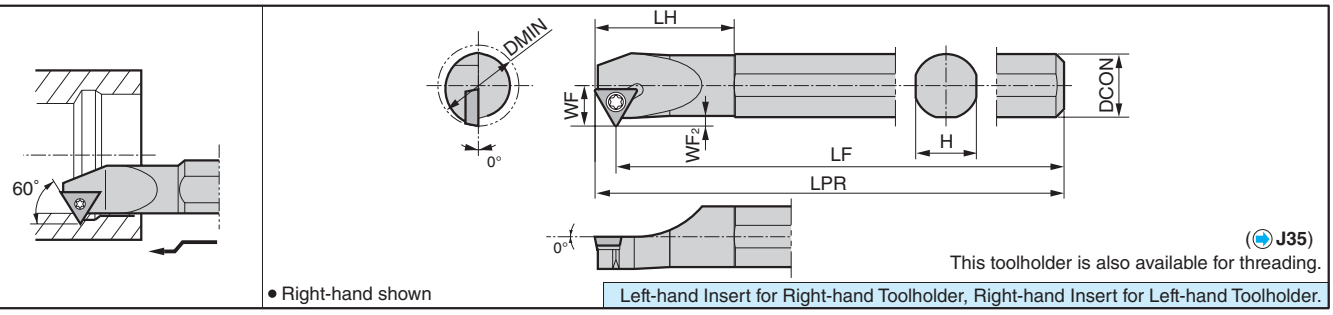
	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	S06H-STLBR/L06-08AE	●	●	8	6	5	100	12	3.8	0.5	12°	0.2	No	Fig. 1	SB-2035TR	FT-6
	A08X-STLPR/L08-10AE	●	●	10	8	7	120	16	5	0.5	10°	0.4	Yes	Fig. 2	SB-1TR	
	A08X-STLPR/L09-10AE	●	●												SB-2545TR	FT-8
	A10L-STLPR/L09-12AE	●	●	12	10	9	140	20	6.2	0.9	8°					
	A10L-STLPR/L11-12AE	●	●						6	0.7	10°				SB-3060TR	FT-10
	A12M-STLPR/L11-14AE	●	●	14	12	11	150	24	7.2	0.8	7°					
	A12M-STLPR/L09-16AE	●	●	16					8	0.6	5°				SB-2545TR	FT-8
	A16Q-STLPR/L11-18AE	●	●	18	16	15	180	30	9.2	0.7	3.5°				SB-3060TR	FT-10
	A20R-STLPR/L11-22AE	●	●	22	20	19	200	36	11.2		2°					
	A20R-STLPR/L16-25AE	●	●	25					13		0°				SB-4065TR	FT-15
	A25S-STLPR/L16-27AE	●	●	27	25	24	250	46	13.7							
Steel	S06H-STLBR/L06-08A	●	●	8	6	5	100	12	3.8	0.5	12°	0.2	No	Fig. 3	SB-2035TR	FT-6
	S08X-STLPR/L08-10A	●	●	10	8	7	120	16	5	0.5	10°	0.4		Fig. 4	SB-1TR	
	S08X-STLPR/L09-10A	●	●												SB-2545TR	FT-8
	S10L-STLPR/L09-12A	●	●	12	10	9	140	20	6.2	0.9	8°					
	S10L-STLPR/L11-12A	●	●						6	0.7	10°				SB-3060TR	FT-10
	S12M-STLPR/L11-14A	●	●	14	12	11	150	24	7.2	0.8	7°					
	S12M-STLPR/L09-16A	●	●	16					8	0.6	5°				SB-2545TR	FT-8
	S16Q-STLPR/L11-18A	●	●	18	16	15	180	30	9.2	0.7	3.5°				SB-3060TR	FT-10
	S20R-STLPR/L11-22A	●	●	22	20	19	200	36	11.2		2°					
	S25S-STLPR/L16-27A	●	●	27	25	24	250	46	13.7		0°				SB-4065TR	FT-15
Carbide	C06J-STLBR/L06-08AN	●	●	8	6	5.4	110	10	3.8	0.5	12°	0.2	No	Fig. 5	SB-2035TR	FT-6
	E08L-STLPR/L08-10AN	●	●	10	8	7	140	14	5	0.5	10°	0.4	Yes	Fig. 6	SB-1TR	
	E08L-STLPR/L09-10AN	●	●												SB-2545TR	FT-8
	E10N-STLPR/L09-12AN	●	●	12	10	9	160	18	6.2	0.9	8°					
	E10N-STLPR09-12AN2/3	●					105									
	E10N-STLPR09-12AN1/2	●					80									
	E10N-STLPR/L11-12AN	●	●				160		6	0.7	10°				SB-3060TR	FT-10
	E10N-STLPR11-12AN2/3	●					105									
	E10N-STLPR11-12AN1/2	●					80									
	E12Q-STLPR/L11-14A	●	●	14	12	11	180	23	7.2	0.8	7°					
	E12Q-STLPR 11-14A-2/3	●					120									
	E12Q-STLPR 11-14A-1/2	●					90									
	E12Q-STLPR/L09-16A	●	●	16			180		8	0.6	5°				SB-2545TR	FT-8
	E12Q-STLPR 09-16A-2/3	●					120									
	E12Q-STLPR 09-16A-1/2	●					90									
	E16X-STLPR/L 11-18A	●	●	18	16	15	220	28	9.2	0.7	3.5°				SB-3060TR	FT-10
	E16X-STLPR 11-18A-2/3	●					145									
	E16X-STLPR 11-18A-1/2	●					110									
	E20S-STLPR/L 11-22A	●	●	22	20	19	250	32	11.2		2°					
	E20S-STLPR 11-22A-2/3	●					165									
	E20S-STLPR 11-22A-1/2	●					125									
	E20S-STLPR/L 16-25A	●	●	25			250		13		0°				SB-4065TR	FT-15
	E20S-STLPR 16-25A-2/3	●					165									
	E20S-STLPR 16-25A-1/2	●					125									
	E25T-STLPR/L 16-27A	●	●	27	25	24	300	38	13.7							
	E25T-STLPR 16-27A-2/3	●					200									

● : Std. Item

Boring Bar [TB□□, TP□□ Insert]

S-STWP-E Excellent Bar (Copying)

Max. Overhang Length L/D=~5



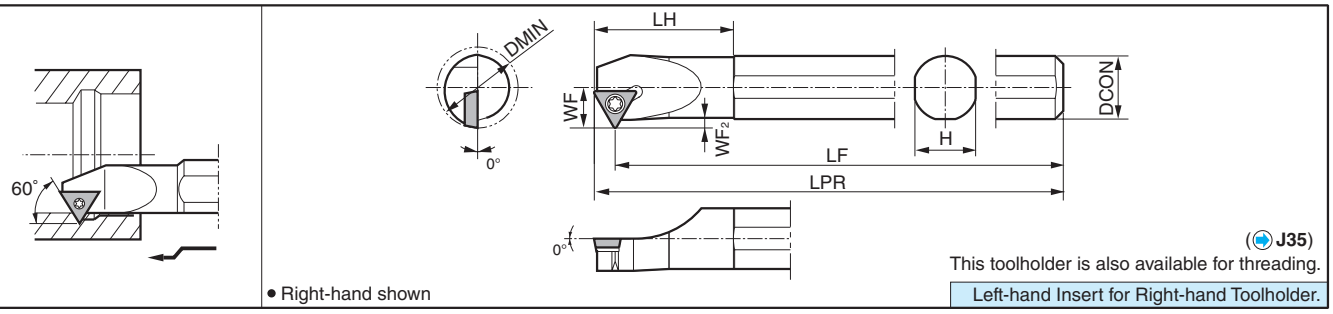
• Right-hand shown

(➡ J35)
This toolholder is also available for threading.

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-STWP Steel Bar (Copying)

Max. Overhang Length L/D=~3

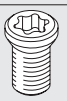
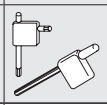


• Right-hand shown

(➡ J35)
This toolholder is also available for threading.

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)							GAMO	Std. Corner-R(RE)	Spare Parts	
													Clamp Screw	Wrench
	R	L	DMIN	DCON	H	LPR	LF	LH	WF	WF_2				
S10M-STWP[R/L]11-12E	●	●	12	10	9.2	150	144.5	23	6	1.0	0°	0.1	SB-3STR	FT-10
S12M-STWP[R/L]11-16E	●	●	16	12	11			30	8	1.5				
S16R-STWP[R/L]11-20E	●	●	20	16	15	200	194.5	35	10	2.0			SB-3TR	
S20X-STWP[R/L]11-25E	●	●	25	20	19	220	214.5	40	12.5	2.5				
S20X-STWP[R/L]16-25E	●	●	25	20	19	220	212.3	40	14	4.0	0°	0.8	SB-4TR	FT-15
S25X-STWP[R/L]16-32E	●	●	32	25	23	270	262.3	42	16.5					
S10M-STWPR11-12	●		12	10	9.2	150	144.5	23	6	1.0	0°	0.1	SB-3STR	FT-10
S12M-STWPR11-16	●		16	12	11			30	8	1.5				
S16Q-STWPR11-20	●		20	16	15	180	174.5	35	10	2.0			SB-3TR	
S20R-STWPR11-25	●		25	20	19	200	194.5	40	12.5	2.5				

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing	Finishing / Precision	Medium	Low Feed / Precision	Soft Steel / Finishing	Soft Steel / Finishing - Medium
See Page	B80	B81	B81	B82, B83	B85	B84	B86	B81	B81
Insert / Toolholder Description	PP	GP	HQ	R/L	R/L-FSF	R/L-H	FR/L-USF	XP	XQ
S10M-STWP[R/L]11-12(E)	-	-	-	TPGH1102..	-	-	-	-	-
...-STWP[R/L]11-16~25(E)	TPMT1103..	TPMT1103..	TPMT1103..	TPGH1103..	TPET1103..	TPGH1103..	TPET1103..	TPMT1103..	TPMT1103..
...-STWP[R/L]16-...	-	TPMT1603..	TPMT1603..	TPGH1603..	-	TPGH1603..	-	TPMT1603..	TPMT1603..

Applications	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Hard Materials					
See Page	B86	B86	C26~C28	C16					
Insert / Toolholder Description	Without Chipbreaker	AP	PCD	CBN					
S10M-STWP[R/L]11-12(E)	TPGB1102..	-	-	-					
...-STWP[R/L]11-16~25(E)	TPGB1103..	TPGT1103..	TPMH1103.. TPGB1103..	TPGB1103..					
...-STWP[R/L]16-...	TPGB1603..	-	TPMH1603.. TPGB1603..	TPGB1603..					

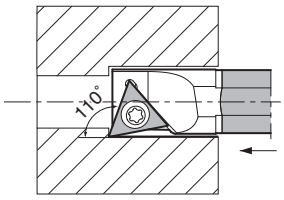
WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to S-STWP-E and S-STWP Toolholders.

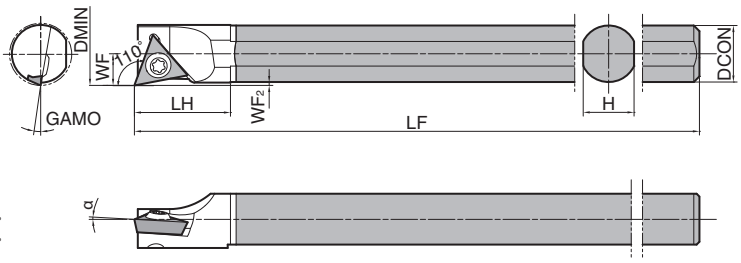
Recommended Cutting Conditions ➡ F94~F95
Applicable Sleeves ➡ F86~F88

● : Std. Item

C-STXP(B) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~7



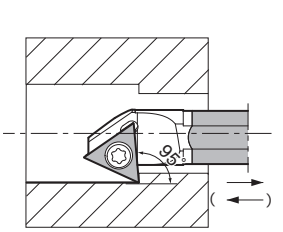


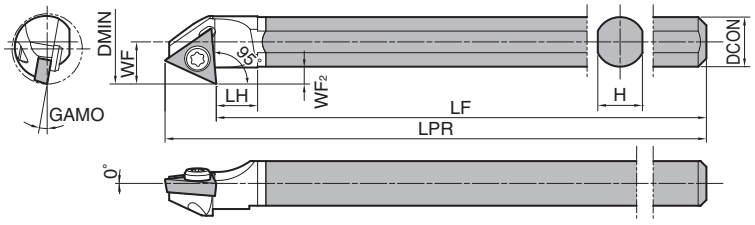
• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

C-STZB Carbide Shank Bar (Back Boring)

Max. Overhang Length L/D=~7





• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

* When using Right-hand Toolholder, use Right-hand insert if machining from back to front in this direction (→).
Use Left-hand insert if machining from front to back in this direction (←).

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LPR	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Spare Parts: Clamp Screw	Spare Parts: Wrench
C06J -STXBR/L06-075	●	●	7.5	6	5.4	-	110	11	3.75	0.5	10°	0.03	SB-1STR	FT-6
C08X -STXPR/L08-09	●	●	9.0	8	7.0	-	143	14	4.6				SB-1TR	
C10X -STXPR/L09-11	●	●	11.0	10	9.0	-	164	17	5.6				SB-2TR	FT-8
C06J -STZBR/L06-085	●	●	8.5	6	5.4	110	104.3	5	5.1	2.0			SB-1STR	FT-6

Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing / Precision	Low Feed / Precision	Soft Steel / Finishing	Cast Iron
See Page	**B76, B80**	**B80**	**B81**	**B76**	**B81**	**B76, B82, B83**	**B85**	**B86**	**B81**	**B76, B86**
Insert / Toolholder Description	CF	PP	GP	DP	HQ	R/L	R/L-FSF	FR/L-USF	XP	Without Chipbreaker
...-STXBR/L06-...	TBGT0601..	-	-	TBMT0601..	-	TBGT0601..	-	-	-	TBGW0601..
...-STXPR/L08-...	TPGT0802..	-	-	-	-	TPGH0802..	TPET0802..	TPET0802..	-	TPGB0802..
...-STXPR/L09-...	TPGT0902..	TPMT0902..	TPMT0902..	-	TPMT0902..	TPGH0902..	-	-	TPMT0902..	TPGB0902..
...-STZBR/L06-...	TBGT0601..	-	-	TBMT0601..	-	TBGT0601..	-	-	-	TBGW0601..

Applications	Non-ferrous Metals	Hard Materials
See Page	**C26, C27**	**C16**
Insert / Toolholder Description	PCD	CBN
...-STXBR/L06-...	TBMT0601..	-
...-STXPR/L08-...	TPMH0802.. TPGB0802..	TPGB0802..
...-STXPR/L09-...	TPMH0902.. TPGB0902..	TPGB0902..
...-STZBR/L06-...	TBMT0601..	-

WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to C-STXP Toolholders.

Recommended Cutting Conditions **F94~F95**
Applicable Sleeves **F85~F88**

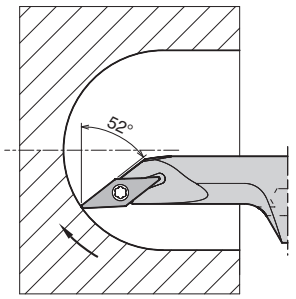
C-STXP(B) Boring Bar Cutting Conditions (Workpiece Material: Alloy Steel)

Toolholder Description	Insert Description (Grades)	Vc (m/min)	ap (mm)	f (mm/rev)	Coolant
C06J-STXBR/L06-075	**TBGT0601003 L/R (PR930)**	30~100	0.02~0.1	0.02~0.04	Yes
C08X-STXPR/L08-09	**TPGH080201 L/R (PR930)**	30~100	0.05~0.15	0.03~0.08	Yes
C10X-STXPR/L09-11	**TPGH090201 L/R (PR930)**	30~100	0.05~0.15	0.03~0.08	Yes

● : Std. Item

A-SVJP(C)(B)-AE Excellent Bar (Internal Spherical Machining / Internal Facing / Copying)

Max. Overhang Length L/D=~5.5



For applications, See Page **F55**

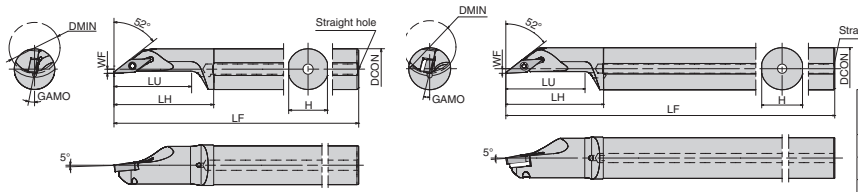


Fig. 1 Fig. 2

* No shim for SVJP(C)R/L08 / SVJBR/L11

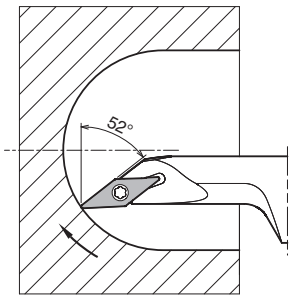
Shank Dia. DCON	Straight hole Dia.
ø12	ø4
ø16	
ø20	ø5
ø25	
ø32	ø7
ø40	ø9

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SVJP(C)(B)-A Steel Bar (Internal Spherical Machining / Internal Facing / Copying)

Max. Overhang Length L/D=~4



For applications, See Page **F55**

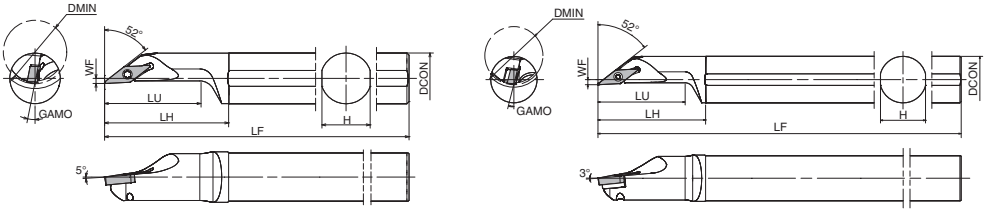


Fig. 3 Fig. 4

* No shim for SVJP(C)R/L08 / SVJBR/L11

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LU	LH	WF	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A12M-SVJPR/L08-16AE	●	●	16	12	11	150	26	33	2	5°	0.2	Yes	Fig. 1	SB-2050TR	FT-6
	A12M-SVJCR/L08-16AE	●	●									0.4				
	A16Q-SVJCR/L08-20AE	●	●	20	16	15	180	36	43							
	A20R-SVJBR/L11-25AE	●	●	25	20	19	200	37.5	48						SB-2570TR	FT-8
	A25S-SVJBR/L11-30AE	●	●	30	25	24	250	45	58	3.5						
	A32S-SVJBR/L16-40AE	●	●	40	32	31		60	74		8°					
	A40T-SVJBR/L16-50AE	●	●	50	40	39	300	75	91	4.5	7°			Fig. 2	SB-40125TRN	FT-15
Steel	S12M-SVJPR/L08-16A	●	●	16	12	11	150	26	33	2	5°	0.2	No	Fig. 3	SB-2050TR	FT-6
	S12M-SVJCR/L08-16A	●	●									0.4				
	S16Q-SVJCR/L08-20A	●	●	20	16	15	180	36	43							
	S20R-SVJBR/L11-25A	●	●	25	20	19	200	37.5	48						SB-2570TR	FT-8
	S25S-SVJBR/L11-30A	●	●	30	25	24	250	45	58	3.5						
	S32S-SVJBR/L16-40A	●	●	40	32	31		60	74		8°					
	S40T-SVJBR/L16-50A	●	●	50	40	39	300	75	91	4.5	7°			Fig. 4	SB-40125TRN	FT-15

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing / Precision	Low Feed / Precision	Non-ferrous Metals	Non-ferrous Metals
See Page	B94	B89, B92	B89, B92	B89	B89, B92	B90	B89, B95	B96	B93	B93
Insert / Toolholder Description	CK	VF	PP	GP	HQ	R/L-F	R/L-FSF	FR/L-USF	AP	R/L-A3
...-SVJPR/L08-...	VPGT0802..	-	-	-	-	-	VPET0802..	VPET0802..	-	-
...-SVJCR/L08-...	-	VCMT0802..	VCMT0802..	-	VCMT0802..	-	-	-	-	-
...-SVJBR/L11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	-	-	-
...-SVJBR/L16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	-	-	-	VCGT1604..	VCGT1604..

Applications	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
See Page	B93	C28	C17
Insert / Toolholder Description	AH	PCD	CBN
...-SVJPR/L08-...	-	-	-
...-SVJCR/L08-...	-	VCMT0802..	VCGW0802..
...-SVJBR/L11-...	-	VBMT1103..	VBGW1103..
...-SVJBR/L16-...	VCGT1604..	VBMT1604..	VBGW1604..

* Use of VBGT1103..-Y / VBGT1604..-Y with A-SVJB-AE / S-SVJB-A is not recommended.

Spare Parts (See Page **P24** for spare parts of old products.)

Description	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench (for Shim Screw)
□32S-SVJBR/L16-40A□	SVN-32N *(SVN-32S)	SS-4N	LW-4
□40T-SVJBR/L16-50A□			

· For insert with corner-R(RE) 0.2 or 0.4, shim of marked * is recommended (sold separately).

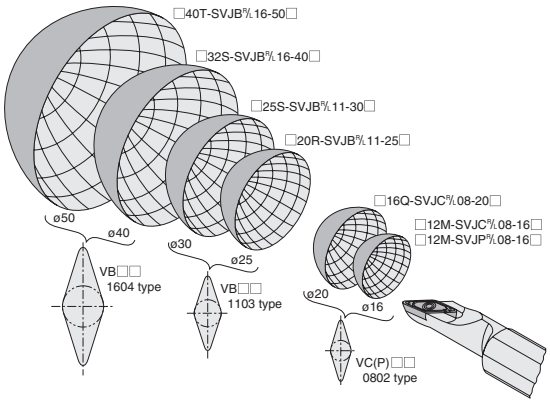
Recommended Cutting Conditions **F94~F95**
Applicable Sleeves **F86~F88**

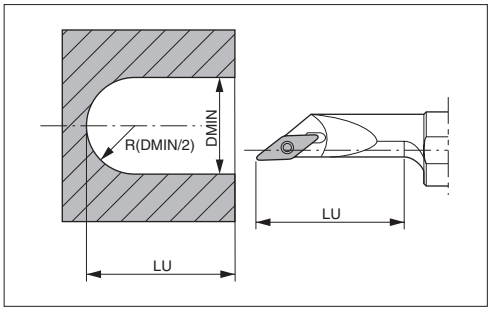
● : Std. Item

Application of □-SVJP(C)(B)-□

[See Page for Toolholders F54]

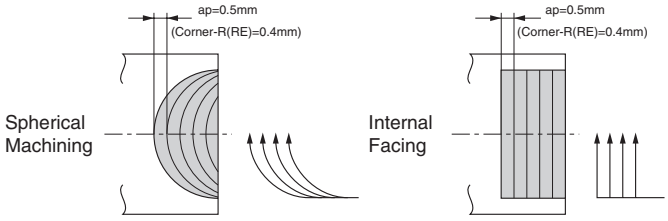
1. Application Range





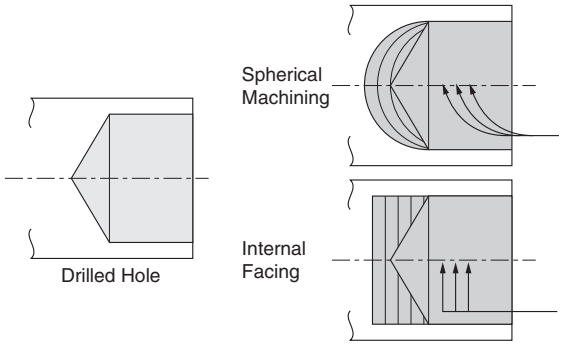
2. Application

Case with No Existing Hole



(Note) f shall be 0.05mm/rev or less at internal facing.

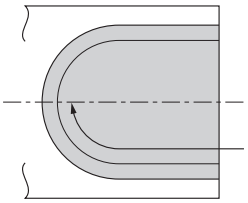
Case with Drilled Hole



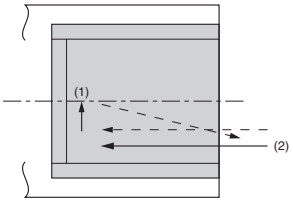
(Note) f shall be 0.05mm/rev or less at internal facing.

Finishing

Spherical Machining

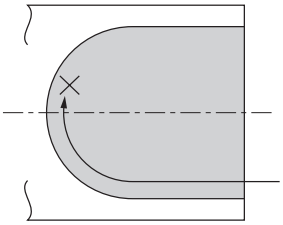


Internal Facing

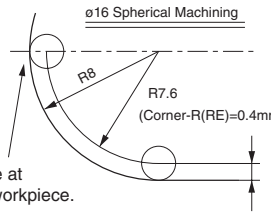


Machining Process
(1) Finish the internal face first.
(2) Next, finish the internal diameter.

3. Caution

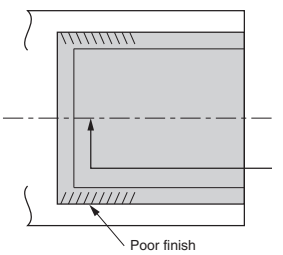


When machining past the center of the workpiece, insert may break.



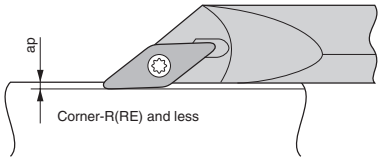
Fix the insert edge at the center of the workpiece.

Adjust the machining program to radius minus the value of corner-R(RE).



This type of machining is possible, but the chips might scratch the surface.

For internal profiling, ap should be the value of Corner-R(RE) and less.

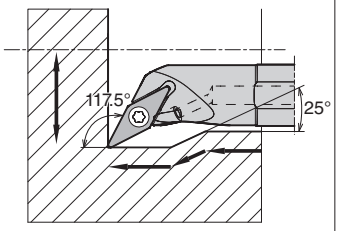


[Burrs may occur, if ap is Corner-R(RE) and more]

Dynamic Bar [VB□□, VC□□ Insert]

A-SVPC(B)-AE Excellent Bar (Copying / Undercutting)

Max. Overhang Length L/D=~5.5



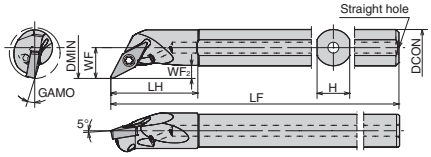


Fig. 1

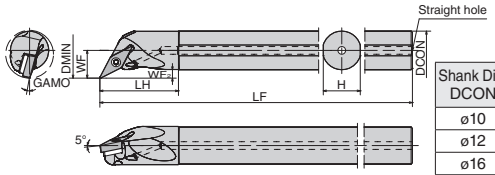


Fig. 2

Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	ø5
ø20	ø5
ø25	ø5
ø32	ø5

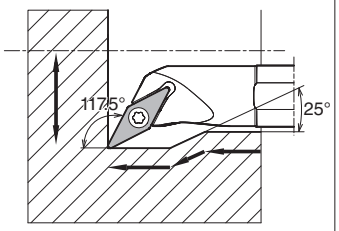
* No shim for SVPC$^{R}_{L}$08 / SVPB$^{R}_{L}$11

● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SVPC(B)-A Steel Bar (Copying / Undercutting)

Max. Overhang Length L/D=~4



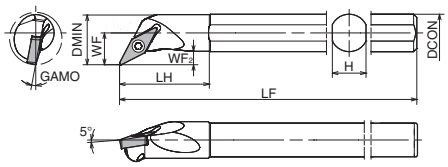


Fig. 3

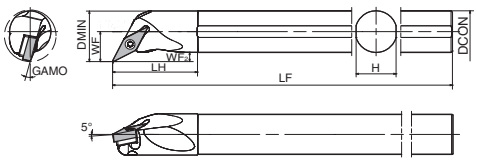


Fig. 4

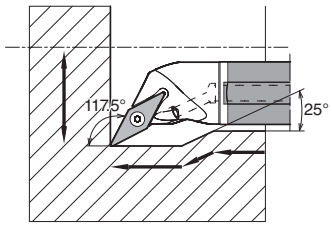
* No shim for SVPC$^{R}_{L}$08 / SVPB$^{R}_{L}$11

● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

E-SVPC(B)-A Carbide Shank Bar (Copying / Undercutting)

Max. Overhang Length L/D=~7



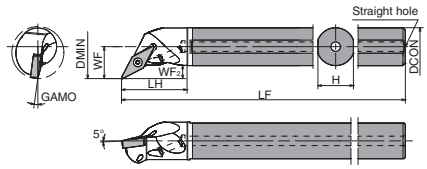


Fig. 5

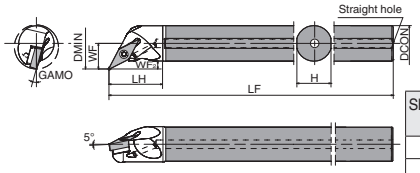


Fig. 6

Shank Dia. DCON	Straight hole Dia.
ø10	ø3
ø12	ø4
ø16	ø4
ø20	ø6
ø25	ø6

* No shim for SVPC$^{R}_{L}$08 / SVPB$^{R}_{L}$11

● Right-hand shown

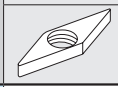
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A10L-SVPC$^{R}_{L}$08-14AE	●	●	14	10	9	140	24	8.5	3	8°	0.4	Yes	Fig. 1	SB-2050TR	FT-6
	A12M-SVPB$^{R}_{L}$11-18AE	●	●	18	12	11	150	29	11	4.5					SB-2570TR	FT-8
	A16Q-SVPB$^{R}_{L}$11-22AE	●	●	22	16	15	180	35	13.5	5	5°					
	A20R-SVPB$^{R}_{L}$11-26AE	●	●	26	20	19	200	41	15.5							
	A25S-SVPB$^{R}_{L}$16-31AE	●	●	31	25	24	250	51	18		13°			Fig. 2	SB-40125TRN	FT-15
	A32S-SVPB$^{R}_{L}$16-40AE	●	●	40	32	31		54	23	6.5	9°					
Steel	S10L-SVPC$^{R}_{L}$08-14A	●	●	14	10	9	140	24	8.5	3	8°	0.4	No	Fig. 3	SB-2050TR	FT-6
	S12M-SVPB$^{R}_{L}$11-18A	●	●	18	12	11	150	29	11	4.5					SB-2570TR	FT-8
	S16Q-SVPB$^{R}_{L}$11-22A	●	●	22	16	15	180	35	13.5	5	5°					
	S20R-SVPB$^{R}_{L}$11-26A	●	●	26	20	19	200	41	15.5							
	S25S-SVPB$^{R}_{L}$16-31A	●	●	31	25	24	250	51	18		13°			Fig. 4	SB-40125TRN	FT-15
	S32S-SVPB$^{R}_{L}$16-40A	●	●	40	32	31		54	23	6.5	9°					
Carbide	E10N-SVPCR08-14A	●		14	10	9	160	20	8.5	3	8°	0.4	Yes	Fig. 5	SB-2050TR	FT-6
	E12Q-SVPBR11-18A	●		18	12	11	180	23	11	4.5					SB-2570TR	FT-8
	E16X-SVPBR 11-22A	●		22	16	15	220	28	13.5	5	5°					
	E20S-SVPBR 11-26A	●		26	20	19	250	32	15.5							
	E25T-SVPBR 16-31A	●		31	25	24	300	38	18		13°			Fig. 6	SB-40125TRN	FT-15

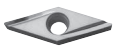
● : Std. Item

Spare Parts (See Page **P24** for spare parts of old products.)

Description	Spare Parts		
	Shim	Shim Screw	Wrench (for Shim Screw)
			
□25□ -SVPB$^{R}_{L}$16-31A□ □32S-SVPB$^{R}_{L}$16-40A□	SVN-32N *(SVN-32S)	SS-4N	LW-4

· For insert with Corner-R(RE) 0.2 or 0.4, shim of marked * is recommended (sold separately).

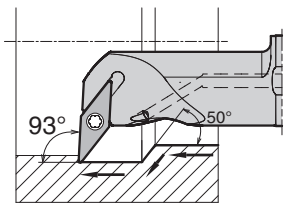
Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing / Precision	Finishing - Medium	Low Feed / Precision	Non-ferrous Metals
See Page	-	**B89, B92**	**B89, B92**	**B89**	**B89, B92**	**B90**	**B89**	**B90, B91**	-	**B93**
Insert / Toolholder Description	**CK** 	**VF** 	**PP** 	**GP** 	**HQ** 	$^{R}_{L}$**-F** 	$^{R}_{L}$**-FSF** 	$^{R}_{L}$**-Y** 	F$^{R}_{L}$**-USF** 	**AP** 
...-SVPC$^{R}_{L}$08-...	-	VCMT0802..	VCMT0802..	-	VCMT0802..	-	-	-	-	-
...-SVPB$^{R}_{L}$11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	VB□T1103..	-	-
...-SVPB$^{R}_{L}$16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	-	-	VBGT1604..	-	VCGT1604..
Applications	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials						
See Page	**B93**	**B93**	**C28**	**C17**						
Insert / Toolholder Description	$^{R}_{L}$**-A3** 	**AH** 	**PCD** 	**CBN** 						
...-SVPC$^{R}_{L}$08-...	-	-	VCMT0802..	VCGW0802..						
...-SVPB$^{R}_{L}$11-...	-	-	VBMT1103..	VBGW1103..						
...-SVPB$^{R}_{L}$16-...	VCGT1604..	VCGT1604..	VBMT1604..	VBGW1604..						

Recommended Cutting Conditions **F94~F95**
Applicable Sleeves **F86~F88**

A-SVUC(B)-AE Excellent Bar (Copying)

Max. Overhang Length L/D=~5.5



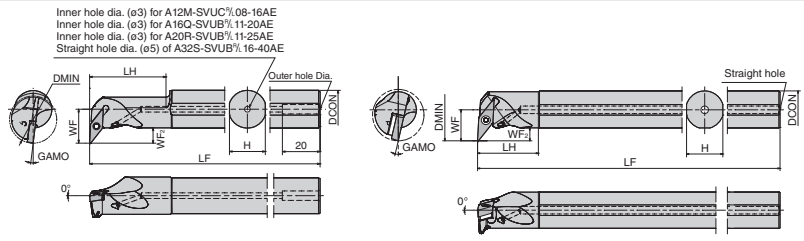


Fig. 1 Fig. 2

* No shim for SVUCR/L08 / SVUBR/L11

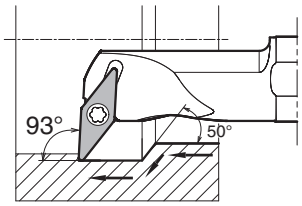
Shank Dia. DCON	Outer hole Dia.	Straight hole Dia.
ø12	ø4	-
ø16	ø5	
ø20		
ø25	-	ø5
ø32		

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SVUC(B)-A Steel Bar (Copying)

Max. Overhang Length L/D=~4



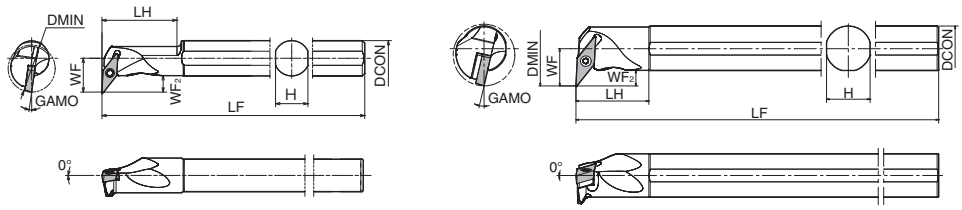


Fig. 3 Fig. 4

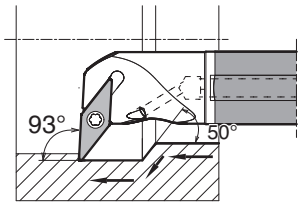
* No shim for SVUCR/L08 / SVUBR/L11

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

E-SVUC(B)-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D=~7



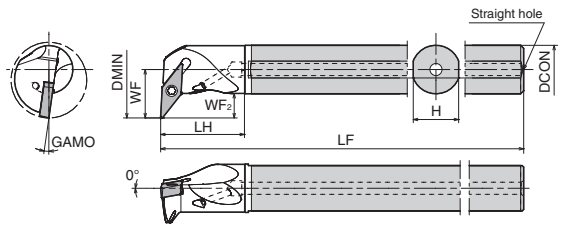


Fig. 5

* Shim is attached only for SVUBR16

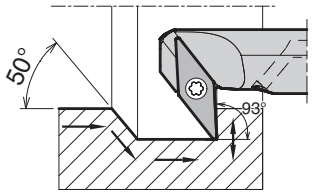
Shank Dia. DCON	Straight hole Dia.
ø12	ø4
ø16	
ø20	ø6
ø25	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

A-SVZC(B)-AE Excellent Bar (Back Boring)

Max. Overhang Length L/D=~5.5



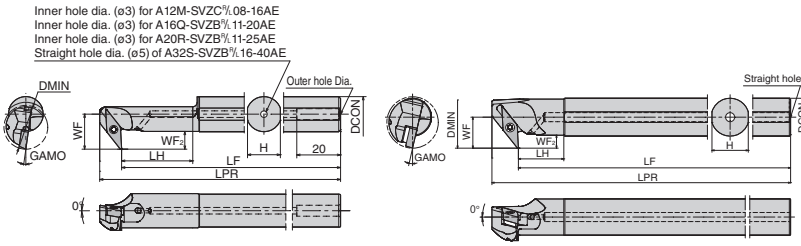


Fig. 6 Fig. 7

* No shim for SVZCR/L08 / SVZBR/L11

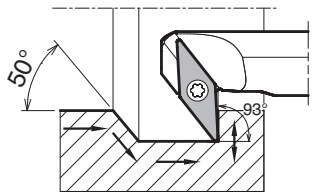
Shank Dia. DCON	Outer hole Dia.	Straight hole Dia.
ø12	ø4	-
ø16	ø5	
ø20		
ø25	-	ø5
ø32		

• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SVZC(B)-A Steel Bar (Back Boring)

Max. Overhang Length L/D=~4



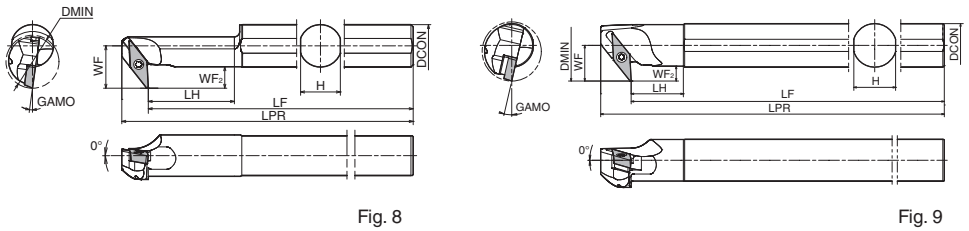


Fig. 8 Fig. 9

* No shim for SVZCR/L08 / SVZBR/L11

• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LPR	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A12M-SVUC$^{R/L}$08-16AE	●	●	16	12	11	-	150	25.5	11.5	5.5	8°	0.4	Yes	Fig. 1	SB-2050TR	FT-6
	A16Q-SVUB$^{R/L}$11-20AE	●	●	20	16	15		180	32.5	16	8					SB-2570TR	FT-8
	A20R-SVUB$^{R/L}$11-25AE	●	●	25	20	19		200	40.5	18		7°					
	A25S-SVUB$^{R/L}$16-34AE	●	●	34	25	24		250	40	20.5	8.5	13°			Fig. 2	SB-40125TRN	FT-15
	A32S-SVUB$^{R/L}$16-40AE	●	●	40	32	31			84	28	12	9°			Fig. 1		
Steel	S12M-SVUC$^{R/L}$08-16A	●	●	16	12	11	-	150	25.5	11.5	5.5	8°	0.4	No	Fig. 3	SB-2050TR	FT-6
	S16Q-SVUB$^{R/L}$11-20A	●	●	20	16	15		180	32.5	16	8					SB-2570TR	FT-8
	S20R-SVUB$^{R/L}$11-25A	●	●	25	20	19		200	40.5	18		7°					
	S25S-SVUB$^{R/L}$16-34A	●	●	34	25	24		250	40	20.5	8.5	13°			Fig. 4	SB-40125TRN	FT-15
	S32S-SVUB$^{R/L}$16-40A	●	●	40	32	31			84	28	12	9°			Fig. 3		
Carbide	E12Q-SVUCR08-18A	●		18	12	11	-	180	23	11.5	5.5	8°	0.4	Yes	Fig. 5	SB-2050TR	FT-6
	E16X-SVUBR11-25A	●		25	16	15		220	28	16	8					SB-2570TR	FT-8
	E20S-SVUBR11-29A	●		29	20	19		250	32	18		7°					
	E25T-SVUBR16-34A	●		34	25	24		300	38	21	8.5	13°				SB-40125TRN	FT-15
Excellent Bar	A12M-SVZC$^{R/L}$08-16AE	●	●	16	12	11	150	142.5	25.5	11.5	5.5	8°	0.4	Yes	Fig. 6	SB-2050TR	FT-6
	A16Q-SVZB$^{R/L}$11-20AE	●	●	20	16	15	180	170	32.5	16	8					SB-2570TR	FT-8
	A20R-SVZB$^{R/L}$11-25AE	●	●	25	20	19	200	190	40.5	18		7°					
	A25S-SVZB$^{R/L}$16-34AE	●	●	34	25	24	250	232.5	30	20.5	8.5	13°			Fig. 7	SB-40125TRN	FT-15
	A32S-SVZB$^{R/L}$16-40AE	●	●	40	32	31			72.5	28	12	9°			Fig. 6		
Steel	S12M-SVZC$^{R/L}$08-16A	●	●	16	12	11	150	142.5	25.5	11.5	5.5	8°	0.4	No	Fig. 8	SB-2050TR	FT-6
	S16Q-SVZB$^{R/L}$11-20A	●	●	20	16	15	180	170	32.5	16	8					SB-2570TR	FT-8
	S20R-SVZB$^{R/L}$11-25A	●	●	25	20	19	200	190	40.5	18		7°					
	S25S-SVZB$^{R/L}$16-34A	●	●	34	25	24	250	232.5	30	20.5	8.5	13°			Fig. 9	SB-40125TRN	FT-15
	S32S-SVZB$^{R/L}$16-40A	●	●	40	32	31			72.5	28	12	9°			Fig. 8		

Spare Parts (See Page **P24** for spare parts of old products.)

Description	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench (for Shim Screw)
□25□-SVUB$^{R/L}$16-34A□ □32S-SVUB$^{R/L}$16-40A□ □25S-SVZB$^{R/L}$16-34A□ □32S-SVZB$^{R/L}$16-40A□	SVN-32N (*SVN-32S)	SS-4N	LW-4

· For insert with corner-R(RE) 0.2 or 0.4, shim of marked * is recommended (sold separately).

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing / Precision	Finishing - Medium	Low Feed / Precision	Non-ferrous Metals
See Page	-	B89, B92	B89, B92	B89	B89, B92	B90	B89	B90, B91	-	B93
Insert / Toolholder Description	CK	VF	PP	GP	HQ	$^{R/L}$-F	$^{R/L}$-FSF	$^{R/L}$-Y	F$^{R/L}$-USF	AP
...-SVUC$^{R/L}$08-...	-	VCMT0802..	VCMT0802..	-	VCMT0802..	-	-	-	-	-
...-SVUB$^{R/L}$11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	VB□T1103..	-	-
...-SVUB$^{R/L}$16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	-	-	VBGT1604..	-	VCGT1604..
...-SVZC$^{R/L}$08-...	-	VCMT0802..	VCMT0802..	-	VCMT0802..	-	-	-	-	-
...-SVZB$^{R/L}$11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	VB□T1103..	-	-
...-SVZB$^{R/L}$16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	-	-	VBGT1604..	-	VCGT1604..

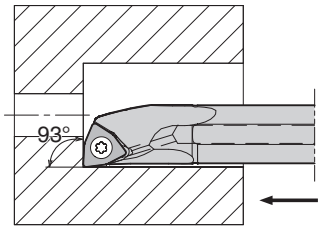
Applications	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
See Page	B93	B93	C28	C17
Insert / Toolholder Description	$^{R/L}$-A3	AH	PCD	CBN
...-SVUC$^{R/L}$08-...	-	-	VCMT0802..	VCGW0802..
...-SVUB$^{R/L}$11-...	-	-	VBMT1103..	VBGW1103..
...-SVUB$^{R/L}$16-...	VCGT1604..	VCGT1604..	VBMT1604..	VBGW1604..
...-SVZC$^{R/L}$08-...	-	-	VCMT0802..	VCGW0802..
...-SVZB$^{R/L}$11-...	-	-	VBMT1103..	VBGW1103..
...-SVZB$^{R/L}$16-...	VCGT1604..	VCGT1604..	VBMT1604..	VBGW1604..

Recommended Cutting Conditions ➡ **F94~F95**
Applicable Sleeves ➡ **F86~F88**

● : Std. Item

S/A-SWUB(P)-AE Excellent Bar (Boring)

Max. Overhang Length L/D=~5.5



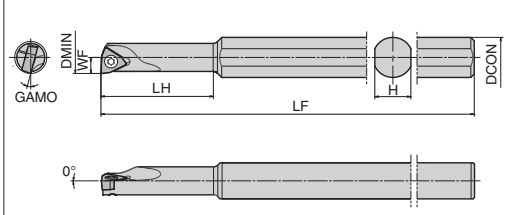
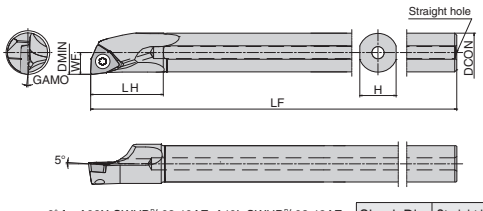


Fig. 1



0° for A08X-SWUB□.08-10AE, A10L-SWUB□.08-12AE

Fig. 2

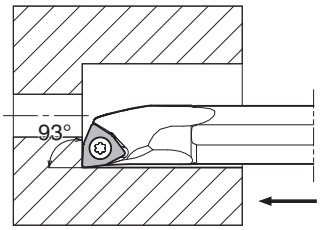
Shank Dia. DCON	Straight hole Dia.
ø8	ø2.5
ø10	ø3
ø12	ø4
ø16	ø5
ø20	

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-SWUB(P)-A Steel Bar (Boring)

Max. Overhang Length L/D=~4



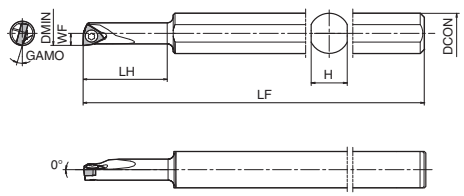
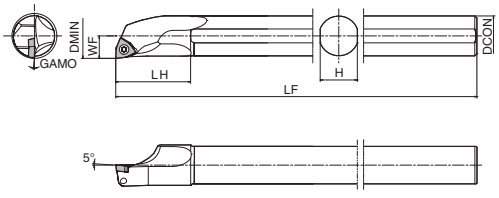


Fig. 3



0° for S08X-SWUB□.08-10A, S10L-SWUB□.08-12A

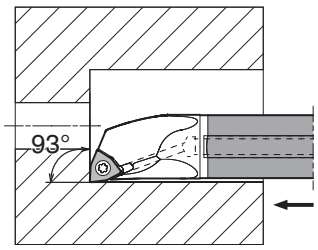
Fig. 4

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

C/E-SWUB(P)-A(N) Carbide Shank Bar (Boring)

Max. Overhang Length L/D=~7



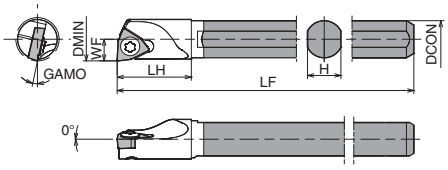
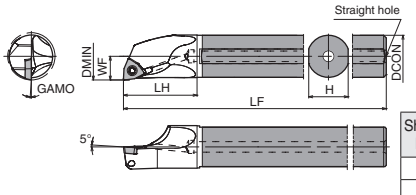


Fig. 5



0° for E08L-SWUB□.08-10A, E10N-SWUB□.08-12A, E10N-SWUB□.08-12A-2/3, E10N-SWUB□.08-12A-1/2

Fig. 6

Shank Dia. DCON	Straight hole Dia.
ø5	-
ø6	
ø7	
ø8	ø3
ø10	
ø12	ø4
ø16	
ø20	ø6

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

	Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	GAMO	Std. Corner-R(RE)	Coolant Hole	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	S10H-SWUBR/L06-06AE	●	●	6	10	9	100	21	3	15°	0.2	No	Fig. 1	SB-2035TR	FT-6
	S10H-SWUBR/L06-07AE	●	●	7				25	3.5	13°					
	S10H-SWUBR/L08-08AE	●	●	8				28	4	15°					
	A08X-SWUBR/L08-10AE	●	●	10	8	7	120	16	5	13°		Yes	Fig. 2	SB-2050TR	
	A10L-SWUBR/L08-12AE	●	●	12	10	9	140	20	6	10°					
	A12M-SWUPR/L11-14AE	●	●	14	12	11	150	24	7	4°	0.4			SB-2545TR	FT-8
	A16Q-SWUPR/L11-18AE	●	●	18	16	15	180	30	9	1°					
	A16Q-SWUPR/L16-18AE	●	●							3.5°	0.8			SB-4065TR	FT-15
	A20R-SWUPR/L16-22AE	●	●	22	20	19	200	36	11	2°					
Steel	S10H-SWUBR/L06-06A	●	●	6	10	9	100	21	3	15°	0.2	No	Fig. 3	SB-2035TR	FT-6
	S10H-SWUBR/L06-07A	●	●	7				25	3.5	13°					
	S10H-SWUBR/L08-08A	●	●	8				28	4	15°					
	S08X-SWUBR/L08-10A	●	●	10	8	7	120	16	5	13°			Fig. 4	SB-2050TR	
	S10L-SWUBR/L08-12A	●	●	12	10	9	140	20	6	10°					
	S12M-SWUPR/L11-14A	●	●	14	12	11	150	24	7	4°	0.4			SB-2545TR	FT-8
	S16Q-SWUPR/L11-18A	●	●	18	16	15	180	30	9	1°					
	S16Q-SWUPR/L16-18A	●	●							3.5°	0.8			SB-4065TR	FT-15
	S20R-SWUPR/L16-22A	●	●	22	20	19	200	36	11	2°					
Carbide	C05H-SWUBR/L06-06AN	●	●	6	5	4.4	100	9	3	15°	0.2	No	Fig. 5	SB-2035TR	FT-6
	C06J-SWUBR/L 06-07AN	●	●	7	6	5.4	110	10	3.5	13°					
	C07K-SWUBR/L08-08AN	●	●	8	7	6.4	125	11	4	15°					
	E08L-SWUBR/L 08-10AN	●	●	10	8	7	140	14	5	13°		Yes	Fig. 6	SB-2050TR	
	E10N-SWUBR/L 08-12AN	●	●	12	10	9	160	18	6	10°					
	E10N-SWUBR 08-12AN2/3	●					105								
	E10N-SWUBR 08-12AN1/2	●					80								
	E12Q-SWUPR/L 11-14A	●	●	14	12	11	180	23	7	4°	0.4			SB-2545TR	FT-8
	E12Q-SWUPR 11-14A-2/3	●					120								
	E12Q-SWUPR 11-14A-1/2	●					90								
	E16X-SWUPR/L 11-18A	●	●	18	16	15	220	28	9	1°					
	E16X-SWUPR 11-18A-2/3	●					145								
	E16X-SWUPR 11-18A-1/2	●					110								
	E16X-SWUPR/L 16-18A	●	●				220			3.5°	0.8			SB-4065TR	FT-15
	E16X-SWUPR 16-18A-2/3	●					145								
	E16X-SWUPR 16-18A-1/2	●					110								
	E20S-SWUPR/L 16-22A	●	●	22	20	19	250	32	11	2°					
	E20S-SWUPR 16-22A-2/3	●					165								
	E20S-SWUPR 16-22A-1/2	●					125								

Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hard Materials
See Page	B97	B97	B99	B97	B99	B97, B98	B98	B98, B99	C29	C18
Insert / Toolholder Description	CF	R/L-PF	GP	R/L-DP	HQ	R/L-F	R/L-P	Without Chipbreaker	PCD	CBN
...-SWUBR/L06-...	WBGT0601..	WBGT0601..	-	WBMT0601..	-	WB□T0601..	-	WBGW0601..	WBMT0601..	WBGW0601..
...-SWUBR/L08-...	-	WBGT0802..	-	WBMT0802..	-	WB□T0802..	WBET0802..	WBGW0802..	WBMT0802..	WBGW0802..
...-SWUPR/L11-...	-	-	WPMT1102..	-	WPMT1102..	-	-	WPGW1102..	WPMT1102..	-
...-SWUPR/L16-...	-	-	WPMT1603..	-	WPMT1603..	-	-	WPGW1603..	-	-

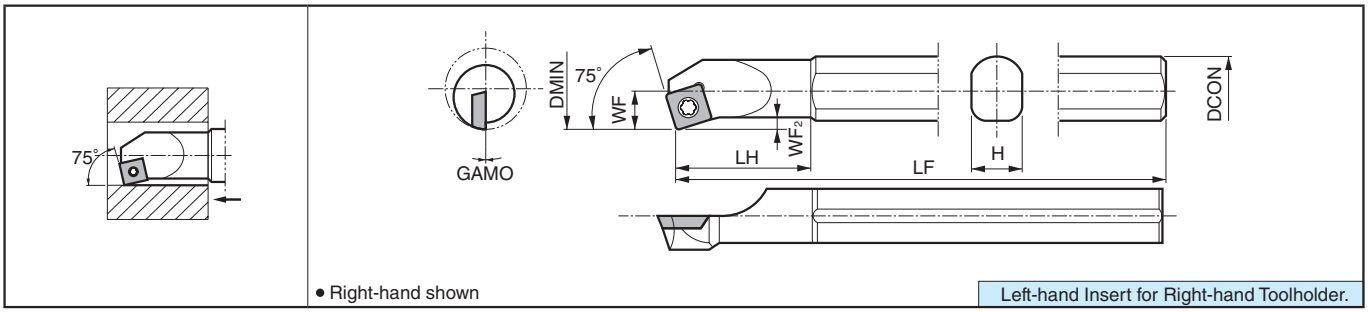
Recommended Cutting Conditions F94~F95
Applicable Sleeves F85~F88

● : Std. Item

Boring Bar [SP□□ Insert]

S-SSKP (Boring)

Max. Overhang Length L/D=~3



● Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

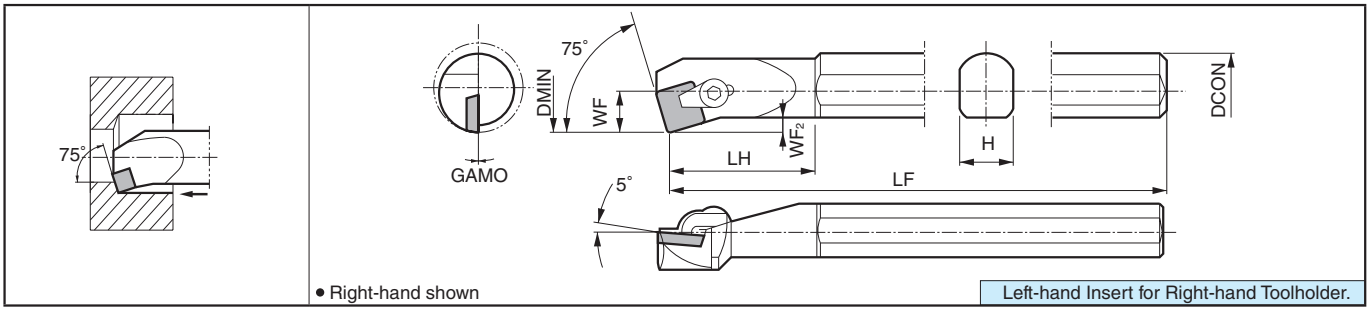
Description	Stock		Min. Bore Dia.	Dimension (mm)						GAMO	Std. Corner-R(RE)	Spare Parts	
												Clamp Screw	Wrench
	R	L	DMIN	DCON	H	LF	LH	WF	WF_2				
S16Q-SSKPR09-20	●		20	16	14	180	30	10	2.0	-3°	0.8	SB-4TR	FT-15
S20R-SSKPR09-25	□		25	20	18	200	35	12.5	2.5	0°			

Applicable Inserts

Applications	Finishing									
See Page	**B75**									
Insert / Toolholder Description	L 									
...-SSKP$^{R}_{L}$09...	SPGH0903..									

S-CSKP (Boring)

Max. Overhang Length L/D=~3



● Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)						GAMO	Std. Corner-R(RE)	Spare Parts		
												Clamp Set	Wrench	
	R	L	DMIN	DCON	H	LF	LH	WF	WF_2					
S16N-CSKPR09-20	●		20	16	14	160	40	10	2.0	0°	0.8	CPS-2	FH-2.5	-
S20Q-CSKPR09-27	●		27	20	18	180	45	13.5	3.5					
S25X-CSKPR12-34	●		34	25	23	220	60	17	4.5	0°	0.8	CPS-3	-	LW-3

Applicable Inserts

Applications	Medium	Medium	Finishing - Medium	Cast Iron	Cast Iron	Non-ferrous Metals				
See Page	**B75**	**B75**	**B75**	**B75**	**B113**	**C29**				
Insert / Toolholder Description	G 	Standard 	$^{R}_{L}$ 	Without Chipbreaker 	Ceramic 	**PCD** 				
...-CSKPR09-...	SPMR0903..	SPMR0903..	SPGR0903..	SPMN0903.. SPGN0903..	SPGN0903..	-				
...-CSKPR12-...	SPMR1203..	SPMR1203..	SPGR1203..	SPMN1203.. SPGN1203..	SPGN1203..	SPGN1203..				

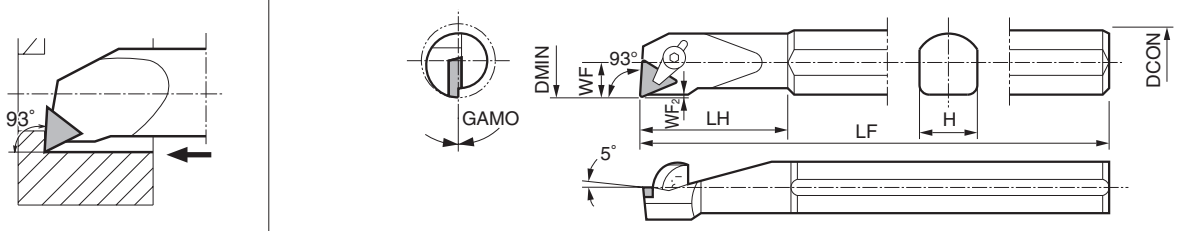
Recommended Cutting Conditions ➔ **F94~F95**
Applicable Sleeves ➔ **F87~F88**

● : Std. Item
□ : Deleted from the next catalog

Boring Bar [TP□□ Insert]

S-CTUP (Boring)

Max. Overhang Length L/D=~3



● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)						GAMO	Std. Corner-R(RE)	Spare Parts					
												Clamp Set		Wrench		Shim	Shim Screw
	R	L	DMIN	DCON	H	LF	LH	WF	WF_2								
S12L-CTUPR 09-16	●		16	12	11	140	32	8	0.5	0°	0.4	CPS-1	-	FH-2	-	-	-
S16N-CTUP$^{R}_{L}$11-20	●	●	20	16	14	160	30	10	0.5	0°	0.4	-	CPS-2	FH-2.5	-	-	-
S20Q-CTUP$^{R}_{L}$11-27	●	●	27	20	18	180	40	13.5	1.3								
S25X-CTUP$^{R}_{L}$16-34	●	●	34	25	23	220	60	17	1.0	0°	0.8	-	CPS-3	-	LW-3	-	-
S32S-CTUP$^{R}_{L}$16-43	●	●	43	32	30	250	70	21.5								KPT-32	SP3X10
S40X-CTUP$^{R}_{L}$16-50	●	●	50	40	37	315	80	25									

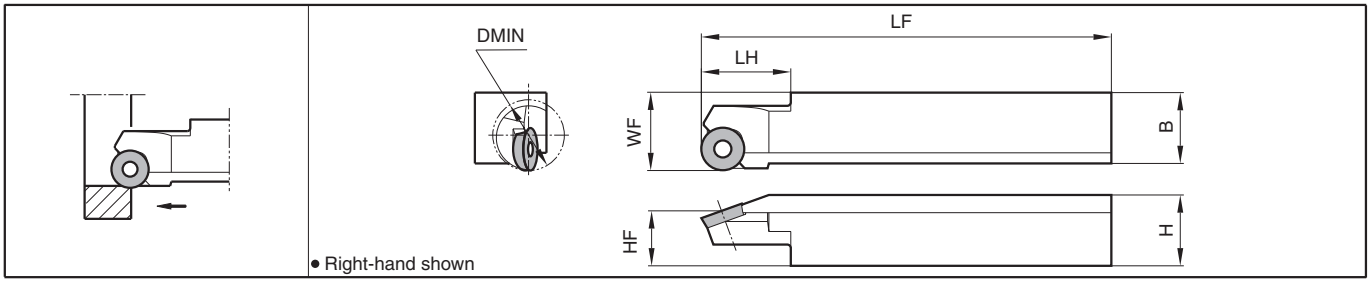
Applicable Inserts

Applications	Finishing	Finishing - Medium	Medium	Medium	Finishing	Finishing - Medium	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials
See Page	**B87**	**B87**	**B87**	**B87**	**B87**	**B88**	**B88**	**B113**	**C29**	**C18**
Insert / Toolholder Description	**GP** 	**HQ** 	**G** 	**Standard** 	**$^{R}_{L}$-F** 	**$^{R}_{L}$-□** 	Without Chipbreaker 	Ceramic 	**PCD** 	**CBN** 
...-CTUPR09-...	-	-	TPMR0902..	-	TPGR0902..	-	TPGN0902..	TPGN0902..	-	-
...-CTUP$^{R}_{L}$11-...	TPMR1103..	TPMR1103..	TPMR1103..	TPMR1103..	-	TPGR1103..	TPMN1103.. TPGN1103..	TPGN1103..	TPGN1103..	TPGN1103..
...-CTUP$^{R}_{L}$16-...	TPMR1603..	TPMR1603..	TPMR1603..	TPMR1603..	-	TPGR1603..	TPMN1603.. TPGN1603..	TPGN1603..	TPGN1603..	TPGN1603..

Recommended Cutting Conditions **F94~F95**
Applicable Sleeves **F86~F88**

● : Std. Item

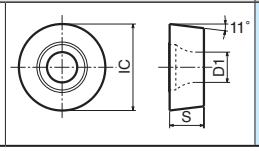
SRCP-B (Boring)



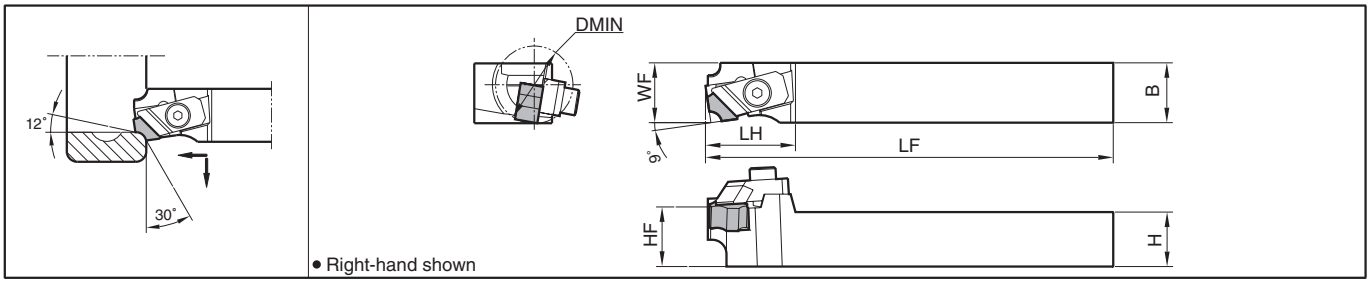
Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) H	HF	B	LF	LH	WF	Spare Parts: Clamp Screw	Spare Parts: Wrench		Applicable Inserts ⇒ B103
SRCP R/L	2020B-12-A20	●	●	20	20	15.5	20	125	25	22	SB-4TR	FT-15	-	RPMT1203M0-BB
	2525B-16-A32	●	●	32	25	20	25	150	31	27	SB-5090TR	-	LTW-20	RPMT1604M0-BB

Applicable Inserts

Insert		Description	Dimension (mm) IC	S	D1
		RPMT 1203M0-BB	12.0	3.18	4.4
		RPMT 1604M0-BB	16.0	4.76	5.5

CBSN-B (Internal Round Chamfering)

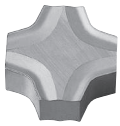
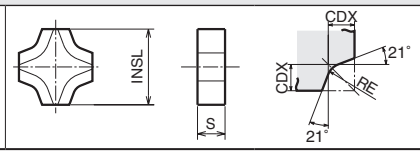


Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) H	HF	B	LF	LH	WF	Spare Parts: Clamp Set	Spare Parts: Wrench		Applicable Inserts ⇒ B103
CBSN R/L	2020B-12-A20	●	●	20	20	21	20	125	32	20	CP-RC R/L	LW-5		SNMF1204○○-21
	2525B-12-A20	●	●		25	26	25	150		25				

· Clamp Set : CP-RCR for Right-hand Toolholder, CP-RCL for Left-hand Toolholder.

Applicable Inserts

Insert		Description	Dimension (mm) INSL	S	CDX	RE
		SNMF 120406-21	12.70	4.76	1.5	0.6
		SNMF 120410-21			3.0	1.0
		SNMF 120416-21			3.1	1.6
		SNMF 120421-21			3.2	2.1
		SNMF 120426-21			3.3	2.6

● : Std. Item

Identification System for Interchangeable Heads

Interchangeable Head	Clamping System	Insert Shape	Hand of Tool	Min. Bore Dia.
	P : Pin Lock (Lever Lock) S : Screw Clamp	C : 80° Rhombic D : 55° Rhombic T : 60° Triangle	R : Right-hand L : Left-hand	

H A 32 P C L N R 12 - 40

Type of Head

A	Steel head with Coolant Hole

Applicable Adapter Diameter

Cutting Edge Angle

F: 90°

L: 95°

U: 93°

Insert Relief Angle

AN

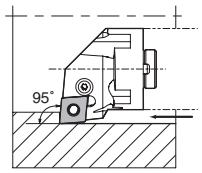
C : 7° Positive

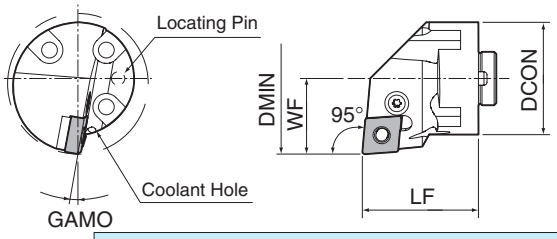
N : 0° Negative

Insert Size

T, C, D

HA-PCLN12 (Boring / Internal Facing, with Coolant Hole)





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	LF	WF	GAMO	Std. Corner-R(RE)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	*Punch	*Wrench	Applicable Boring Adapter ➡F68
HA32PCLNR/L12-40	●	●	40	32	41	22	10°	0.8	LL-2K	LS-2P	LC-4K	LSP-3K	*PC-2K	DTPM-15	AD32U
HA40PCLNR/L12-50	●	●	50	40		27									AD40V
HA50PCLNR/L12-63	●	●	63	50		35									AD50W

* Punch (*PC-2K): Not included. Purchase separately.
Included wrench is L type.

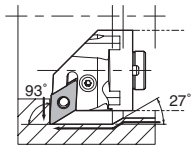
Applicable Inserts

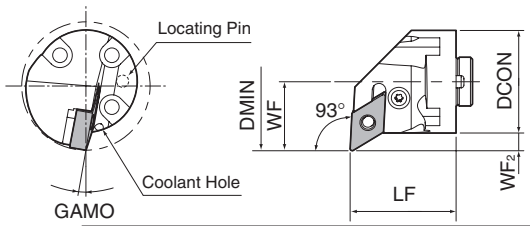
Toolholder Description	Insert Description		See Page: Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN
HA32PCLNR/L12-40	CN□A	1204..	B16~B22	B106	C23	C6,C7
HA40PCLNR/L12-50	CN□G					
HA50PCLNR/L12-63	CN□M					

Recommended Cutting Conditions ➡F94~F95

● : Std. Item

HA-PDUN15 (Copying, with Coolant Hole)





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	LF	WF	WF_2	GAMO	Std. Corner-R(RE)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	*Punch	*Wrench	Applicable Boring Adapter ➡F68
HA32PDUNR/L15-43	●	●	43	32	41	25	9	12°	0.8	LL-3K	LS-3P	LD-4K43 (LD-4K)	LSP-3K	*PC-2K	DTPM-15	AD32U
HA40PDUNR/L15-50	●	●	50	40		27	7	10°								AD40V
HA50PDUNR/L15-63	●	●	63	50		35	10									AD50W

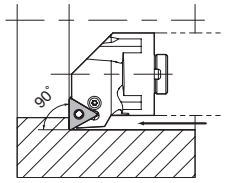
* Punch (*PC-2K): Not included. Purchase separately.
Included wrench is L type.
* Shim : LD-4K43 is attached to Toolholder. When using DN□□1506 Insert, purchase LD-4K separately.

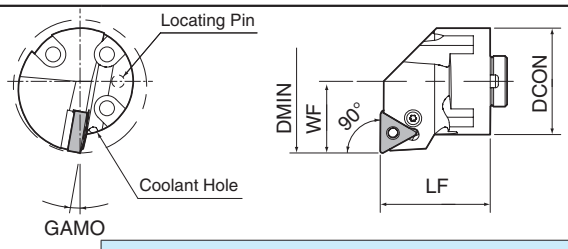
Applicable Inserts

Toolholder Description	Insert Description: Shim : LD-4K43		Insert Description: Shim : LD-4K		See Page: Cermet / Coated Carbide / Carbide	See Page: Ceramic	See Page: PCD	See Page: CBN
HA32PDUNR/L15-43	DN□A	1504..	DN□A	1506..	B23~B30	B107	C23	C8,C9
HA40PDUNR/L15-50	DN□G		DN□G					
HA50PDUNR/L15-63	DN□M		DN□M					

Recommended Cutting Conditions ➡F94~F95

HA-PTFN16 (Boring, with Coolant Hole)





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	LF	WF	GAMO	Std. Corner-R(RE)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	*Punch	*Wrench	Applicable Boring Adapter ➡F68
HA32PTFNR/L16-40	●	●	40	32	41	22	10°	0.8	LL-1K	LS-1P	LT-3K	LSP-2K	*PC-2K	DTPM-10	AD32U
HA40PTFNR/L16-50	●	●	50	40		27									AD40V
HA50PTFNR/L16-63	●	●	63	50		35	8°								AD50W

* Punch (*PC-2K): Not included. Purchase separately.
Included wrench is L type.

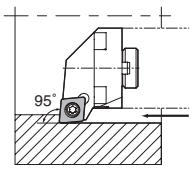
Applicable Inserts

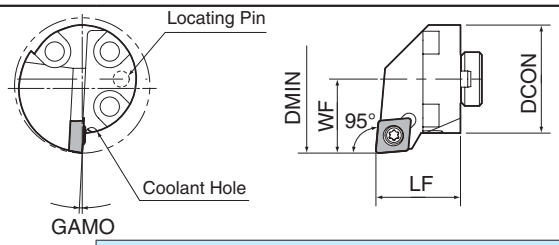
Toolholder Description	Insert Description		See Page: Cermet / Coated Carbide / Carbide	See Page: Ceramic	See Page: PCD	See Page: CBN
HA32PTFNR/L16-40	TN□A	1604..	B36~B43	B111	C23	C10, C11
HA40PTFNR/L16-50	TN□G					
HA50PTFNR/L16-63	TN□M					

Recommended Cutting Conditions
➡F94~F95

● : Std. Item

HA-SCLC09 (Boring / Internal Facing, with Coolant Hole)





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

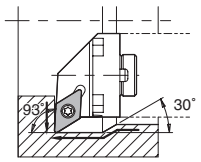
Description	Stock		Min. Bore Dia.	Dimension (mm)			GAMO	Std. Corner-R(RE)	Spare Parts		Applicable Boring Adapter ➡ F68	Applicable Inserts
	R	L	DMIN	DCON	LF	WF			Clamp Screw	Wrench		
HA32SCLCR/L09-40	●	●	40	32	25	22	3°	0.8	SB-3580TR	FT-15	AD32U	CC..09T3..

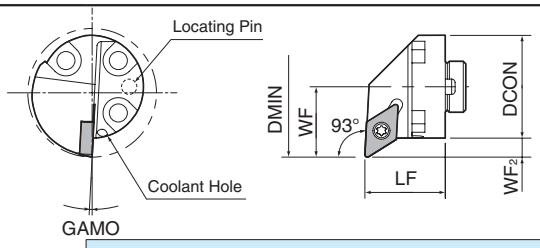
Applicable Inserts

Insert Description	See Page		
	Cermet / Coated Carbide / Carbide	PCD	CBN
CC..09T3..	B53~B55,B57~B60	C24	C14

Recommended Cutting Conditions ➡ F94~F95

HA-SDUC11 (Copying, with Coolant Hole)





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)				GAMO	Std. Corner-R(RE)	Spare Parts		Applicable Boring Adapter ➡ F68	Applicable Inserts
	R	L	DMIN	DCON	LF	WF	WF_2			Clamp Screw	Wrench		
HA32SDUCR/L11-40	●	●	40	32	25	22	6	3°	0.8	SB-3580TR	FT-15	AD32U	DC..11T3..

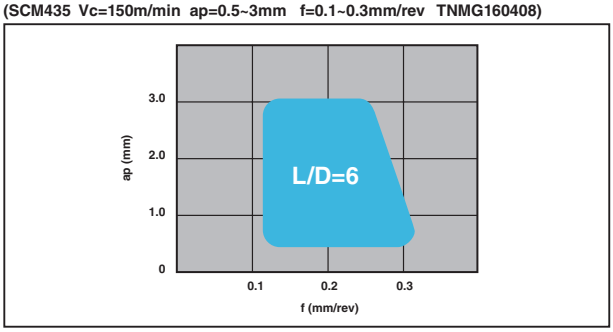
Applicable Inserts

Insert Description	See Page		
	Cermet / Coated Carbide / Carbide	PCD	CBN
DC..11T3..	B62~B71	C25	C15

Recommended Cutting Conditions ➡ F94~F95

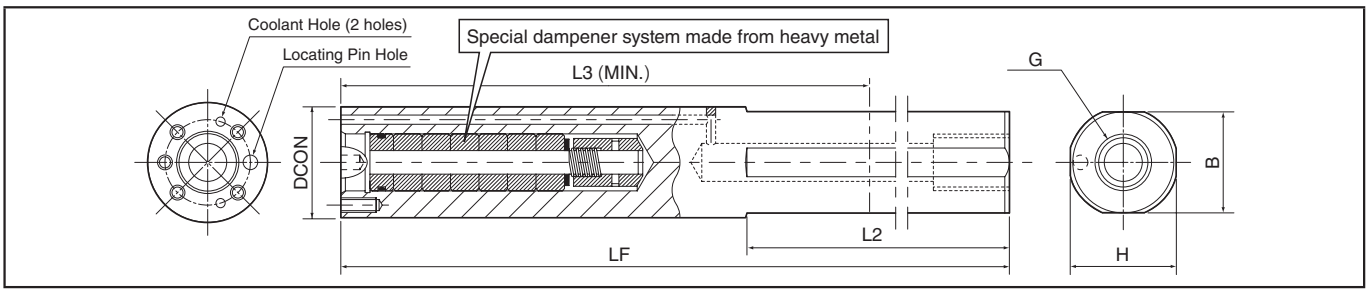
Possible machining area (Guide-Line for Overhang Length of AD Bars)

(SCM435 Vc=150m/min ap=0.5~3mm f=0.1~0.3mm/rev TNMG160408)



● : Std. Item

Boring Adapter (with Coolant Hole / Anti-vibration Dampener System)



Dimensions

Description	Stock	Dimension (mm)							Spare Parts		
									Clamp Bolt		Wrench (sold separately)
		DCON	H	B	LF	L2	L3 (MIN.)	G			
AD 32U	●	32	31	29	310	200	200	Rp3/8	HH5X20 (3 pcs)	HH5X30 (1 pcs)	LW-4
AD 40V	●	40	39	37	360	248	228				
AD 50W	●	50	47	47	410	280	276		HH6X20 (3 pcs)	HH6X30 (1 pcs)	LW-5

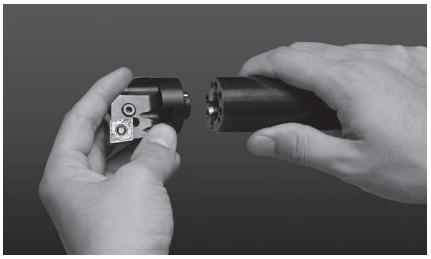
Note) L3 (MIN.) dimension indicates the minimum length in case of the back end of boring adapter is cut for use.
Do not shorten it to less than L3 (MIN.).

Combination of Boring Adapter and Interchangeable Head

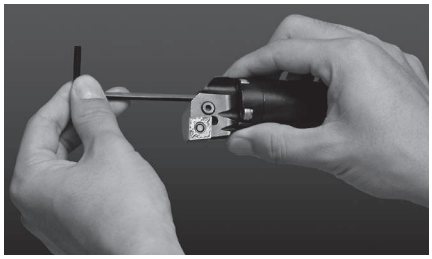
Interchangeable Head Description		Boring Adapter			
		Base Description	Clamp Bolt		Wrench
HA32	**PCLN$^{R}_{L}$ 12-40**	AD32U	HH5X20	HH5X30	LW-4
	PDUN$^{R}_{L}$15-43				
	PTFN$^{R}_{L}$ 16-40				
	SCLC$^{R}_{L}$ 09-40		HH5X20		
	SDUC$^{R}_{L}$11-40				
HA40	**PCLN$^{R}_{L}$ 12-50**	AD40V	HH5X20	HH5X30	
	PDUN$^{R}_{L}$15-50				
	PTFN$^{R}_{L}$ 16-50				
HA50	**PCLN$^{R}_{L}$ 12-63**	AD50W	HH6X20	HH6X30	LW-5
	PDUN$^{R}_{L}$15-63				
	PTFN$^{R}_{L}$ 16-63				

How to change heads

1. No head attached



2. Align hole positions



3. Tighten 3 bolts to attach the head

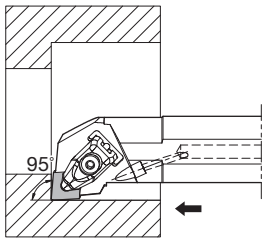
For lever lock type Interchangeable head, use 2 short bolts for upper side and 1 long bolt for lower side. HA32 SCLC$^{R}_{L}$09-40 and HA32 SDUC$^{R}_{L}$11-40 use HH5X20 for all 3 bolts.

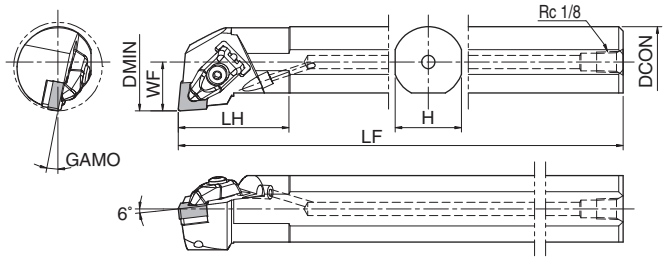
● : Std. Item

Boring Bar [CN□□ Negative Insert]

A-DCLN (Boring / Internal Facing)

Max. Overhang Length L/D=~3





● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	GAMO	Std. Corner-R(RE)	Spare Parts: Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
A25R-DCLN$^{R}_{L}$12-32	●	●	32	25	23	200	42	17	11°	0.8	CP-3D	CS-3D	SP-3D	DC-42	SB-4085TR	DN10	LW-3	FT-15
A32S-DCLN$^{R}_{L}$12-40	●	●	40	32	30	250	50	22	11°									
A40T-DCLN$^{R}_{L}$12-50	●	●	50	40	37	300	60	27	14°							DN20		

* Not applicable to high-pressure coolant

Applicable Inserts

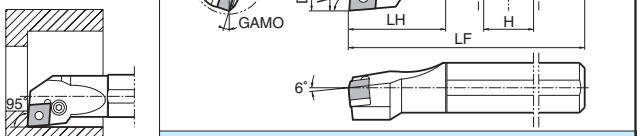
Applications	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
See Page	B16	B16	B16	B16	B16	B16	B17	B17	B17	B17
Insert / Toolholder Description	WF (Wiper)	WE (Wiper)	PP	GP	PQ	HQ	CQ	CJ	GS	PG
...-DCLN$^{R}_{L}$12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Medium - Roughing	Medium - Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed Rate	Medium	Soft Steel / Small ap	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing
See Page	B17	B18	B18	B18	B19	B22	B19	B19	B19	B19
Insert / Toolholder Description	PS	PT	Standard	PH	PX	$^{R}_{L}$	XF	XP	XQ	XS
...-DCLN$^{R}_{L}$12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMM1204..	CNGG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
See Page	B20	B20	B20	B21	B21	B21	B21	B21	B21	B21
Insert / Toolholder Description	MQ	MS	MU	KQ	KG	KH	C	ZS	GC	Without Chipbreaker
...-DCLN$^{R}_{L}$12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMA1204.. CNGA1204..
Applications	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Heat-resistant Alloys	Hard Materials			
See Page	B106	B22	B22	C23	B20	B20	C6,C7			
Insert / Toolholder Description	Ceramic	$^{R}_{L}$-A3	AH	PCD	SQ	SG	CBN			
...-DCLN$^{R}_{L}$12-...	CNMA1204.. CNGA1204..	CNGG1204..	CNMG1204.. CNGG1204..	CNMM1204..	CNMG1204..	CNMG1204..	CNGA1204..			

Recommended Cutting Conditions ➡ F94~F95

● : Std. Item

Boring Bar [CN□□ Negative Insert]

S-PCLN○○ (Boring / Internal Facing)

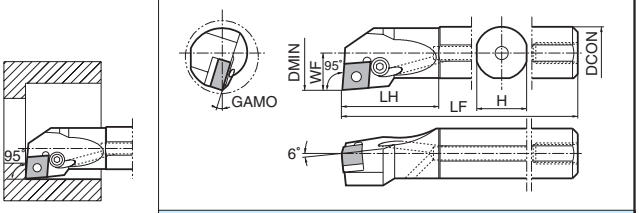


Left-hand Insert for Right-hand Toolholder,
Right-hand Insert for Left-hand Toolholder.

• Right-hand shown Max. Overhang Length L/D=~3

A-PCLN09

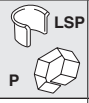
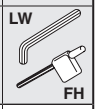
(Boring / Internal Facing, with Coolant Hole)
Twin-Hole Bar



Left-hand Insert for Right-hand Toolholder.

• Right-hand shown Max. Overhang Length L/D=~3

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts					
											Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
	R	L	DMIN	DCON	H	LF	LH	WF								
S16M -PCLN$^{R}_{L}$09-20	●	●	20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q -PCLN$^{R}_{L}$09-27	●	●	27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	
S25R -PCLN$^{R}_{L}$09-32	●	●	32	25	24	200	42	15.7	15°							
S25R -PCLN$^{R}_{L}$12-32	●	●	32	25	24	200	42	16.3	16°	0.8	LL-2N	LS-2N	LC-42N$^{R}_{L}$	LSP-2	PC-2	LW-3
S32S -PCLN$^{R}_{L}$12-40	●	●	40	32	30	250	50	21	10°							
S40T -PCLN$^{R}_{L}$12-50	●	●	50	40	37	300	60	25								
A16M -PCLNR09 -20	●		20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q -PCLNR09 -27	●		27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	
A25R -PCLNR09 -32	●		32	25	24	200	42	15.7	15°							

· LC-42NR for Right-hand Toolholder, LC-42NL for Left-hand Toolholder.

Applicable Inserts

Applications	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
See Page	B16	B16	B16	B16	B16	B16	B17	B17	B17	B17
Insert / Toolholder Description	WF (Wiper)	WE (Wiper)	PP	GP	PQ	HQ	CQ	CJ	GS	PG
...-PCLN$^{R}_{L}$09-...	-	-	-	CNMG0904..	-	CNMG0904..	-	-	CNMG0904..	-
...-PCLN$^{R}_{L}$12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Medium - Roughing	Medium - Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed Rate	Finishing	Medium	Soft Steel / Small ap	Soft Steel / Finishing	Soft Steel / Medium
See Page	B17	B18	B18	B18	B19	B22	B22	B19	B19	B19
Insert / Toolholder Description	PS	PT	PH	Standard	PX	$^{R}_{L}$-S	$^{R}_{L}$	XF	XP	XQ
...-PCLN$^{R}_{L}$09-...	-	-	-	-	-	CNGG0904..	CNGG0904..	-	-	-
...-PCLN$^{R}_{L}$12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMM1204..	-	CNGG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
See Page	B19	B20	B20	B20	B21	B21	B21	B21	B21	B21
Insert / Toolholder Description	XS	MQ	MS	MU	KQ	KG	KH	C	ZS	GC
...-PCLN$^{R}_{L}$09-...	-	-	-	-	-	-	-	-	-	-
...-PCLN$^{R}_{L}$12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Heat-resistant Alloys	Hard Materials		
See Page	B21	B106	B22	B22	C23	B20	B20	C6,C7		
Insert / Toolholder Description	Without Chipbreaker	Ceramic	$^{R}_{L}$-A3	AH	PCD	SQ	SG	CBN		
...-PCLN$^{R}_{L}$09-...	-	-	-	-	-	-	-	-		
...-PCLN$^{R}_{L}$12-...	CNMA1204.. CNGA1204..	CNMA1204.. CNGA1204..	CNGG1204..	CNMG1204.. CNGG1204..	CNMM1204..	CNMG1204..	CNMG1204..	CNGA1204..		

Recommended Cutting Conditions ➡ **F94~F95**

Applicable Coolant Sleeve / Joint

Toolholder Description	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PCLN$^{R}_{L}$09-20	SHC1640-70, SHC1650-95	SJS-8
A20Q-PCLN$^{R}_{L}$09-27	SHC2040-70, SHC2050-95	
A25R-PCLN$^{R}_{L}$09-32	SHC2540-70, SHC2550-95	

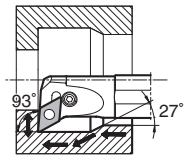
· For Coolant Sleeve, Coolant Joint, See Page ➡ **F87~F88**

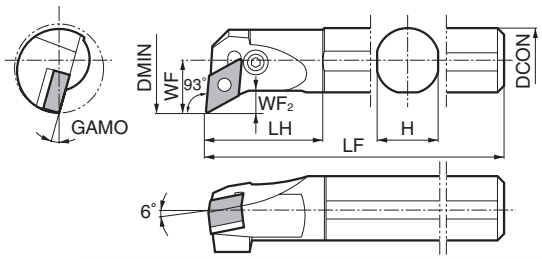
● : Std. Item

Boring Bar [DN11 Small Negative Insert]

S-PDUN11 (Copying)

Max. Overhang Length L/D=~3



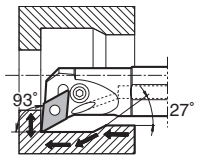


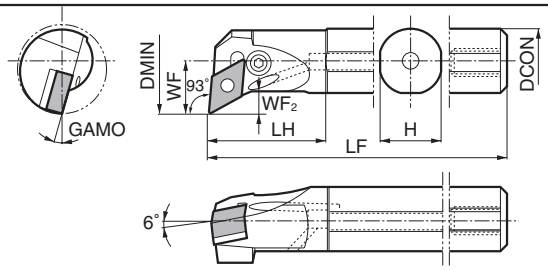
• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

A-PDUN11 Twin-Hole Bar (Copying, with Coolant Hole)

Max. Overhang Length L/D=~3





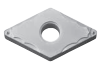
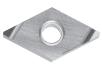
• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S20Q -PDUN$^{R}_{L}$11-27	●	●	27	20	19	180	35	16	7.6	17°	0.4	LL-1DN	LS-1SN	LD-32N	LSP-1	PC-1	FH-2.5
S25R -PDUN$^{R}_{L}$11-32	●	●	32	25	24	200	40	17	7.6	15°							
S32S -PDUN$^{R}_{L}$11-40	●	●	40	32	31	250	45	22	8.5	12°							
A20Q -PDUNR11-27	●		27	20	19	180	35	16	7.6	17°	0.4	LL-1DN	LS-1SN	LD-32N	LSP-1	PC-1	FH-2.5
A25R -PDUNR11-32	●		32	25	24	200	40	17	7.6	15°							
A32S -PDUNR11-40	●		40	32	31	250	45	22	8.5	12°							

Applicable Inserts

Applications	Finishing	Finishing - Medium	Medium - Roughing	Finishing	Medium
See Page	**B23**	**B24**	**B24**	**B30**	**B30**
Insert / Toolholder Description	**GP** 	**HQ** 	**GS** 	**$^{R}_{L}$-S** 	**$^{R}_{L}$** 
...-PDUN$^{R}_{L}$11-...	DNMG1104..	DNMG1104..	DNMG1104..	DNGG1104..	DNGG1104..

Recommended Cutting Conditions **F94~F95**

Applicable Coolant Sleeve / Joint

Toolholder Description	Applicable Coolant Sleeve	Applicable Coolant Joint
A20Q -PDUNR11-27	SHC2040-70, SHC2050-95	SJS-8
A25R -PDUNR11-32	SHC2540-70, SHC2550-95	
A32S -PDUNR11-40	-	

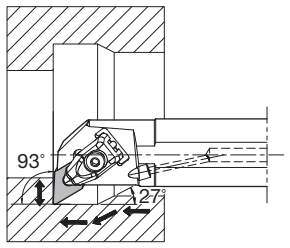
· For Coolant Sleeve, Coolant Joint, See Page **F87~F88**

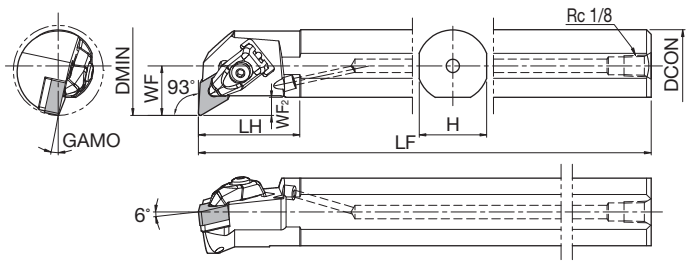
● : Std. Item

Boring Bar [DN15 Negative Insert]

A-DDUN (Boring / Copying)

Max. Overhang Length L/D=~3





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

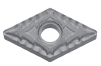
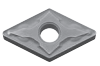
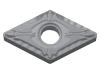
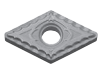
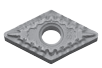
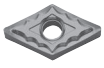
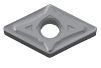
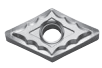
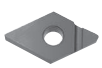
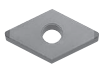
Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)						GAMO	Std. Corner-R(RE)	Spare Parts							
												Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
	R	L	DMIN	DCON	H	LF	LH	WF	WF_2										
A32S-DDUN$^{R}_{L}$15-40	●	●	40	32	30	250	45	22	8	12°	0.8	CP-3D	CS-3D	SP-3D	DD-42 *DD-42-16	SB-4085TR	DN10	LW-3	FT-15
A40T- DDUN$^{R}_{L}$15-50	●	●	50	40	37	300	55	27	8.5										
A50U-DDUN$^{R}_{L}$15-63	●	●	63	50	47	350	65	35	10.5								DN20		

* When using inserts whose corner-R(RE) is greater than 1.6mm, please purchase a shim (DD-42-16) with * mark and use it in order to prevent workpiece and shim from interfering each other.

* Not applicable to high-pressure coolant

Applicable Inserts

Applications	* Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing / High Feed Rate
See Page	**B23**	**B23**	**B23**	**B24**	**B24**	**B24**	**B25**	**B25**	**B25**
Insert / Toolholder Description	**WF (Wiper)**	**PP**	**PQ**	**CQ**	**CJ**	**GS**	**PG**	**PS**	**PT**
									
...-DDUN$^{R}_{L}$15-... / **...-PD□ N$^{R}_{L}$15-...**	DNMX1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..
Applications	Roughing	Roughing	Single Sided / Roughing / High Feed Rate	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing
See Page	**B26**	**B26**	**B26**	**B30**	**B26**	**B26**	**B26**	**B27**	**B28**
Insert / Toolholder Description	Standard	**PH**	**PX**	$^{R}_{L}$	**XP**	**XQ**	**XS**	**MQ**	**MS**
									
...-DDUN$^{R}_{L}$15-... / **...-PD□ N$^{R}_{L}$15-...**	DNMG1504..	DNMG1504..	DNMM1504..	DNGG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..
Applications	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
See Page	**B28**	**B27**	**B29**	**B29**	**B29**	**B29**	**B29**	**B29**	**B107**
Insert / Toolholder Description	**MU**	**TK**	**KQ**	**KG**	**KH**	**C**	**ZS**	**GC**	**Ceramic**
									
...-DDUN$^{R}_{L}$15-... / **...-PD□ N$^{R}_{L}$15-...**	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNGA1504..
Applications	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Heat-resistant Alloys	Hard Materials			
See Page	**B30**	**B30**	**C23**	**B28**	**B28**	**C8,C9**			
Insert / Toolholder Description	$^{R}_{L}$**-A3**	**AH**	**PCD**	**SQ**	**SG**	**CBN**			
									
...-DDUN$^{R}_{L}$15-...	DNGG1504..	DNMG1504.. DNGG1504..	DNMM1504..	DNMG1504..	DNMG1504..	DNGA1504..			
...-PD□ N$^{R}_{L}$15-...									

* When using the insert with WF chipbreaker, tool edge offset or program corrections are required. See Page ➡ **R34**

WF chipbreaker can not be used for S-PDQN15 toolholder.

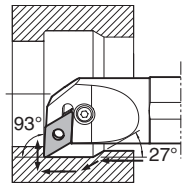
Recommended Cutting Conditions ➡ **F94~F95**

● : Std. Item

Boring Bar [DN15 Negative Insert]

S-PDUN15 (Copying)

Max. Overhang Length L/D=~3



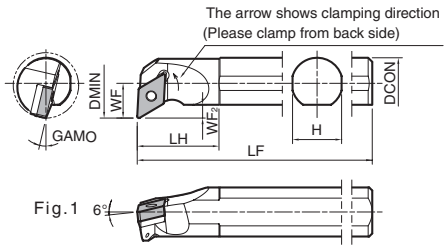


Fig.1 6°

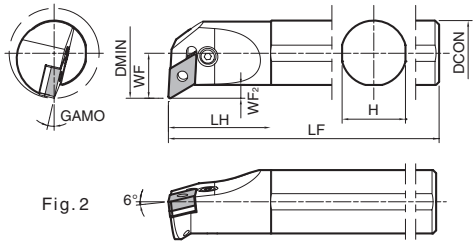


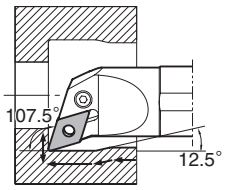
Fig.2 6°

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-PDQN15 (Copying)

Max. Overhang Length L/D=~3



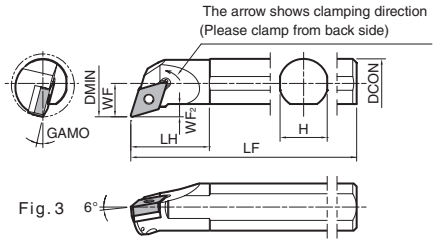


Fig.3 6°

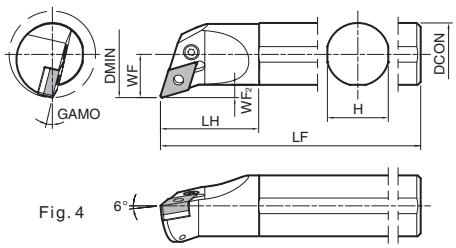


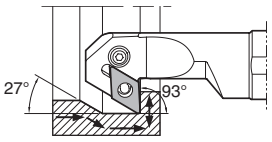
Fig.4 6°

• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

S-PDZN15 (Back Boring)

Max. Overhang Length L/D=~3



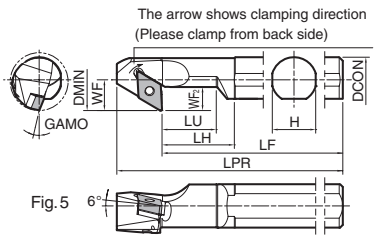


Fig.5 6°

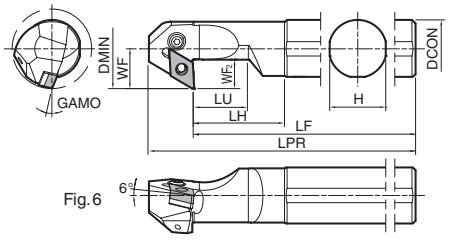


Fig.6 6°

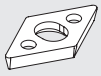
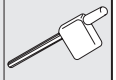
• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)								GAMO	Std. Corner-R(RE)	Drawing	Applicable Inserts	
	R	L	DMIN	DCON	H	LPR	LF	LH	LU	WF	WF_2					
S25R -PDUNR/L15-32	●	●	32	25	24		200	40		17	6.5	13°	0.8	Fig. 1	DN□A DN□G DN□M DNMX	1504..
S32S -PDUNR/L15-44	●	●	44	32	31	-	250	50	-	22				Fig. 2		
S40T -PDUNR/L15-54	●	●	54	40	39		300	65		27	7.5	12°				
S25R -PDQNR/L15-32	●	●	32	25	24		200	40		17	6.5	13°	0.8	Fig. 3	DN□A DN□G DN□M	1504..
S32S -PDQNR/L15-44	●	●	44	32	31	-	250	50	-	22				Fig. 4		
S40T -PDQNR/L15-54	●	●	54	40	39		300	65		27	7.5	12°				
S25R -PDZNR/L15-32	●	●	32	25	24	225	200	40	30	17	13	13°	0.8	Fig. 5	DN□A DN□G DN□M DNMX	1504..
S32S -PDZNR/L15-44	●	●	44	32	31	275	250	50		22	16			Fig. 6		
S40T -PDZNR/L15-54	●	●	54	40	39	325	300	65	50	27		12°				

Spare Parts

Toolholder Description	Spare Parts									
	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Lock Pin	Shim	Shim Screw	Wrench (for Shim Screw)
										
S25R - PD□NR/L15-32	-	-	-	-	-	LW-3	PP-4	PD-42	SB-2050TR	FT-6
S32S - PD□NR/L15-44	LL-3N	LS-2N	LD-42 *LD-42-20	LSP-2	PC-2		-	-	-	-
S40T - PD□NR/L15-54										

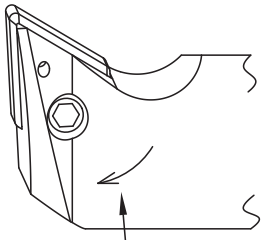
· Shim When using inserts whose corner-R(RE) is greater than 1.6mm for S25R-PD□NR/L15-32, use shim modified by additional processing in order to prevent workpiece and shim from interfering each other. When using inserts whose corner-R(RE) is greater than 1.6mm for S32S-PD□NR/L15-44 and S40T-PD□NR/L15-54, please purchase a shim with * mark and use it in order to prevent workpiece and shim from interfering each other.

● : Std. Item

Boring Bar [DN15 Negative Insert]

How to change S25R-PD□N$^{R}_{L}$15-32 inserts

· Please replace S25R-PD□N$^{R}_{L}$15-32 insert from the back side



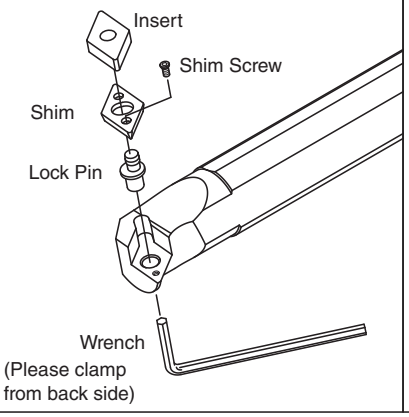
The arrow shows clamping direction

Recommended torque for insert clamp 3.5N·m (for LW-3)

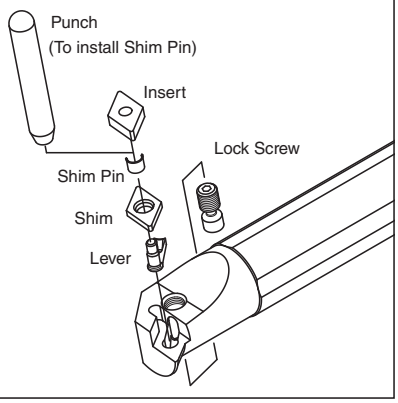
Back side of toolholder

How to assemble spare parts

· S25R-PD□N$^{R}_{L}$15-32 (Pin Lock)



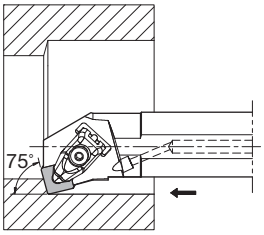
· S32S-PD□N$^{R}_{L}$15-44 (Lever Lock)
· S40T-PD□N$^{R}_{L}$15-54 (Lever Lock)

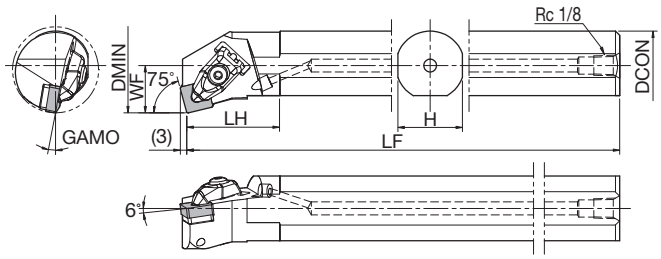


Boring Bar [SN12 Negative Insert]

A-DSKN (Boring)

Max. Overhang Length L/D=~3





● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts							
											Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
	R	L	DMIN	DCON	H	LF	LH	WF										
A25R-DSKN$^{R}_{L}$12-32	●	●	32	25	23	200	43	17	11°	0.8	CP-3D	CS-3D	SP-3D	DS-42	SB-4085TR	DN10	LW-3	FT-15
A32S-DSKN$^{R}_{L}$12-40	●	●	40	32	30	250	43	22	11°									
A40T- DSKN$^{R}_{L}$12-50	●	●	50	40	37	300	53	27	11°							DN20		

* Not applicable to high-pressure coolant

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed Rate
See Page	**B32**	**B32**	**B32**	**B32**	**B32**	**B32**	**B33**	**B33**
Insert	**PQ** 	**PG** 	**PS** 	**HS** 	**PT** 	Standard 	**PH** 	**PX** 
Toolholder Description								
...-DSKN$^{R}_{L}$12-...	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMM1204..
Applications	Finishing - Roughing	Medium-Roughing / Low Cutting Force	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Cast Iron
See Page	**B35**	**B35**	**B33**	**B33**	**B33**	**B34**	**B34**	**B34**
Insert	$^{R}_{L}$-□ 	$^{R}_{L}$**-25R** 	**XP** 	**XQ** 	**XS** 	**MQ** 	**MS** 	**C** 
Toolholder Description								
...-DSKN$^{R}_{L}$12-...	SNGG1204..	SNGG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Heat-resistant Alloys	Hard Materials
See Page	**B34**	**B34**	**B34**	**B34**	**B35**	**B109**	**B34**	**C10**
Insert	**KG** 	**KH** 	**ZS** 	**GC** 	Without chipbreaker 	**Ceramic** 	**SG** 	**CBN** 
Toolholder Description								
...-DSKN$^{R}_{L}$12-...	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SN□A1204..	SN□A1204..	SNMG1204..	SNGA1204..

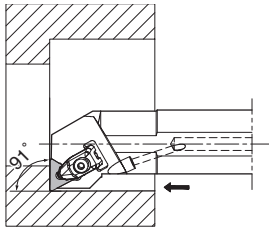
Recommended Cutting Conditions ➡ **F94~F95**

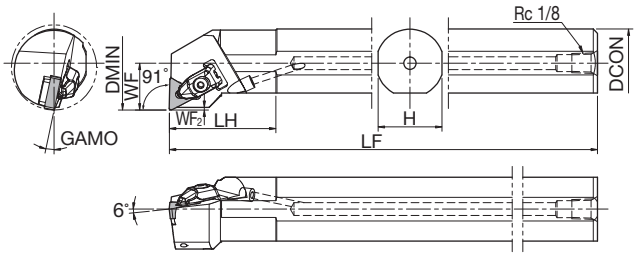
● : Std. Item

Boring Bar [TN□□ Negative Insert]

A-DTFN (Boring)

Max. Overhang Length L/D=~3





● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Spare Parts: Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
																			
A25R-DTFN$^{R}_{L}$16-32	●	●	32	25	23	200	42	17	0.8	12°	0.8	CP-2D	CS-2D	SP-3D	DT-32	SB-3080TR	DN10	LW-2.5	FT-10
A32S-DTFN$^{R}_{L}$16-40	●	●	40	32	30	250	50	22	1.2	12°									
A40T- DTFN$^{R}_{L}$22-50	●	●	50	40	37	300	60	27	1.5	12°		CP-3D	CS-3D	SP-3D	DT-42	SB-4085TR	DN20	LW-3	FT-15

* Not applicable to high-pressure coolant

Applicable Inserts

Applications	* Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
See Page	B36	B36	B36	B36	B36	B36	B36	B36	B37	B37
Insert / Toolholder Description	WF (Wiper)	PP	GP	PQ	HQ	CQ	GS	PG	PS	HS
...-DTFN$^{R}_{L}$16-...	TNMX1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..
...-DTFN$^{R}_{L}$22-...	-	-	-	-	-	TNMG2204..	-	-	TNMG2204..	TNMG2204..
Applications	Medium - Roughing / High Feed Rate	Medium - Roughing / High Feed Rate	Roughing	Finishing	Medium - Roughing	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing
See Page	B37	B37	B37	B42	B42, B43	B38	B38	B38	B39	B39
Insert / Toolholder Description	PT	GT	Standard	$^{R}_{L}$-S	$^{R}_{L}$-□	XP	XQ	XS	MQ	MS
...-DTFN$^{R}_{L}$16-...	TNMG1604..	TNMG1604..	TNMG1604..	TNGG1604..	TNGG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..
...-DTFN$^{R}_{L}$22-...	-	-	TNMG2204..	-	TNGG2204..	-	-	-	-	-
Applications	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
See Page	B39	B39	B40	B40	B40	B40	B40	B40	B40	B111
Insert / Toolholder Description	MU	$^{R}_{L}$-ST	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	Ceramic
...-DTFN$^{R}_{L}$16-...	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMA1604.. TNGA1604..	TNGA1604..
...-DTFN$^{R}_{L}$22-...	-	-	-	-	-	-	-	-	-	-

Applications	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials
See Page	B41	B41	C23	B39	C10, C11
Insert / Toolholder Description	$^{R}_{L}$-A3	AH	PCD	SG	CBN
...-DTFN$^{R}_{L}$16-...	TNGG1604..	TN_G1604..	TNMM1604..	TNMG1604..	TNGA1604..
...-DTFN$^{R}_{L}$22-...	-	-	-	TNMG2204..	-

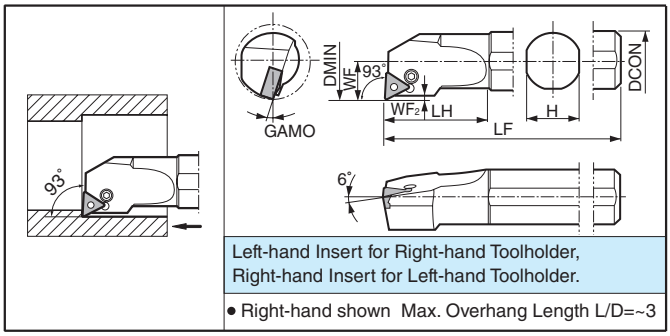
* When using the insert with WF chipbreaker, tool edge offset or program corrections are required. ➡R34

Recommended Cutting Conditions ➡ F94~F95

● : Std. Item

Boring Bar [TN□□ Negative Insert]

S-PTUN○○ (Boring)

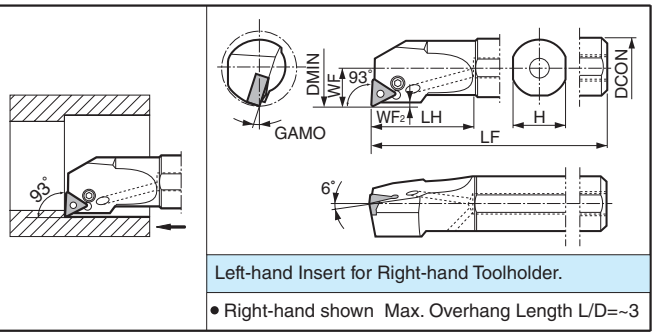


Left-hand Insert for Right-hand Toolholder,
Right-hand Insert for Left-hand Toolholder.

• Right-hand shown Max. Overhang Length L/D=~3

A-PTUN11

Twin-Hole Bar
(Boring, with Coolant Hole)



Left-hand Insert for Right-hand Toolholder.

• Right-hand shown Max. Overhang Length L/D=~3

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	WF_2	GAMO	Std. Corner-R(RE)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S16M-PTUN$^{R}_{L}$11-20	●	●	20	16	15	150	34	11	0.3	18°	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
S20Q-PTUN$^{R}_{L}$11-25	●	●	25	20	19	180	37	13.2	0.2	17°							
S25R-PTUN$^{R}_{L}$11-32	●	●	32	25	24	200	42	15.7	0.3	16°							
S16M-PTUN$^{R}_{L}$16-20	●	●	20	16	15	150	34	11	1.3	18°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q-PTUN$^{R}_{L}$16-25	●	●	25	20	19	180	37	13.2	1.3	17°							
S25R-PTUN$^{R}_{L}$16-30	●	●	30	25	24	200	42	15.5	1.3	13°							
S32S-PTUN$^{R}_{L}$16-40	●	●	40	32	30	250	50	22	0.7	13°		LL-1N	LS-1N	LT-32N *LT-32N-20	LSP-1	PC-1	FH-2.5
S40T-PTUN$^{R}_{L}$16-50	●	●	50	40	37	300	60	27	0.6	11°							
A16M-PTUNR11-20	●		20	16	15	150	34	11	0.3	18°	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PTUNR11-25	●		25	20	19	180	37	13.2	0.2	17°							
A25R-PTUNR11-32	●		32	25	24	200	42	15.7	0.3	16°							

· When using inserts whose corner-R(RE) is greater than 1.6mm, please purchase a shim with * mark and use it in order to prevent workpiece and shim from interfering each other.

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing / High Feed Rate
See Page	B36	B36	B36	B36	B36	B36	B36	B37	B37	B37
Insert / Toolholder Description	PP	GP	PQ	HQ	CQ	GS	PG	PS	HS	PT
...-PTUN$^{R}_{L}$11-...	-	TNMG1104..	-	TNMG1104..	-	TNMG1104..	-	-	-	-
...-PTUN$^{R}_{L}$16-...	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..
Applications	Medium - Roughing / High Feed Rate	Roughing	Finishing	Medium - Roughing	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing
See Page	B37	B37	B42	B42, B43	B38	B38	B38	B39	B39	B39
Insert / Toolholder Description	GT	Standard	$^{R}_{L}$-S	$^{R}_{L}$-□	XP	XQ	XS	MQ	MS	MU
...-PTUN$^{R}_{L}$11-...	-	-	TNGG1104..	TNGG1104..	-	-	-	-	-	-
...-PTUN$^{R}_{L}$16-...	TNMG1604..	TNMG1604..	TNGG1604..	TNGG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..
Applications	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals
See Page	B39	B40	B40	B40	B40	B40	B40	B40	B111	B41
Insert / Toolholder Description	$^{R}_{L}$-ST	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	Ceramic	$^{R}_{L}$-A3
...-PTUN$^{R}_{L}$11-...	-	-	-	-	-	-	-	-	-	-
...-PTUN$^{R}_{L}$16-...	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMA1604.. TNGA1604..	TNGA1604..	TNGG1604..

Applications	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials
See Page	B41	C23	B39	C10, C11
Insert / Toolholder Description	AH	PCD	SG	CBN
...-PTUN$^{R}_{L}$11-...	-	-	-	-
...-PTUN$^{R}_{L}$16-...	TN_G1604..	TNMM1604..	TNMG1604..	TNGA1604..

Recommended Cutting Conditions ➡ F94~F95

Applicable Coolant Sleeve / Joint

Toolholder Description	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PTUN$^{R}_{L}$11-20	SHC1640-70, SHC1650-95	SJS-8
A20Q-PTUN$^{R}_{L}$11-25	SHC2040-70, SHC2050-95	
A25R-PTUN$^{R}_{L}$11-32	SHC2540-70, SHC2550-95	

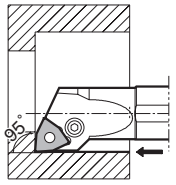
· For Coolant Sleeve, Coolant Joint, See Page ➡ **F87~F88**.

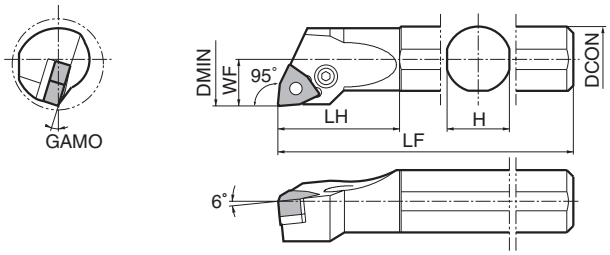
● : Std. Item

Boring Bar [WN06 Small Negative Insert]

S-PWLN06 (Boring / Internal Facing)

Max. Overhang Length L/D=~3



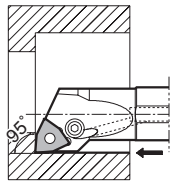


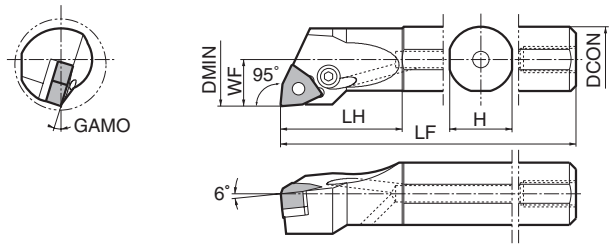
• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

A-PWLN06 Twin-Hole Bar (Boring / Internal Facing, with Coolant Hole)

Max. Overhang Length L/D=~3

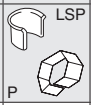




• Right-hand shown

Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts					
											Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
	R	L	DMIN	DCON	H	LF	LH	WF								
S16M -PWLN$^{R}_{L}$06-20	●	●	20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q -PWLN$^{R}_{L}$06-27	●	●	27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	
S25R -PWLN$^{R}_{L}$06-32	●	●	32	25	24	200	42	15.7	15°							
A16M -PWLNR06-20	●		20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q -PWLNR06-27	●		27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	
A25R -PWLNR06-32	●		32	25	24	200	42	15.7	15°							

Applicable Inserts

Applications	Finishing	Finishing - Medium	Medium - Roughing	Finishing	Medium					
See Page	**B46**	**B46**	**B47**	**B49**	**B49**					
Insert / Toolholder Description	**GP** 	**HQ** 	**GS** 	$^{R}_{L}$**-S** 	$^{R}_{L}$ 					
...-PWLN$^{R}_{L}$06-...	WNMG0604..	WNMG0604..	WNMG0604..	WNGG0604..	WNGG0604..					

Recommended Cutting Conditions ➔ **F94~F95**

Applicable Coolant Sleeve / Joint

Toolholder Description	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PWLNR06-20	SHC1640-70, SHC1650-95	SJS-8
A20M-PWLNR06-27	SHC2040-70, SHC2050-95	
A25R-PWLNR06-32	SHC2540-70, SHC2550-95	

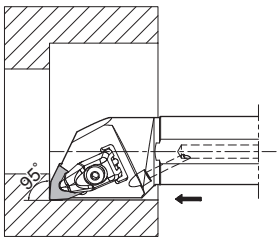
· For Coolant Sleeve, Coolant Joint, See Page ➔ **F87~F88**.

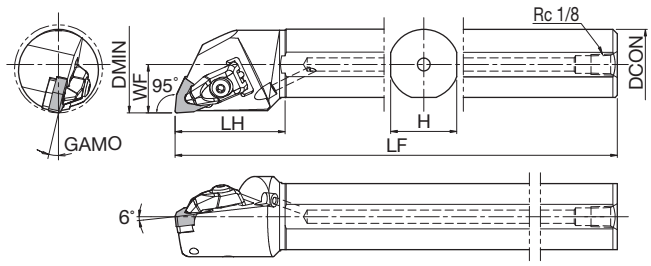
● : Std. Item

Boring Bar [WN08 Negative Insert]

A-DWLN (Boring / Internal Facing)

Max. Overhang Length L/D=~3





● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts							
											Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
	R	L	DMIN	DCON	H	LF	LH	WF										
A25R-DWLNR/L08-32	●	●	32	25	23	200	50	17	13°	0.8	CP-3D	CS-3D	SP-3D	DW-42	SB-4085TR	DN10	LW-3	FT-15
A32S-DWLNR/L08-40	●	●	40	32	30	250	50	22	13°									
A40T- DWLNR/L08-50	●	●	50	40	37	300	60	27	13°							DN20		

* Not applicable to high-pressure coolant

Applicable Inserts

Applications	Finishing	Finishing - Medium	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing / High Feed Rate	Roughing
See Page	**B46**	**B46**	**B46**	**B46**	**B47**	**B47**	**B47**	**B47**	**B47**	**B47**	**B47**
Insert	**WF** (Wiper)	**WE** (Wiper)	**PP**	**PQ**	**CQ**	**CJ**	**GS**	**PG**	**PS**	**PT**	Standard
Toolholder Description											
...-DWLNR/L08 -...	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..

Applications	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
See Page	**B48**	**B48**	**B48**	**B48**	**B48**	**B48**	**B49**	**B49**	**B49**	**B49**	**B49**
Insert	**XP**	**XQ**	**XS**	**MQ**	**MS**	**MU**	**C**(GC)	**KQ**	**KG**	**KH**	**ZS**
Toolholder Description											
...-DWLNR/L08 -...	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..

Applications	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials
See Page	**B49**	**C23**	**B48**	**C13**
Insert	**AH**	**PCD**	**SG**	**CBN**
Toolholder Description				
...-DWLNR/L08 -...	WNGG0804..	WNMM0804..	WNMG0804..	WNGA0804..

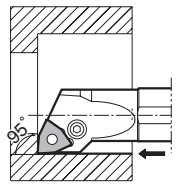
Recommended Cutting Conditions ➡ **F94~F95**

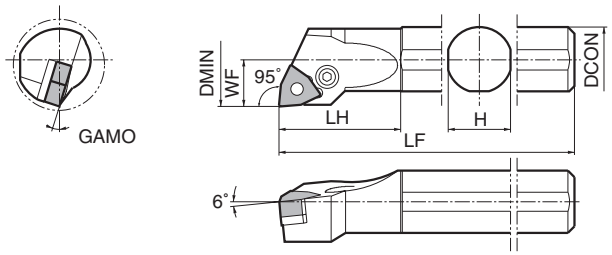
● : Std. Item

Boring Bar [WN08 Negative Insert]

S-PWLN08 (Boring / Internal Facing)

Max. Overhang Length L/D=~3





• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

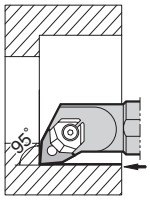
Toolholder Dimensions

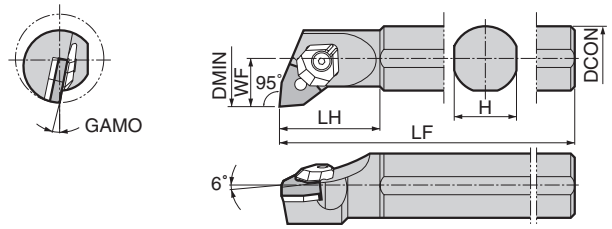
Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts					
											Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
	R	L	DMIN	DCON	H	LF	LH	WF								
S32S -PWLN$^{R}_{L}$08-40	●	●	40	32	30	250	50	22	10°	0.8	LL-2N	LS-2N	LW-42N$^{R}_{L}$	LSP-2	PC-2	LW-3
S40T -PWLN$^{R}_{L}$08-50	●	●	50	40	37	300	60	27								

· Shim : LW-42NR for Right-hand Toolholder, LW-42NL for Left-hand Toolholder.

S-WWLN08-E Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~5

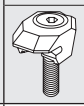
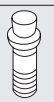




• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts					
											Clamp Set	Wrench	Shim	Shim Pin	Wrench	
	R	L	DMIN	DCON	H	LF	LH	WF								
S25S -WWLN$^{R}_{L}$08-28E	●	●	28	25	24	250	36	14	13°	1.2	WCS-8	LW-3	WWP-42 *WWP -42-16	WP5X11	LW-2	
S25S -WWLN$^{R}_{L}$08-34E	●	●	34	25	24		40	17	11°							
S32S -WWLN$^{R}_{L}$08-40E	●	●	40	32	30		50	20	10°							

· When using inserts whose corner-R(RE) is greater than 1.6mm, please purchase a shim with * mark and use it in order to prevent workpiece and shim from interfering each other.

Applicable Inserts

Applications	Finishing	Finishing - Medium	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing / High Feed Rate	Roughing
See Page	B46	B46	B46	B46	B47	B47	B47	B47	B47	B47	B47
Insert / Toolholder Description	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
...-PWLN$^{R}_{L}$08 -...	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..
...-WWLN$^{R}_{L}$08 -...											

Applications	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
See Page	B48	B48	B48	B48	B48	B48	B49	B49	B49	B49	B49
Insert / Toolholder Description	XP	XQ	XS	MQ	MS	MU	C(GC)	KQ	KG	KH	ZS
...-PWLN$^{R}_{L}$08 -...	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..
...-WWLN$^{R}_{L}$08 -...											

Applications	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials
See Page	B49	C23	B48	C13
Insert / Toolholder Description	AH	PCD	SG	CBN
...-PWLN$^{R}_{L}$08 -...	WNGG0804..	WNMM0804..	WNMG0804..	WNGA0804..
...-WWLN$^{R}_{L}$08 -...				

Recommended Cutting Conditions ➔ F94~F95

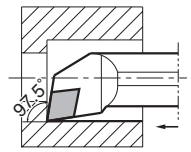
● : Std. Item

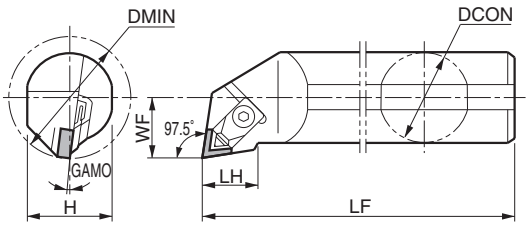
· In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Boring Bars for Ceramic Tools [EN□□, SN□□ Insert]

S-CELN (Boring / Internal Facing)

Max. Overhang Length L/D=~3





• Right-hand shown

Applicable Inserts

Cast Iron / Hard Materials
➡B107
Ceramic

ENGN1307..

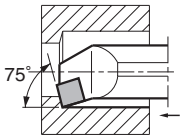
Toolholder Dimensions

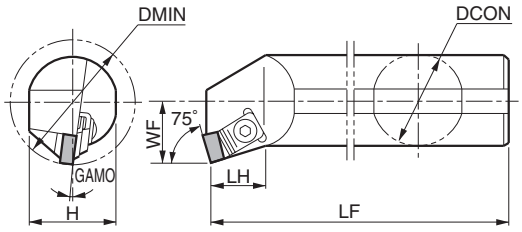
Recommended Cutting Conditions ➡ F94~F95

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts				
	R	L	DMIN	DCON	H	LF	LH	WF			Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
															
S40T-CELNR13-50	●		50	40	37	300	32	27	12°	0.8	CB-16	CE-010	LW-4	SP-341P	M3X8

S-CSKN (Boring)

Max. Overhang Length L/D=~3





• Right-hand shown

Applicable Inserts

Cast Iron / Hard Materials	Cast Iron	Hard Materials /Cast Iron
➡B109, B110	➡B35	➡C19
Ceramic	Coated Carbide	**CBN(KBN900)**
		
SNGN1207..(1204..) SNMN1207..	(SNMN1204..)	(SNMN1204..)

Toolholder Dimensions

Recommended Cutting Conditions ➡ F94~F95

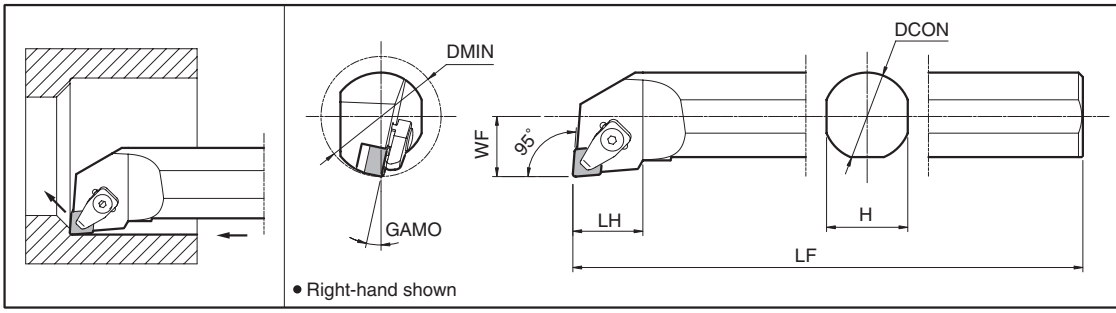
Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts				
	R	L	DMIN	DCON	H	LF	LH	WF			Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
															
S40T-CSKN$^{R}_{L}$12-50	□	□	50	40	37	300	26	27	10.5°	0.8	CB-13/12	CE-320	LW-4	SP-141P (SP-143P)	M3X8 (M3X12)

· Chipbreaker : CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.
· Shim & Shim Screw : When using SN□□1204 Insert, purchase spare parts in ( ) separately.

● : Std. Item
□ : Deleted from the next catalog

S-CCLN-GX (Boring / Internal Facing)

Max. Overhang Length L/D=~3

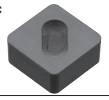


• Right-hand shown

Applicable Inserts

Cast Iron → B106

Ceramic



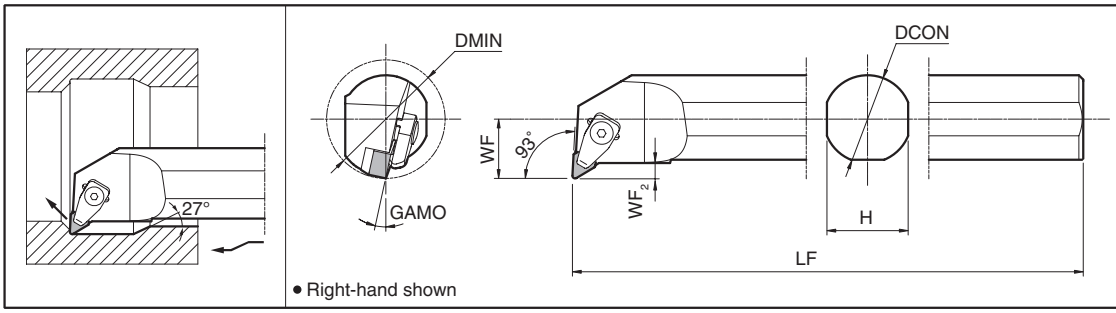
CNGX1207..

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	GAMO	Std. Corner-R(RE)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Recommended Cutting Conditions
S32S- CCLN$^{R}_{L}$12-40GX	□	□	40	32	30	250	32	22	14°	1.2	CE-410	LW-4	-	-	F94~F95
S40T- CCLN$^{R}_{L}$12-50GX	□	□	50	40	37	300	32	27	12°	1.2	CE-410	LW-4	SP-441P	M3X8	

S-CDUN-GX (Boring / Copying)

Max. Overhang Length L/D=~3

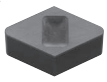


• Right-hand shown

Applicable Inserts

Cast Iron → B107

Ceramic



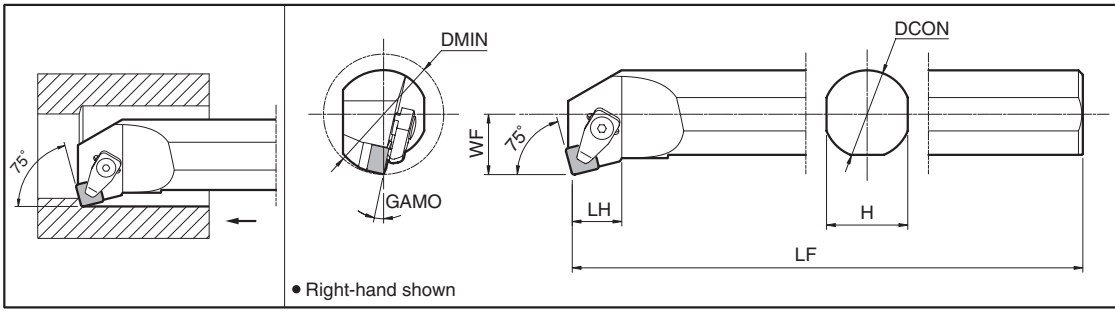
DNGX1207..

Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	WF	WF_2	GAMO	Std. Corner-R(RE)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Recommended Cutting Conditions
S32S- CDUN$^{R}_{L}$12-40GX	□	□	40	32	30	250	22	7.5	14°	1.2	CE-410	LW-4	-	-	F94~F95
S40T- CDUN$^{R}_{L}$12-50GX	□	□	50	40	37	300	27	7.5	12°	1.2	CE-410	LW-4	SP-521P	M3X8	

S-CSKN-GX (Boring)

Max. Overhang Length L/D=~3



• Right-hand shown

Applicable Inserts

Cast Iron → B110

Ceramic

SNGX1207..

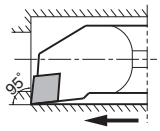
Toolholder Dimensions

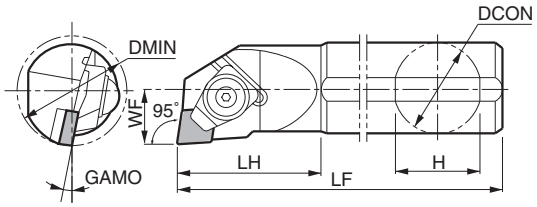
Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	GAMO	Std. Corner-R(RE)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Recommended Cutting Conditions
S32S- CSKN$^{R}_{L}$12-40GX	□	□	40	32	30	250	22.5	22	14°	1.2	CE-410	LW-4	-	-	F94~F95
S40T- CSKN$^{R}_{L}$12-50GX	□	□	50	40	37	300	22.5	27	12°	1.2	CE-410	LW-4	SP-141P	M3X8	

□ : Deleted from the next catalog

Boring Bars for CBN Tools [CNMN,TNMN Insert]

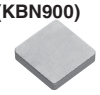
S-CCLN-A (Boring / Internal Facing)





• Right-hand shown

Applicable Inserts

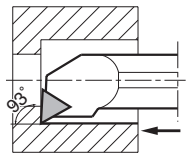
Hard Materials / Cast Iron
C19
CBN(KBN900)

CNMN0903..

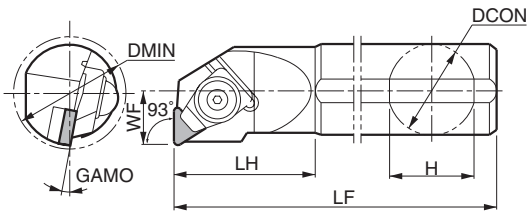
Recommended Cutting Conditions F94~F95

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts			
	R	L	DMIN	DCON	H	LF	LH	WF			Clamp Set	Wrench	Shim	Shim Screw
														
S32S-CCLN$^{R/L}$09-40A	●	●	40	32	30	250	50	22	8°	0.8	CE-360S	LW-4	SP-420A	BH3X6

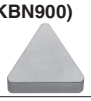
S-CTUN-A (Boring)





• Right-hand shown

Applicable Inserts

Hard Materials / Cast Iron	Cast Iron / Hard Materials
C19	B111
CBN(KBN900)	Ceramic
	
TNMN1103..	TNGN1103..

Recommended Cutting Conditions F94~F95

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					GAMO	Std. Corner-R(RE)	Spare Parts			
	R	L	DMIN	DCON	H	LF	LH	WF			Clamp Set	Wrench	Shim	Shim Screw
														
S25X-CTUNR11-30A	●		30	25	24	220	40	15	10°	0.8	CE-360S	LW-4	SP-210A	BH3X6

● : Std. Item

EZH Sleeves

Sleeve Description				Applicable Inserts				Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length with coolant hole)	EZH-HP (Adjustable overhang length)	EZH-ST	Sleeve Shank Dia. DCON (mm)	EZB	EZG EZFG EZT EZVB	EZ Bar PLUS	Shank Dia. DCON (mm)	
-	-	EZH 01712ST-80	12	EZBR ...017...	-	-	1.7	(General purpose)
		02012ST-80		EZBR ...020...			2	
		02512ST-80		EZBR ...025...	EZ_ _ ...025-...		2.5	
		03012ST-80		EZBR ...030...	EZ_ _ ...030-...		3	
		03512ST-80		EZBR ...035...	EZ_ _ ...035-...		3.5	
		04012ST-80		EZBR ...040...	EZ_ _ ...040-...		4	
		05012ST-80		EZBR ...050...	EZ_ _ ...050-...		5	
		06012ST-80		EZBR ...060...	EZ_ _ ...060-...		6	
		07012ST-80		EZBR ...070...	EZ_ _ ...070-...		7	
-	EZH 01716HP-100	EZH 01716ST-100	16	EZBR ...017...	-	-	1.7	(General purpose)
	02016HP-100	02016ST-100		EZBR ...020...			2	
	02516HP-100	02516ST-100		EZBR ...025...	EZ_ _ ...025-...		2.5	
	03016HP-100	03016ST-100		EZBR ...030...	EZ_ _ ...030-...		3	
	03516HP-100	03516ST-100		EZBR ...035...	EZ_ _ ...035-...		3.5	
	04016HP-100	04016ST-100		EZBR ...040...	EZ_ _ ...040-...		4	
	04516HP-100	-		-	-	_045X- ...-050EZ (P)	4.5	
	05016HP-100	05016ST-100		EZBR ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
	06016HP-100	06016ST-100		EZBR ...060...	EZ_ _ ...060-...	_060X- ...-070EZ (P)	6	
	07016HP-100	07016ST-100		EZBR ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
	-	08016ST-100		-	-	_080X- ...-100EZP	8	
EZH 01719CT-120	EZH 01719HP-120	EZH 01719ST-120	19.05	EZBR ...017...	-	-	1.7	Citizen Machinery
02019CT-120	02019HP-120	02019ST-120		EZBR ...020...			2	
02519CT-120	02519HP-120	02519ST-120		EZBR ...025...	EZ_ _ ...025-...		2.5	
03019CT-120	03019HP-120	03019ST-120		EZBR ...030...	EZ_ _ ...030-...		3	
03519CT-120	03519HP-120	03519ST-120		EZBR ...035...	EZ_ _ ...035-...		3.5	
04019CT-120	04019HP-120	04019ST-120		EZBR ...040...	EZ_ _ ...040-...		4	
-	04519HP-120	-		-	-	_045X- ...-050EZ (P)	4.5	
05019CT-120	05019HP-120	05019ST-120		EZBR ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06019CT-120	06019HP-120	06019ST-120		EZBR ...060...	EZ_ _ ...060-...	_060X- ...-070EZ (P)	6	
07019CT-120	07019HP-120	07019ST-120		EZBR ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
-	08019HP-120	08019ST-120		-	-	_080X- ...-100EZP	8	
EZH 01720CT-120	EZH 01720HP-120	EZH 01720ST-120	20	EZBR ...017...	-	-	1.7	Eguro Tsugami Citizen Machinery (General purpose)
02020CT-120	02020HP-120	02020ST-120		EZBR ...020...			2	
02520CT-120	02520HP-120	02520ST-120		EZBR ...025...	EZ_ _ ...025-...		2.5	
03020CT-120	03020HP-120	03020ST-120		EZBR ...030...	EZ_ _ ...030-...		3	
03520CT-120	03520HP-120	03520ST-120		EZBR ...035...	EZ_ _ ...035-...		3.5	
04020CT-120	04020HP-120	04020ST-120		EZBR ...040...	EZ_ _ ...040-...		4	
-	04520HP-120	-		-	-	_045X- ...-050EZ (P)	4.5	
05020CT-120	05020HP-120	05020ST-120		EZBR ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06020CT-120	06020HP-120	06020ST-120		EZBR ...060...	EZ_ _ ...060-...	_060X- ...-070EZ (P)	6	
07020CT-120	07020HP-120	07020ST-120		EZBR ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
-	08020HP-120	08020ST-120		-	-	_080X- ...-100EZP	8	
EZH 01722CT-135	EZH 01722HP-135	EZH 01722ST-135	22	EZBR ...017...	-	-	1.7	Star Micronics Nomura DS Tsugami
02022CT-135	02022HP-135	02022ST-135		EZBR ...020...			2	
02522CT-135	02522HP-135	02522ST-135		EZBR ...025...	EZ_ _ ...025-...		2.5	
03022CT-135	03022HP-135	03022ST-135		EZBR ...030...	EZ_ _ ...030-...		3	
03522CT-135	03522HP-135	03522ST-135		EZBR ...035...	EZ_ _ ...035-...		3.5	
04022CT-135	04022HP-135	04022ST-135		EZBR ...040...	EZ_ _ ...040-...		4	
-	04522HP-135	-		-	-	_045X- ...-050EZ (P)	4.5	
05022CT-135	05022HP-135	05022ST-135		EZBR ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06022CT-135	06022HP-135	06022ST-135		EZBR ...060...	EZ_ _ ...060-...	_060X- ...-070EZ (P)	6	
07022CT-135	07022HP-135	07022ST-135		EZBR ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
-	08022HP-135	08022ST-135		-	-	_080X- ...-100EZP	8	
EZH 01725.0CT-135	EZH 01725.0HP-135	EZH 01725.0ST-135	25	EZBR ...017...	-	-	1.7	Eguro Tsugami Citizen Machinery (General purpose)
02025.0CT-135	02025.0HP-135	02025.0ST-135		EZBR ...020...			2	
02525.0CT-135	02525.0HP-135	02525.0ST-135		EZBR ...025...	EZ_ _ ...025-...		2.5	
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZBR ...030...	EZ_ _ ...030-...		3	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZBR ...035...	EZ_ _ ...035-...		3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZBR ...040...	EZ_ _ ...040-...		4	
-	04525.0HP-135	-		-	-	_045X- ...-050EZ (P)	4.5	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZBR ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZBR ...060...	EZ_ _ ...060-...	_060X- ...-070EZ (P)	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZBR ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
-	08025.0HP-135	08025.0ST-135		-	-	_080X- ...-100EZP	8	
EZH 01725.4CT-120	EZH 01725.4HP-120	EZH 01725.4ST-120	25.4	EZBR ...017...	-	-	1.7	Citizen Machinery
02025.4CT-120	02025.4HP-120	02025.4ST-120		EZBR ...020...			2	
02525.4CT-120	02525.4HP-120	02525.4ST-120		EZBR ...025...	EZ_ _ ...025-...		2.5	
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZBR ...030...	EZ_ _ ...030-...		3	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZBR ...035...	EZ_ _ ...035-...		3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZBR ...040...	EZ_ _ ...040-...		4	
-	04525.4HP-120	-		-	-	_045X- ...-050EZ (P)	4.5	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZBR ...050...	EZ_ _ ...050-...	_050X- ...-060EZP	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZBR ...060...	EZ_ _ ...060-...	_060X- ...-070EZ (P)	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZBR ...070...	EZ_ _ ...070-...	_070X- ...-080EZP	7	
-	08025.4HP-120	08025.4ST-120		-	-	_080X- ...-100EZP	8	

· Choose sleeves (DCB) to meet with DCON dimension of bar.
· Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.
· Machine manufacturers in random order.

EZH Sleeves and Applicable Inserts / Toolholders

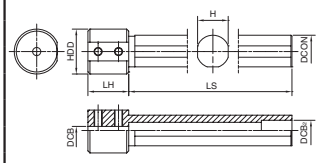
Shank Size (Hole Dia.: mm)		017 (1.7mm)	020 (2mm)	025 (2.5mm)	03 (3mm)	035 (3.5mm)
EZH-CT sleeve (Internal coolant) EZH-HP sleeve description (Adjustable overhang length)		EZH 01716HP-100	EZH 02016HP-100	EZH 02516HP-100	EZH 03016HP-100	EZH 03516HP-100
		01719CT/HP-120	02019CT/HP-120	02519CT/HP-120	03019CT/HP-120	03519CT/HP-120
		01720CT/HP-120	02020CT/HP-120	02520CT/HP-120	03020CT/HP-120	03520CT/HP-120
		01722CT/HP-135	02022CT/HP-135	02522CT/HP-135	03022CT/HP-135	03522CT/HP-135
		01725.0CT/HP-135	02025.0CT/HP-135	02525.0CT/HP-135	03025.0CT/HP-135	03525.0CT/HP-135
		01725.4CT/HP-120	02025.4CT/HP-120	02525.4CT/HP-120	03025.4CT/HP-120	03525.4CT/HP-120
EZH-ST sleeve description		EZH 01712ST-80	EZH 02012ST-80	EZH 02512ST-80	EZH 03012ST-80	EZH 03512ST-80
		01716ST-100	02016ST-100	02516ST-100	03016ST-100	03516ST-100
		01719ST-120	02019ST-120	02519ST-120	03019ST-120	03519ST-120
		01720ST-120	02020ST-120	02520ST-120	03020ST-120	03520ST-120
		01722ST-135	02022ST-135	02522ST-135	03022ST-135	03522ST-135
		01725.0ST-135	02025.0ST-135	02525.0ST-135	03025.0ST-135	03525.0ST-135
		01725.4ST-120	02025.4ST-120	02525.4ST-120	03025.4ST-120	03525.4ST-120
EZ Bars	Boring		EZBR 020020HP-	EZBR 025025HP-	EZBR 030030HP-	EZBR 035035HP-
		EZBR 020017ST-	EZBR 025020ST-	EZBR 030025ST-	EZBR 035030ST-	EZBR 040035ST-
		EZBR 020017-...NB	EZBR 025020-...NB	EZBR 030025-...NB	EZBR ...030-...NB	EZBR 040035-...NB
					EZVBR035030-	
	Internal Grooving				EZGR 030030-	
	Face Grooving					
	Internal Threading			EZTR 030025-	EZTR 035030-	EZTR 040035-
EZ Bar PLUS						

Shank Size (Hole Dia.: mm)		04 (4mm)	045 (4.5mm)	05 (5mm)	06 (6mm)	07 (7mm)	08 (8mm)
EZH-CT sleeve (Internal coolant) EZH-HP sleeve description (Adjustable overhang length)		EZH 04016HP-100	EZH 04516HP-100	EZH 05016HP-100	EZH 06016HP-100	EZH 07016HP-100	
		04019CT/HP-120	04519HP-120	05019CT/HP-120	06019CT/HP-120	07019CT/HP-120	EZH 08019HP-120
		04020CT/HP-120	04520HP-120	05020CT/HP-120	06020CT/HP-120	07020CT/HP-120	08020HP120
		04022CT/HP-135	04522HP-135	05022CT/HP-135	06022CT/HP-135	07022CT/HP-135	08022HP-135
		04025.0CT/HP-135	04525.0HP-135	05025.0CT/HP-135	06025.0CT/HP-135	07025.0CT/HP-135	08025.0HP-135
		04025.4CT/HP-120	04525.4HP-120	05025.4CT/HP-120	06025.4CT/HP-120	07025.4CT/HP-120	08025.4HP-120
EZH-ST sleeve description		EZH 04012ST-80		EZH 05012ST-80	EZH 06012ST-80	EZH 07012ST-80	
		04016ST-100		05016ST-100	06016ST-100	07016ST-100	EZH 08016ST-100
		04019ST-120		05019ST-120	06019ST-120	07019ST-120	08019ST-120
		04020ST-120		05020ST-120	06020ST-120	07020ST-120	08020ST-120
		04022ST-135		05022ST-135	06022ST-135	07022ST-135	08022ST-135
		04025.0ST-135		05025.0ST-135	06025.0ST-135	07025.0ST-135	08025.0ST-135
		04025.4ST-120		05025.4ST-120	06025.4ST-120	07025.4ST-120	08025.4ST-120
EZ Bars	Boring	EZBR 040040HP-		EZBR 050050HP-	EZBR 060060HP-		
		EZBR 045040ST-		EZBR 055050ST-	EZBR 065060ST-	EZBR 075070ST-	
		EZBR ...040-...NB		EZBR ...050-...NB	EZBR ...060-...NB	EZBR ...070-...NB	
		EZVBR045040-		EZVBR055050-	EZVBR065060-		
	Internal Grooving	EZGR040040-		EZGR050050-	EZGR060060-	EZGR ...070-...	
	Face Grooving	EZFGR050040-		EZFGR060050-		EZFGR080070-	
	Internal Threading	EZTR 050040-		EZTR 060050-	EZTR 070060-	EZTR 080070-	
EZ Bar PLUS			S/C045X-SCLCR03-050EZ(P)	S/C050X-SCLCR03-060EZP	S/C060X-SCLCR04-070EZ(P)	S/C070X-SCLCR04-080EZP	S/C080X-SCLCR06-100EZP
						S/C070X-STLBR06-080EZP	S/C080X-STLPR09-100EZP
				S/C050X-SWUBR06-060EZP	S/C060X-SWUBR06-070EZP	S/C070X-SWUBR08-080EZP	
Boring Bars		C04-....		C05-....	C06-....	C07-....	C/E08-....
					S06-....		A/S08-....

Note 1) When attaching 2-Edge Tip-Bars to EZH-CT/HP Sleeve (Adjustable overhang length), detach Adjustable Pin.
Overhang length of bar is not adjustable.

Sleeves for Boring Bars

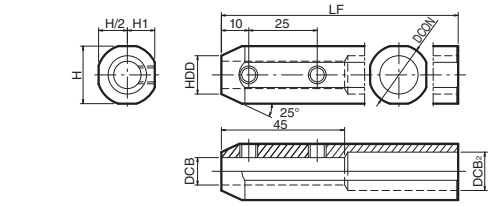
Sleeves for Tip-Bars

Shape	Description		Stock	Dimension (mm) DCON	HDD	DCB	DCB_2	H	LS	LH	Spare Parts Screw	Wrench
 (Tip-Bar installation side)	PH	0212-60	□	12	19	1.8	6	11	60	20	HS3X4	LW-1.5
		0312-60	□			2.8						
		0412-60	□			3.8					HS4X4	LW-2
		0512-60	□			4.8						
		0612-60	□			5.8	8					
		0712-60	□			6.8						
	PH	0216-80	□	16	22	1.8	Rp¼ (PS¼)	15	80	20	HS3X4	LW-1.5
		0316-80	□			2.8						
		0416-80	□			3.8					HS4X4	LW-2
		0516-80	□			4.8						
		0616-80	□			5.8						
		0716-80	□			6.8						

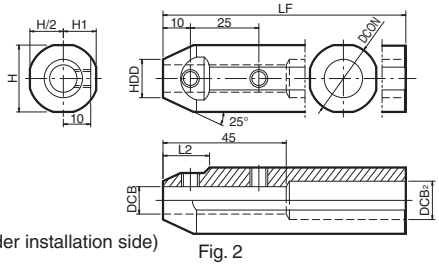
Description Table for PH Sleeves and Applicable Toolholders

Shank Size (Hole Dia.: mm)		02 (1.8mm)	03 (2.8mm)	04 (3.8mm)	05 (4.8mm)	06 (5.8mm)	07 (6.8mm)
PH sleeve Description		PH0212-60	PH0312-60	PH0412-60	PH0512-60	PH0612-60	PH0712-60
		PH0216-80	PH0316-80	PH0416-80	PH0516-80	PH0616-80	PH0716-80
1-Edge Tip-Bars	Boring	PSBR/L0202-	PSBR/L0303-	PSBR/L0404-	PSBR/L0505-	PSBR/L0606-	PSBR/L0707-
				PSBTR/L0415-	PSBTR/L0515-		
	Internal Grooving			PSGR/L0510-	PSGR/L0610-	PSGR/L0710-	PSGR/L0810-
				PSGR/L0520-	PSGR/L0620-	PSGR/L0720-	PSGR/L0820-
	Face Grooving						PSFGR/L0810-
							PSFGR/L0820-
							PSFGR/L0830-
	Internal Threading			PSTR0604-	PSTR0805-		

SHA sleeves (Applicable Toolholders F88)



(Toolholder installation side) Fig. 1



(Toolholder installation side) Fig. 2

Description		Stock	Dimension (mm) DCB	DCON	HDD	DCB_2	H	H1	LF	L2	Drawing	Spare Parts Screw	Wrench	Applicable Machine Manufacturer
SHA	0820-120	●	8	20	14	12	19	9.25	120	-	Fig. 1	HS6X4P	LW-3	Eguro Tsugami Citizen Machinery
	1020-120	●	10											
SHA	0825.0-135	●	8	25	14	14	24	11.5	135	17	Fig. 2			
	1025.0-135	●	10											
	1225.0-135	●	12		16									
SHA	0819-120	●	8	19.05	14	12	18	8.75	120	-	Fig. 1	HS6X4P	LW-3	Citizen Machinery
	1019-120	●	10											
SHA	0820-120	●	8	20	14	12	19	9.25	120	-	Fig. 1			
	1020-120	●	10											
SHA	0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig. 2			
	1025.4-120	●	10											
	1225.4-120	●	12		16									
SHA	0822-125	●	8	22	14	14	21	10	125	-	Fig. 1	HS6X4P	LW-3	Star Micronics Nomura DS
	1022-125	●	10											
	1222-125	●	12		16									
SHA	0823-120	●	8	23	14	14	22	10.5	120	16	Fig. 2	HS6X4P	LW-3	Nomura DS
	1023-120	●	10											
	1223-120	●	12		16									

* Length of DCB···45mm (All of SHA sleeves)

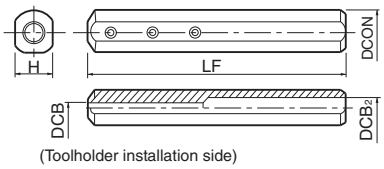
· Choose sleeves (DCB) to meet with DCON dimension of toolholder.

· Machine manufacturers in random order.

● : Std. Item
□ : Deleted from the next catalog

Sleeves for Boring Bars

Sleeves for Boring Bars

Shape	Description		Stock	Dimension (mm) DCON	DCB	DCB_2	H	LF	Spare Parts Screw	Spare Parts Wrench
 (Toolholder installation side)	SH	0416-100	●	16	4	5	14	100	HS4X4	LW-2
		0516-100	●		5	6				
		0616-100	●		6	7				
		0716-100	●		7	8				
	SH	0820-120	●	20	8	9	18	120	HS4X4	LW-2
		1020-120	●		10	11				
		1225-150	●	25	12	13	23	150	HS5X5	LW-2.5
		1632-180	●	32	16	18	30	180		
		2032-180	●		20	22				

Coolant Sleeve Dimensions

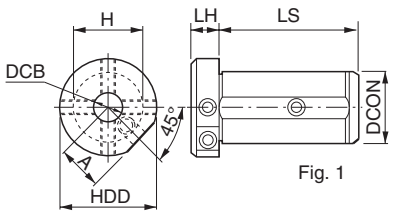


Fig. 1

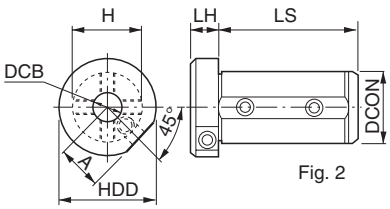


Fig. 2

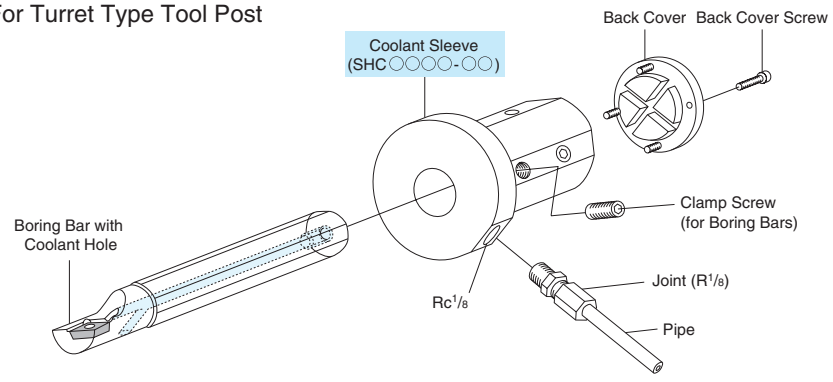
Accessories
- Back Cover / SHL-4···SHC○○40-70
  SHL-5···SHC○○50-95
- Back Cover Screw
- Shank Clamp Screw

(Note) To stabilize the toolholder and to prevent coolant leaks, tighten all 4 screws of coolant sleeve securely.

Description			Stock	Dimension (mm) DCON	HDD	DCB	LS	LH	H	A	Drawing	Spare Parts Front Screw	Wrench	Back Screw	Wrench	Back Cover	Back Cover Screw	Wrench
SHC	0840-70		●	40	56	8	70	16	38	27	Fig. 1	HS6X22	LW-3	HS6X14	LW-3	SHL-4	HH3X6	LW-2.5
	1040-70		●			10												
	1240-70		●			12					Fig. 2	HS10X10	LW-5	HS10X10	LW-5			
	1640-70		●			16												
	2040-70		●			20					Fig. 1	HS10X10	LW-5	HS6X6	LW-3			
	2540-70		●			25												
SHC	0850-95		●	50	65	8	95	16	47	30.5	Fig. 1	HS6X22	LW-3	HS6X14	LW-3	SHL-5	HH3X12	LW-2.5
	1050-95		●			10												
	1250-95		●			12					Fig. 2	HS10X10	LW-5	HS10X10	LW-5			
	1650-95		●			16												
	2050-95		●			20												
	2550-95		●			25												

How to Install

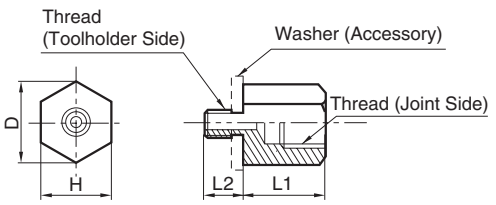
(1) For Turret Type Tool Post



● : Std. Item

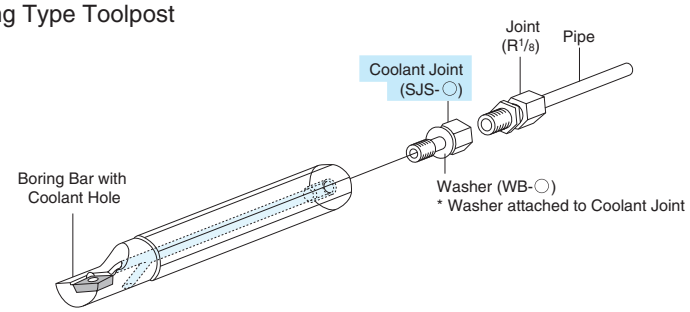
Sleeves for Boring Bars

Coolant Joint Dimensions *This Coolant Joint is not applicable for Dynamic Bar



Description	Stock	Dimension (mm) D	L1	L2	H	Thread (Toolholder Side)	Thread (Joint Side)	Spare Parts Washer
SJS-5	●	15	15	7	13	**M5XP0.8**	**Rc1/8 (PT1/8)**	WB-5
SJS-6	●			9		**M6XP1.0**		WB-6
SJS-8	●			13		**M8XP1.25**		WB-8

(2) For Gang Type Toolpost



List of toolholders and applicable joints

Toolholder Description	Applicable Coolant Joint
A08-...- ○○ E	SJS-5
A10-...- ○○ E	
A12-...- ○○ E	SJS-6
A16-...- ○○ E	SJS-8
A20-...- ○○ E	
A25-...- ○○ E	
E08-...- ○○	SJS-5
E10-...- ○○	
E12-...- ○○	SJS-6
E16-...- ○○	SJS-8
E20-...- ○○	

* This Coolant Joint is not applicable for Dynamic Bar

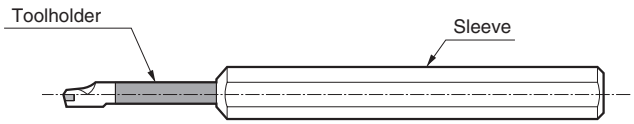
SHA / SH / SHC Sleeves and Applicable Toolholders

Shank Size (Hole Dia.: mm)	04 (4mm)	05 (5mm)	06 (6mm)	07 (7mm)	08 (8mm)	10 (10mm)	12 (12mm)	16 (16mm)	20 (20mm)	25 (25mm)
Sleeve Description	SH0416-100	SH0516-100	SH0616-100	SH0716-100	SH0820-120	SH1020-120	SH1225-150	SH1632-180	SH2032-180	
					SHA0819-120	SHA1019-120				
					SHA0820-120	SHA1020-120				
					SHA0822-125	SHA1022-125	SHA1222-125			
					SHA0823-120	SHA1023-120	SHA1223-120			
					SHA0825.0-135	SHA1025.0-135	SHA1225.0-135			
					SHA0825.4-120	SHA1025.4-120	SHA1225.4-120			
					SHC0840-70	SHC1040-70	SHC1240-70	SHC1640-70	SHC2040-70	SHC2540-70
					SHC0850-95	SHC1050-95	SHC1250-95	SHC1650-95	SHC2050-95	SHC2550-95
Boring Bar Description					A08.-...	A10.-...	A12.-...	A16.-...	A20.-...	A25.-...
	C04.-...	C05.-...	C06.-...	C07.-...	C08.-...	C10.-...	C12.-...	C16.-...	C20.-...	C25.-...
					E08.-...	E10.-...	E12.-...	E16.-...	E20.-...	E25.-...
			S06.-...		S08.-...	S10.-...	S12.-...	S16.-...	S20.-...	S25.-...
Internal Grooving Toolholder Description					SIGE□/L0808A-EH	SIGE□/L1010B-EH	SIGE□/L1412C-EH	SIGE□/L1616C-EH	SIGE□/L2020D-EH	SIGE□/L2525E-EH
						SIGE□/L1210B-EH	SIGE□/L1612C-EH			KIGBA□/L3525-16
					SIGE□/L0808A-WH	SIGE□/L1010B-WH	SIGE□/L1412C-WH	KIGM□/L2016B-3V	KIGM□/L2520B-3V	KIGM□/L3225B-4V
						SIGE□/L1210B-WH	SIGE□/L1612C-WH			KITG□/L3525T-16
					SIGER1008B-WH-90	SIGER1210B-WH-90	SIGER1412C-WH-90			
							GIV□/L1412-1SE	GIV□/L1216-1SS	GIV□/L1420-1S	GIV□/L2025-1B
							GIV□/L1612-1AE	GIV□/L2016-1BE	GIV□/L1620-1A	GIV□/L2025-2B
								GIV□/L2016-2BE	GIV□/L2520-1CE	GIV□/L3225-1CE
								GIV□/L1616-1AW	GIV□/L2720-2CE	GIV□/L3225-2CE
									GIV□/L2020-1BW	GIV□/L2525-1CW
									GIV□/L2020-2BW	GIV□/L2525-2CW
Internal Threading Toolholder Description							SINR0612S-06E	SINR0816S-08E	SIN□/L2420S-16	CIN□/L3025S-16
								SIN□/L1216S-11E	SINR2420S-22	CINR3025S-22
								SIN□/L1516S-11		
								SIN□/L1616S-16		
								SIN□/L2016S-16		

* For SHA sleeves, please see page **F86**.
For SH / SHC sleeves, please see page **F87**.

● : Std. Item

C...-AS (Assembly List)

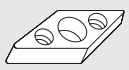
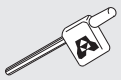


Assembly configuration

Assembly (Discontinued Description)	Toolholder (Discontinued Description)	Alternative Toolholder (Dynamic Bar)	Sleeve Description	Remarks
C04G- SCLCR03-05-AS	C04G- SCLCR03-05	C04G- SCLCR03-05AN	SH0416-100	-
SCLCL03-05-AS	SCLCL03-05	SCLCL03-05AN		
C05H- SCLCR03-06-AS	C05H- SCLCR03-06	C05H- SCLCR03-06AN	SH0516-100	
SCLCL03-06-AS	SCLCL03-06	SCLCL03-06AN		
C05H- SWUBR06-06-AS	C05H- SWUBR06-06	C05H- SWUBR06-06AN	SH0516-100	
SWUBL06-06-AS	SWUBL06-06	SWUBL06-06AN		
C06J- SCLCR04-07-AS	C06J- SCLCR04-07	C06J- SCLCR04-07AN	SH0616-100	
SCLCL04-07-AS	SCLCL04-07	SCLCL04-07AN		
C06J- SWUBR06-07-AS	C06J- SWUBR06-07	C06J- SWUBR06-07AN	SH0616-100	
SWUBL06-07-AS	SWUBL06-07	SWUBL06-07AN		
C07K- SCLCR04-08-AS	C07K- SCLCR04-08	C07K- SCLCR04-08AN	SH0716-100	
SCLCL04-08-AS	SCLCL04-08	SCLCL04-08AN		
C07K- SWUBR08-08-AS	C07K- SWUBR08-08	C07K- SWUBR08-08AN	SH0716-100	
SWUBL08-08-AS	SWUBL08-08	SWUBL08-08AN		
C08L- STUPR08-10-AS	C08L- STUPR08-10	E08L- STLPR08-10AN	SH0820-120	Difference of alternative toolholder No coolant hole → With coolant hole Front cutting edge angle 3° → 5°
C10N- STUPR09-12-AS	C10N- STUPR09-12	E10N- STLPR09-12AN	SH1020-120	
C10N- STUPR11-12-AS	C10N- STUPR11-12	E10N- STLPR11-12AN		
C12Q- STUPR09-16-AS	C12Q- STUPR09-16	E12Q- STLPR09-16A	SH1225-150	
C12Q- STUPR11-14-AS	C12Q- STUPR11-14	E12Q- STLPR11-14A		
C12Q- STUPR11-16-AS	C12Q- STUPR11-16			
C16X- STUPR11-18-AS	C16X- STUPR11-18	E16X- STLPR11-18A	SH1632-180	
C16X- STUPR11-20-AS	C16X- STUPR11-20			
C20S- STUPR11-25-AS	C20S- STUPR11-25	E20S- STLPR11-22A	SH2032-180	
C20S- STUPR16-25-AS	C20S- STUPR16-25	E20S- STLPR16-25A		

* **"AS"** indicates an assembly of toolholder and sleeve.
You can purchase the toolholder and sleeve and assemble them to make the corresponding assembly part.

Former Parts List (Boring Bar)

Description (Previous Description)	Spare Parts				
	Clamp Screw	Wrench	Shim	Shim Screw	Wrench
					
S32S-SVJB$^{R}_{L}$16-40E **S40T-SVJB$^{R}_{L}$16-50E**	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S25X-SVPB$^{R}_{L}$16-34E **S32S-SVPB$^{R}_{L}$16-40E**					
S25X-SVUB$^{R}_{L}$16-34E **S32S-SVUB$^{R}_{L}$16-40E**					
S25X-SVZB$^{R}_{L}$16-34E **S32S-SVZB$^{R}_{L}$16-40E**					

· S32S-SVJB$^{R}_{L}$16-40E and S40T-SVJB$^{R}_{L}$16-50E have been shifted to A32S-SVJB$^{R}_{L}$16-40AE and A40T-SVJB$^{R}_{L}$16-50AE respectively. See Page **F54**

· S25X-SVPB$^{R}_{L}$16-34E and S32S-SVPB$^{R}_{L}$16-40E have been shifted to A25S-SVPB$^{R}_{L}$16-31AE and A32S-SVPB$^{R}_{L}$16-40AE respectively. See Page **F56**

· S25X-SVUB$^{R}_{L}$16-34E and S32S-SVUB$^{R}_{L}$16-40E have been shifted to A25S-SVUB$^{R}_{L}$16-34AE and A32S-SVUB$^{R}_{L}$16-40AE respectively. See Page **F59**

· S25X-SVZB$^{R}_{L}$16-34E and S32S-SVZB$^{R}_{L}$16-40E have been shifted to A25S-SVZB$^{R}_{L}$16-34AE and A32S-SVZB$^{R}_{L}$16-40AE respectively. See Page **F59**

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Description)				Alternative Toolholder					
				Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)		
Shank type	Insert Shape	Coolant Hole	Description	Coolant Hole	Description	See Page	Coolant Hole	Description	See Page
Excellent Bar	CC..	No	S08X-SCLC$^{R}_{L}$06-10E	Yes	A08X-SCLC$^{R}_{L}$06-10AE	F41	No	S08X-SCLC$^{R}_{L}$06-10A	F41
			S10H-SCLC$^{R}_{L}$03-05E	No	S10H-SCLC$^{R}_{L}$03-05AE		-	-	-
			S10H-SCLC$^{R}_{L}$03-06E		S10H-SCLC$^{R}_{L}$03-06AE				
			S10J-SCLC$^{R}_{L}$04-07E		S10H-SCLC$^{R}_{L}$04-07AE				
			S10J-SCLC$^{R}_{L}$04-08E		S10H-SCLC$^{R}_{L}$04-08AE				
		Yes	A08H-SCLC$^{R}_{L}$06-10E	Yes	A08X-SCLC$^{R}_{L}$06-10AE		No	S08X-SCLC$^{R}_{L}$06-10A	F41
	CP..	No	S10M-SCLP$^{R}_{L}$08-12E	Yes	A10L-SCLP$^{R}_{L}$08-12AE	F43	No	S10L-SCLP$^{R}_{L}$08-12A	F43
			S12M-SCLP$^{R}_{L}$08-14E		A12M-SCLP$^{R}_{L}$08-14AE			S12M-SCLP$^{R}_{L}$08-14A	
			S12M-SCLP$^{R}_{L}$09-16E		A12M-SCLP$^{R}_{L}$09-16AE			S12M-SCLP$^{R}_{L}$09-16A	
			S16Q-SCLP$^{R}_{L}$09-18E		A16Q-SCLP$^{R}_{L}$09-18AE			S16Q-SCLP$^{R}_{L}$09-18A	
			S16R-SCLP$^{R}_{L}$09-20E						
			S20X-SCLP$^{R}_{L}$09-25E		A20R-SCLP$^{R}_{L}$09-22AE			S20R-SCLP$^{R}_{L}$09-22A	
		Yes	A10X-SCLP$^{R}_{L}$08-12E	Yes	A10L-SCLP$^{R}_{L}$08-12AE	F43	No	S10L-SCLP$^{R}_{L}$08-12A	F43
			A12X-SCLP$^{R}_{L}$08-14E		A12M-SCLP$^{R}_{L}$08-14AE			S12M-SCLP$^{R}_{L}$08-14A	
			A12X-SCLP$^{R}_{L}$09-16E		A12M-SCLP$^{R}_{L}$09-16AE			S12M-SCLP$^{R}_{L}$09-16A	
			A16M-SCLP$^{R}_{L}$09-18E		A16Q-SCLP$^{R}_{L}$09-18AE			S16Q-SCLP$^{R}_{L}$09-18A	
			A16M-SCLP$^{R}_{L}$09-20E						
			A20Q-SCLP$^{R}_{L}$09-25E		A20R-SCLP$^{R}_{L}$09-22AE			S20R-SCLP$^{R}_{L}$09-22A	
	DC..	No	S10M-SDUC$^{R}_{L}$07-14E	Yes	A10L-SDUC$^{R}_{L}$07-14AE	F45	No	S10L-SDUC$^{R}_{L}$07-14A	F45
			S12M-SDUC$^{R}_{L}$07-16E		A12M-SDUC$^{R}_{L}$07-16AE			S12M-SDUC$^{R}_{L}$07-16A	
			S16Q-SDUC$^{R}_{L}$07-20E		A16Q-SDUC$^{R}_{L}$07-20AE			S16Q-SDUC$^{R}_{L}$07-20A	
			S16Q-SDUC$^{R}_{L}$11-25E		A16Q-SDUC$^{R}_{L}$11-23AE			S16Q-SDUC$^{R}_{L}$11-23A	
			S20Q-SDUC$^{R}_{L}$11-32E		A20R-SDUC$^{R}_{L}$11-27AE			S20R-SDUC$^{R}_{L}$11-27A	
		No	S10M-SDZC$^{R}_{L}$07-14E	Yes	A10L-SDZC$^{R}_{L}$07-14AE	F47	No	S10L-SDZC$^{R}_{L}$07-14A	F47
			S12M-SDZC$^{R}_{L}$07-16E		A12M-SDZC$^{R}_{L}$07-16AE			S12M-SDZC$^{R}_{L}$07-16A	
			S16Q-SDZC$^{R}_{L}$07-20E		A16Q-SDZC$^{R}_{L}$07-20AE			S16Q-SDZC$^{R}_{L}$07-20A	
			S16Q-SDZC$^{R}_{L}$11-25E		A16Q-SDZC$^{R}_{L}$11-23AE			S16Q-SDZC$^{R}_{L}$11-23A	
			S20Q-SDZC$^{R}_{L}$11-32E		A20R-SDZC$^{R}_{L}$11-27AE			S20R-SDZC$^{R}_{L}$11-27A	
	TB..	No	S06H-STUB$^{R}_{L}$06-08E	No	S06H-STLB$^{R}_{L}$06-08AE	F51	No	S06H-STLB$^{R}_{L}$06-08A	F51
	TP..	No	S08K-STUP$^{R}_{L}$08-10E	Yes	A08X-STLP$^{R}_{L}$08-10AE	F51	No	S08X-STLP$^{R}_{L}$08-10A	F51
			S10M-STUP$^{R}_{L}$09-12E		A10L-STLP$^{R}_{L}$09-12AE			S10L-STLP$^{R}_{L}$09-12A	
			S10M-STUP$^{R}_{L}$11-12E		A10L-STLP$^{R}_{L}$11-12AE			S10L-STLP$^{R}_{L}$11-12A	
			S12M-STUP$^{R}_{L}$09-16E		A12M-STLP$^{R}_{L}$09-16AE			S12M-STLP$^{R}_{L}$09-16A	
			S12M-STUP$^{R}_{L}$11-14E		A12M-STLP$^{R}_{L}$11-14AE			S12M-STLP$^{R}_{L}$11-14A	
			S12M-STUP$^{R}_{L}$11-16E						
			S16R-STUP$^{R}_{L}$11-18E		A16Q-STLP$^{R}_{L}$11-18AE			S16Q-STLP$^{R}_{L}$11-18A	
			S16R-STUP$^{R}_{L}$11-20E						
			S20X-STUP$^{R}_{L}$11-25E		A20R-STLP$^{R}_{L}$11-22AE			S20R-STLP$^{R}_{L}$11-22A	
			S20X-STUP$^{R}_{L}$16-25E		A20R-STLP$^{R}_{L}$16-25AE		-	-	-
			S25X-STUP$^{R}_{L}$16-32E		A25S-STLP$^{R}_{L}$16-27AE		No	S25S-STLP$^{R}_{L}$16-27A	F51
		Yes	A08H-STUP$^{R}_{L}$08-10E	Yes	A08X-STLP$^{R}_{L}$08-10AE	F51	No	S08X-STLP$^{R}_{L}$08-10A	F51
			A10X-STUP$^{R}_{L}$09-12E		A10L-STLP$^{R}_{L}$09-12AE			S10L-STLP$^{R}_{L}$09-12A	
			A10X-STUP$^{R}_{L}$11-12E		A10L-STLP$^{R}_{L}$11-12AE			S10L-STLP$^{R}_{L}$11-12A	
			A12X-STUPR09-16E		A12M-STLPR09-16AE			S12M-STLPR09-16A	
			A12X-STUP$^{R}_{L}$11-14E		A12M-STLP$^{R}_{L}$11-14AE			S12M-STLP$^{R}_{L}$11-14A	
			A12X-STUPR11-16E		A12M-STLPR11-14AE			S12M-STLPR11-14A	
			A16M-STUP$^{R}_{L}$11-18E		A16Q-STLP$^{R}_{L}$11-18AE			S16Q-STLP$^{R}_{L}$11-18A	
			A16M-STUP$^{R}_{L}$11-20E						
			A20Q-STUP$^{R}_{L}$11-25E		A20R-STLP$^{R}_{L}$11-22AE			S20R-STLP$^{R}_{L}$11-22A	
			A20Q-STUP$^{R}_{L}$16-25E		A20R-STLP$^{R}_{L}$16-25AE		-	-	-
			A25R-STUP$^{R}_{L}$16-32E		A25S-STLP$^{R}_{L}$16-27AE		No	S25S-STLP$^{R}_{L}$16-27A	F51
	VB..	No	S20R-SVJB$^{R}_{L}$11-25E	Yes	A20R-SVJB$^{R}_{L}$11-25AE	F54	No	S20R-SVJB$^{R}_{L}$11-25A	F54
			S25S-SVJB$^{R}_{L}$11-30E		A25S-SVJB$^{R}_{L}$11-30AE			S25S-SVJB$^{R}_{L}$11-30A	
			S32S-SVJB$^{R}_{L}$16-40EN		A32S-SVJB$^{R}_{L}$16-40AE			S32S-SVJB$^{R}_{L}$16-40A	
			S40T-SVJB$^{R}_{L}$16-50EN		A40T-SVJB$^{R}_{L}$16-50AE			S40T-SVJB$^{R}_{L}$16-50A	

Note) The corresponding replacements may be different from the conventional parts in minimum processing diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Description)				Alternative Toolholder					
				Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)		
Shank type	Insert Shape	Coolant Hole	Description	Coolant Hole	Description	See Page	Coolant Hole	Description	See Page
Excellent Bar	VB..	No	S12M-SVPB$^{R}_{L}$11-20E	Yes	A12M-SVPB$^{R}_{L}$11-18AE	F56	No	S12M-SVPB$^{R}_{L}$11-18A	F56
			S16Q-SVPB$^{R}_{L}$11-25E		A16Q-SVPB$^{R}_{L}$11-22AE			S16Q-SVPB$^{R}_{L}$11-22A	
			S25X-SVPB$^{R}_{L}$16-34EN		A25S-SVPB$^{R}_{L}$16-31AE			S25S-SVPB$^{R}_{L}$16-31A	
			S32S-SVPB$^{R}_{L}$16-40EN		A32S-SVPB$^{R}_{L}$16-40AE			S32S-SVPB$^{R}_{L}$16-40A	
		No	S16Q-SVUB$^{R}_{L}$11-20E	Yes	A16Q-SVUB$^{R}_{L}$11-20AE	F59	No	S16Q-SVUB$^{R}_{L}$11-20A	F59
			S20R-SVUB$^{R}_{L}$11-25E		A20R-SVUB$^{R}_{L}$11-25AE			S20R-SVUB$^{R}_{L}$11-25A	
			S25X-SVUB$^{R}_{L}$16-34EN		A25S-SVUB$^{R}_{L}$16-34AE			S25S-SVUB$^{R}_{L}$16-34A	
			S32S-SVUB$^{R}_{L}$16-40EN		A32S-SVUB$^{R}_{L}$16-40AE			S32S-SVUB$^{R}_{L}$16-40A	
		No	S16Q-SVZB$^{R}_{L}$11-20E	Yes	A16Q-SVZB$^{R}_{L}$11-20AE	F59	No	S16Q-SVZB$^{R}_{L}$11-20A	F59
			S20R-SVZB$^{R}_{L}$11-25E		A20R-SVZB$^{R}_{L}$11-25AE			S20R-SVZB$^{R}_{L}$11-25A	
			S25X-SVZB$^{R}_{L}$16-34EN		A25S-SVZB$^{R}_{L}$16-34AE			S25S-SVZB$^{R}_{L}$16-34A	
			S32S-SVZB$^{R}_{L}$16-40EN		A32S-SVZB$^{R}_{L}$16-40AE			S32S-SVZB$^{R}_{L}$16-40A	
	VC..	No	S12M-SVJC$^{R}_{L}$08-16E	Yes	A12M-SVJC$^{R}_{L}$08-16AE	F54	No	S12M-SVJC$^{R}_{L}$08-16A	F54
			S16Q-SVJC$^{R}_{L}$08-20E		A16Q-SVJC$^{R}_{L}$08-20AE			S16Q-SVJC$^{R}_{L}$08-20A	
		No	S10M-SVPC$^{R}_{L}$08-16E	Yes	A10L-SVPC$^{R}_{L}$08-14AE	F56	No	S10L-SVPC$^{R}_{L}$08-14A	F56
		No	S12M-SVUC$^{R}_{L}$08-16E	Yes	A12M-SVUC$^{R}_{L}$08-16AE	F59	No	S12M-SVUC$^{R}_{L}$08-16A	F59
		No	S12M-SVZC$^{R}_{L}$08-16E	Yes	A12M-SVZC$^{R}_{L}$08-16AE	F59	No	S12M-SVZC$^{R}_{L}$08-16A	F59
	VP..	No	S12M-SVJP$^{R}_{L}$08-16E	Yes	A12M-SVJP$^{R}_{L}$08-16AE	F54	No	S12M-SVJP$^{R}_{L}$08-16A	F54
	WB..	No	S08K-SWUB$^{R}_{L}$08-10E	Yes	A08X-SWUB$^{R}_{L}$08-10AE	F61	No	S08X-SWUB$^{R}_{L}$08-10A	F61
			S10M-SWUB$^{R}_{L}$08-12E		A10L-SWUB$^{R}_{L}$08-12AE			S10L-SWUB$^{R}_{L}$08-12A	
			S10H-SWUB$^{R}_{L}$06-06E	No	S10H-SWUB$^{R}_{L}$06-06AE			S10H-SWUB$^{R}_{L}$06-06A	
			S10H-SWUB$^{R}_{L}$06-07E		S10H-SWUB$^{R}_{L}$06-07AE			S10H-SWUB$^{R}_{L}$06-07A	
			S10J-SWUB$^{R}_{L}$08-08E		S10H-SWUB$^{R}_{L}$08-08AE			S10H-SWUB$^{R}_{L}$08-08A	
	WP..	No	S12M-SWUP$^{R}_{L}$11-14E	Yes	A12M-SWUP$^{R}_{L}$11-14AE	F61	No	S12M-SWUP$^{R}_{L}$11-14A	F61
			S12M-SWUP$^{R}_{L}$11-16E						
			S16N-SWUP$^{R}_{L}$11-18E		A16Q-SWUP$^{R}_{L}$11-18AE			S16Q-SWUP$^{R}_{L}$11-18A	
			S16Q-SWUP$^{R}_{L}$16-20E		A16Q-SWUP$^{R}_{L}$16-18AE			S16Q-SWUP$^{R}_{L}$16-18A	
			S20R-SWUP$^{R}_{L}$16-25E		A20R-SWUP$^{R}_{L}$16-22AE			S20R-SWUP$^{R}_{L}$16-22A	
Steel Bar	CC..	No	S08X-SCLC$^{R}_{L}$06-10	No	S08X-SCLC$^{R}_{L}$06-10A	F41	-	-	-
	CP..	No	S10M-SCLP$^{R}_{L}$08-12	No	S10L-SCLP$^{R}_{L}$08-12A	F43	-	-	-
			S12M-SCLP$^{R}_{L}$08-14		S12M-SCLP$^{R}_{L}$08-14A				
			S12M-SCLP$^{R}_{L}$09-16		S12M-SCLP$^{R}_{L}$09-16A				
			S16N-SCLP$^{R}_{L}$09-18		S16Q-SCLP$^{R}_{L}$09-18A				
			S16Q-SCLP$^{R}_{L}$09-20						
			S20R-SCLP$^{R}_{L}$09-25		S20R-SCLP$^{R}_{L}$09-22A				
			S25S-SCLP$^{R}_{L}$09-30		S25S-SCLP$^{R}_{L}$09-27A				
	DC..	No	S16Q-SDUC$^{R}_{L}$07-14	No	S16Q-SDUC$^{R}_{L}$07-14A	F45	-	-	-
			S16Q-SDUC$^{R}_{L}$07-16						
			S20R-SDUC$^{R}_{L}$11-20		S20R-SDUC$^{R}_{L}$11-20A				
			S25X-SDUC$^{R}_{L}$11-25		S16Q-SDUC$^{R}_{L}$11-23A		No	S25S-SDUC$^{R}_{L}$11-32A	F45
		No	S16Q-SDZC$^{R}_{L}$07-14	No	S16Q-SDZC$^{R}_{L}$07-14A	F47	-	-	-
			S16Q-SDZC$^{R}_{L}$07-16						
			S20R-SDZC$^{R}_{L}$11-20		S20R-SDZC$^{R}_{L}$11-20A				
			S25X-SDZC$^{R}_{L}$11-25		S16Q-SDZC$^{R}_{L}$11-23A		No	S25S-SDZC$^{R}_{L}$11-32A	F47

Note) The corresponding replacements may be different from the conventional parts in minimum processing diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Description)				Alternative Toolholder					
				Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)		
Shank type	Insert Shape	Coolant Hole	Description	Coolant Hole	Description	See Page	Coolant Hole	Description	See Page
Steel Bar	TB..	No	S06H-STUB$^{R}_{L}$06-08	No	S06H-STLB$^{R}_{L}$06-08A	F51	-	-	-
	TP..	No	S08K-STUP$^{R}_{L}$08-10	No	S08X-STLP$^{R}_{L}$08-10A	F51	-	-	-
			S10M-STUP$^{R}_{L}$09-12		S10L-STLP$^{R}_{L}$09-12A				
			S12M-STUP$^{R}_{L}$09-16		S12M-STLP$^{R}_{L}$09-16A				
			S16Q-STUP$^{R}_{L}$11-20		S16Q-STLP$^{R}_{L}$11-18A				
			S20R-STUP$^{R}_{L}$11-25		S20R-STLP$^{R}_{L}$11-22A				
			S25X-STUP$^{R}_{L}$16-32		S25S-STLP$^{R}_{L}$16-27A				
	WB..	No	S10H-SWUB$^{R}_{L}$06-06	No	S10H-SWUB$^{R}_{L}$06-06A	F61	-	-	-
			S10H-SWUB$^{R}_{L}$06-06-15						
			S10H-SWUB$^{R}_{L}$06-07		S10H-SWUB$^{R}_{L}$06-07A				
			S10J-SWUB$^{R}_{L}$08-08		S10H-SWUB$^{R}_{L}$08-08A				
			S10J-SWUB$^{R}_{L}$08-08-20						
Carbide Shank Boring Bar	CC..	No	C04G-SCLC$^{R}_{L}$03-05(A)	No	C04G-SCLC$^{R}_{L}$03-05AN	F41	-	-	-
			C05H-SCLC$^{R}_{L}$03-06(A)		C05H-SCLC$^{R}_{L}$03-06AN				
			C06J-SCLC$^{R}_{L}$04-07(A)		C06J-SCLC$^{R}_{L}$04-07AN				
			C07K-SCLC$^{R}_{L}$04-08(A)		C07K-SCLC$^{R}_{L}$04-08AN				
			C08L-SCLC$^{R}_{L}$06-10	Yes	E08L-SCLC$^{R}_{L}$06-10AN				
		Yes	E08L-SCLC$^{R}_{L}$06-10(A)						
			E08L-SCLCR06-10A-2/3		E08L-SCLCR06-10AN2/3				
			E10N-SCLC$^{R}_{L}$06-12A		E10N-SCLC$^{R}_{L}$06-12AN	F41	-	-	-
			E10N-SCLCR06-12A-2/3		E10N-SCLCR06-12AN2/3				
	CP..	No	C10N-SCLP$^{R}_{L}$08-12	Yes	E10N-SCLP$^{R}_{L}$08-12AN	F43	-	-	-
			C10N-SCLPR08-12-1/2		E10N-SCLPR08-12AN1/2				
			C10N-SCLPR08-12-2/3		E10N-SCLPR08-12AN2/3				
			C12Q-SCLP$^{R}_{L}$09-16		E12Q-SCLP$^{R}_{L}$09-16A				
			C12Q-SCLPR09-16-1/2		E12Q-SCLPR09-16A-1/2				
			C12Q-SCLPR09-16-2/3		E12Q-SCLPR09-16A-2/3				
			C16X-SCLP$^{R}_{L}$09-20		E16X-SCLP$^{R}_{L}$09-18A				
			C16X-SCLPR09-20-1/2		E16X-SCLPR09-18A-1/2				
			C16X-SCLPR09-20-2/3		E16X-SCLPR09-18A-2/3				
			C20S-SCLP$^{R}_{L}$09-25		E20S-SCLP$^{R}_{L}$09-22A				
			C20S-SCLPR09-25-1/2		E20S-SCLPR09-22A-1/2				
			C20S-SCLPR09-25-2/3		E20S-SCLPR09-22A-2/3				
		Yes	E10N-SCLP$^{R}_{L}$08-12(A)	Yes	E10N-SCLP$^{R}_{L}$08-12AN	F43	-	-	-
			E10N-SCLPR08-12A-1/2		E10N-SCLPR08-12AN1/2				
			E10N-SCLPR08-12A-2/3		E10N-SCLPR08-12AN2/3				
			E12Q-SCLP$^{R}_{L}$09-16		E12Q-SCLP$^{R}_{L}$09-16A				
			E16X-SCLP$^{R}_{L}$09-20		E16X-SCLP$^{R}_{L}$09-18A				
			E20S-SCLP$^{R}_{L}$09-25		E20S-SCLP$^{R}_{L}$09-22A				
	DC..	No	C10N-SDUC$^{R}_{L}$07-14	Yes	E10N-SDUC$^{R}_{L}$07-14A	F45	-	-	-
			C12Q-SDUC$^{R}_{L}$07-16		E12Q-SDUC$^{R}_{L}$07-16A				
			C12Q-SDUC$^{R}_{L}$11-20						
			C16X-SDUC$^{R}_{L}$11-25		E16X-SDUC$^{R}_{L}$11-23A				
			C20S-SDUC$^{R}_{L}$11-32		E20S-SDUC$^{R}_{L}$11-27A				
	TB..	No	C06J-STLB$^{R}_{L}$06-08A	No	C06J-STLB$^{R}_{L}$06-08AN	F51	-	-	-
			C10L-STUB$^{R}_{L}$06-08		C06J-STLB$^{R}_{L}$06-08AN				
	TP..	Yes	E08L-STLP$^{R}_{L}$08-10A	Yes	E08L-STLP$^{R}_{L}$08-10AN	F51	-	-	-
			E08L-STLP$^{R}_{L}$09-10A		E08L-STLP$^{R}_{L}$09-10AN				
			E10N-STLP$^{R}_{L}$09-12A		E10N-STLP$^{R}_{L}$09-12AN				
			E10N-STLPR09-12A-1/2		E10N-STLPR09-12AN1/2				
			E10N-STLPR09-12A-2/3		E10N-STLPR09-12AN2/3				
			E10N-STLP$^{R}_{L}$11-12A		E10N-STLP$^{R}_{L}$11-12AN				
			E10N-STLPR11-12A-1/2		E10N-STLPR11-12AN1/2				
			E10N-STLPR11-12A-2/3		E10N-STLPR11-12AN2/3				
		No	C08L-STUP$^{R}_{L}$08-10	Yes	E08L-STLP$^{R}_{L}$08-10AN	F51	-	-	-
			C10N-STUP$^{R}_{L}$09-12		E10N-STLP$^{R}_{L}$09-12AN				
			C10N-STUPR09-12-1/2		E10N-STLPR09-12AN1/2				
			C10N-STUPR09-12-2/3		E10N-STLPR09-12AN2/3				
			C10N-STUP$^{R}_{L}$11-12		E10N-STLP$^{R}_{L}$11-12AN				
			C10N-STUPR11-12-1/2		E10N-STLPR11-12AN1/2				
			C10N-STUPR11-12-2/3		E10N-STLPR11-12AN2/3				
			C12Q-STUP$^{R}_{L}$09-16		E12Q-STLP$^{R}_{L}$09-16A				
			C12Q-STUPR09-16-1/2		E12Q-STLPR09-16A-1/2				
			C12Q-STUPR09-16-2/3		E12Q-STLPR09-16A-2/3				
			C12Q-STUP$^{R}_{L}$11-14		E12Q-STLP$^{R}_{L}$11-14A				
			C12Q-STUPR11-14-1/2		E12Q-STLPR11-14A-1/2				
			C12Q-STUPR11-14-2/3		E12Q-STLPR11-14A-2/3				
			C12Q-STUP$^{R}_{L}$11-16		E12Q-STLP$^{R}_{L}$11-14A				
			C12Q-STUPR11-16-1/2		E12Q-STLPR11-14A-1/2				
			C12Q-STUPR11-16-2/3		E12Q-STLPR11-14A-2/3				

Note) The corresponding replacements may be different from the conventional parts in minimum processing diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Description)				Alternative Toolholder					
				Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)		
Shank type	Insert Shape	Coolant Hole	Description	Coolant Hole	Description	See Page	Coolant Hole	Description	See Page
Carbide Shank Boring Bar	TP..	No	C16X-STUP$^{R/L}$11-18	Yes	E16X-STLP$^{R/L}$11-18A	F51	-	-	-
			C16X-STUPR11-18-1/2		E16X-STLPR11-18A-1/2				
			C16X-STUPR11-18-2/3		E16X-STLPR11-18A-2/3				
			C16X-STUP$^{R/L}$11-20		E16X-STLP$^{R/L}$11-18A				
			C16X-STUPR11-20-1/2		E16X-STLPR11-18A-1/2				
			C16X-STUPR11-20-2/3		E16X-STLPR11-18A-2/3				
			C20S-STUP$^{R/L}$11-25		E20S-STLP$^{R/L}$11-22A				
			C20S-STUPR11-25-1/2		E20S-STLPR11-22A-1/2				
			C20S-STUPR11-25-2/3		E20S-STLPR11-22A-2/3				
			C20S-STUP$^{R/L}$16-25		E20S-STLP$^{R/L}$16-25A				
			C20S-STUPR16-25-1/2		E20S-STLPR16-25A-1/2				
			C20S-STUPR16-25-2/3		E20S-STLPR16-25A-2/3				
		Yes	E08L-STUP$^{R/L}$08-10	Yes	E08L-STLP$^{R/L}$08-10AN	F51	-	-	-
			E10N-STUP$^{R/L}$09-12		E10N-STLP$^{R/L}$09-12AN				
			E10N-STUP$^{R/L}$11-12		E10N-STLP$^{R/L}$11-12AN				
			E12Q-STUP$^{R/L}$09-16		E12Q-STLP$^{R/L}$09-16A				
			E12Q-STUP$^{R/L}$11-14		E12Q-STLP$^{R/L}$11-14A				
			E12Q-STUP$^{R/L}$11-16						
			E16X-STUP$^{R/L}$11-18		E16X-STLP$^{R/L}$11-18A				
			E16X-STUP$^{R/L}$11-20						
			E20S-STUPR11-25		E20S-STLPR11-22A				
			E20S-STUPR16-25		E20S-STLPR16-25A				
	WB..	No	C05H-SWUB$^{R/L}$06-06(A)	No	C05H-SWUB$^{R/L}$06-06AN	F61	-	-	-
			C06J-SWUB$^{R/L}$06-07(A)		C06J-SWUB$^{R/L}$06-07AN				
			C07K-SWUB$^{R/L}$08-08(A)		C07K-SWUB$^{R/L}$08-08AN				
			C08L-SWUB$^{R/L}$08-10	Yes	E08L-SWUB$^{R/L}$08-10AN				
			C10N-SWUB$^{R/L}$08-12		E10N-SWUB$^{R/L}$08-12AN				
			C10N-SWUBR08-12-1/2		E10N-SWUBR08-12AN1/2				
			C10N-SWUBR08-12-2/3		E10N-SWUBR08-12AN2/3				
		Yes	E08L-SWUB$^{R/L}$08-10A		E08L-SWUB$^{R/L}$08-10AN				
			E10N-SWUB$^{R/L}$08-12A		E10N-SWUB$^{R/L}$08-12AN				
			E10N-SWUBR08-12A-1/2		E10N-SWUBR08-12AN1/2				
			E10N-SWUBR08-12A-2/3		E10N-SWUBR08-12AN2/3				
	WP..	No	C12Q-SWUP$^{R/L}$11-14	Yes	E12Q-SWUP$^{R/L}$11-14A	F61	-	-	-
			C12Q-SWUPR11-14-1/2		E12Q-SWUPR11-14A-1/2				
			C12Q-SWUPR11-14-2/3		E12Q-SWUPR11-14A-2/3				
			C12Q-SWUP$^{R/L}$11-16		E12Q-SWUP$^{R/L}$11-14A				
			C12Q-SWUPR11-16-1/2		E12Q-SWUPR11-14A-1/2				
			C12Q-SWUPR11-16-2/3		E12Q-SWUPR11-14A-2/3				
			C16X-SWUP$^{R/L}$11-18		E16X-SWUP$^{R/L}$11-18A				
			C16X-SWUPR11-18-1/2		E16X-SWUPR11-18A-1/2				
			C16X-SWUPR11-18-2/3		E16X-SWUPR11-18A-2/3				
			C16X-SWUP$^{R/L}$16-20		E16X-SWUP$^{R/L}$16-18A				
			C16X-SWUPR16-20-1/2		E16X-SWUPR16-18A-1/2				
			C16X-SWUPR16-20-2/3		E16X-SWUPR16-18A-2/3				
			C20S-SWUP$^{R/L}$16-25		E20S-SWUP$^{R/L}$16-22A				
			C20S-SWUPR16-25-1/2		E20S-SWUPR16-22A-1/2				
			C20S-SWUPR16-25-2/3		E20S-SWUPR16-22A-2/3				

Note) The corresponding replacements may be different from the conventional parts in minimum processing diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

Recommended Cutting Conditions - Boring (Positive Insert : Cutting Dia. under 10mm) [ap indicates radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grades	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (m/min)	ap (mm)	f (mm/rev)
*P	Low-carbon Steel Low-carbon Alloy	HB ≤ 300	Finishing (Solid Type)	Continuous	EZB-F EZB-H	PR1225	0.05	30 - 70 - 110	0.05 - 0.1 - 0.2	0.01 - 0.04 - 0.07
				Interruption			0.15	30 - 60 - 90	0.05 - 0.1 - 0.2	0.03 - 0.07 - 0.1
			Finishing	Continuous	F	PR1425	0.1	40 - 80 - 120	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	40 - 70 - 100	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	CF	PR1425	0.1	40 - 80 - 120	0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07
				Interruption			0.2	40 - 70 - 100	0.05 - 0.15 - 0.25	0.03 - 0.07 - 0.1
	Medium-carbon Steel Medium-carbon Alloy	HB ≤ 300	Finishing (Solid Type)	Continuous	EZB-F EZB-H	PR1225	0.05	30 - 70 - 110	0.05 - 0.1 - 0.2	0.01 - 0.04 - 0.07
				Interruption			0.15	30 - 60 - 90	0.05 - 0.1 - 0.2	0.03 - 0.07 - 0.1
			Finishing	Continuous	F	PR1425	0.1	40 - 80 - 120	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	40 - 70 - 120	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	CF	PR1425	0.1	40 - 80 - 120	0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07
				Interruption			0.2	40 - 70 - 100	0.05 - 0.15 - 0.25	0.03 - 0.07 - 0.1
	High-carbon Alloy	HB ≤ 280	Finishing (Solid Type)	Continuous	EZB-F EZB-H	PR1225	0.05	30 - 70 - 110	0.05 - 0.1 - 0.2	0.01 - 0.04 - 0.07
				Interruption			0.15	30 - 60 - 90	0.05 - 0.1 - 0.2	0.03 - 0.07 - 0.1
			Finishing	Continuous	F	PR1425	0.1	40 - 80 - 120	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	40 - 70 - 100	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	CF	PR1425	0.1	40 - 80 - 120	0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07
				Interruption			0.2	40 - 70 - 100	0.05 - 0.15 - 0.25	0.03 - 0.07 - 0.1
M	Stainless Steel (Austenitic related)	HB ≤ 220	Finishing (Solid Type)	Continuous	EZB-F EZB-H	PR1225	0.05	30 - 60 - 80	0.05 - 0.1 - 0.2	0.01 - 0.03 - 0.05
				Interruption			0.15	30 - 60 - 80	0.05 - 0.1 - 0.2	0.02 - 0.05 - 0.07
			Finishing	Continuous	F	PR1225 PR1535	0.1	30 - 60 - 80	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	CF	PR1225 PR1535	0.1	30 - 60 - 80	0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.15 - 0.25	0.03 - 0.07 - 0.1
	Stainless Steel (Precipitation Hardening)	HB ≤ 300	Finishing (Solid Type)	Continuous	EZB-F EZB-H	PR1225	0.05	30 - 60 - 80	0.05 - 0.1 - 0.2	0.01 - 0.03 - 0.05
				Interruption			0.15	30 - 60 - 80	0.05 - 0.1 - 0.2	0.02 - 0.05 - 0.07
			Finishing	Continuous	F	PR1225 PR1535	0.1	30 - 60 - 80	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	CF	PR1225 PR1535	0.1	30 - 60 - 80	0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.15 - 0.25	0.03 - 0.07 - 0.1
K	Gray Cast Iron	HB ≤ 250	Finishing (Solid Type)	Continuous	(VNB) (VNB-NB)	KW10	0.03	30 - 60 - 100	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 100	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing	Continuous	F	KW10	0.1	30 - 60 - 100	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	Without Chipbreaker	KW10	0.2	30 - 60 - 100	0.1 - 0.2 - 0.3	0.03 - 0.05 - 0.07
				Interruption			0.4	30 - 60 - 80	0.1 - 0.2 - 0.3	0.03 - 0.07 - 0.1
	Nodular Cast Iron	HB ≤ 270	Finishing (Solid Type)	Continuous	(VNB) (VNB-NB)	KW10	0.03	30 - 60 - 80	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing	Continuous	F, U	KW10	0.1	30 - 60 - 80	0.05 - 0.08 - 0.1	0.03 - 0.05 - 0.07
				Interruption			0.2	30 - 60 - 80	0.05 - 0.1 - 0.15	0.03 - 0.07 - 0.1
			Finishing - Medium	Continuous	Without Chipbreaker	KW10	0.2	30 - 60 - 100	0.1 - 0.2 - 0.3	0.03 - 0.05 - 0.07
				Interruption			0.4	30 - 60 - 80	0.1 - 0.2 - 0.3	0.03 - 0.07 - 0.1
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB ≤ 100	High Speed Finishing (Rainbow Surface Gloss)	Continuous	Without Chipbreaker	KPD001	0.05	150 - 200 - 300	0.05 - 0.1 - 0.3	0.05 - 0.1 - 0.15
			Finishing (Long Tool Life)	Continuous	F, U	PDL025	0.1	100 - 150 - 200	0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.2
				Interruption			0.2	100 - 150 - 200	0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.2
			Finishing	Continuous	F, U	KW10	0.1	100 - 150 - 200	0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.2
				Interruption			0.2	100 - 150 - 200	0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.2
S	Titanium Alloys	HB ≤ 400	Precision Finishing (Rainbow Surface Gloss)	Continuous	Without Chipbreaker	KPD001	0.1	100 - 120 - 150	0.05 - 0.1 - 0.3	0.03 - 0.07 - 0.1
				Interruption			0.2	70 - 100 - 120	0.05 - 0.1 - 0.3	0.03 - 0.07 - 0.1
			Finishing	Continuous	F, U	KW10	0.1	20 - 40 - 60	0.05 - 0.2 - 0.5	0.03 - 0.1 - 0.2
				Interruption			0.2	20 - 40 - 60	0.05 - 0.2 - 0.5	0.03 - 0.1 - 0.2
	Heat-resistant Alloys	HB ≤ 350	Finishing (Solid Type)	Continuous	(VNB)	KW10	0.2	10 - 30 - 50	0.05 - 0.1 - 0.3	0.03 - 0.05 - 0.1
				Interruption			0.2	10 - 30 - 50	0.05 - 0.1 - 0.3	0.03 - 0.05 - 0.08
			Finishing	Continuous	F, U	KW10	0.2	10 - 30 - 50	0.05 - 0.2 - 0.4	0.03 - 0.05 - 0.1
				Interruption			0.2	10 - 30 - 50	0.05 - 0.2 - 0.4	0.03 - 0.05 - 0.1
H	Hardened Steel Hard Materials	40~50 HRC	Finishing	Continuous	(VNB)	PR930	0.2	30 - 50 - 70	0.05 - 0.1 - 0.4	0.01 - 0.02 - 0.05
				Interruption			0.2	30 - 50 - 70	0.05 - 0.1 - 0.2	0.01 - 0.02 - 0.03
		45~68 HRC	Finishing	Continuous	ME MES	KBN05M	0.2	60 - 100 - 140	0.05 - 0.1 - 0.2	0.02 - 0.05 - 0.1
				Interruption			0.4	60 - 80 - 120	0.05 - 0.1 - 0.2	0.02 - 0.05 - 0.1

* Please use it with PR1005 set to Vc=150m/min or below for machining of free-cutting steel such as small size SUM. For ap and f, refer to specs for low carbon steels.

Recommended Cutting Conditions

Recommended Cutting Conditions - Boring (Positive Insert : Cutting Dia. 10mm or over) [ap indicates radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grades	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (m/min)	ap (mm)	f (mm/rev)
*P	Low-carbon Steel Low-carbon Alloy	HB ≤ 300	Precision Finishing	Continuous Interruption	F, U	TN620 PR1425	0.1 0.2	250 - 300 - 350 120 - 170 - 220	0.05 - 0.3 - 0.5 0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.15 0.03 - 0.1 - 0.15
			Finishing	Continuous Interruption	XP	PV710 CA525	0.4 0.4	200 - 250 - 300 150 - 200 - 250	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing - Medium	Continuous Interruption	XQ	PV710 CA525	0.4 0.4	150 - 200 - 250 100 - 150 - 200	0.5 - 1.0 - 2.0 0.5 - 1.0 - 1.5	0.1 - 0.15 - 0.25 0.1 - 0.15 - 0.2
			Medium	Continuous Interruption	Standard	PV720 CA525	0.8 0.8	100 - 150 - 200 80 - 120 - 150	1.0 - 1.5 - 2.5 1.0 - 1.5 - 2.0	0.1 - 0.15 - 0.3 0.1 - 0.15 - 0.2
	Medium-carbon Steel Medium-carbon Alloy	HB ≤ 300	Precision Finishing	Continuous Interruption	F, U	TN620 PR1425	0.2 0.4	150 - 200 - 250 120 - 140 - 170	0.05 - 0.3 - 0.5 0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.15 0.03 - 0.1 - 0.15
			Finishing	Continuous Interruption	PP	PV710 CA525	0.4 0.4	150 - 200 - 250 120 - 180 - 200	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing - Medium	Continuous Interruption	HQ	PV710 CA525	0.4 0.4	120 - 180 - 220 100 - 150 - 200	0.5 - 1.0 - 2.0 0.5 - 1.0 - 1.5	0.1 - 0.15 - 0.25 0.1 - 0.15 - 0.2
			Medium	Continuous Interruption	Standard	PV720 CA525	0.8 0.8	100 - 150 - 200 80 - 120 - 150	1.0 - 1.5 - 2.5 1.0 - 1.5 - 2.0	0.1 - 0.15 - 0.3 0.1 - 0.15 - 0.2
	High-carbon Alloy	HB ≤ 280	Precision Finishing	Continuous Interruption	F, U	TN620 PR1425	0.2 0.4	120 - 150 - 180 110 - 130 - 160	0.05 - 0.3 - 0.5 0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.15 0.03 - 0.1 - 0.15
			Finishing	Continuous Interruption	PP	PV710 CA525	0.4 0.4	120 - 150 - 180 100 - 120 - 150	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing - Medium	Continuous Interruption	HQ	PV710 CA525	0.4 0.4	120 - 150 - 180 100 - 120 - 150	0.5 - 1.0 - 2.0 0.5 - 1.0 - 1.5	0.1 - 0.15 - 0.25 0.1 - 0.15 - 0.2
			Medium	Continuous Interruption	Standard	CA515 CA525	0.8 0.8	100 - 120 - 150 80 - 100 - 120	1.0 - 1.5 - 2.5 1.0 - 1.5 - 2.0	0.1 - 0.15 - 0.3 0.1 - 0.15 - 0.2
M	Stainless Steel (Austenitic related)	HB ≤ 220	Finishing	Continuous Interruption	MQ	CA6525 PR1535	0.4 0.8	120 - 150 - 180 100 - 120 - 150	0.2 - 0.5 - 0.8 0.2 - 0.5 - 0.8	0.05 - 0.08 - 0.1 0.05 - 0.08 - 0.1
			Medium	Continuous Interruption	Standard	CA6525 PR1535	0.4 0.8	120 - 150 - 180 100 - 120 - 150	0.5 - 1.0 - 1.5 0.5 - 1.0 - 1.5	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
	Stainless Steel (Precipitation Hardening)	HB ≤ 300	Finishing	Continuous Interruption	MQ	CA6525 PR1535	0.4 0.8	80 - 100 - 120 60 - 80 - 100	0.2 - 0.7 - 1.0 0.2 - 0.7 - 1.0	0.05 - 0.1 - 0.15 0.05 - 0.1 - 0.15
			Medium	Continuous Interruption	Standard	CA6525 PR1535	0.4 0.8	80 - 100 - 120 60 - 80 - 100	0.5 - 1.0 - 1.5 0.5 - 1.0 - 1.5	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
K	Gray Cast Iron	HB ≤ 250	High Speed Finishing	Continuous Interruption	Without Chipbreaker	KBN475 PT600M	0.4 0.8	400 - 500 - 600 200 - 250 - 350	0.05 - 0.2 - 0.5 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.15 0.05 - 0.1 - 0.15
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 TN620	0.8 0.8	200 - 250 - 300 120 - 180 - 230	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing	Continuous Interruption	Standard	CA310 CA315	0.4 0.8	150 - 180 - 200 100 - 150 - 180	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Medium	Continuous Interruption	Standard	CA310 CA315	0.8 0.8	100 - 150 - 200 80 - 120 - 150	0.5 - 1.0 - 2.0 0.5 - 1.0 - 2.0	0.1 - 0.15 - 0.2 0.05 - 0.1 - 0.15
	Nodular Cast Iron	HB ≤ 270	High Speed Finishing	Continuous Interruption	Without Chipbreaker	KBN60M PT600M	0.4 0.8	200 - 300 - 400 150 - 200 - 250	0.05 - 0.2 - 0.5 0.2 - 0.5 - 1.0	0.03 - 0.05 - 0.1 0.05 - 0.1 - 0.15
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 TN620	0.8 0.8	150 - 200 - 250 120 - 150 - 200	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing	Continuous Interruption	Standard	CA310 CA315	0.4 0.8	120 - 150 - 180 100 - 120 - 150	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Medium	Continuous Interruption	Standard	CA315 CA320	0.8 0.8	100 - 120 - 150 80 - 100 - 120	0.5 - 1.0 - 2.0 0.5 - 1.0 - 2.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.15
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB ≤ 100	High Speed Finishing (Rainbow Surface Gloss)	Continuous	Without Chipbreaker	KPD001	0.2	200 - 400-1,000	0.05 - 0.1 - 0.3	0.05 - 0.1 - 0.15
			Finishing (Long Tool Life)	Continuous Interruption	F, U	PDL025	0.4 0.4	100 - 200 - 400 100 - 200 - 400	0.05 - 0.5 - 1.0 0.05 - 0.5 - 1.0	0.03 - 0.1 - 0.2 0.03 - 0.1 - 0.2
			Finishing	Continuous Interruption	F, U	KW10	0.4 0.4	100 - 200 - 400 100 - 200 - 400	0.05 - 0.5 - 1.0 0.05 - 0.5 - 1.0	0.03 - 0.1 - 0.2 0.03 - 0.1 - 0.2
S	Titanium Alloys	HB ≤ 400	Precision Finishing (Rainbow Surface Gloss)	Continuous Interruption	Without Chipbreaker	KPD001	0.2 0.4	100 - 120 - 150 70 - 100 - 120	0.05 - 0.1 - 0.3 0.05 - 0.1 - 0.3	0.03 - 0.07 - 0.1 0.03 - 0.07 - 0.1
			Finishing	Continuous Interruption	F, U	KW10	0.2 0.4	30 - 50 - 70 30 - 50 - 70	0.05 - 0.5 - 1.0 0.05 - 0.5 - 1.0	0.03 - 0.1 - 0.2 0.03 - 0.1 - 0.2
	Heat-resistant Alloys	HB ≤ 350	Finishing	Continuous Interruption	F, U	KW10	0.4 0.4	10 - 30 - 50 10 - 30 - 50	0.05 - 0.5 - 1.0 0.05 - 0.5 - 1.0	0.03 - 0.1 - 0.2 0.03 - 0.1 - 0.2
			Finishing	Continuous Interruption	MQ	PR1310	0.4 0.8	40 - 60 - 80 40 - 60 - 80	0.1 - 0.3 - 0.5 0.1 - 0.3 - 0.5	0.03 - 0.05 - 0.1 0.03 - 0.05 - 0.1
H	Hardened Steel Hard Materials	40~50 HRC	Finishing	Continuous Interruption	HQ Standard	CA515	0.8 0.8	60 - 80 - 100 30 - 50 - 70	0.05 - 0.3 - 0.5 0.05 - 0.3 - 0.5	0.05 - 0.08 - 0.1 0.05 - 0.08 - 0.1
		45~68 HRC	Finishing	Continuous Interruption	ME MET	KBN05M	0.4 0.8	100 - 140 - 180 90 - 120 - 160	0.1 - 0.2 - 0.3 0.1 - 0.2 - 0.3	0.02 - 0.07 - 0.1 0.02 - 0.07 - 0.1
			Medium	Continuous	Without Chipbreaker (Negative)	KBN900	0.8	60 - 80 - 100	0.3 - 0.7 - 1.0	0.03 - 0.1 - 0.15

* When machining free-cutting steel such as SUM, please use PR1005 for Vc=200m/min or under and use PV720 / CA515, etc.