

Boring

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Dynamic Bar

F

Boring

Toolholder design developed by using stress analysis technology
Maximum structural thickness for high toolholder rigidity
Controls chattering to achieve stable machining

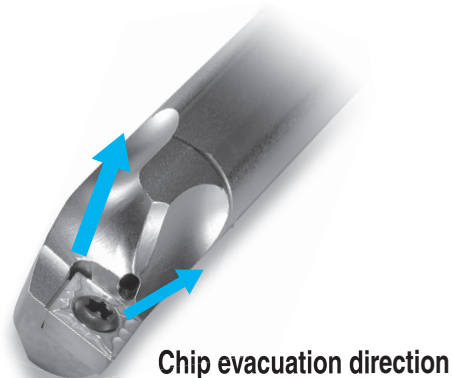
Large chip pocket produces superior chip evacuation

Dynamic design by using the latest computer simulation technology

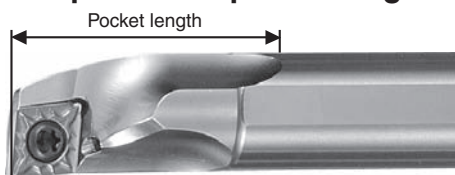
Superior chip evacuation (External coolant)

	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.

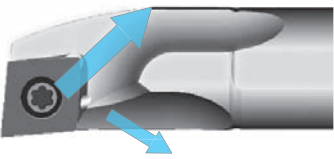
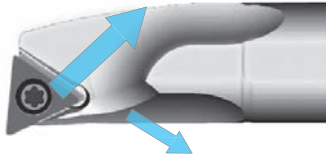


Comparison of pocket length



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

Chip evacuation direction

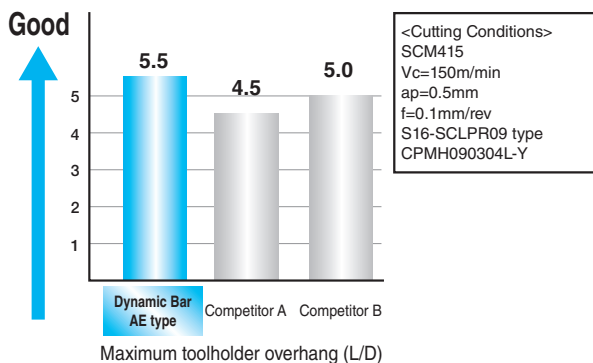
SCLC(P) type	STLB(P) type
	
Better evacuation by backward chip flow	

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.

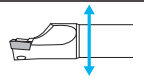
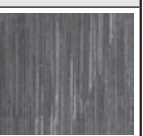
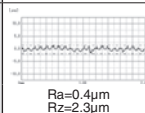
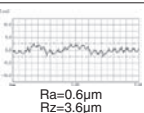
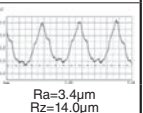
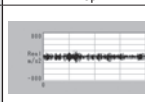
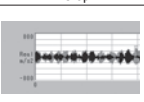
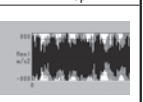
Previously unattained surface finish and dimensional accuracy are now achieved.

Comparison of vibration tendency



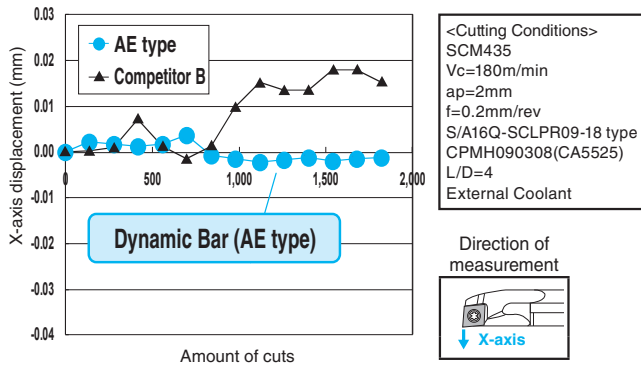
Comparison of surface finish

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

	Dynamic Bar	Competitor A	Competitor B	<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 
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 Point Precision

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



Toolholder Lineup

Excellent Bar (AE Type)

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



Steel Bar

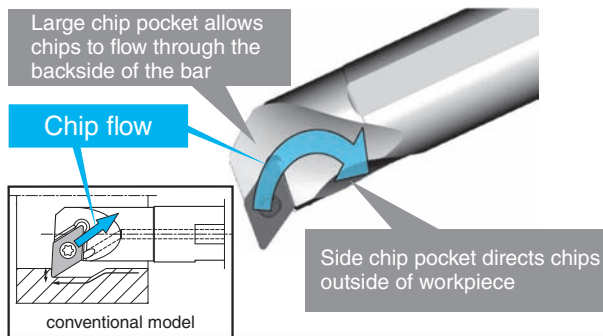
The steel shank bar (without coolant hole) provides superior cost performance



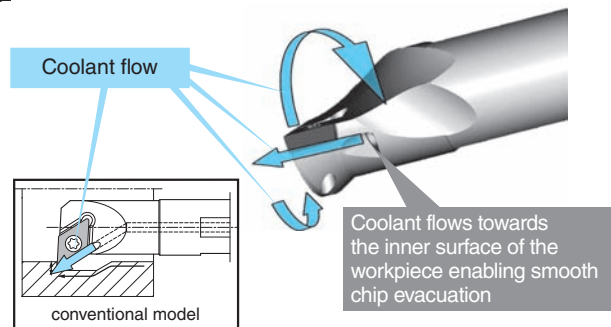
Advantages of Dynamic Bar SDUC

New design and concept focusing on chip evacuation

New design Streamlined pocket enables an effective chip evacuation



New concept Coolant flows toward the workpiece's inner surface



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

- 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.

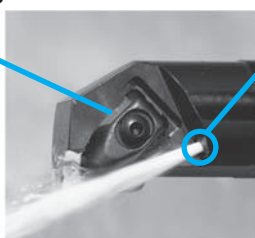


Double Clamp Boring Bars for Negative Inserts

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

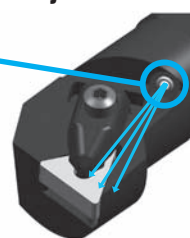
Improved Clamping Rigidity

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.



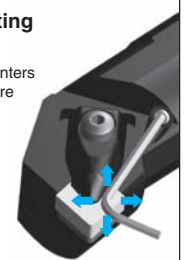
Direction adjustment mechanism coolant hole

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



Nozzle setting

Wrench etc. that enters 2.5 or less holes are used, and adjust.

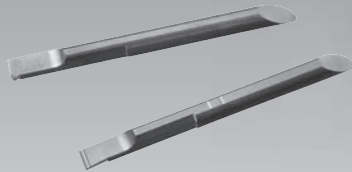


Kyocera's original EZ adjust structure

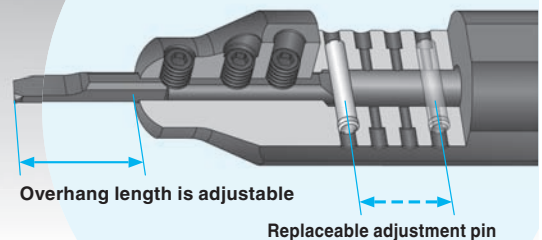
- Easy adjustment and high precision
- EZ Bars prevent deviation with high-rigidity clamping

Wide range of items applicable to various applications

MEGACOAT PR1225 for stable machining and extended tool life



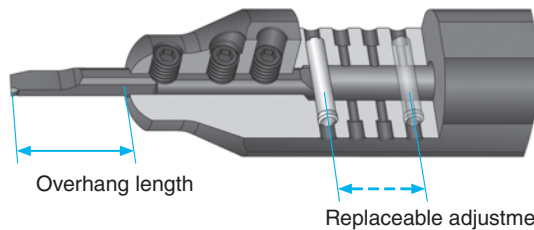
Kyocera's original EZ adjust structure



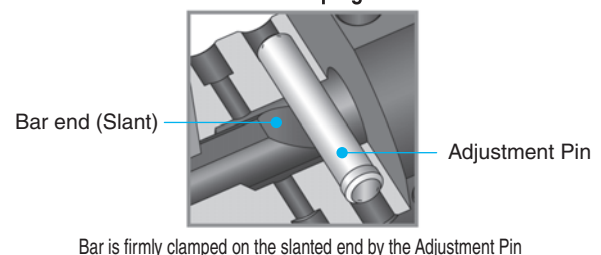
EZ adjust structure

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

1 Easy adjustment and high precision



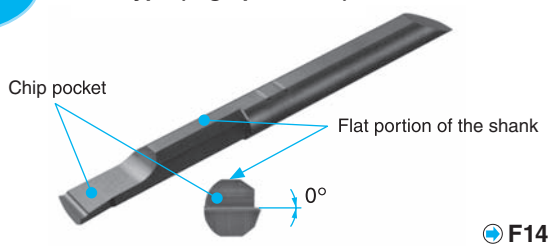
Excellent clamping force



2 2 types of bars

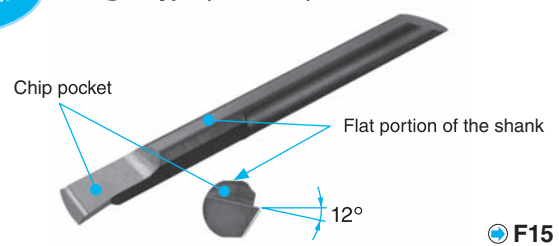
Precision-oriented

HP type (High precision)



Cost-oriented

ST type (standard)



3 2 Chipbreakers for various applications

H Chipbreaker (Without lead angle)



Tough edge (General purpose)

F Chipbreaker (With lead angle)



Sharp cutting (For finishing)

· 2 types of corner-R for each chipbreaker

H Chipbreaker: 0.08mm, 0.15mm

F Chipbreaker: 0.05mm, 0.15mm

* Lineup depend on description

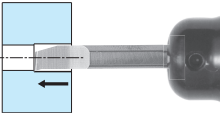
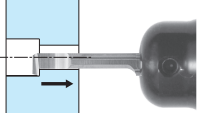
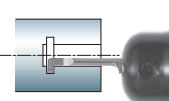
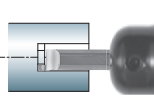
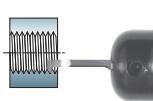
Along with the solid type, EZVB (for Boring, Internal Facing and Copying) and indexable type "EZ Bar PLUS" are added to the lineup



HP Type 2-Edge Tip-Bars for Micro Boring

- Economically excellent 2-Edge
- Min. Bore Dia. Line Up from $\phi 2.0$ to Up
- Easy-to-Use Adjustable Overhang Length
- Integrated shank enables installation with standard sleeves
- Special sleeves for various machine types

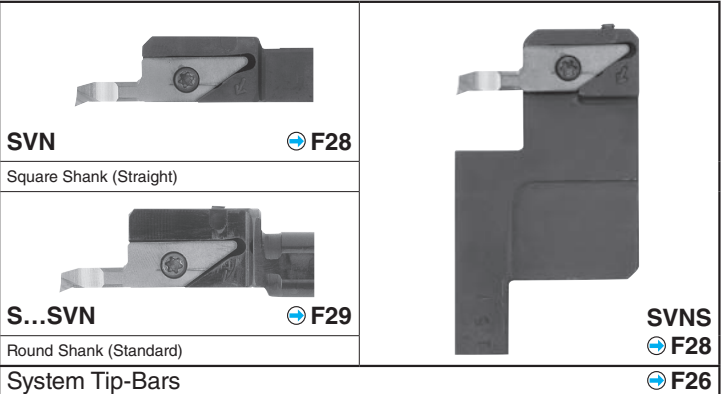
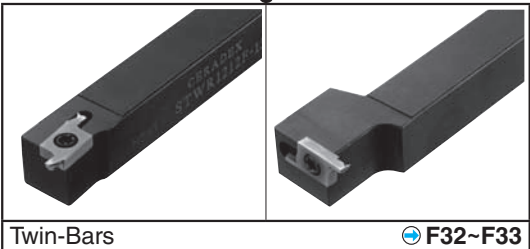
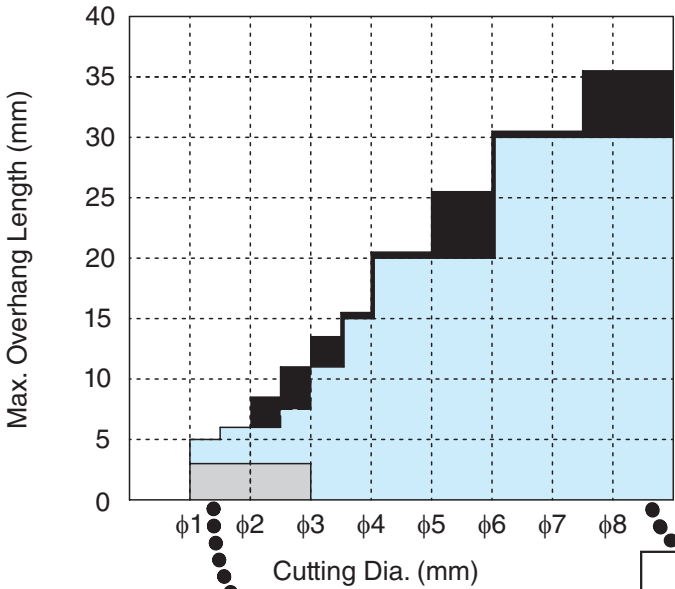


Boring	Back boring	Grooving	Face Grooving	Threading
				
HPB  F34	HPBT  F34	HPG  G44	HPFG  G67	HPT  J28
Min. Bore Dia.: $\phi 2 \sim \phi 7$ Corner-R (r_6): 0.05	Min. Bore Dia.: $\phi 4 \sim \phi 5$ Corner-R (r_6): 0.05	Min. Bore Dia.: $\phi 4 \sim \phi 7$ Edge Width: 1.0~2.0mm Depth: 1.0~2.0mm	Min. Face Groove Dia.: $\phi 8$ Edge Width: 1.0~3.0mm Depth: 2.0~3.0mm	Min. Pilot Hole Dia.: $\phi 4.5 \sim \phi 8$ M : 0.75~1.5mm UN : 28~16 TPI W : 24~18 TPI Rc : 28~19 TPI



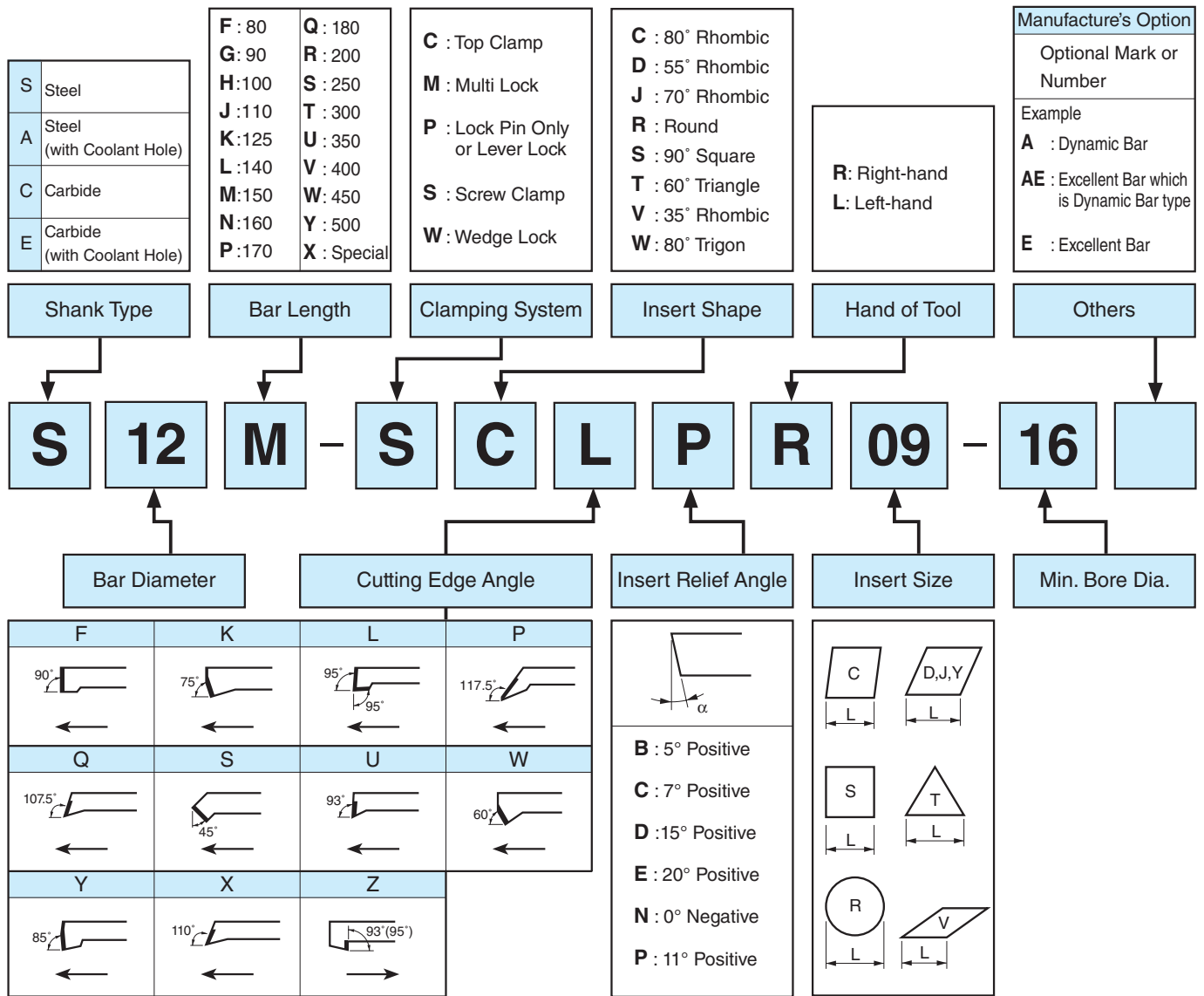
● Guide for usage (Adjustable overhang type)

Solid Bars Type: Min. Bore Dia. $\phi 1 \sim$



Product Lineup

Boring Bar Identification System (Round Shank)

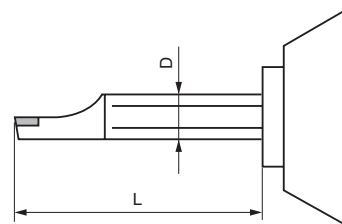


● Anti-vibration interchangeable head mechanism Boring Bar “AD Bar”

For the identification system for boring bars with interchangeable head, Ref. to page [F61](#)

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)

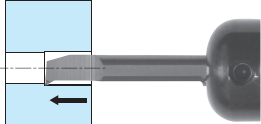
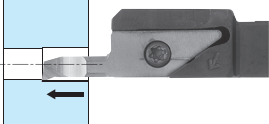
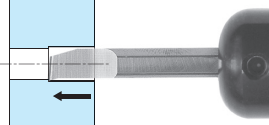
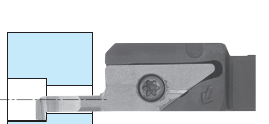
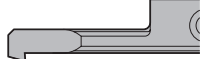
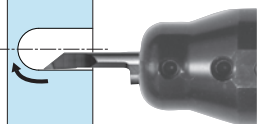
When installing on machines, no additional machining (to change toolholder length) is required.

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. ϕA													Ref. to Page for Toolholders	Summary
				1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7		
Boring	EZB-HP EZ Bars F14		Solid L/D $\approx$ 5			●	●	●	●	●		●	●				F20~ F25	
	EZB-ST EZ Bars F15		Solid L/D $\approx$ 5			●	●	●	●	●	●	●	●		●			
	EZB-NB EZ Bars (MEGACOAT) F16		Solid L/D $\approx$ 5			●	●	●	●	●	●	●	●		●			
	CBN EZB-NB EZ Bars PCD F16	Solid L/D $\approx$ 5				●	●	●	●	●	●	●		●				
	TWB Twin-Bars F32		Solid	●	●	●	●	●									F32	
	TWBT Twin-Bars F33		Solid	●	●	●	●	●									F33	
	VNB-S System Tip-Bars F26		Solid	●	●	●	●	●	●	●							F28 F29	
	VNB System Tip-Bars F26		Solid			●	●	●	●	●	●	●	●				F28 F29	
	VNBX-S System Tip-Bars F30		Solid	●	●	●	●	●	●								F31	
	HPB 2-Edge Tip-Bars F34		Solid L/D $\approx$ 5			●	●	●	●	●	●	●	●	●			F24 F25	
PSB-S Tip-Bars F35		Solid L/D $\approx$ 5			●	●	●	●	●	●	●	●	●			F82		
VNBT System Tip-Bars F26		Solid						●	●							F28 F29		
HPBT 2-Edge Tip-Bars F34		Solid L/D $\approx$ 5						●	●							F24 F25		
PSBT-S Tip-Bars F35		Solid L/D $\approx$ 5						●	●							F82		
Copying	EZVB EZ Bars F19		Solid					●	●	●	●	●	●				F21~ F25	

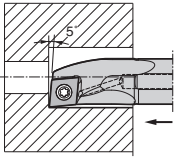
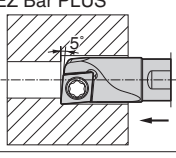
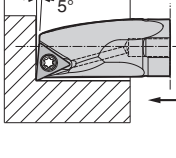
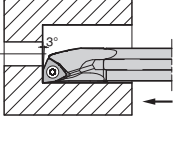
F



Boring



Dynamic Bar / EZ Bar PLUS

Applications	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length (L/D)	Coolant Hole		Min. Bore Dia. φA																					Ref. to Page for Toolholders		
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40		50	
Boring / Internal Facing		A...SCLC-AE	Excellent L/D = ~5.5	●						●	●		●		●		●				●							F37	
		S...SCLC-AE	Excellent L/D = ~5.5	○		●	●	●	●																				
		S...SCLC-A	Steel L/D = ~4	○						●	●		●		●		●				●								
		C...SCLC-A	Carbide L/D = ~7	○		●	●	●	●																				
		E...SCLC-A	Carbide L/D = ~7	●						●	●		●		●		●				●								
		A...SCLP-AE	Excellent L/D = ~5.5	●							●		●	●	●	●	●				●								
		S...SCLP-A	Steel L/D = ~4	○							●		●	●	●	●	●				●								
		E...SCLP-A	Carbide L/D = ~7	●							●		●	●	●	●	●				●								
		S...SCLC-EZ	Steel L/D = ~3	○		●		●																				F18	
		C...SCLC-EZ	Carbide L/D = ~5	○		●		●																					
Boring / Internal Facing		A...STLP-AE	Excellent	●						●	●		●	●	●	●	●	●	●								F47		
		S...STLB-AE	L/D = ~5.5	○					●																				
		S...STLB(P)-A	Steel L/D = ~4	○					●	●	●		●	●	●	●	●				●								
		E...STLP-A	Carbide	●						●	●		●	●	●	●	●	●	●										
		C...STLB-A	L/D = ~7	○					●																				
		A...STLC-AE	Excellent L/D = ~5.5	●							●	●		●		●		●										F45	
	S...STLC-A	Steel L/D = ~4	○							●	●		●		●		●												
Boring		S...SWUB-AE	Excellent L/D = ~5.5	○		●	●	●																			F57		
		A...SWUB(P)-AE	Excellent L/D = ~5.5	●						●	●		●		●		●												
		S...SWUB(P)-A	Steel L/D = ~4	○		●	●	●	●	●		●		●		●													
		C...SWUB-A	Carbide L/D = ~7	○		●	●	●																					
		E...SWUB(P)-A	Carbide L/D = ~7	●							●	●		●		●		●											

Dynamic Bar

Applications	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length (L/D)	Coolant Hole		Min. Bore Dia. ϕA																							Ref. to Page for Toolholders
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50		
Copying		A...SDUC-AE	Excellent L/D = ~5.5	●									●	●		●	●	●		●				●				F41	
		S...SDUC-A	Steel L/D = ~4		○								●	●		●	●	●		●				●					
		E...SDUC-A	Carbide L/D = ~7	●									●	●		●	●	●		●				●					
		A...SDQC-AE	Excellent L/D = ~5.5	●									●	●		●		●		●								F42	
		S...SDQC-A	Steel L/D = ~4		○								●	●		●		●		●									
		E...SDQC-A	Carbide L/D = ~7	●									●	●		●		●		●									
		A...SVJB(C)-AE	Excellent L/D = ~5.5	●									●			●		●		●					●	●		F50	
		A...SVJP-AE	●										●																
		S...SVJB(C)-A	Steel L/D = ~4		○								●			●		●		●					●	●			
		S...SVJP-A	●										●																
		A...SVPB(C)-AE	Excellent L/D = ~5.5	●									●	●		●		●		●				●		●		F52	
		S...SVPB(C)-A	Steel L/D = ~4		○								●	●		●		●		●				●		●			
		E...SVPB(C)-A	Carbide L/D = ~7	●									●	●		●		●		●				●					
		A...SVUB(C)-AE	Excellent L/D = ~5.5	●									●	●		●		●						●	●			F55	
		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	●									●	●		●		●		●				●				F43	
		S...SDZC-A	Steel L/D = ~4		○								●	●		●		●		●				●					
		E...SDZC-A	Carbide L/D = ~7	●									●	●		●		●		●									
		A...SVZB(C)-AE	Excellent L/D = ~5.5	●									●	●		●		●						●	●			F55	
		S...SVZB(C)-A	Steel L/D = ~4		○								●	●		●		●						●	●				

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



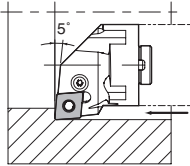
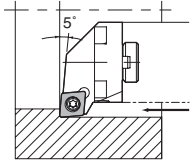
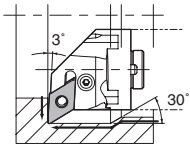
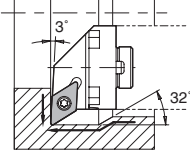
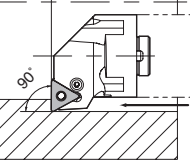
Product Lineup

Boring Bars for General Purpose

Applications	Boring Bar Type	Shape	Shank Type Max. Overhang Length (L/D)	Coolant Hole		Insert Type	Min. Bore Dia. ϕA																	Ref. to Page for Toolholders
				Yes	No		5	6	7	8	10	12	14	16	18	20	25	30	32	40	50	63		
Boring / Internal Facing	NEW A...DCLN12		Steel L/D $\approx$ 3	●		Negative													●	●	●		F65	
	S...PCLN00		Steel L/D $\approx$ 3		○	Negative											●	27		●	●	●		F66
	A...PCLN09		Steel L/D $\approx$ 3	●		Negative											●	27		●				
	NEW A...DWLN08		Steel L/D $\approx$ 3	●		Negative														●	●	●		F75
	S...PWLN00		Steel L/D $\approx$ 3		○	Negative											●	27		●	●	●		F74 F76
	A...PWLN06		Steel L/D $\approx$ 3	●		Negative											●	27		●				F74
	S...WWLN08-E		Excellent L/D $\approx$ 5		○	Negative												●	28		●	●		F76
	C...STXP(B)		Carbide L/D $\approx$ 7		○	Positive			●	●	●													F49
	C...SJLC		Carbide L/D $\approx$ 7		○	Positive	●																	F44
Copying	S...STWP-E		Excellent L/D $\approx$ 5		○	Positive						●		●			●	●		●				F48
	S...STWP		Steel L/D $\approx$ 3		○	Positive						●		●			●	●						
	NEW A...DDUN15		Steel L/D $\approx$ 3	●		Negative															●	●	●	F68
	S...PDUN11		Steel L/D $\approx$ 3		○	Negative												●	27		●			F67
	A...PDUN11		Steel L/D $\approx$ 3	●		Negative												●	27		●			
	S...PDUN15		Steel L/D $\approx$ 3		○	Negative														●	●	●		F69
	S...PDQN15		Steel L/D $\approx$ 3		○	Negative														●	●	●		F69
Back Copying	C...STZB		Carbide L/D $\approx$ 7		○	Positive				●														F49
	C...SJZC		Carbide L/D $\approx$ 7		○	Positive	●																	F44
	S...PDZN15		Steel L/D $\approx$ 3		○	Negative														●	●	●		F69
Boring	S...CTUP		Steel L/D $\approx$ 3		○	Positive								●			●	27		●	●	●		F59
	NEW A...DTFN00		Steel L/D $\approx$ 3	●		Negative														●	●	●		F72
	S...PTUN00		Steel L/D $\approx$ 3		○	Negative											●	●	●	●	●	●		F73
	A...PTUN11		Steel L/D $\approx$ 3	●		Negative											●	●		●				
	NEW A...DSKN12		Steel L/D $\approx$ 3	●		Negative														●	●	●		F71
	S...SSKP		Steel L/D $\approx$ 3		○	Positive											●	●						F58
	S...CSKP		Steel L/D $\approx$ 3		○	Positive											●	27		●	●	●		

For Min. Bore Dia. ϕA , 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		Insert Type	Min. Bore Dia. ϕA																Ref. to Page for Toolholders
				Yes	No		7	8	10	12	14	16	18	20	25	30	32	40	43	50	63		
Boring / Internal Facing	HA...PCLN12		Anti-Vibration Dampener L/D=~-5.5	●		Negative													●		●	●	F61
	HA...SCLC09		Anti-Vibration Dampener L/D=~-6	●		Positive													●				F63
Copying	HA...PDUN15		Anti-Vibration Dampener L/D=~-6	●		Negative														●	●	●	F62
	HA...SDUC11		Anti-Vibration Dampener L/D=~-6	●		Positive													●				F63
Boring	HA...PTFN16		Anti-Vibration Dampener L/D=~-6	●		Negative													●		●	●	F62

Toolholders for Bearing Machining (Square Shank)

Applications	Boring Bar Type	Shape	Min. Bore Dia. ϕA						Ref. to Page for Toolholders
			20	25	30	32	40	50	
Boring	SRCP-B		●			●			F60

Applications	Boring Bar Type	Shape	Min. Bore Dia. ϕA						Ref. to Page for Toolholders
			20	25	30	32	40	50	
Round-Chamfering	CBSN-B		●						F60

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

Applications	Boring Bar Type	Shape	Min. Bore Dia. ϕA								Ref. to Page for Toolholders
			16	18	20	25	30	32	40	50	
Boring / Internal Facing	S...CELN									●	F77
Boring	S...CTUP		●			●	●	●	●	●	F59
	S...CSKP					●	●	●	●	●	F58
	S...CSKN									●	F77

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

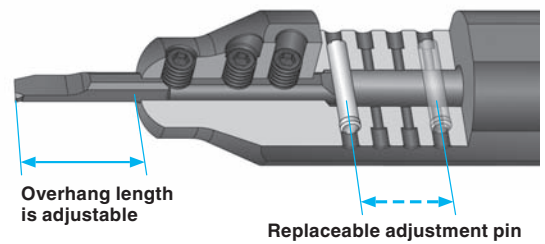
Applications	Boring Bar Type	Shape	Min. Bore Dia. ϕA						Ref. to Page for Toolholders
			20	25	30	32	40	50	
Boring / Internal Facing	S...CCLN-GX						●	●	F78
Boring / Copying	S...CDUN-GX						●	●	F78
Boring	S...CSKN-GX						●	●	F78
Boring / Internal Facing	S...CCLN-A						●		F79
Boring	S...CTUN-A				●				F79

Kyocera's original EZ adjust structure

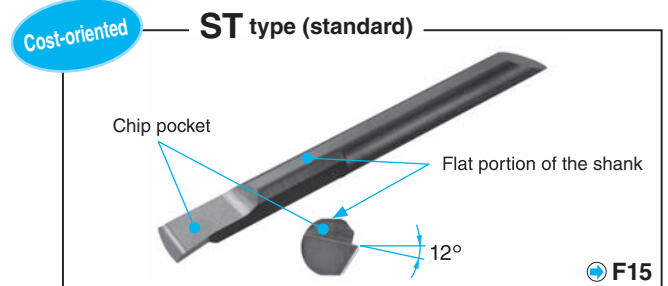
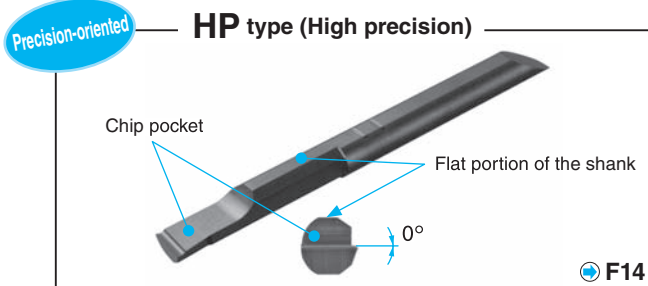
- Easy adjustment and high precision
- EZ Bars prevent deviation with high-rigidity clamping

Wide range of items applicable to various applications

Kyocera's original EZ adjust structure



2 types of bars



● Insert Tolerance

Insert setting image	Insert Tolerance	Offset (F)	Overall length (Z)	Edge Height (Y)	Min. Bore Dia.
Y = Edge Height F = Offset Z = Insert length	Precision-oriented HP type (High precision)	±0.025mm	±0.05mm	+0.05/0mm	Same as Shank Dia.
	Cost-oriented ST type (standard)	±0.06mm	±0.1mm	+0.06/0mm	Not same as Shank Dia.

* Ref. to 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)

NEW EZH-CT



High precision, with coolant hole (Adjustable)

EZH-HP



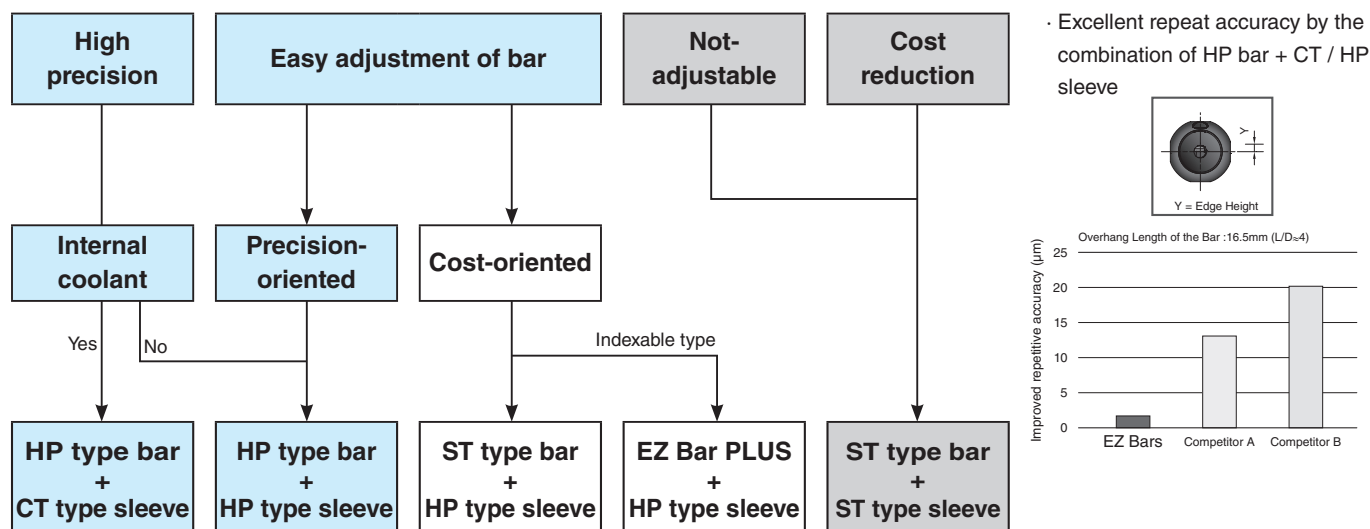
Overhang length is adjustable (Adjustable)

EZH-ST



Not-adjustable

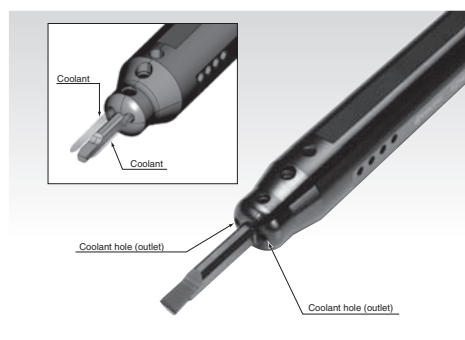
How to select bars and sleeves for each application



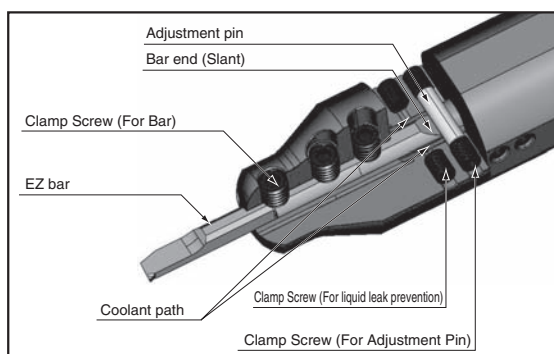
EZH-CT type (high precision / with coolant hole) is added in the EZH sleeve lineup!

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)

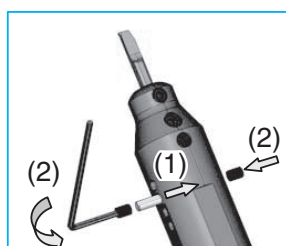


Fig.1 How to use adjustment pin

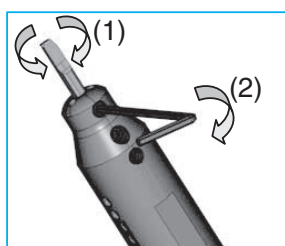


Fig.2 How to fix bar

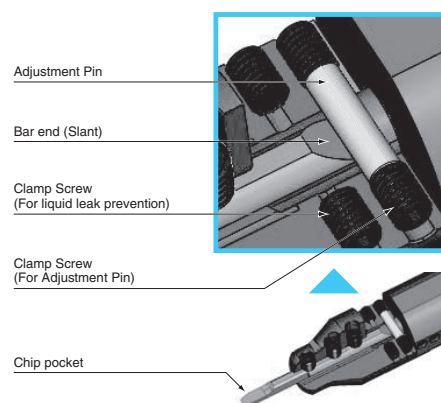


Fig.3 Fixed bar

EZB-ST (Boring)

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

EZ Bars Dimensions

Description	Min. Bore Dia.	Dimension (mm)								Grades	Applicable Sleeves F20~F25	
		φA	φD	H	L1	L2	L3	F	S	MEGACOAT		
										PR1225		
EZBR	020017ST-008H	2	1.7	1.5	27.3	7	4.7	0.79	0.19	0.08 ±0.015	●	EZH017...
	025020ST-008H	2.5	2	1.82	32	8	4.8	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	4.8	1.19	0.15	0.08 ±0.015	●	EZH025...
	030025ST-015H									0.15 ±0.02	●	
	035030ST-008H	3.5	3	2.8	39	13	6.8	1.44	0.18	0.08 ±0.015	●	EZH030...
	035030ST-015H									0.15 ±0.02	●	
	040035ST-008H	4	3.5	3.3	42	15	6.7	1.69	0.24	0.08 ±0.015	●	EZH035...
	040035ST-015H									0.15 ±0.02	●	
	045040ST-008H	4.5	4	3.8	49	20	9.7	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	9.7	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	11.8	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	11.7	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	4.7	0.79	0.2	0.05 ±0.01	●	EZH017...
	025020ST-005F	2.5	2	1.82	32	8	4.8	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	4.8	1.19	0.2	0.05 ±0.01	●	EZH025...
	030025ST-015F									0.15 ±0.02	●	
	035030ST-005F	3.5	3	2.8	39	13	6.8	1.44	0.26	0.05 ±0.01	●	EZH030...
	035030ST-015F									0.15 ±0.02	●	
	040035ST-005F	4	3.5	3.3	42	15	6.7	1.69	0.33	0.05 ±0.01	●	EZH035...
	040035ST-015F									0.15 ±0.02	●	
	045040ST-005F	4.5	4	3.8	49	20	9.7	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	9.7	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	11.7	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	11.7	3.44	0.65	0.05 ±0.01	●	EZH070...
	075070ST-015F									0.15 ±0.02	●	

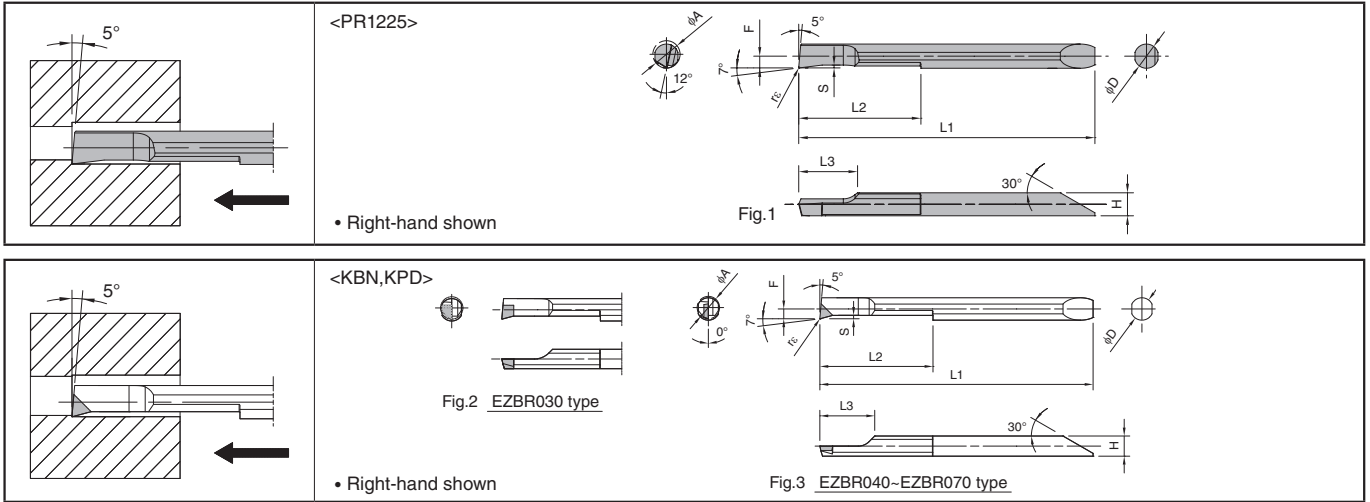
Tolerance: Offset ±0.06mm, overall length ±0.1mm, edge height +0.06/0mm

Recommended Cutting Conditions F17

● : Std. Item

EZ Bars are
sold in 1 piece boxes

EZB-NB (Boring)



EZ Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)								Drawing	Grades			Applicable Sleeves ➡ F20~F25
		φA	φD	H	L1	L2	L3	F	S	rε		MEGA COAT	MEGA COAT CBN	PCD	
												PR1225	KBN05M	KPD001	
EZBR	020017-005NB	2	1.7	1.5	27.3	7	4.7	0.79	0.2	±0.015 0.05	Fig.1	●			EZH017...
	025020-005NB	2.5	2	1.82	32	8	4.8	0.94	0.16			●			EZH020...
	030025-005NB	3	2.5	2.3	35	10.5	4.8	1.19	0.16			●			EZH025...
	035030-005NB	3.5	3	2.8	39	13	6.8	1.44	0.19			●			EZH030...
	040035-005NB	4	3.5	3.3	42	15	6.7	1.69	0.25			●			EZH035...
	045040-005NB	4.5	4	3.8	49	20	9.7	1.94	0.28			●			EZH040...
	055050-005NB	5.5	5	4.8	58.2	25	9.7	2.44	0.33			●			EZH050...
	065060-005NB	6.5	6	5.8	66.2	30	11.7	2.94	0.39			●			EZH060...
	075070-005NB	7.5	7	6.8	74.2	35	11.7	3.44	0.45			●			EZH070...
EZBR	030030-003NB	3	3	2.6	38.8	13	6.8	1.25	0.3	±0.015 0.035	Fig.2		●		EZH030...
	040040-003NB	4	4	3.6	48.8	20	9.8	1.75				●		EZH040...	
	050050-003NB	5	5	4.6	58.1	25	9.8	2.25	0.5		Fig.3		●		EZH050...
	060060-003NB	6	6	5.6	66.1	30	11.8	2.75					●		EZH060...
	070070-003NB	7	7	6.6	74.1	35	11.8	3.25					●		EZH070...
EZBR	040040-003NB	4	4	3.6	48.8	20	9.8	1.75	0.5	±0.015 0.035	Fig.3			●	EZH040...
	050050-003NB	5	5	4.6	58.1	25	9.8	2.25						●	EZH050...
	060060-003NB	6	6	5.6	66.1	30	11.8	2.75						●	EZH060...
	070070-003NB	7	7	6.6	74.1	35	11.8	3.25						●	EZH070...

Recommended Cutting Conditions ➔ F17

Edge Preparation

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

◆ Recommended Cutting Conditions

● H Chipbreaker (EZB-HP..H type EZB-ST..H type)

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	

● F Chipbreaker (EZB-HP..F type EZB-ST..F type)

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...(Conventional)
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.

F



Boring

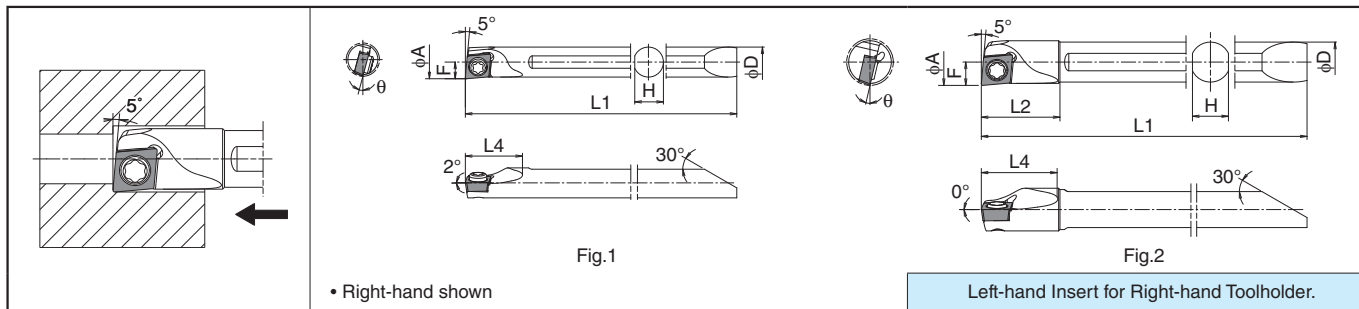


EZ Bars

EZ Bar PLUS (Indexable boring bar)

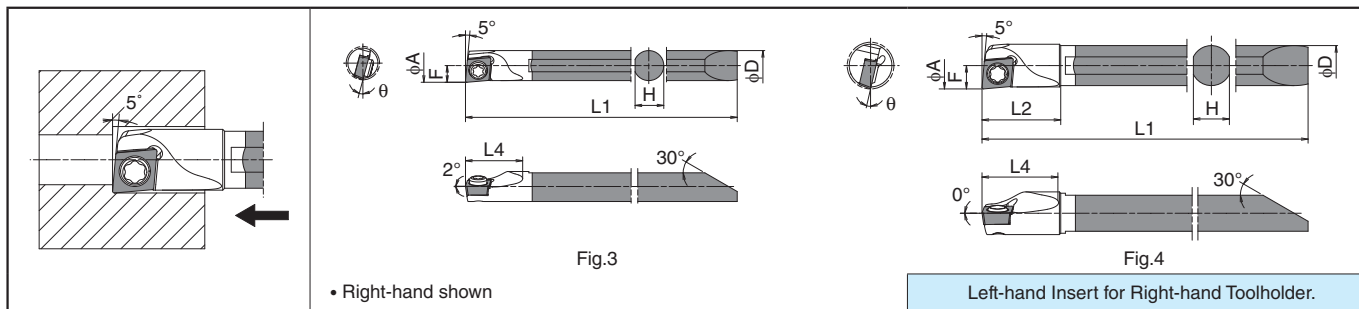
■ **S-SCLC-EZ**

Max. Overhang Length $L/D \approx 3$



■ C-SCLC-EZ

Max. Overhang Length $L/D \sim 5$



● Toolholder Dimensions

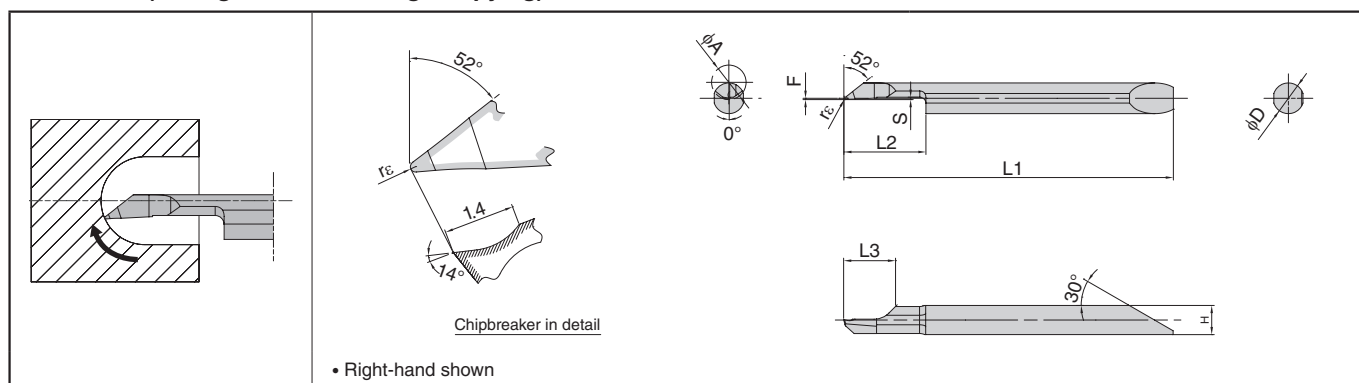
Description		Std.	Min. Bore Dia.	Dimension (mm)							θ	Standard Corner-R(rε)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeves 🔵 F23		
				R	φA	φD	H	L1	L2	L3					L4	F		Clamp Screw	Wrench
																			
Steel	S045X-SCLCR03-050EZ	●	5	4.5	4.3	42.4	-	-	8.5	2.5	15°	0.2	No	Fig.1	SB-1635TR	FT-6	EZH045...		
	S060X-SCLCR04-070EZ	●	7	6	5.4	53.9	11.8		11.5	3.5	13°			Fig.2	SB-2035TR		EZH060...		
Carbide	C045X-SCLCR03-050EZ	●	5	4.5	4.3	51.4	-		8.5	2.5	15°			Fig.3	SB-1635TR		EZH045...		
	C060X-SCLCR04-070EZ	●	7	6	5.4	65.9	11.8		11.5	3.5	13°			Fig.4	SB-2035TR		EZH060...		

- **Applicable Inserts**

Applications	Minute ap	Finishing	Finishing / Precision	Non-ferrous Metals	Hard Materials
Ref. to Page	B48	B50, B51	B50	C24	C14
Insert Toolholder Description	CF 	L-F 	L-FSF 	PCD 	CBN 
---SCLCR03---	CCGT0301..	CCGT0301..	CCET0301..	-	CCMW0301..
---SCLCR04---	CCGT0401..	CCGT0401..	CCET0401..	CCGW0401..	CCMW0401..

Recommended Cutting Conditions ➡ **F91~F92**

EZVB (Boring / Internal Facing / Copying) ^{NEW}



EZ Bars Dimensions

Description	Min. Bore Dia.	Dimension (mm)								Grades MEGACOAT PR1225	Applicable Sleeves ● F21~F25
		φA	φD	H	L1	L2	L3	F	S	rε	
EZVBR 035030-010	3.5	3	2.8	38	8	5.8	0.17	0.22	0.1 ±0.015	●	EZH030...
045040-010	4.5	4	3.8	43	10	6.8	0.17	0.26	0.1 ±0.015	●	EZH040...
055050-010	5.5	5	4.8	50.2	12	7.7	0.17	0.29	0.1 ±0.015	●	EZH050...
065060-010	6.5	6	5.8	55.2	14	8.6	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	

EZVB Spherical Machining Comparison of Chip Control

Stable machining with chip control-oriented chipbreaker

Spherical
Machining



EZVBR045040-010

ap \ f	0.01 [mm/rev]	0.03 [mm/rev]	0.05 [mm/rev]
0.07 [mm]			
0.05 [mm]			
0.03 [mm]			

Competitor

ap \ f	0.01 [mm/rev]	0.03 [mm/rev]	0.05 [mm/rev]
0.07 [mm]			
0.05 [mm]			
0.03 [mm]			

Cutting Conditions: Vc=100m/min Workpiece Material: SUS304 Wet

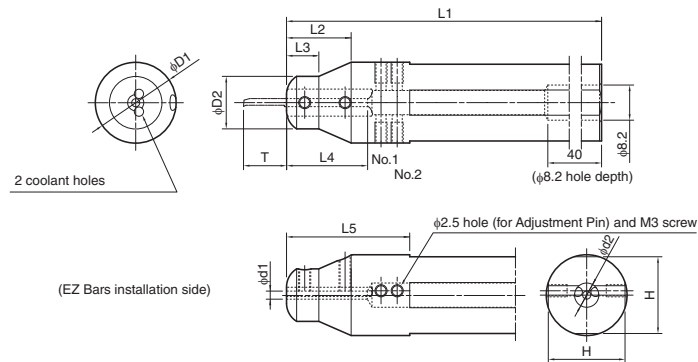


Fig.1

Sleeve Dimensions

Description			Std.	Dimension (mm)									Overhang Length of the Bar *T (mm)				Drawing	Applicable EZ Bars 🔵F14~F16 🔵J24	
				φd1	φD1	φD2	φd2	H	L1	L2	L3	*L4	L5	Adjustment Pin Setting Position					
														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				30.5							
	01722CT-135	●		22			21	135				41.5							
	01725.0CT-135	●		25			24	135				30.5							
	01725.4CT-120	●		25.4			24.4	120				30.5							
EZH	02019CT-120	●	2	19.05	13	6	18	120	16	8	20	30.5	8.5	4.5	-	-	Fig.1	EZBR...020... *3 HPB®\0202-...	
	02020CT-120	●		20			19	120				30.5							
	02022CT-135	●		22			21	135				41.5							
	02025.0CT-135	●		25			24	135				30.5							
	02025.4CT-120	●		25.4			24.4	120				30.5							
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				30.5							
	02522CT-135	●		22			21	135				41.5							
	02525.0CT-135	●		25			24	135				30.5							
	02525.4CT-120	●		25.4			24.4	120				30.5							

*1. L4 shows φd1 length.

*2. Dimension T shows Overhang length of the EZB Bar when attached to sleeve.

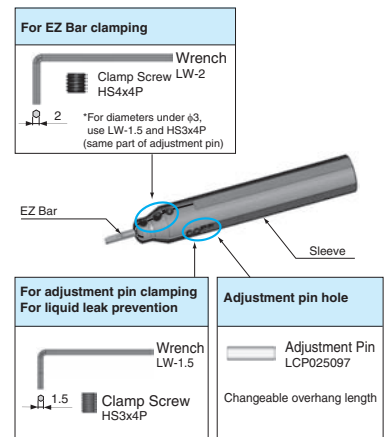
*3. Use them without Adjustment Pins. Overhang length of bar is not adjustable.

· Choose sleeves (φd1) to meet with φD dimension of bar.

· φ8.2 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				
	Clamp Screw	Wrench	Clamp Screw	Wrench	Adjustment Pin
EZH 017...CT-.. 020...CT-.. 025...CT-.. 030...CT-..	HS3x4P (for adjustment pin, liquid leak prevention and bar)	LW-1.5 Tightening Torque 1N·m	-	-	LCP025097
EZH 035...CT-.. 040...CT-.. 050...CT-.. 060...CT-.. 070...CT-..	HS3x4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS4x4P (for bar)	LW-2 Tightening Torque 2N·m	LCP025097



1) If shank dia. is φ2.5mm or less, Use clamp screw (HS3x4P)

For adjustment pin 2 pcs

For liquid leak prevention 2 pcs

For bar 2 pcs

2) If shank dia. is φ3mm, Use clamp screw (HS3x4P)

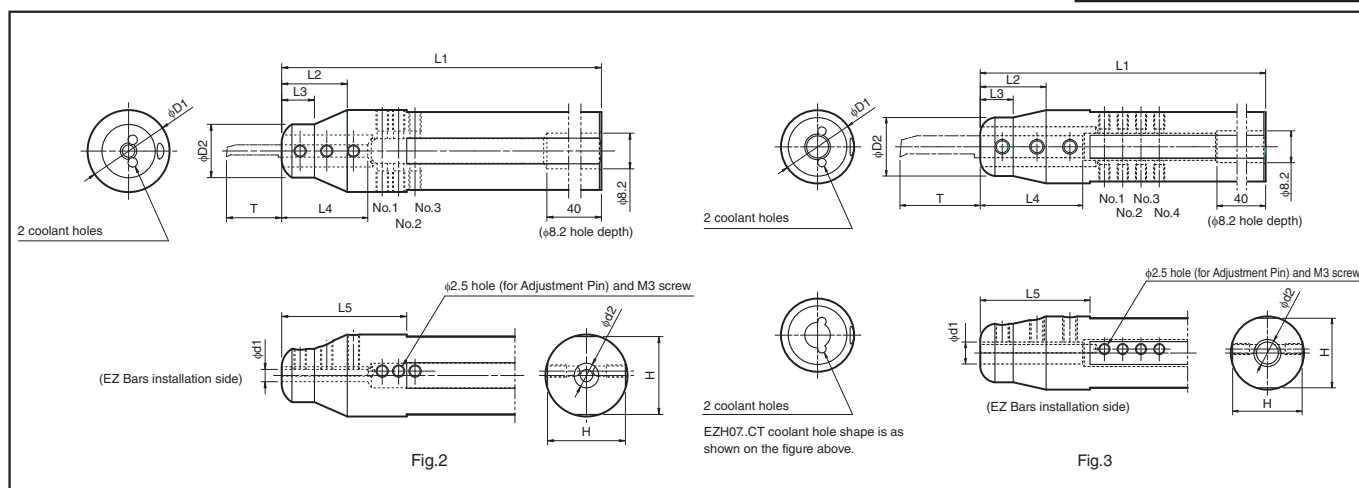
For adjustment pin 2 pcs

For liquid leak prevention 4 pcs

For bar 3 pcs

EZH-CT sleeve NEW

Adjustable with Coolant Hole



Sleeve Dimensions

Description		Std.	Dimension (mm)										Overhang Length of the Bar ² T (mm)				Drawing	Applicable EZ Bars / EZ Bar PLUS ● F14~F16 F18, F19 ● G41, G64 ● J24
			φd1	φD1	φD2	φd2	H	L1	L2	L3	*L4	L5	Adjustment Pin Setting Position					
													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	EZBR...030... EZVBR035030-... EZGR...030-... EZTR...030-... ³ HPB ⁹ /0303-...
	03020CT-120	●		20			19	120				41.5						
	03022CT-135	●		22			21	135				30.5						
	03025.0CT-135	●		25			24	135				30.5						
	03025.4CT-120	●		25.4			24.4	120				30.5						
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				41.5						
	03522CT-135	●		22			21	135				31.1						
	03525.0CT-135	●		25			24	135				31.1						
	03525.4CT-120	●		25.4			24.4	120				31.1						
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... EZVBR045040-... EZGR...040-... EZFR...040-... EZTR...040-... ³ HP...04-...
	04020CT-120	●		20			19	120				41.5						
	04022CT-135	●		22			21	135				32.7						
	04025.0CT-135	●		25			24	135				32.7						
	04025.4CT-120	●		25.4			24.4	120				32.7						
EZH	05019CT-120	●	5	19.05	16	6	18	120	18	9	26	30.0	25.5	20.5	15.5	10.5	Fig.3	EZBR...050... EZVBR055050-... EZGR...050-... EZFR...050-... EZTR...050-... ³ HP...05-...
	05020CT-120	●		20			19	120				44.0						
	05022CT-135	●		22			21	135				30.0						
	05025.0CT-135	●		25			24	135				30.0						
	05025.4CT-120	●		25.4			24.4	120				30.0						
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... EZVBR065060-... EZGR...060-... EZTR...060-... _060X-...-070EZ ³ HP...0606-...
	06020CT-120	●		20			19	120				41.5						
	06022CT-135	●		22			21	135				30.0						
	06025.0CT-135	●		25			24	135				30.0						
	06025.4CT-120	●		25.4			24.4	120				30.0						
EZH	07019CT-120	●	7	19.05	16	7.4	18	120	18	9	29	30.0	35.5	30.5	25.5	20.5	Fig.3	EZBR...070... EZGR...070-... EZFR...070-... EZTR...070-... ³ HP...07-...
	07020CT-120	●		20			19	120				44.0						
	07022CT-135	●		22			21	135				30.0						
	07025.0CT-135	●		25			24	135				30.0						
	07025.4CT-120	●		25.4			24.4	120				30.0						

*1. L4 shows φd1 length.

*2. Dimension T 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).

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

- Choose sleeves (φd1) to meet with φD dimension of bar.

- φ8.2 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

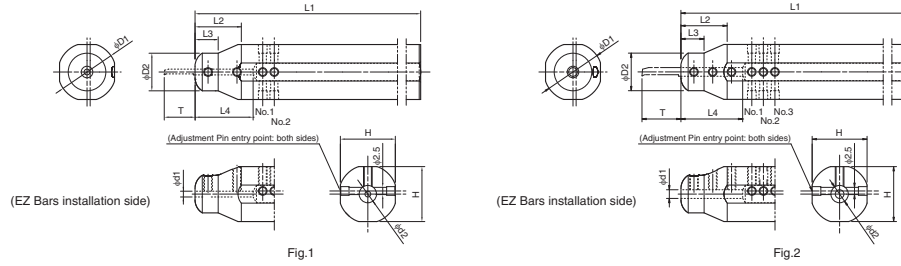
F



Boring

EZH-HP sleeve

Adjustable



Description	Std.	Dimension (mm)										Overhang Length of the Bar ² T (mm)				Drawing	Applicable EZ Bars / EZ Bar PLUS F14~F16, F19 G41, G64 J24
		φd1	φD1	φD2	φd2	H	L1	L2	L3	L4	No.1	No.2	No.3	No.4			
EZH 01716HP-100	●		16			15	100									Fig.1	EZBR...017...
01719HP-120	●		19.05			18	120										
01720HP-120	●		20			19	120										
01722HP-135	●		22	13	6	21	135	16	8	16	7.5	3.5	-	-			
01725.0HP-135	●		25			24	135										
01725.4HP-120	●		25.4			24.4	120										
EZH 02016HP-100	●		16			15	100									Fig.1	EZBR...020... HPB%0202-...
02019HP-120	●		19.05			18	120										
02020HP-120	●		20			19	120										
02022HP-135	●		22	13	6	21	135	16	8	20	8.5	4.5	-	-			
02025.0HP-135	●		25			24	135										
02025.4HP-120	●		25.4			24.4	120										
EZH 02516HP-100	●		16			15	100									Fig.1	EZBR...025... EZTR...025-...
02519HP-120	●		19.05			18	120										
02520HP-120	●		20			19	120										
02522HP-135	●		22	13	6	21	135	16	8	20	11	7	-	-			
02525.0HP-135	●		25			24	135										
02525.4HP-120	●		25.4			24.4	120										
EZH 03016HP-100	●		16			15	100									Fig.2	EZBR...030... EZVBR035030-... EZGR...030-... EZTR...030-... HPB%0303-...
03019HP-120	●		19.05			18	120										
03020HP-120	●		20			19	120										
03022HP-135	●		22	13	6	21	135	16	8	21	13.5	9.5	5.5	-			
03025.0HP-135	●		25			24	135										
03025.4HP-120	●		25.4			24.4	120										
EZH 03516HP-100	●		16			15	100									Fig.2	EZBR...035... EZTR...035-...
03519HP-120	●		19.05			18	120										
03520HP-120	●		20			19	120										
03522HP-135	●		22	13	6	21	135	16	8	22	15.5	11.5	7.5	-			
03525.0HP-135	●		25			24	135										
03525.4HP-120	●		25.4			24.4	120										
EZH 04016HP-100	●		16			15	100									Fig.4	EZBR...040... EZVBR045040-... EZGR...040-... EZFR...040-... EZTR...040-... HP...04-...
04019HP-120	●		19.05			18	120										
04020HP-120	●		20			19	120										
04022HP-135	●		22	13	6	21	135	16	8	24	20.5	16.5	12.5	8.5			
04025.0HP-135	●		25			24	135										
04025.4HP-120	●		25.4			24.4	120										

*1. L4 shows φd1 length.

*2. Dimension T shows Overhang length of the EZB Bar when attached to sleeve.

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

• Choose sleeves (φd1) to meet with φD dimension of bar.

Spare Parts Description (for EZH-HP Sleeves)

Description	Spare Parts					Applicable EZ Bars EZ Bar PLUS
	Clamp Screw	Wrench	Clamp Screw	Wrench	Adjustment Pin	
EZH 017...HP-... 020...HP-... 025...HP-... 030...HP-...	HS3×4P (for both Adjustment Pin and Bar)	LW-1.5 Tightening Torque 1N·m	-	-	LCP025140	EZBR...017... EZBR...020... EZBR...025... EZ_R...025-... EZBR...030... EZ_R...030-...
EZH 035...HP-... 040...HP-... 045...HP-... 050...HP-... 060...HP-... 070...HP-...	HS3×4P (only for Adjustment Pin)	LW-1.5 Tightening Torque 1N·m	HS4×4P (for bar)	LW-2 Tightening Torque 2N·m	LCP025140	EZBR...035... EZ_R...035-... EZBR...040... EZ_R...040-... _045X-...-050EZ EZBR...050... EZ_R...050-... EZBR...060... EZ_R...060-... _060X-...-070EZ EZBR...070... EZ_R...070-...

● : Std. Item

EZH-HP sleeve

Adjustable

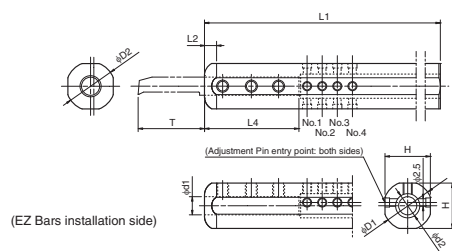


Fig.3

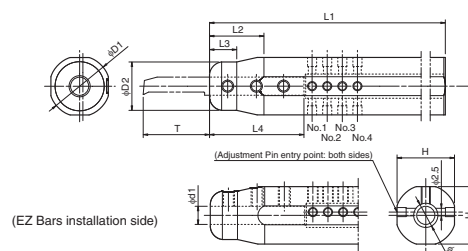


Fig.4

Description		Std.	Dimension (mm)								Overhang Length of the Bar *T (mm)				Drawing	Applicable EZ Bars / EZ Bar PLUS ➡ F14~F16 F18, F19 ➡ G41, G64 ➡ J24	
											Adjustment Pin Setting Position						
			φd1	φD1	φD2	φd2	H	L1	L2	L3	*1L4	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
	04519HP-120	●		19.05			18	120	18	9							
	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	20.5	15.5	10.5	Fig.3	EZBR...050... EZVBR055050-... EZGR...050-... EZFR...050-... EZTR...050-... *3HP...05-...
	05019HP-120	●		19.05			18	120	18	9							
	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... EZVBR065060-... EZGR...060-... EZTR...060-... _060X-...-070EZ *3HP...0606-...
	06019HP-120	●		19.05			18	120	18	9							
	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	30.5	25.5	20.5	Fig.3	EZBR...070... EZGR...070-... EZFR...070-... EZTR...070-... *3HP...07-...
	07019HP-120	●		19.05			18	120	18	9							
	07020HP-120	●		20			19	120									
	07022HP-135	●		22			21	135									
	07025.0HP-135	●		25			24	135									
	07025.4HP-120	●		25.4			24.4	120									

*1. L4 shows φd1 length.

*2. Dimension T 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).

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

- Choose sleeves (φd1) to meet with φD dimension of bar.

Sleeve Identification System

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

How to attach bar to sleeve

How to use adjustment pin (Fig.5)

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

Fig.5
How to use adjustment pin

How to fix bar (Fig.6)

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

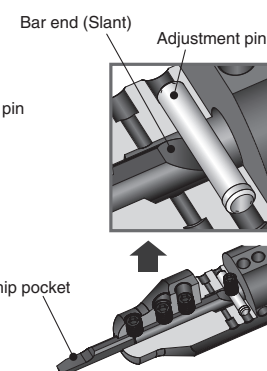
Fig.6
How to fix bar

Fig.7: Fixed bar

● : Std. Item

EZH-ST sleeve

Not-adjustable

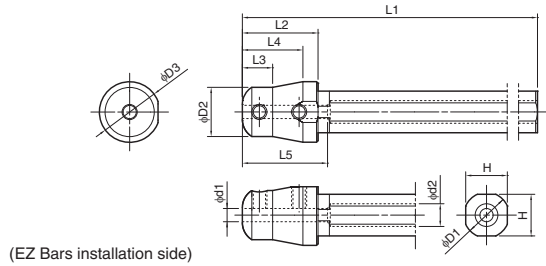


Fig.1

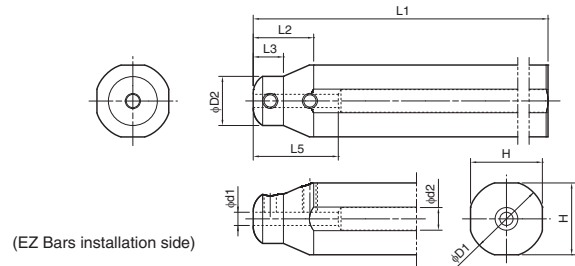


Fig.2

Description		Std.	Dimension (mm)											Drawing	Applicable Bars ⚡ F14~F16, F19, F34 ⚡ G41, G44, G64, G67 ⚡ J24, J28	
			φd1	φD1	φD2	φD3	φd2	H	L1	L2	L3	L4	L5			
EZH	01712ST-80	●	1.7	12	13	16	6	11	80	20	16	8	16	16	Fig.1	EZBR...017...
	01716ST-100	●		16		15		100	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	16	8	16	20	Fig.1	EZBR...020... HPB®\0202-...
	02016ST-100	●		16		15		100	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	16	8	16	20	Fig.1	EZBR...025... EZTR...025-...
	02516ST-100	●		16		15		100	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	16	8	16	21	Fig.1	EZBR...030... EZVBR035030-... EZGR...030-... EZTR...030-... HPB®\0303-...
	03016ST-100	●		16		15		100	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	16	8	16	22	Fig.1	EZBR...035... EZTR...035-...
	03516ST-100	●		16		15		100	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	16	8	16	24	Fig.1	EZBR...040... EZVBR045040-... EZGR...040-... EZFGFR...040-... EZTR...040-... HP...04-...
	04016ST-100	●		16		15		100	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								

*L5 shows φd1 length

· Choose sleeves (φd1) to meet with φD 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

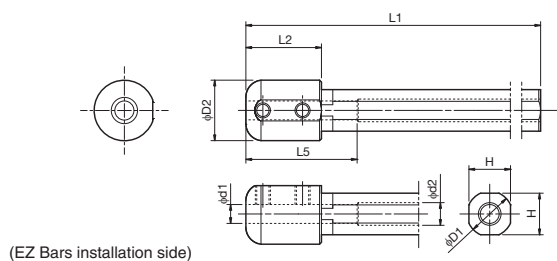


Fig.3

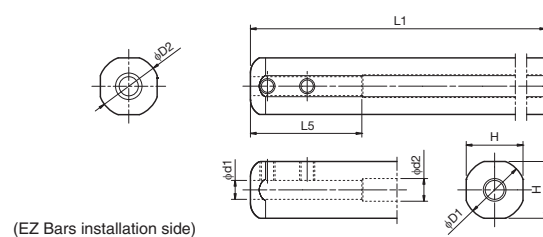


Fig.4

Description		Std.	Dimension (mm)										Drawing	Applicable Bars ⬡ F14~F16, F18, F19, F30 ⬡ G41, G44, G64, G67 ⬡ J24, J28		
			φd1	φD1	φD2	φD3	φd2	H	L1	L2	L3	L4			L5	
EZH	05012ST-80	●	5	12	16	-	6	11	80	20	-	-	29	Fig.3	EZBR...050... EZVBR055050-... EZGR...050-... EZFG...050-... EZTR...050-... HP...05-...	
	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... EZVBR065060-... EZGR...060-... EZTR...060-... _060X-...-070EZ HP...0606-...	
	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-... EZFG...070-... EZTR...070-... HP...07-...	
	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							

*L5 shows $\phi d1$ length· Choose sleeves ($\phi d1$) to meet with ϕD dimension of bar.

· Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

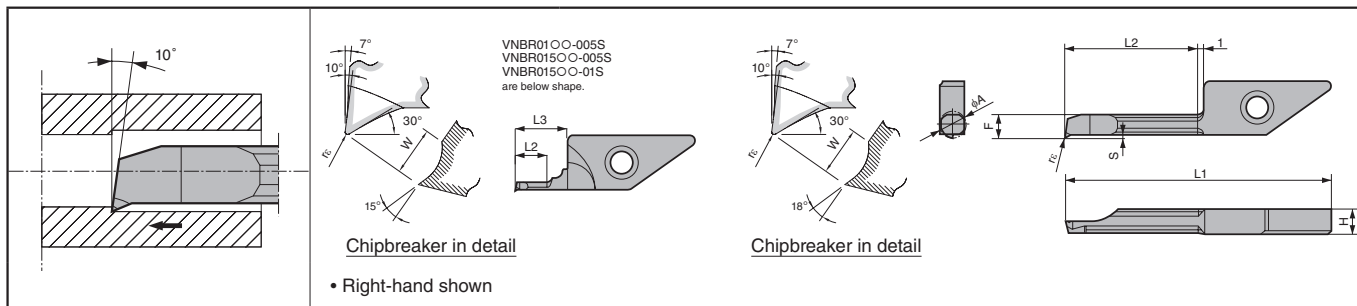
● Spare Parts Description (for EZH-ST Sleeves)

Description	Spare Parts		Applicable EZ Bars		EZ Bar PLUS	2-Edge Tip-Bars
	Clamp Screw	Wrench	EZB-HP EZB-ST EZB-NB	EZG EZFG EZT EZVB	S-SCLC C-SCLC	HP
EZH 017...ST-... 020...ST-... 025...ST-... 030...ST-...	HS3×4P	LW-1.5 Tightening Torque 1N·m	EZBR...017...	-	-	-
			EZBR...020...			HPB [®] /0202-...
			EZBR...025...			-
			EZBR...030...			HPB [®] /0303-...
EZH 035...ST-... 040...ST-... 050...ST-... 060...ST-... 070...ST-...	HS4×4P	LW-2 Tightening Torque 2N·m	EZBR...035...	EZTR...035-...	-	-
			EZBR...040...	EZ_R...040-...	-	HP...04-...
			EZBR...050...	EZ_R...050-...	-	HP...05-...
			EZBR...060...	EZ_R...060-...	_060X-...-070EZ	HP...0606-...
			EZBR...070...	EZ_R...070-...	-	HP...07-...

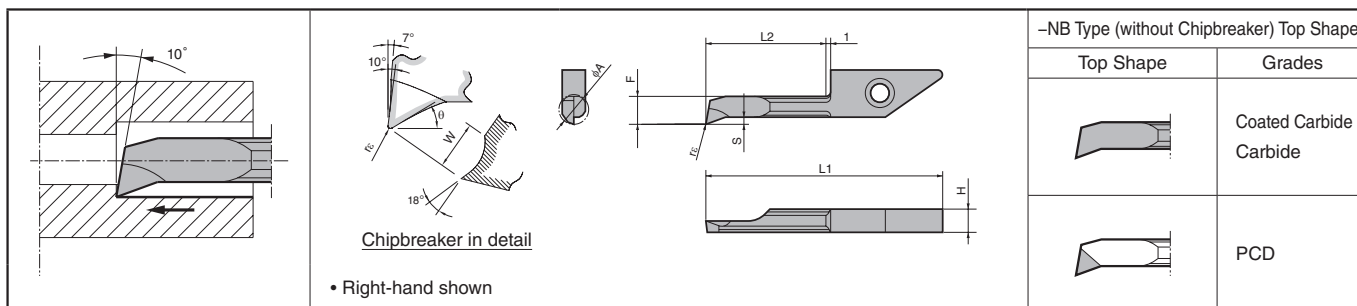
● : Std. Item

System Tip-Bars

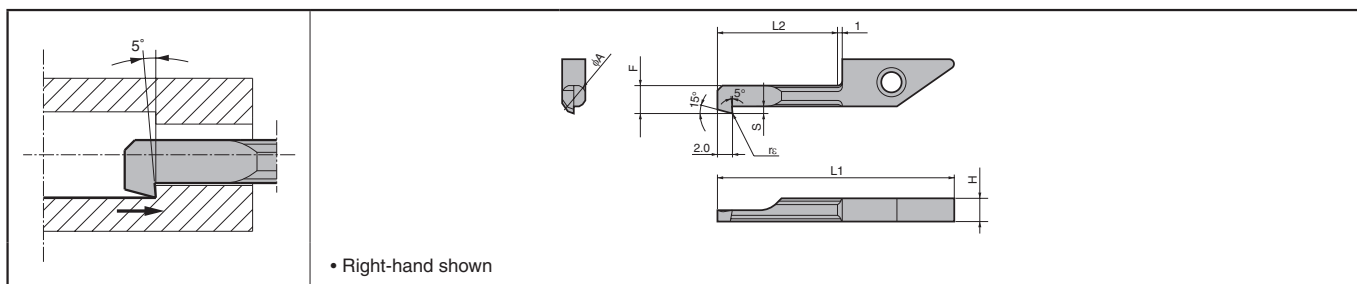
VNB-S (Boring) [Corner-R(r_ϵ) :Minus tolerance]



VNB (Boring)



VNBT (Back Boring)



Insert Dimensions (VNB-S)

Description		Min. Bore Dia.	Dimension (mm)								Grades				
											MEGA COAT	PVD	Carbide	PCD	
			φA	H	L1	L2	L3	F	S	rε	W	PR1225	PR930	KW10	KPD001
VNBR	0103-005S	1.0	3.9	26.5	3	7	0.85	0.2	$^{+0}_{-0.02}$	0.7	●	●			
	0105-005S				5						●				
	01503-005S	1.5			3		1.3					●			
	01505-005S				5						●				
	0206-005S				2.0						6	●			
	025075-005S	2.5		28.1	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	$^{+0}_{-0.03}$	0.7	●	●			
	01505-01S				5						●				
	0206-01S	2.0			6		1.8				0.25	●	●		
	025075-01S	2.5		28.1	7.5	2.1	0.4	●		●					
	0311-01S	3.0		30.8	11	2.6	0.4	0.8		●	●				
	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	$^{+0}_{-0.04}$	0.8	●	●
0420-02S		39.8	20			●	●								

Recommended Cutting Conditions F90

● : Std. Item

System Tip-Bars are
sold in 5 piece boxes

● Insert Dimensions (VNB / VNB-NB / VNBTR)

Description		Min. Bore Dia.	Dimension (mm)							Grades					
										MEGA COAT	PVD	Carbide	PCD		
		φA	H	L1	L2	F	S	r _ε	W	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										●	●	●		
	0420-003	4		39.8	20	3.5	0.5		2.7		●	●	●		
	0511-003			30.8	11	4.5	0.7			23°	●	●	●		
	0520-003	5		39.8	20						●	●	●		
	0620-003										●	●	●		
	0630-003	6		49.8	30	5.3	1.0		3.0		●	●	●		
	0720-003			39.8	20	6.2	1.0			24°		●	●		
	0730-003	7		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										●	●	●		
	0420-01	4		39.8	20	3.5	0.5		2.7		●	●	●		
	0511-01			30.8	11	4.5	0.7			23°	●	●	●		
	0520-01	5		39.8	20						●	●	●		
	0620-01										●	●	●		
	0630-01	6		49.8	30	5.3	1.0		3.0		●	●	●		
	0720-01			39.8	20	6.2	1.0			24°		●	●		
	0730-01	7		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										●	●	●		
	0420-02	4		39.8	20	3.5	0.5		2.7		●	●	●		
	0511-02			30.8	11	4.5	0.7			23°	●	●	●		
	0520-02	5		39.8	20						●	●	●		
	0620-02										●	●	●		
	0630-02	6		49.8	30	5.3	1.0		3.0		●	●	●		
	0720-02			39.8	20	6.2	1.0			24°	●	●	●		
	0730-02	7		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											●	●		
	0420-003NB	4		39.8	20	3.5	0.5					●	●		
	0511-003NB			30.8	11	4.5	0.7					●	●		
	0520-003NB	5		39.8	20							●	●		
	0620-003NB											●	●		
	0630-003NB	6		49.8	30	5.3	1.0					●	●		
	0720-003NB			39.8	20	6.2	1.0					●	●		
	0730-003NB	7		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												●	●	●
	0420-02NB	4		39.8	20	3.5	0.5						●	●	●
	0511-02NB			30.8	11	4.5	0.7						●	●	●
	0520-02NB	5		39.8	20								●	●	●
	0620-02NB												●	●	●
	0630-02NB	6		49.8	30	5.3	1.0						●	●	●
	0720-02NB			39.8	20	6.2	1.0						●	●	●
	0730-02NB	7		49.8	30								●	●	●
VNBTR	0411-003		3.9	30.8	11	3.6	1.0	0.03		-		●			
	0420-003	4		39.8	20							●			
	0511-003			30.8	11	4.6	1.3					●			
	0520-003	5		39.8	20							●			
VNBTR	0411-01		3.9	30.8	11	3.6	1.0	0.1		-		●			
	0420-01	4		39.8	20							●			
	0511-01			30.8	11	4.6	1.3					●			
	0520-01	5		39.8	20							●			

Recommended Cutting Conditions ➡ F90

System Tip-Bars

■ **SVN-N** (without side stopper)

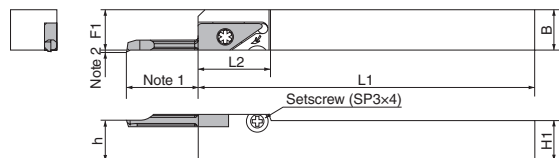


Fig.1 (SVN-N)

- Right-hand shown

SVNS-N (without side stopper / without setscrew)

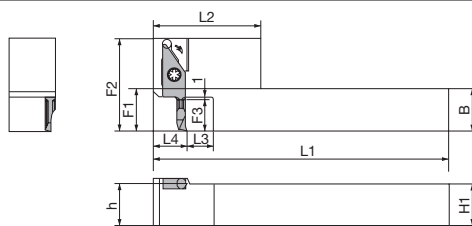


Fig.2 (SVNS-N)

Right-hand Insert for Right-hand Toolholder.

Note 1 & Note 2: For insert dimensions, ref. to page F26~F27

● Toolholder Dimensions

Description		Std.	Dimension (mm)									Drawing	Spare Parts			Applicable Inserts
			H1=h	B	L1	L2	L3	L4	F1	F2	F3		Clamp Screw	Wrench	Setscrew	
														FT  LTW		
SVNR	1010H-12N	●	10	10	100	22	-	-	10	-	-	Fig.1	SB-3080TR	FT-10	SP3×4	VNBR.....-...
	1212K-12N	●	12	12	12				VNBTR.....-...							
	1616K-12N	●	16	16	125				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)*
	1212M-12-06N	●	12	12	150		10	12	12	29	6					(VNTR....-11)*
	1212M-12-11N	●	12	12	150		10	12	12	33	11					(VNBR..06-...)*
																(VNBR..11-...)*
																(VNBTR..11-...)*
	1212M-12-20N	●	12	12	150		10	13	12	42	20					(VNGR....-11)*
	1616M-12-06N	●	16	16	150		16	12	16	29	6					(VNTR....-11)*
1616M-12-11N	●	16	16	150	16	12	16	33	11	(VNBR..20-...)*						
										(VNBTR..20-...)*						
										(VNGR....-20)*						
1616M-12-20N	●	16	16	150	16	13	16	42	20	(VNBR..06-...)*						
1616M-12-20N	●	16	16	150	16	13	16	42	20	(VNBR..11-...)*						
										(VNBTR..11-...)*						
										(VNGR....-11)*						

1. SVN-N / S...SVN-N / S...SVN-SN (without side stopper) retains high index accuracy by simple 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 F3 dimension of the toolholders corresponds to the L2 dimension of the insert.

- **Spare Parts (Optional)**

(Screw Side Stopper)	Wrench
	
HS3×4	LW-1.5

● : Std. Item

■ S...SVN-N Round Shank (Standard, without side stopper) ■ S...SVN-SN Round Shank (Straight, without side stopper)

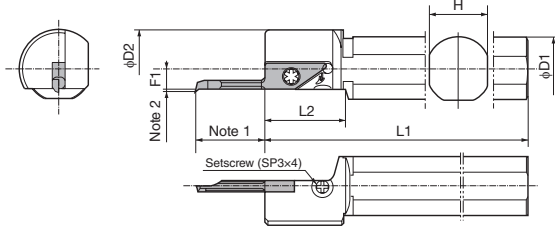


Fig.1 (S...SVN-N)

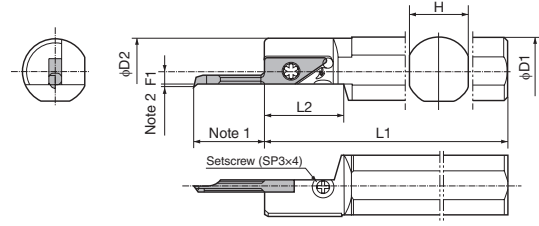


Fig.2 (S...SVN-SN)

• Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Note 1 & Note 2: For insert dimensions, ref. to page **F26~F27**

● Toolholder Dimensions

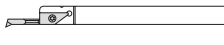
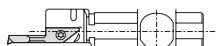
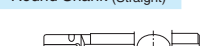
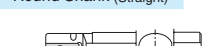
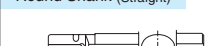
Description	Std.	Dimension (mm)							Drawing	Spare Parts					Applicable Inserts							
		φD1	φD2	H	L1	L2	F1	Clamp Screw		Wrench	Screw Side Stopper	Setscrew	Wrench									
																						
S12F-SVNR12N	●	12	20	11	80	23	4	Fig.1	SB-3080TR	FT-10	-	SP3×4	-	VNBR....-.. VNBTR....-... VNGR....-.. VNFR....-.. VNTR....-..								
S14G-SVNR12N	●	14	20	13	90																	
S16H-SVNR12N	●	16	24	15	100	24	6															
S19H-SVNR12N	●	19.05	24	17	100																	
S19N-SVNR12N	●				160																	
S20H-SVNR12N	●	20	24	18	100																	
S25H-SVNR12N	●	25.4	30	23	100	23	4	Fig.2	SB-3080TR	FT-10	-	SP3×4	-									
S25Q-SVNR12N	●				180																	
S19H-SVNR12SN	●	19.05	18.5	17	100	23	4															
S20H-SVNR12SN	●	20	19.5	18	100																	
S22K-SVNR12SN	●	22	21.5	20	125																	
S25.0G-SVNR12SN	●	25	24.5	23	90																	

F



Boring

■ Selection of System Tip-Bars

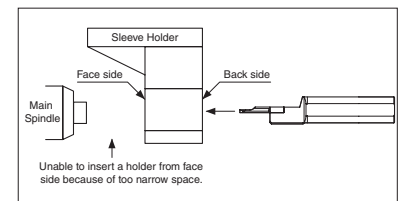
Gang-Type (Horizontal)	Gang-Type	Gang-Type (Front Loading Sleeve Type)	Gang-Type (Back Loading Sleeve Type)
			
Square Shank (Straight)	Square Shank (L-shape)	Square Shank	Square Shank
			
Round Shank (Standard)		Round Shank (Standard)	Round Shank (Standard)
			
Round Shank (Straight)		Round Shank (Straight)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

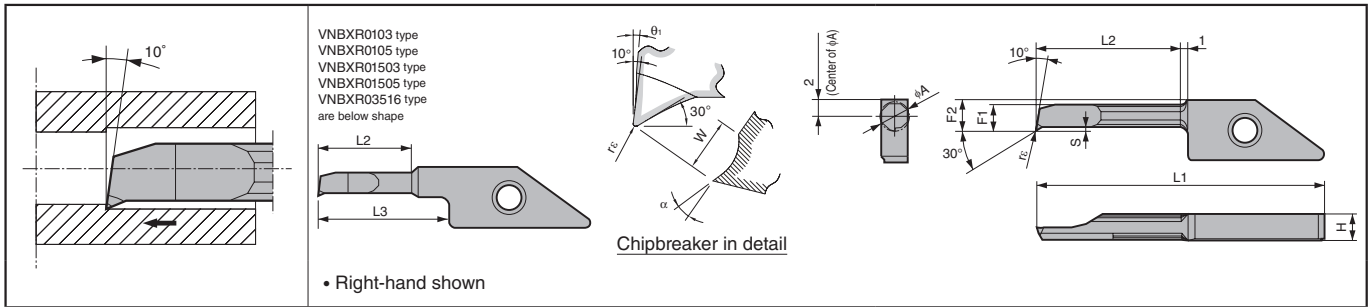
A: The straight type is used when it cannot be inserted from the face side of the sleeve holder and can be inserted only from the back side due to space limitation (Refer to Fig. below).

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.



System Tip-Bars

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



Insert Dimensions (VNBX-S)

Description		Min. Bore Dia.	Dimension (mm)											Grades					
														PVD Coated Carbide					
		φA	H	L1	L2	L3	F1	F2	S	rε	W	θ ₁	α	PR930					
VNBXR	0103-005S	1.0	3.9	26.5	3	7	0.85	2.95	0.2	0.05 ⁺⁰ _{-0.02}	0.7	7°	15°	●					
	0105-005S				5									●					
	01503-005S	3			1.3		●												
	01505-005S	5					●												
	0206-005S	6			1.8		3	0.25	●										
	0311-005S	3.0		30.8	11	-	2.6	3.5	0.4		0.8	8°	18°	●					
	03511-005S	3.5					39.8	16	21					3.1	3.75	0.45	●		
	03516-005S	30.8		11	●														
	0411-005S	4.0		39.8	20	-											3.5	4	0.5
	0420-005S								●										
VNBXR	01503-01S	1.5	3.9	26.5	3	7	1.3	2.95	0.2	0.1 ⁺⁰ _{-0.03}				0.7	7°	15°	●		
	01505-01S				5			●											
	0206-01S	6			1.8		3	0.25	●										
	0311-01S	3.0		30.8	11	-	2.6	3.5	0.4					0.8	8°	18°	●		
	03511-01S	3.5					39.8	16	21								3.1	3.75	0.45
	03516-01S	30.8									11	●							
	0411-01S	4.0		39.8	20	-	3.5	4	0.5		●								
	0420-01S								●										
VNBXR	0411-02S	4.0	3.9	30.8	11	-	3.5	4	0.5	0.2 ⁺⁰ _{-0.04}							●		
	0420-02S			39.8	20						●								

Recommended Cutting Conditions **F90**

Attachment toolholder for VNBX-S System Tip-Bars

- There are three different types of attachment toolholder for the VNBX-S System Tip-Bars (Ref. to Page F31).
 - SVNS-XN Type (without Side Stopper)
 - S...SVN-XN Type (without Side Stopper)
 - S...SVN-SXN Type (without Side Stopper)
- Above toolholders assure high index accuracy by easy restraint.
- 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).

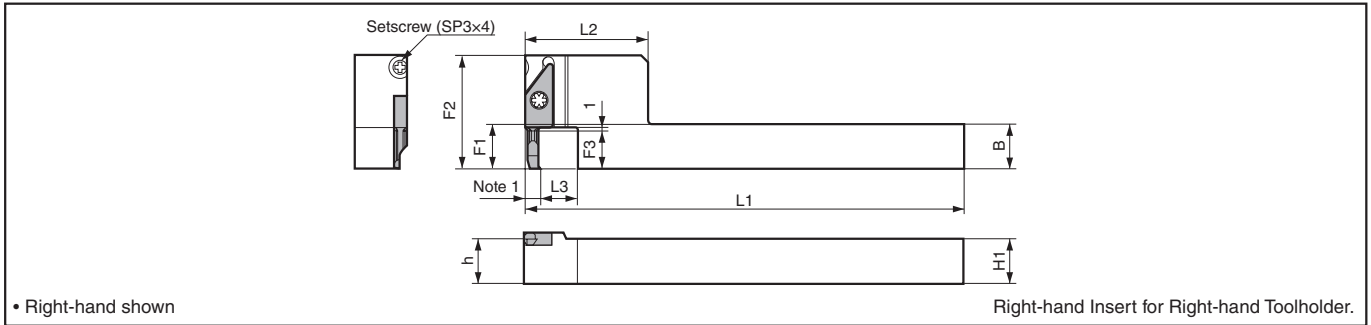
Spare Parts (Optional)

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)



Note 1: The dimension of Note 1 is same size as the applicable insert (VNBX) F2 dimension.

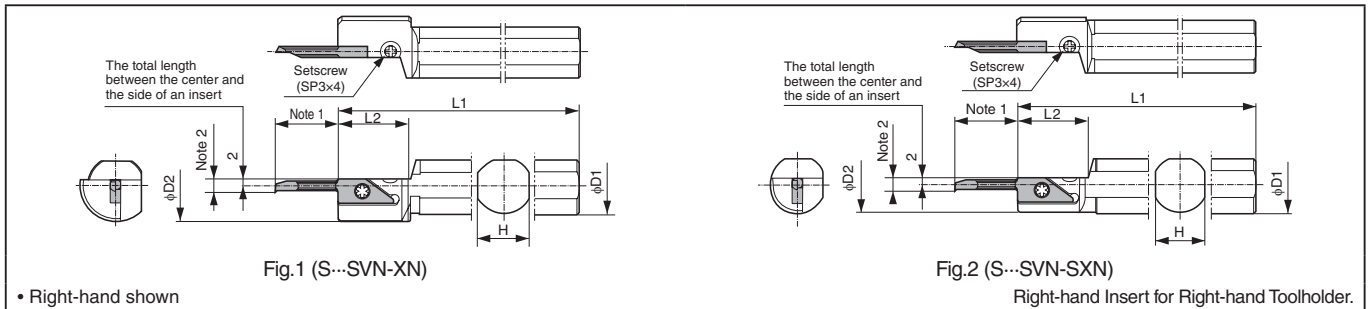
Toolholder Dimensions (L-shape square shank applicable to gang tool post)

Description	Std.	Dimension (mm)									Spare Parts			*Applicable Inserts F30
		H1-h1	B	L1	L2	L3	F1	F2	F3		Clamp Screw	Wrench	Setscrew	
SVNSR 1010K-12-06XN	●	10	10	125			10	29	6		SB-3080TR	LTW-10S	SP3x4	(VNBXR02..)
1010K-12-11XN	●							33	11					(VNBXR..11..)
1212M-12-06XN	●						10	29	6					(VNBXR02..)
1212M-12-11XN	●	12	12				12	33	11					(VNBXR..11..)
1212M-12-20XN	●				45			42	20					(VNBXR0420..)
1616M-12-06XN	●			150				29	6					(VNBXR02..)
1616M-12-11XN	●	16	16			16	16	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)

S...SVN-SXN (Round Shank: Straight type)



Note 1: The dimension of Note 1 shows the applicable insert (VNBX) L2 dimension + 1 mm.
Note 2: The dimension of Note 1 is same size as the applicable insert (VNBX) F2 dimension.

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

Description	Std.	Dimension (mm)						Drawing	Spare Parts			Applicable Inserts F30
		φD1	φD2	H	L1	L2			Clamp Screw	Wrench	Setscrew	
S12F -SVNR12XN	●	12		11	80			Fig.1	SB-3080TR	FT-10	SP3x4	VNBXR...
S14G -SVNR12XN	●	14	20	13	90	23						
S16H -SVNR12XN	●	16		15	100							
S19H -SVNR12XN	●											
S19N -SVNR12XN	○	19.05	24	17	160							
S20H -SVNR12XN	●	20		18	100	24						
S25H -SVNR12XN	●											
S25Q -SVNR12XN	●	25.4	30	23	180							
S19H -SVNR12SXN	●	19.05	18.5	17	100			Fig.2	SB-3080TR	FT-10	SP3x4	VNBXR...
S20H -SVNR12SXN	●	20	19.5	18		23						
S22K -SVNR12SXN	●	22	21.5	20	125							
S25.0G -SVNR12SXN	●	25	24.5	23	90							

*Reminder of applicable insert.

Twin-Bars

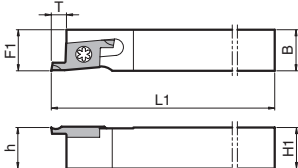
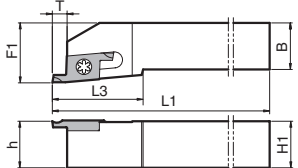
TWB (Micro Boring: Horizontal type) [Corner-R (r_ε) Tolerance: +0/-0.02mm, +0/-0.03mm]

Description	Min. Bore Dia.	Dimension (mm)				Grades	
		φA	F	S	r _ε	PVD Coated Carbide	
TWBR 01003-005 01503-005 02003-005 02503-005 03003-005	1.0	0.85	0.2	0.05	+0/-0.02	PR1025	
	1.5	1.30					
	2.0	1.75	0.25				
	2.5	2.10	0.3				
	3.0	2.40	0.4				
TWBR 01503-010 02003-010 02503-010 03003-010	1.5	1.30	0.2	0.1	+0/-0.03		
	2.0	1.75	0.25				
	2.5	2.10	0.3				
	3.0	2.40	0.4				

• Right-hand shown

STW (Square Shank for Horizontal type insert)

(For Left-hand toolholders for grooving, please ref. to page G68.)

				
	Fig.1		Fig.2	

• Right-hand shown

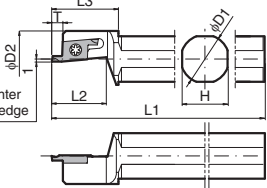
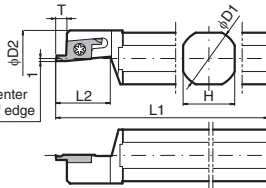
Right-hand Insert for Right-hand Toolholder, (Left-hand Insert for Left-hand Toolholder.)

Toolholder Dimensions

Description		Std.	Dimension (mm)									Drawing	Spare Parts		Applicable Inserts
			H1=h	B	L1	L2	L3	F1	F2	T			Clamp Screw	Wrench	 F32
															
STWR	1212F-15	●	12	12	85			12		3		Fig.1	SB-3080TR	LTW-10S	TWBR00000-000
	1212K-15	●	12	12			-	12							
	1616K-15	●	16	16	125			16							
	2020K-15	●	20	20			25								
	2525M-15	●	25	25	150			32							

S.-STW (Round Shank for Horizontal type insert)

(For Left-hand toolholders for grooving, please ref. to page G68.)

				
	Fig.1		Fig.2	

• Right-hand shown

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

Toolholder Dimensions

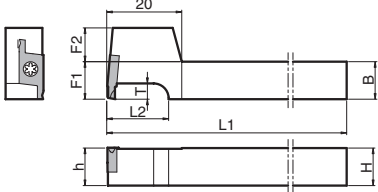
Description	Std.	Dimension (mm)							Drawing	Spare Parts		Applicable Inserts
		φD1	φD2	H	L1	L2	L3	T		Clamp Screw	Wrench	 F32
												
S12F- STWR15	●	12	20	11	80	18	22	3	Fig.1	SB-3080TR	LTW-10S	TWBR00000-000
S14H- STWR15	●	14		13	100							
S15F- STWR15	●	15.875		15	85							
S16F- STWR15	●	16										
S19G- STWR15	●	19.05	18.5	17	90	22	-	3	Fig.2	SB-3080TR	LTW-10S	TWBR00000-000
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

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

Description	Min. Bore Dia.	Dimension (mm)				Grades	
	φA	F	S	r _ε		PVD Coated Carbide	
TWBT 01003-005	1.0	0.85	0.2	+0 -0.02	0.05	PR1025	
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	2.30	0.4				
TWBT 01503-010	1.5	1.30	0.2	+0 -0.03	0.1	PR1025	
02003-010	2.0	1.75	0.25				
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	Std.	Dimension (mm)									Drawing	Spare Parts		Applicable Inserts
		H1=h	B	L1	L2	L3	F1	F2	T			Clamp Screw	Wrench	
STWSR 1010JX-15T	●	10	10	120	16	-	10	9	3		-	SB-3080TR	LTW-10S	F33 G69 TWBTR00000-000 TWFGTR000
1212JX-15T	●	12	12				12	7						
1616JX-15T	●	16	16		20		16	3						
STWSR 1010F-15T	●	10	10	85	16	-	10	9						
1212F-15T	●	12	12				12	7						

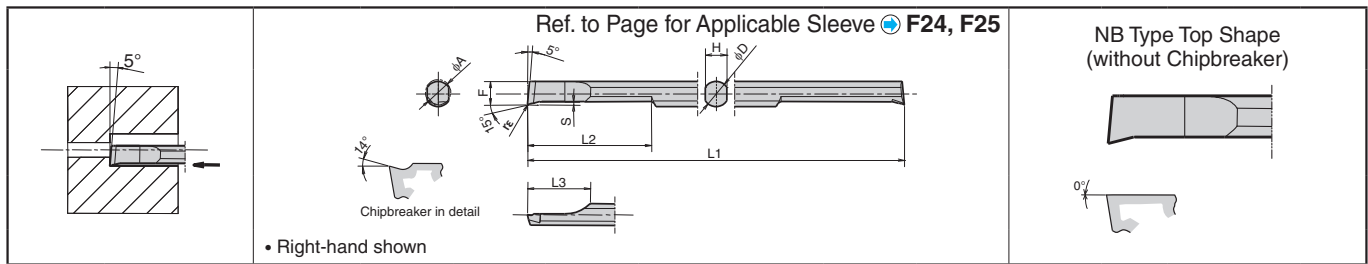
Recommended Cutting Conditions (TWB / TWBT)

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
	PVD Coated Carbide					
	PR1025	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	

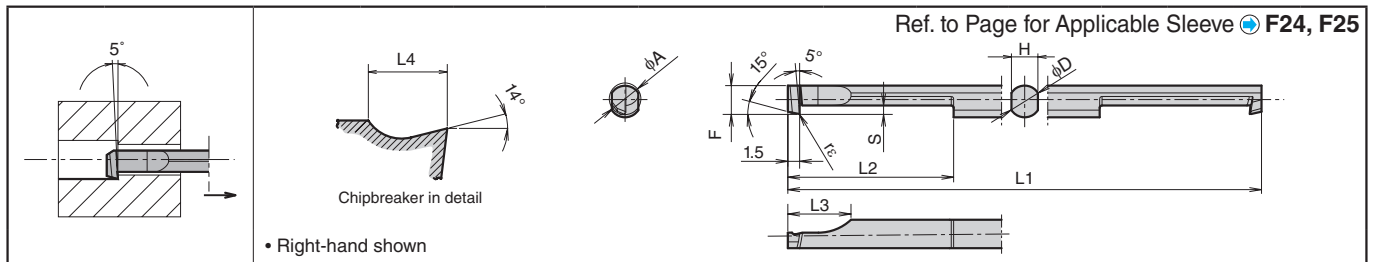
★: 1st Recommendation

2-Edge Tip-Bars HPB / HPBT

HPB (Boring)



HPBT (Back Boring)



Tip-Bars Dimensions

Description		Min. Bore Dia.	Dimension (mm)								Grades				
											PVD Coated Carbide		Carbide		
			φA	φD	H	L1	L2	L3	F	S	rε	PR930		KW10	
												R	L	R	L
HPB ^{R/L}	0202-005	2	2	1.7	50	10	5	1.75	0.25	0.05 ^{+0 -0.02}	●	●	●		
	0303-005	3	3	2.5		15	7	2.7	0.3		●	●	●		
	0404-005	4	4	3.35	60	20	10	3.65	0.5		●	●	●		
	0505-005	5	5	4.3	70	25	12	4.55			●	●	●		
	0606-005	6	6	5.2				5.5			●	●	●		
	0707-005	7	7	6.2				80			6.45	●	●	●	
HPBR	0202-005NB	2	2	1.7	50	10	5	1.75	0.25	0.05 ^{+0 -0.02}	●		●		
	0303-005NB	3	3	2.5		15	7	2.7	0.3		●		●		
	0404-005NB	4	4	3.35	60	20	10	3.65	0.5		●		●		
	0505-005NB	5	5	4.3	70	25	12	4.55			●		●		
	0606-005NB	6	6	5.2				5.5			●		●		
	0707-005NB	7	7	6.2				80			6.45	●		●	
HPBT ^{R/L}	0404-005	4	4	3.35	60	21	8	3.65	1.0	0.05 ^{+0 -0.02}	●	○	●		
	0505-005	5	5	4.3	70	26		4.55	1.3		●	●	●		

Description Table for Tip-Bars and Applicable Sleeves

Tip-Bars Description		Applicable Sleeves F24, F25	
HPB ^{R/L}	0202----	EZH	02...
	0303----		03...
	0404----		04...
	0505----		05...
	0606----		06...
	0707----		07...
HPBT ^{R/L}	0404----	EZH	04...
	0505----		05...

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		HPB02 type		HPB03 type		HPB04 type HPBT04 type		HPB05/06/07 type HPBT05 type		Remarks
	PVD Coated Carbide	Carbide	ap (mm), f (mm/rev)								
	PR930	KW10	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	-	★ 30~100	~0.3	~0.05	~0.4	~0.06	~0.45	~0.1	~0.5	~0.15	

★: 1st Recommendation

●: Std. Item ○: Check Availability

Tip-Bars are
sold in 1 piece boxes.

Tip-Bars for Micro Boring

PSB-S (Boring) <Adjustable Overhang Length> This insert will be switched to **EZB** type (EZ Bars, ref. to page [F14](#))

• Right-hand shown

Ref. to Page for Applicable Sleeve [F82](#)

PSB[®]/L 0202 type
PSB[®]/L 0303 type
shown in left figure

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

PSBT-S (Back Boring) <Adjustable Overhang Length> This insert will be switched to **HPBT** type (2-Edge, ref. to page [F34](#)).

• Right-hand shown

Ref. to Page for Applicable Sleeve [F82](#)

Tip-Bars Dimensions

Description	Min. Bore Dia.	Dimension (mm)								Grades						
										PVD Coated Carbide		Carbide	CBN		PCD	
		φA	φD	H	L1	L2	L3	F	S	rε	PR915	PR930	KW10	KBN510	KBN525	KPD001
PSB [®] /L 0202-50S 0303-50S 0404-60S 0505-70S 0606-70S 0707-80S	2	1.8	-	50	-	5	0.9	0.25	0.05		△	△				
	3	2.8				7	1.4	0.3			△	△				
	4	3.8	3.6	60	30	10	1.9	0.5			△	△				
	5	4.8	4.4	70	40	12	2.4				△	△				
	6	5.8	5.2		45		2.9				△	△				
	7	6.8	6.2	80	50	3.4				△	△					
PSB [®] /L 0202-50NBS 0303-50NBS 0404-60NBS 0505-70NBS 0606-70NBS 0707-80NBS	2	1.8	-	50	-	5	0.9	0.25	0.05							
	3	2.8				7	1.4	0.3					R	R		
	4	3.8	3.6	60	30	10	1.9	0.5					R	R	R	R
	5	4.8	4.4	70	40	12	2.4						R	R	R	●
	6	5.8	5.2		45		2.9						R	R	R	R
	7	6.8	6.2	80	50	3.4						R	R	R	R	
PSBT [®] /L 0415-60S 0515-70S	4	3.8	3.6	60	20	8	1.9	1.0	0.05		△					
	5	4.8	4.6	70			2.4	1.3			△					

Recommended Cutting Conditions

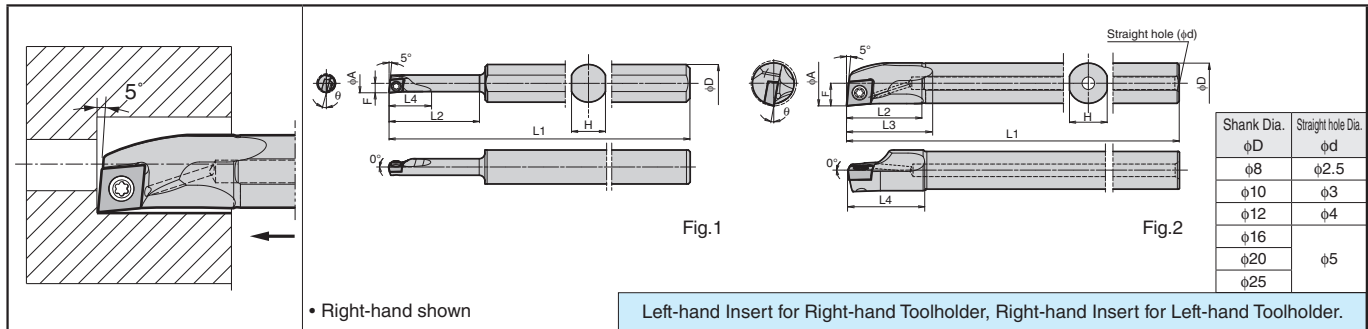
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						PSB02 type	PSB03 type	PSB04 PSBT04 type	PSB05 PSB06 PSB07 PSBT05 type	Remarks				
	PVD Coated Carbide		Carbide	CBN	PCD										
	PR915	PR930	KW10	KBN510 KBN525	KPD001	KPD010									
	ap (mm), f (mm/rev)														
	ap	f	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

Tip-Bars are sold in 1 piece boxes.

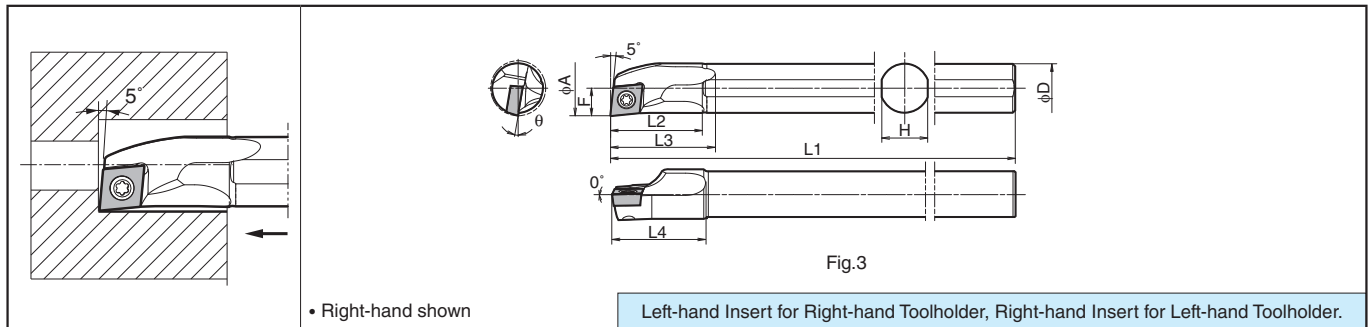
A / S-SCLC-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D~5.5



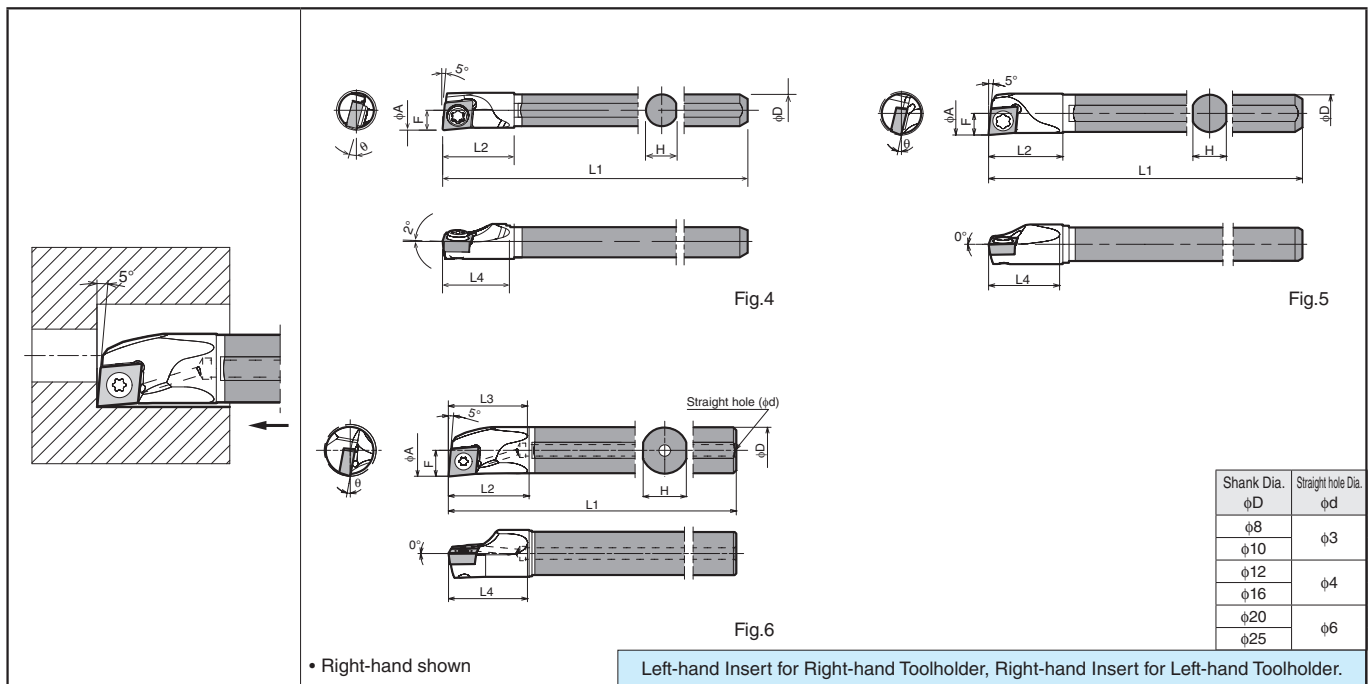
S-SCLC-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D~4

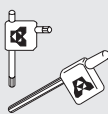


C / E-SCLC-A Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D~7



● Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)							θ	Standard Corner-R(r _c)	Coolant Hole	Drawing	Spare Parts	
		R	L		φA	φD	H	L1	L2	L3	L4					F	Clamp Screw
																	
Excellent Bar	S10H-SCLC ^{R/L} 03-05AE	●	●	5	10	9	100	24	-	11	2.5	15°	0.2	No	Fig.1	SB-1635TR	FT-6
	S10H-SCLC ^{R/L} 03-06AE	●	●	6				28		13	3	13°					
	S10H-SCLC ^{R/L} 04-07AE	●	●	7				32		15	3.5	13°					
	S10H-SCLC ^{R/L} 04-08AE	●	●	8				37		15	4	11°				SB-2035TR	
	A08X-SCLC ^{R/L} 06-10AE	●	●	10	8	7	120	16	20	17	5	14°	0.4	Yes	Fig.2	SB-2545TR	FT-8
	A10L-SCLC ^{R/L} 06-12AE	●	●	12	10	9	140	20	25	21	6	12°				SB-4065TR	FT-15
	A12M-SCLC ^{R/L} 06-14AE	●	●	14	12	11	150	24	30	25	7	10°					
	A16Q-SCLC ^{R/L} 09-18AE	●	●	18	16	15	180	30	34	31	9	8°					
	A20R-SCLC ^{R/L} 09-22AE	●	●	22	20	19	200	36	49	37	11						
	A25S-SCLC ^{R/L} 09-27AE	●	●	27	25	24	250	46	55	46	13.5					6°	
Steel	S08X-SCLC ^{R/L} 06-10A	●	●	10	8	7	120	16	20	17	5	14°	0.4	No	Fig.3	SB-2545TR	FT-8
	S10L-SCLC ^{R/L} 06-12A	●	●	12	10	9	140	20	25	21	6	12°				SB-4065TR	FT-15
	S12M-SCLC ^{R/L} 06-14A	●	●	14	12	11	150	24	30	25	7	10°					
	S16Q-SCLC ^{R/L} 09-18A	●	●	18	16	15	180	30	34	31	9						
	S20R-SCLC ^{R/L} 09-22A	●	●	22	20	19	200	36	49	37	11	8°					
	S25S-SCLC ^{R/L} 09-27A	●	●	27	25	24	250	46	55	46	13.5	6°					
Carbide	C04G-SCLC ^{R/L} 03-05A	●	●	5	4	3.8	90	9	-	8	2.5	15°	0.2	No	Fig.4	SB-1635TR	FT-6
	C05H-SCLC ^{R/L} 03-06A	●	●	6	5	4.4	100	11		11	3	13°					
	C06J-SCLC ^{R/L} 04-07A	●	●	7	6	5.4	110	12		12	3.5	13°					
	C07K-SCLC ^{R/L} 04-08A	●	●	8	7	6.4	125	13		13	4	11°					
	E08L-SCLC ^{R/L} 06-10A	●	●	10	8	7	140	16	15	15	5	14°	0.4	Yes	Fig.6	SB-2545TR	FT-8
	E08L-SCLCR 06-10A-2/3	●	●				90					14°					
	E10N-SCLC ^{R/L} 06-12A	●	●	12	10	9	160	20	19	19	6	12°					
	E10N-SCLCR 06-12A-2/3	●	●				105					12°					
	E12Q-SCLC ^{R/L} 06-14A	●	●	14	12	11	180	23	22	22	7	10°					
	E12Q-SCLCR 06-14A-2/3	●	●				120					10°					
	E16X-SCLC ^{R/L} 09-18A	●	●	18	16	15	220	28	27	27	9	8°					
	E16X-SCLCR 09-18A-2/3	●	●				145										
	E20S-SCLC ^{R/L} 09-22A	●	●	22	20	19	250	32	31	31	11						
	E20S-SCLCR 09-22A-2/3	●	●				165										
	E25T-SCLC ^{R/L} 09-27A	●	●	27	25	24	300	38	37	37	13.5	6°					
	E25T-SCLCR 09-27A-2/3	●	●				200										

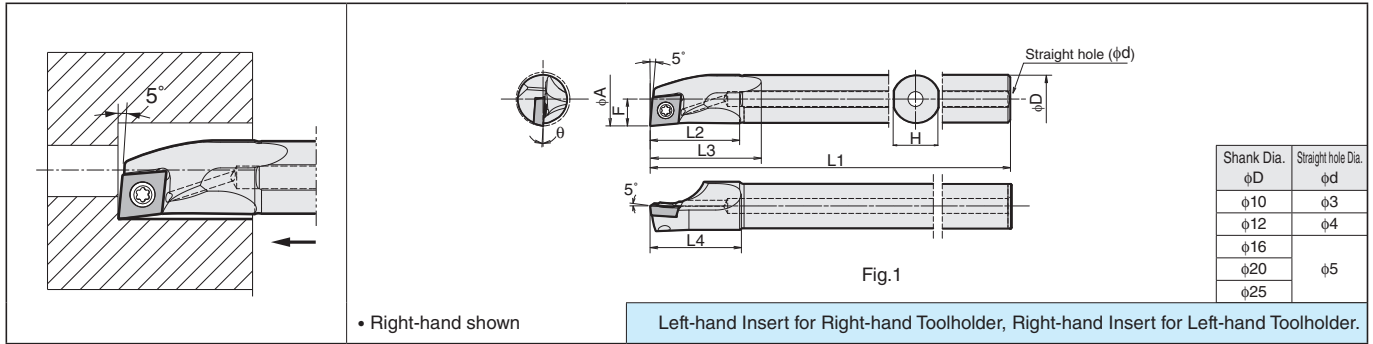
● Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed
Ref. to Page	B48	B48	B49	B49	B49	B49, B50	B48, B49	B50, B51	B50	B51, B52
Insert	CF	GF	PP	GK	HQ	Standard	GQ	^{R/L} -F	^{R/L} -FSF	(E/F) ^{R/L} -U
Toolholder Description										
----	CCGT0301..	-	-	-	-	-	-	CCGT0301..	CCET0301..	-
----	CCGT0401..	-	-	-	-	-	-	CCGT0401..	CCET0401..	-
----	-	CCGT0602..	CCMT0602..	CCMT0602..	CCMT0602..	CCGT0602..	CCGT0602..	-	-	CCGT0602..
----	-	CCGT09T3..	CCMT09T3..	CCMT09T3..	CCMT09T3..	CCGT09T3..	CCGT09T3..	-	-	CCGT09T3..
Applications	Low Feed / Precision	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials			
Ref. to Page	B51	B50	B53	B52	B53	C24	C14			
Insert	F ^{R/L} -USF	MQ	Without Chipbreaker	AH	A3	PCD	CBN			
Toolholder Description										
----	-	-	-	-	-	-	CCMW0301..			
----	-	-	-	-	-	CCGW0401..	CCMW0401..			
----	CCET0602..	-	CCGW0602..	-	-	CCMT0602..	CCMW0602..			
----	CCET09T3..	CCMT09T3..	CCGW09T3..	CCGT09T3..	CCGT09T3..	CCMT09T3..	CCMW09T3..			

Recommended Cutting Conditions ● F91~F92
Applicable Sleeve ● F81~F84

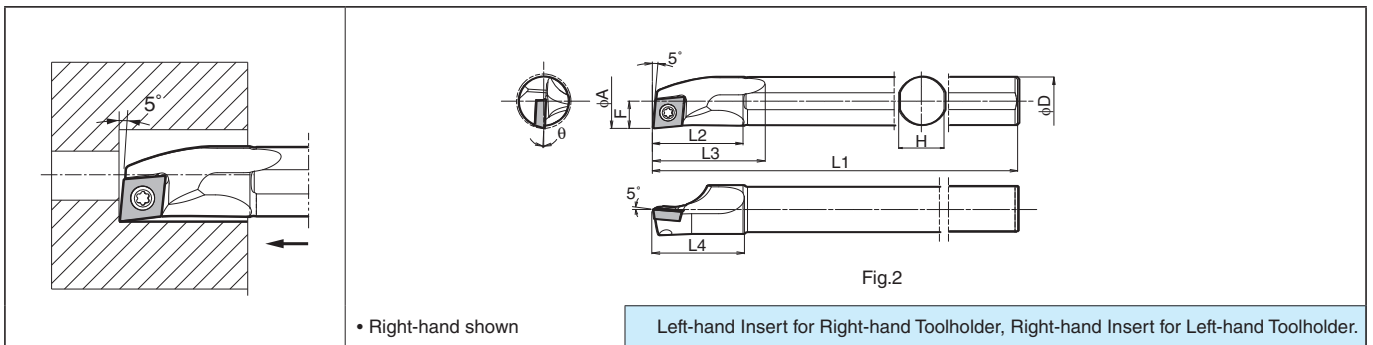
A-SCLP-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \sim 5.5$



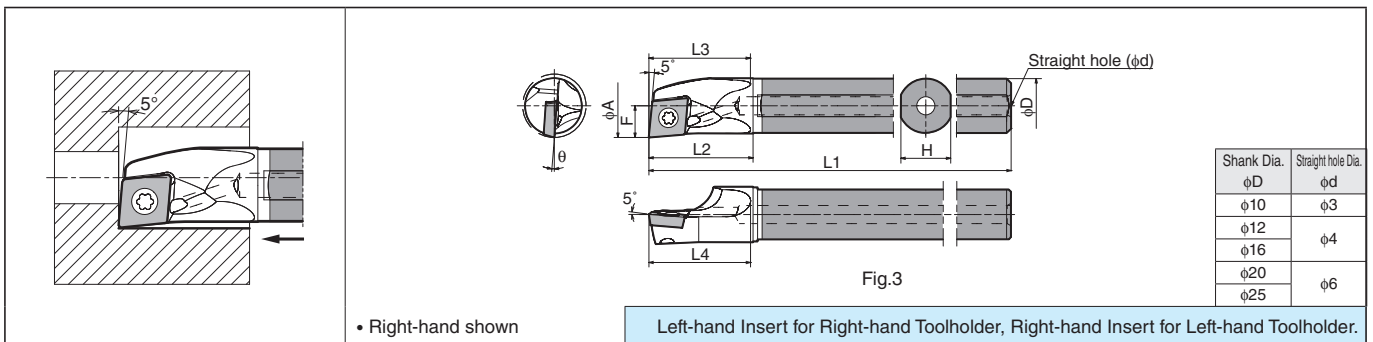
S-SCLP-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \sim 4$



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

Max. Overhang Length $L/D \sim 7$



● Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)							θ	Standard Corner-R(r _c)	Coolant Hole	Drawing	Spare Parts			
		R	L	φA	φD	H	L1	L2	L3	L4	F								
																		Clamp Screw	Wrench
Excellent Bar	A10L-SCLP ^{R/L} 08-12AE	●	●	12	10	9	140	20	25	20	6	5°	0.4	Yes	Fig.1	SB-3060TR	FT-10		
	A12M-SCLP ^{R/L} 08-14AE	●	●	14	12	11	150	24	29	24	7	4°				SB-4065TR	FT-15		
	A12M-SCLP ^{R/L} 09-16AE	●	●	16															
	A16Q-SCLP ^{R/L} 09-18AE	●	●	18	16	15	180	30	37	30	9	3.5°							
	A20R-SCLP ^{R/L} 09-22AE	●	●	22	20	19	200	36	47	37	11	2°							
	A25S-SCLP ^{R/L} 09-27AE	●	●	27	25	24	250	46	55	46	13.5	0°							
Steel	S10L-SCLP ^{R/L} 08-12A	●	●	12	10	9	140	20	25	20	6	5°	0.4	No	Fig.2			SB-3060TR	FT-10
	S12M-SCLP ^{R/L} 08-14A	●	●	14	12	11	150	24	29	24	7	4°				SB-4065TR	FT-15		
	S12M-SCLP ^{R/L} 09-16A	●	●	16															
	S16Q-SCLP ^{R/L} 09-18A	●	●	18	16	15	180	30	37	30	9	3.5°							
	S20R-SCLP ^{R/L} 09-22A	●	●	22	20	19	200	36	47	37	11	2°							
	S25S-SCLP ^{R/L} 09-27A	●	●	27	25	24	250	46	55	46	13.5	0°							
Carbide	E10N-SCLP ^{R/L} 08-12A	●	●	12	10	9	160	20	19	19	6	5°	0.4	Yes	Fig.3			SB-3060TR	FT-10
	E10N-SCLPR 08-12A-2/3	●					105												
	E10N-SCLPR 08-12A-1/2	●					80												
	E12Q-SCLP ^{R/L} 08-14A	●	●	14	12	11	180	23	22	22	7	4°				SB-4065TR	FT-15		
	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	22	22	8	5°							
	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	27	27	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	31	31	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	37	37	13.5	0°							
	E25T-SCLPR 09-27A-2/3	●					200												

● Applicable Inserts

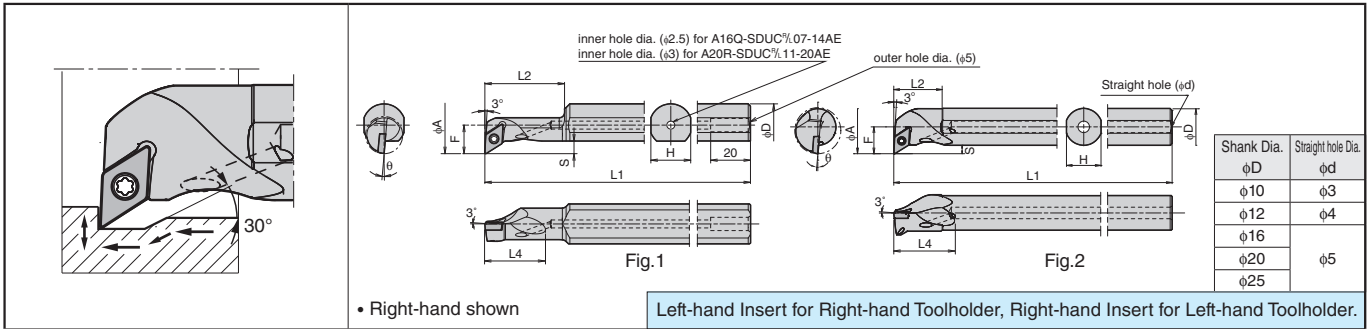
Applications	Finishing	Finishing	Finishing-Medium	Medium	Finishing-Medium	Soft Steel / Finishing	Soft Steel / Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. to Page	B54	B54	B54	B54	B54	B54	B54	B54	C25	C14
Insert	PP	GP	HQ	Standard	%-Y	XP	XQ	Without Chipbreaker	PCD	CBN
Toolholder Description	CPMT0802..	CPMT0802..	CPMH0802..	CPMH0802..	CPMH0802..	CPMT0802..	-	CPMB0802..	CPMH0802..	CPGB0802..
....SCLP ^{R/L} 08....	CPMT0903..	CPMT0903..	CPMH0903..	CPMH0903..	CPMH0903..	CPMT0903..	CPMT0903..	CPMB0903..	CPMH0903..	CPGB0903..
....SCLP ^{R/L} 09....										

Recommended Cutting Conditions ● F91~F92

Applicable Sleeve ● F82~F84

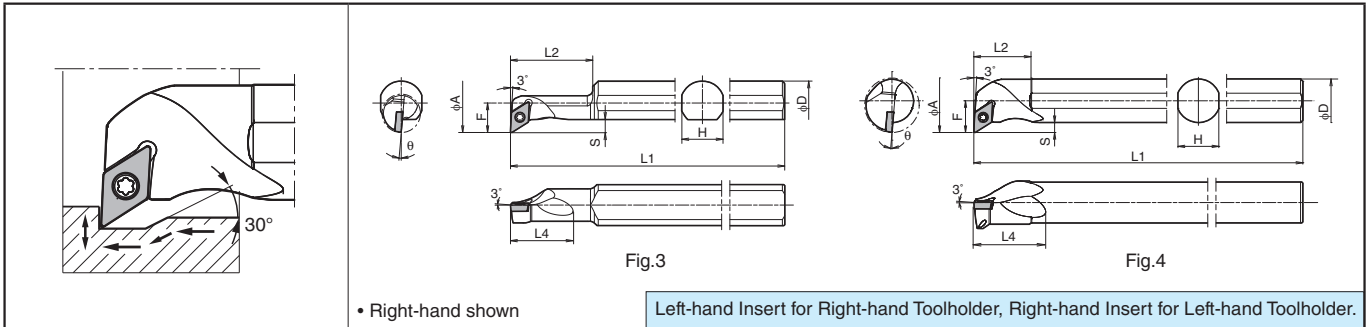
A-SDUC-AE Excellent Bar (Copying)

Max. Overhang Length $L/D \sim 5.5$



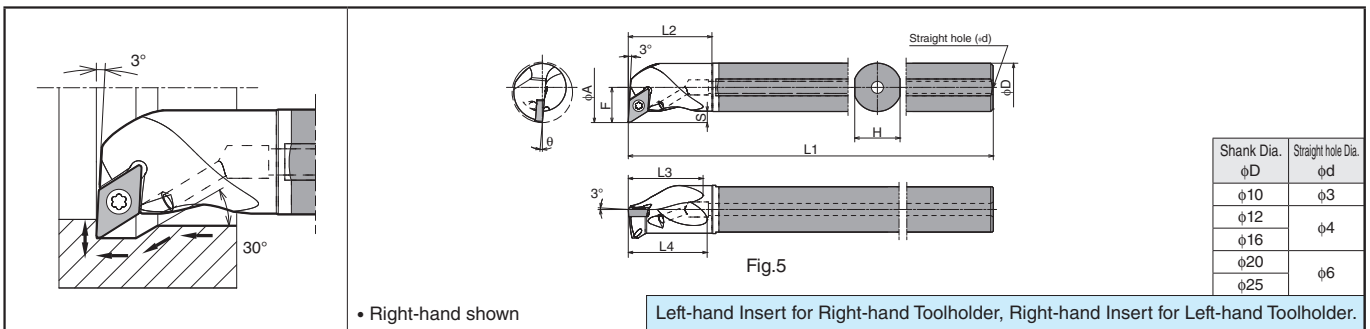
S-SDUC-A Steel Bar (Copying)

Max. Overhang Length $L/D \sim 4$



E-SDUC-A Carbide Shank Bar (Copying)

Max. Overhang Length $L/D \sim 7$



F

Boring

● Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r_c)	Coolant Hole	Drawing	Spare Parts			
		R	L		ϕA	ϕD	H	L1	L2	L3	L4	F					S	Clamp Screw	Wrench	
																				
Excellent Bar	A10L-SDUC ^{R/L} 07-14AE	●	●	14	10	9	140	19	-	20	8.7	3.3	5°	0.4	Yes	Fig.2	SB-2560TR	FT-8		
	A16Q-SDUC ^{R/L} 07-14AE	●	●		16	15	180	28		23	10.8	4.4				Fig.1				
	A12M-SDUC ^{R/L} 07-16AE	●	●	16	12	11	150	21		24	9.7	3.3				Fig.2				
	A16Q-SDUC ^{R/L} 07-20AE	●	●		26	11.7	Fig.1													
	A20R-SDUC ^{R/L} 11-20AE	●	●	20	20	19	200	48	30	15.6	6.1	Fig.2				SB-4065TR	FT-15			
	A16Q-SDUC ^{R/L} 11-23AE	●	●		23	16	15	180	21	31								14.5		
	A20R-SDUC ^{R/L} 11-27AE	●	●	27	20	19	200	23	36	16.5										
	A25S-SDUC ^{R/L} 11-32AE	●	●	32	25	24	250	24	39	19										
Steel	S10L-SDUC ^{R/L} 07-14A	●	●	14	10	9	140	19	-	20	8.7	3.3	5°	0.4	No	Fig.4	SB-2560TR	FT-8		
	S16Q-SDUC ^{R/L} 07-14A	●	●		16	15	180	28		23	10.8	4.4				Fig.3				
	S12M-SDUC ^{R/L} 07-16A	●	●	16	12	11	150	21		24	9.7	3.3				Fig.4				
	S16Q-SDUC ^{R/L} 07-20A	●	●		26	11.7	Fig.3													
	S20R-SDUC ^{R/L} 11-20A	●	●	20	20	19	200	48	30	15.6	6.1	Fig.4				SB-4065TR	FT-15			
	S16Q-SDUC ^{R/L} 11-23A	●	●		23	16	15	180	21	31								14.5		
	S20R-SDUC ^{R/L} 11-27A	●	●	27	20	19	200	23	36	16.5										
	S25S-SDUC ^{R/L} 11-32A	●	●	32	25	24	250	24	39	19										
Carbide	E10N-SDUC ^{R/L} 07-14A	●	●	14	10	9	160	20	-	19	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		22	9.7	6.1							SB-4065TR	FT-15
	E12Q-SDUCR 07-16A-2/3	●	●				120													
	E16X-SDUC ^{R/L} 07-20A	●	●	20	16	15	220	28	26	11.7										
	E16X-SDUCR 07-20A-2/3	●	●				145													
	E16X-SDUC ^{R/L} 11-23A	●	●	23						220	27	14.5								
	E16X-SDUCR 11-23A-2/3	●	●				145													
	E20S-SDUC ^{R/L} 11-27A	●	●	27	20	19	250	32	31	16.5										
	E20S-SDUCR 11-27A-2/3	●	●				165													
	E25T-SDUC ^{R/L} 11-32A	●	●	32			25	24	300	38							37	19		
	E25T-SDUCR 11-32A-2/3	●	●						200											

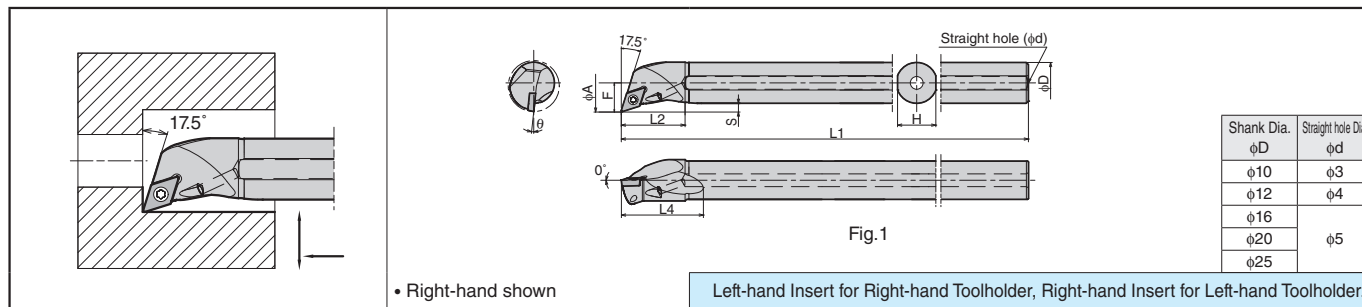
● Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium - Roughing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. to Page	B55	B55, B56	B56	B56	B56	B57	B58	B58	B59, B60	B59
Insert	CF	CK	PP	GK	HQ	Standard	^{R/L} -F	^{R/L} -FSF	(E/F) ^{R/L} -U	F ^{R/L} -USF
Toolholder Description										
....SDUC ^{R/L} 07-....	DCGT0702..	DCGT0702..	DCMT0702..	DCMT0702..	DCMT0702..	DCGT0702..	DCGT0702..	DCET0702..	DCGT0702..	DCET0702..
....SDQC ^{R/L} 07-....										
....SDZC ^{R/L} 07-....										
....SDUC ^{R/L} 11-....	DCGT11T3..	DCGT11T3..	DCMT11T3..	DCMT11T3..	DCMT11T3..	DCMT11T3.. DCGT11T3..	DCGT11T3..	DCET11T3..	DCGT11T3..	DCET11T3..
....SDQC ^{R/L} 11-....										
....SDZC ^{R/L} 11-....										
Applications	Low Feed	Low Feed / Precision	Soft Steel / Finishing	Soft Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. to Page	B60	B60	B57	B57	B57	B61	B61	B61	C25	C15
Insert	(E/F) ^{R/L} -J	F ^{R/L} -JSF	XP	XQ	MQ	Without Chipbreaker	AH	^{R/L} -A3	PCD	CBN
Toolholder Description										
....SDUC ^{R/L} 07-....										
....SDQC ^{R/L} 07-....	DCET0702..	-	DCMT0702..	-	DCMT0702..	DCGW0702..	-	-	DCMT0702..	DCMW0702..
....SDZC ^{R/L} 07-....										
....SDUC ^{R/L} 11-....										
....SDQC ^{R/L} 11-....	DC_T11T3..	DCET11T3..	DCMT11T3..	DCMT11T3..	DCMT11T3..	DCGW11T3..	DCGT11T3..	DCGT11T3..	DCMT11T3..	DCMW11T3..
....SDZC ^{R/L} 11-....										

Recommended Cutting Conditions ● F91~F92
Applicable Sleeve ● F82~F84

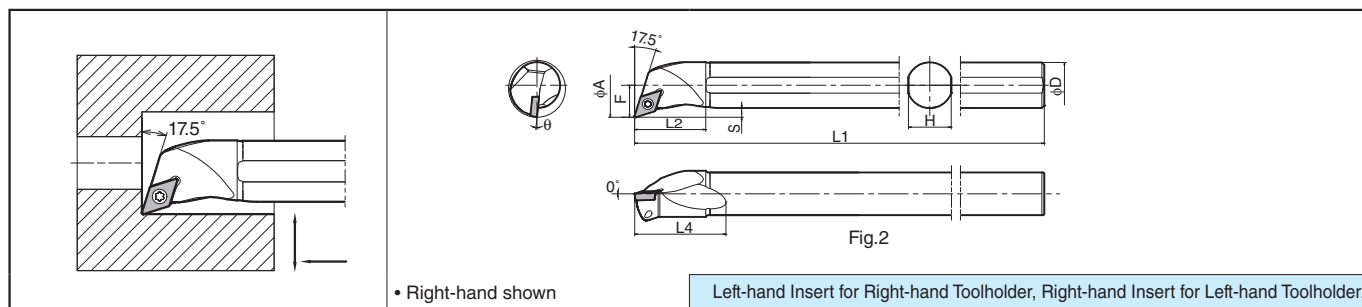
A-SDQC-AE Excellent Bar (Copying)

Max. Overhang Length L/D≈5.5



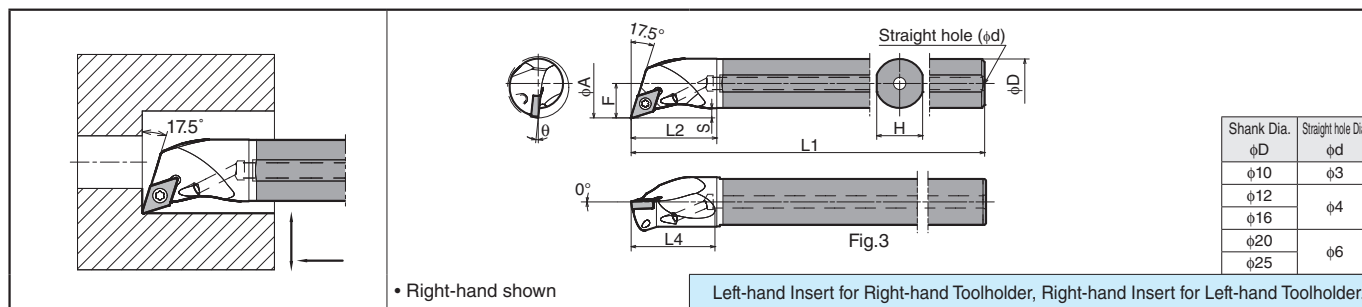
S-SDQC-A Steel Bar (Copying)

Max. Overhang Length L/D≈4



E-SDQC-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D≈7



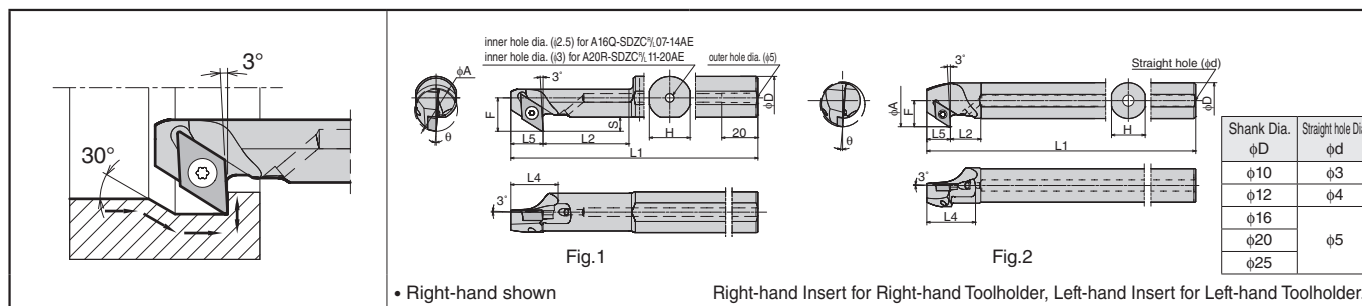
Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r _c)	Coolant Hole	Drawing	Spare Parts		
		R	L		φA	φD	H	L1	L2	L3	L4	F					S		
Excellent Bar	A10L-SDQC ^{R/L} 07-13AE	●	●	13	10	9	140	19	-	21	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		25	9.25	2.6	8°						
	A16Q-SDQC ^{R/L} 07-20AE	●	●	20	16	15	180	25		32	11.3	6°							
	A20R-SDQC ^{R/L} 11-25AE	●	●	25	20	19	200	31		37	14.4	3.7	5°				SB-4065TR	FT-15	
	A25S-SDQC ^{R/L} 11-30AE	●	●	30	25	24	250	38		45	16.9	4°							
Steel	S10L-SDQC ^{R/L} 07-13A	●	●	13	10	9	140	19	-	21	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		25	9.25	2.6	8°						
	S16Q-SDQC ^{R/L} 07-20A	●	●	20	16	15	180	25		32	11.3	6°							
	S20R-SDQC ^{R/L} 11-25A	●	●	25	20	19	200	31		37	14.4	3.7	5°				SB-4065TR	FT-15	
	S25S-SDQC ^{R/L} 11-30A	●	●	30	25	24	250	38		45	16.9	4°							
Carbide	E10N-SDQC ^{R/L} 07-13A	●	●	13	10	9	160	20	-	19	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	-	22	9.25	2.6	8°						
	E12Q-SDQCR 07-16A-2/3	●					120												
	E16X-SDQC ^{R/L} 07-20A	●	●	20	16	15	220	28	-	27	11.3	2.6	6°						
	E16X-SDQCR 07-20A-2/3	●					145												
	E20S-SDQC ^{R/L} 11-25A	●	●	25	20	19	250	32	-	31	14.4	3.7	5°						
	E20S-SDQCR 11-25A-2/3	●					165												
	E25T-SDQC ^{R/L} 11-30A	●	●	30	25	24	300	38	-	37	16.9	3.7	4°						
	E25T-SDQCR 11-30A-2/3	●					200												

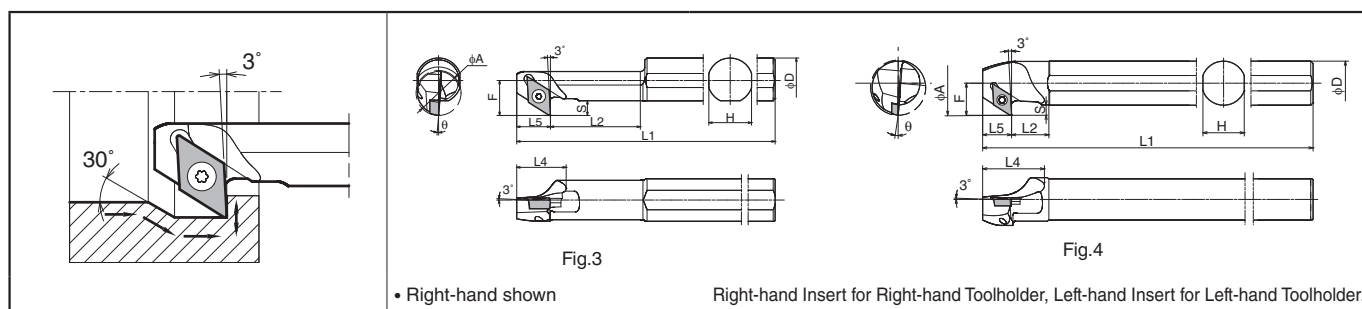
● : Std. Item

A-SDZC-AE Excellent Bar (Back Boring)

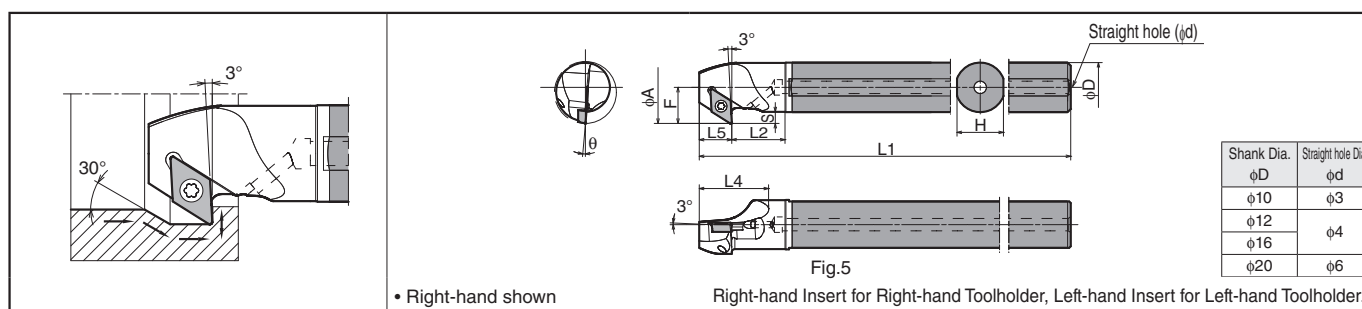
Max. Overhang Length L/D≈5.5

**S-SDZC-A Steel Bar (Back Boring)**

Max. Overhang Length L/D≈4

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

Max. Overhang Length L/D≈7

**Toolholder Dimensions**

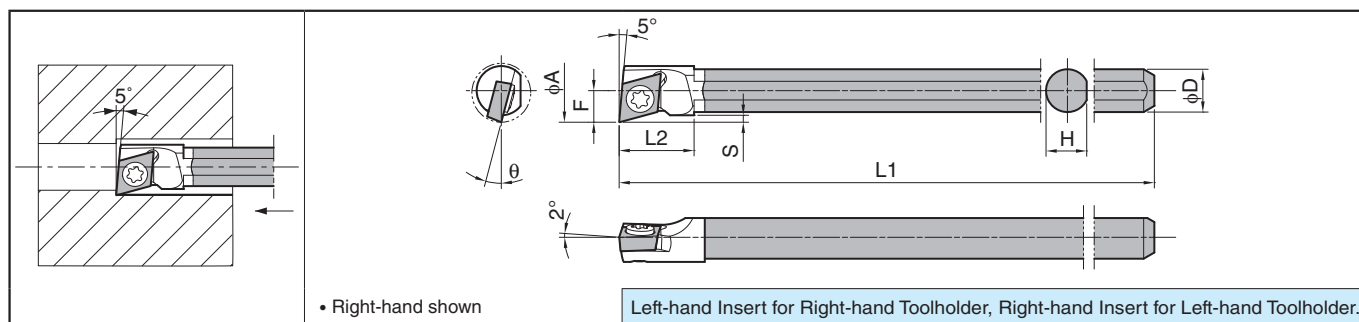
Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(_{1/2})	Coolant Hole	Drawing	Spare Parts		
		R	L		φA	φD	H	L1	L2	L4	L5	F					S	Clamp Screw	Wrench
																			
Excellent Bar	A10L-SDZC ^{R/L} 07-14AE	●	●	14	10	9	140	14	16	9.5	8.7	3.3	5°	0.4	Yes	Fig.2	SB-2545TR	FT-8	
	A16Q-SDZC ^{R/L} 07-14AE	●	●		16	15	180	30	17	10	10.8	4.4				Fig.1	SB-2545TR		
	A12M-SDZC ^{R/L} 07-16AE	●	●	16	12	11	150	14	20	10.5	9.7	3.3				Fig.2	SB-2560TR	FT-8	
	A16Q-SDZC ^{R/L} 07-20AE	●	●		16	15	180									22	11.7		
	A20R-SDZC ^{R/L} 11-20AE	●	●	20	20	19	200	40	24	15.6	14.5	6.1				Fig.1	SB-4065TR	FT-15	
	A16Q-SDZC ^{R/L} 11-23AE	●	●		23	16	15	180	22							16.5			
	A20R-SDZC ^{R/L} 11-27AE	●	●	27	20	19	200	15	25	16.5	Fig.2								
	A25S-SDZC ^{R/L} 11-32AE	●	●	32	25	24	250	26	19										
Steel	S10L-SDZC ^{R/L} 07-14A	●	●	14	10	9	140	14	16	9.5	8.7	3.3	5°	0.4	No	Fig.4	SB-2545TR	FT-8	
	S16Q-SDZC ^{R/L} 07-14A	●	●		16	15	180	30	17	10	10.8	4.4				Fig.3	SB-2545TR		
	S12M-SDZC ^{R/L} 07-16A	●	●	16	12	11	150	14	20	10.5	9.7	3.3				Fig.4	SB-2560TR	FT-8	
	S16Q-SDZC ^{R/L} 07-20A	●	●		16	15	180									22	11.7		
	S20R-SDZC ^{R/L} 11-20A	●	●	20	20	19	200	40	24	15.6	14.5	6.1				Fig.3	SB-4065TR	FT-15	
	S16Q-SDZC ^{R/L} 11-23A	●	●		23	16	15	180	22							16.5			
	S20R-SDZC ^{R/L} 11-27A	●	●	27	20	19	200	15	25	16.5	Fig.4								
	S25S-SDZC ^{R/L} 11-32A	●	●	32	25	24	250	26	19										
	Carbide	E10N-SDZCR07-14A	●		14	10	9	160	10.5	16	9.5	8.7				3.3	5°	0.4	Yes
E12Q-SDZCR07-16A		●		16	12	11	180	12.5	20	10.5	9.7								
E16X-SDZCR07-20A		●		20	16	15	220	17.5	22		10.5	11.7	6.1	SB-2560TR					
E16X-SDZCR11-23A		●		23						13		14.5		SB-4065TR	FT-15				
E20S-SDZCR11-27A		●		27	20	19	250	17	25	15	16.5								

● : Std. Item

Boring Bar [JC □□Insert]

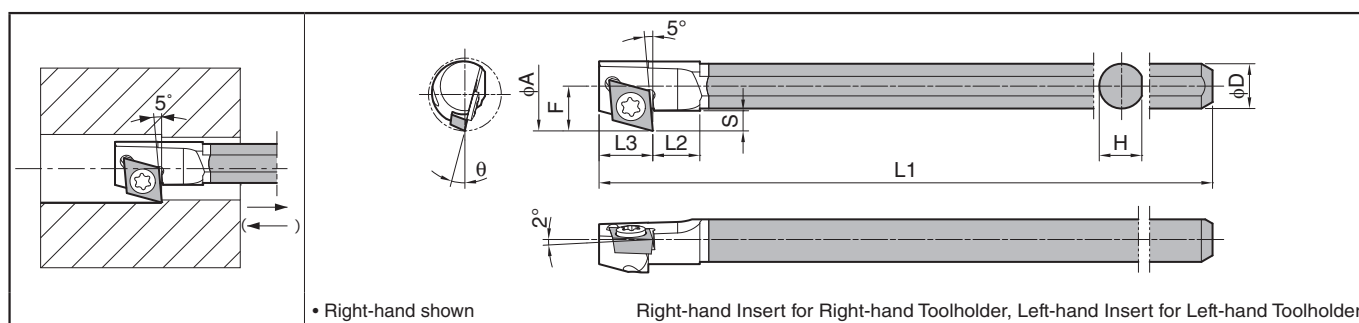
C...SJLC Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D≈7



C...SJZC Carbide Shank Bar (Back Boring)

Max. Overhang Length L/D≈7



* 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	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r/c)	Spare Parts	
		R	L		φA	φD	H	L1	L2	L3	F	S			Clamp Screw	Wrench
C04X-SJLC ^{R/L} 03-055	SJLC ^{R/L} 05504B-03W	●	●	5.5		4	3.8	91	7	-	2.95	0.65	15°	0.03	SB-1635TR	FT-6
C04X-SJZC ^{R/L} 03-065	SJZC ^{R/L} 06504B-03W	●	●	6.5		4	3.8	93	4	4.8	4.0	1.8				

Applicable Inserts

Applications	Finishing	Finishing / Precision														
Ref. to Page	B62	B62														
Insert																
Toolholder Description																
....SJLC ^{R/L} 03....	JCGT0301..	JCET0301..														
....SJZC ^{R/L} 03....	JCGT0301..	JCET0301..														

Recommended Cutting Conditions ● F91~F92

Applicable Sleeve ● F81,F83,F84

Features of C...SJLC

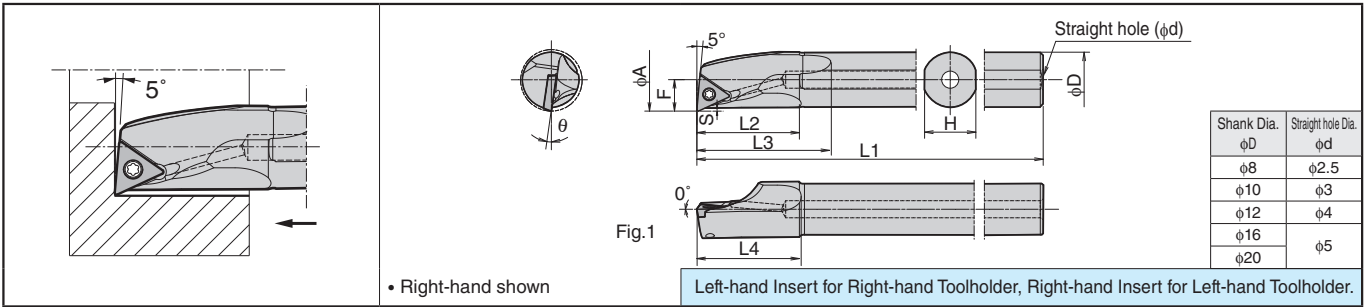
1. Specially designed for minimized bore dia.
2. A relief angle of 15° ensures high flexibility of the tool pass during necking.
3. Retaining front relief angle 5° and good surface roughness during internal facing.

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 φ6.5, the edge gap is retained as large as 1.8 mm.

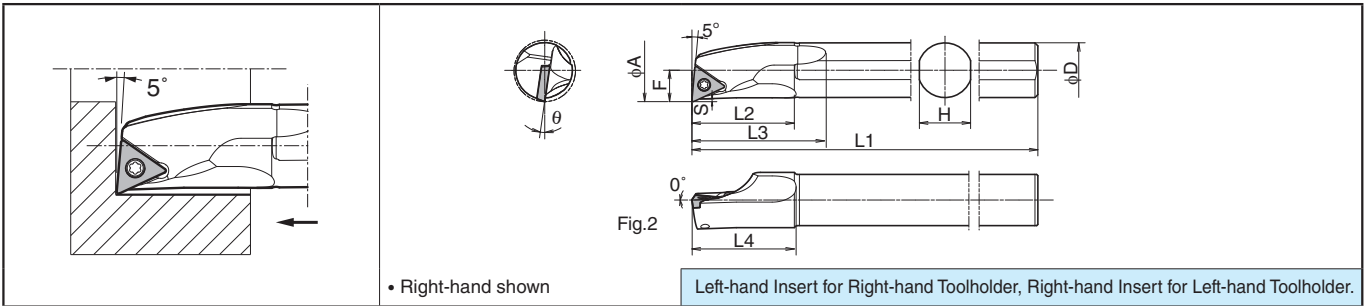
A-STLC-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D≈5.5



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

Max. Overhang Length L/D≈4



Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r _c)	Coolant Hole	Drawing	Spare Parts		
		R	L		φA	φD	H	L1	L2	L3	L4	F					S	Clamp Screw	Wrench
Excellent Bar	A08X-STLC [®] /L09-10AE	●	●	10	8	7	120	16	22	16	5	0.5	14°	0.4	Yes	Fig.1	SB-2250TR	FT-7	
	A10L-STLC [®] /L09-12AE	●	●	12	10	9	140	20	26	20	6.2	0.9	12°						
	A10L-STLC [®] /L11-12AE	●	●																
	A12M-STLC [®] /L11-14AE	●	●	14	12	11	150	24	30	25	7.2	0.7	10°						
	A16Q-STLC [®] /L11-18AE	●	●	18	16	15	180	30	39	31	9.2						8°		
	A20R-STLC [®] /L11-22AE	●	●	22	20	19	200	36	44	36	11.2							6°	
Steel	S08X-STLC [®] /L09-10A	●	●	10	8	7	120	16	22	16	5	0.5	14°	0.4	No	Fig.2	SB-2250TR	FT-7	
	S10L-STLC [®] /L09-12A	●	●	12	10	9	140	20	26	20	6.2	0.9	12°						
	S10L-STLC [®] /L11-12A	●	●																
	S12M-STLC [®] /L11-14A	●	●	14	12	11	150	24	30	25	7.2	0.7	10°						
	S16Q-STLC [®] /L11-18A	●	●	18	16	15	180	30	39	31	9.2						8°		
	S20R-STLC [®] /L11-22A	●	●	22	20	19	200	36	44	36	11.2							6°	

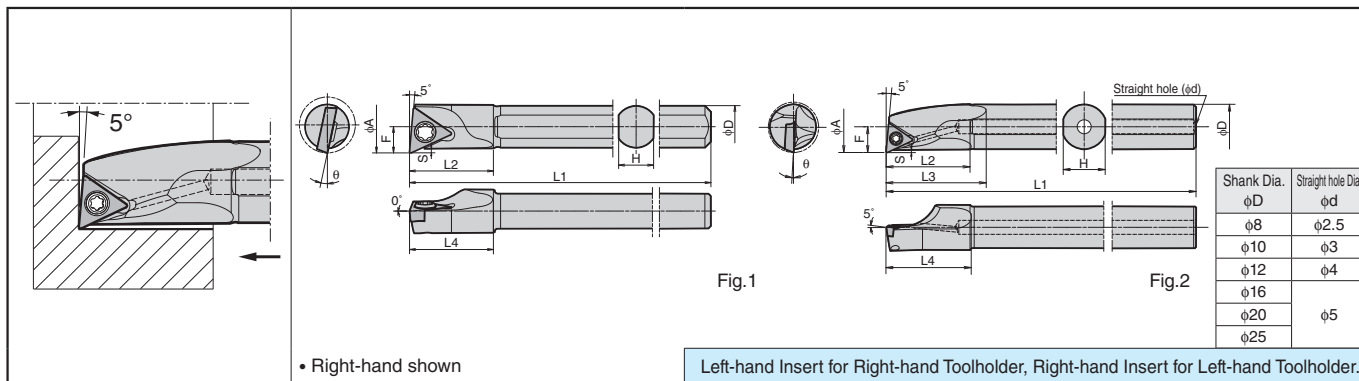
Applicable Inserts

Applications	Finishing-Medium																
Ref. to Page	B64																
Insert	HQ																
Toolholder Description																	
...-STLC ^R /L 09-...	TCMT0902..																
...-STLC ^R /L 11-...	TCMT1102..																

Recommended Cutting Conditions ● F91~F92
Applicable Sleeve ● F82~F84

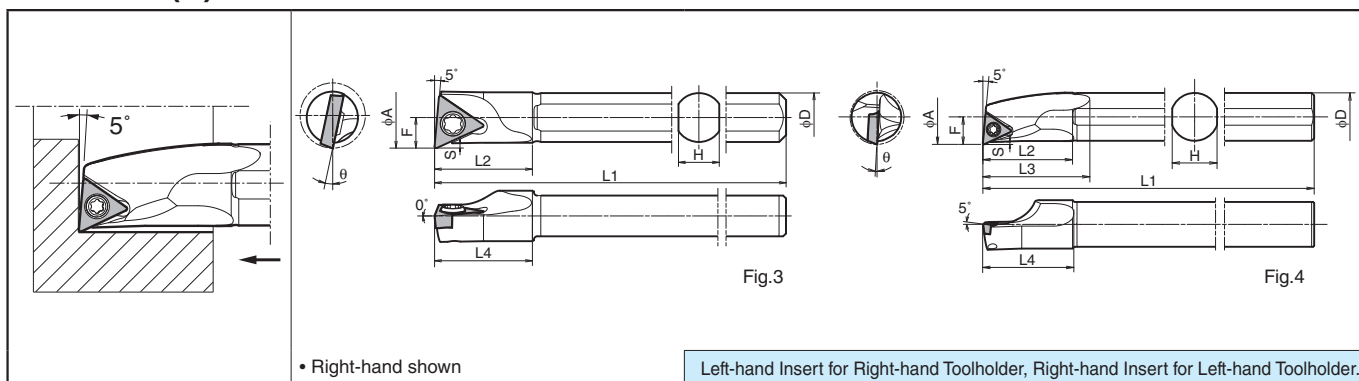
A / S-STLB(P)-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D≈5.5



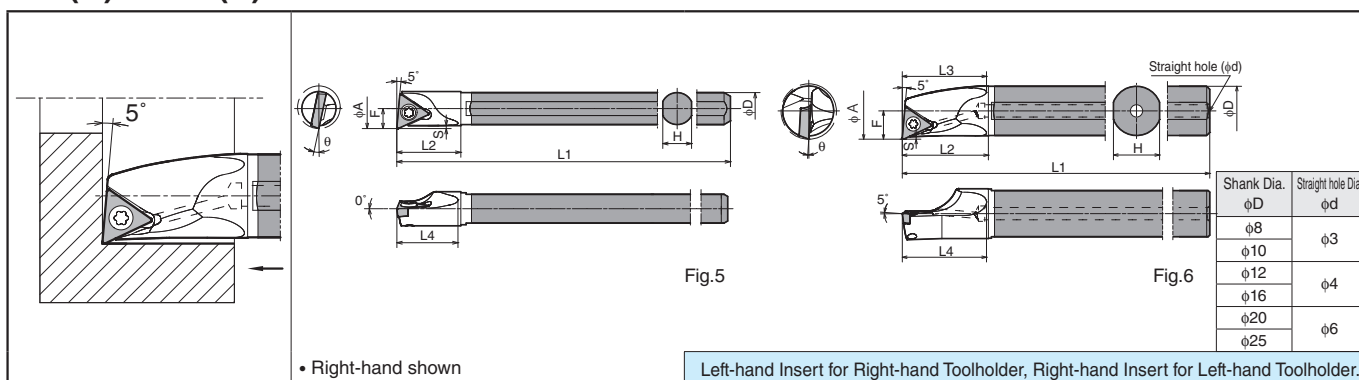
S-STLB(P)-A Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D≈4



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

Max. Overhang Length L/D≈7



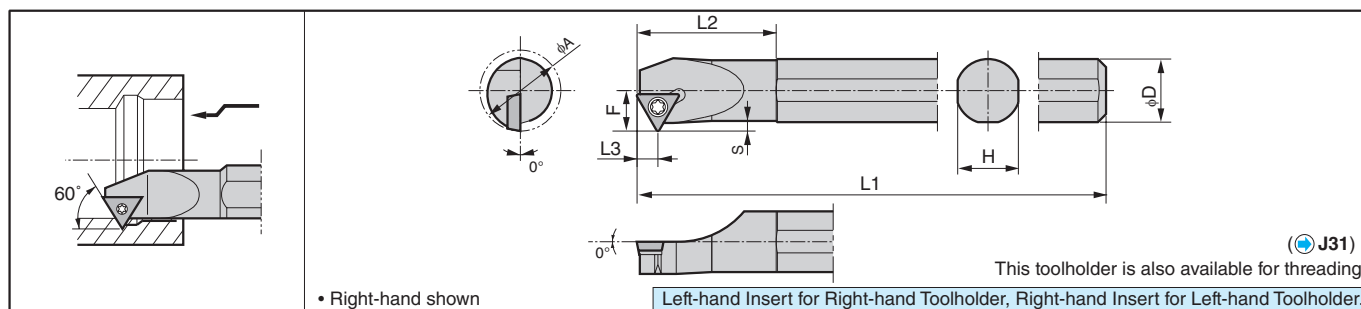
Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Medium	Low Feed / Precision	Soft Steel / Finishing
Ref. to Page	B64, B67	B67	B67	B64	B67	B64, B68	B69	B69	B69	B67
Insert	CF	PP	GP	DP	HQ	P/L	P/L-FSF	P/L-H	F/L-USF	XP
Toolholder Description										
...STLB ^{R/L} 06-...	TBGT0601..	—	—	TBMT0601..	—	TBGT0601..	—	—	—	—
...STLP ^{R/L} 08-...	TPGT0802..	—	—	—	—	TPGH0802..	TPET0802..	—	TPET0802..	—
...STLP ^{R/L} 09-...	TPGT0902..	TPMT0902..	TPMT0902..	—	TPMT0902..	TPGH0902..	—	—	—	TPMT0902..
...STLP ^{R/L} 11-...	—	TPMT1103..	TPMT1103..	—	TPMT1103..	TPGH1103..	TPET1103..	TPGH1103..	TPET1103..	TPMT1103..
...STLP ^{R/L} 16-...	—	—	TPMT1603..	—	TPMT1603..	TPGH1603..	—	TPGH1603..	—	TPMT1603..
Applications	Soft Steel / Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials						
Ref. to Page	B68	B64, B70	C26~C28	C16						
Insert	XQ	Without Chipbreaker	PCD	CBN						
Toolholder Description										
...STLB ^{R/L} 06-...	—	TBGW0601..	TBMT0601.. TBGW0601..	—						
...STLP ^{R/L} 08-...	—	TPGB0802..	TPMH0802.. TPGB0802..	TPGB0802..						
...STLP ^{R/L} 09-...	—	TPGB0902..	TPMH0902.. TPGB0902..	TPGB0902..						
...STLP ^{R/L} 11-...	TPMT1103..	TPGB1103..	TPMH1103.. TPGB1103..	TPGB1103..						
...STLP ^{R/L} 16-...	TPMT1603..	TPGB1603..	TPMH1603.. TPGB1603..	TPGB1603..						

Recommended Cutting Conditions ● F91~F92
Applicable Sleeve ● F82~F84

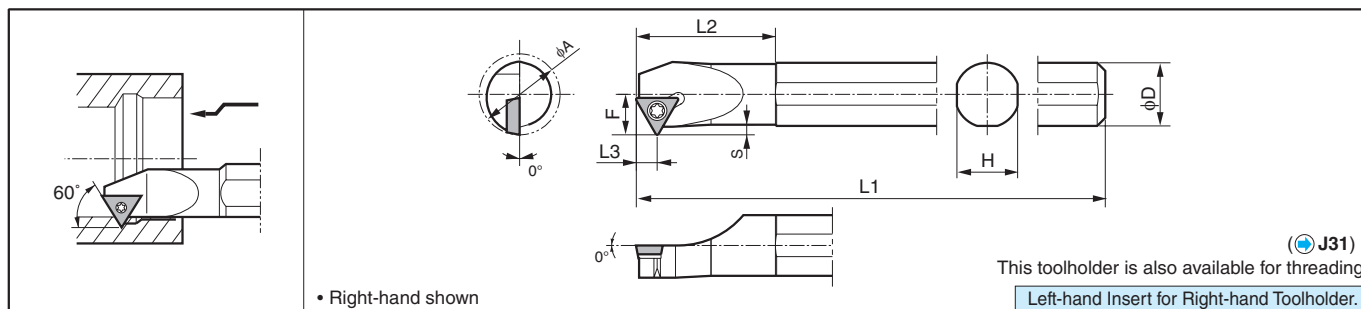
S...STWP-E Excellent Bar (Copying)

Max. Overhang Length L/D≈5



S...STWP Steel Bar (Copying)

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)							θ	Standard Corner-R(r _c)	Spare Parts	
		R	L		φA	φD	H	L1	L2	L3	F	S		Clamp Screw	Wrench
S10M-STWP ^{R/L} 11 -12E		●	●	12	10	9.2	150	23	5.5	6	1.0	0°	0.1	SB-3STR	FT-10
S12M-STWP ^{R/L} 11 -16E		●	●	16	12	11	150	30							
S16R-STWP ^{R/L} 11 -20E		●	●	20	16	15	200	35							
S20X-STWP ^{R/L} 11 -25E		●	●	25	20	19	220	40	7.7	14	4.0	0°	0.8	SB-4TR	FT-15
S20X-STWP ^{R/L} 16 -25E		●	●	25	20	19	220	40							
S25X-STWP ^{R/L} 16 -32E		●	●	32	25	23	270	42							
S10M-STWPR11 -12	SITR 1210-11	●		12	10	9.2	150	23	5.5	6	1.0	0°	0.1	SB-3STR	FT-10
S12M-STWPR11 -16	SITR 1612-11	●		16	12	11	150	30							
S16Q-STWPR11 -20	2016-11	●		20	16	15	180	35							
S20R-STWPR11 -25	2520-11	●		25	20	19	200	40							

Applicable Inserts

Applications	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Medium	Low Feed / Precision	Soft Steel / Finishing	Soft Steel / Finishing-Medium
Ref. to Page	B67	B67	B67	B68	B69	B69	B69	B67	B68
Insert	PP	GP	HQ	PL	PL-FSF	PL-H	FPL-USF	XP	XQ
Toolholder Description									
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	Hard Materials						
Ref. to Page	B70	C26~C28	C16						
Insert	Without Chipbreaker	PCD	CBN						
Toolholder Description									
S10M-STWP ^{R/L} 11-12(E)	TPGB1102..	-	-						
...-STWP ^{R/L} 11-16~25(E)	TPGB1103..	TPMH1103.. TPGB1103..	TPGB1103..						
...-STWP ^{R/L} 16-...	TPGB1603..	TPMH1603.. TPGB1603..	TPGB1603..						

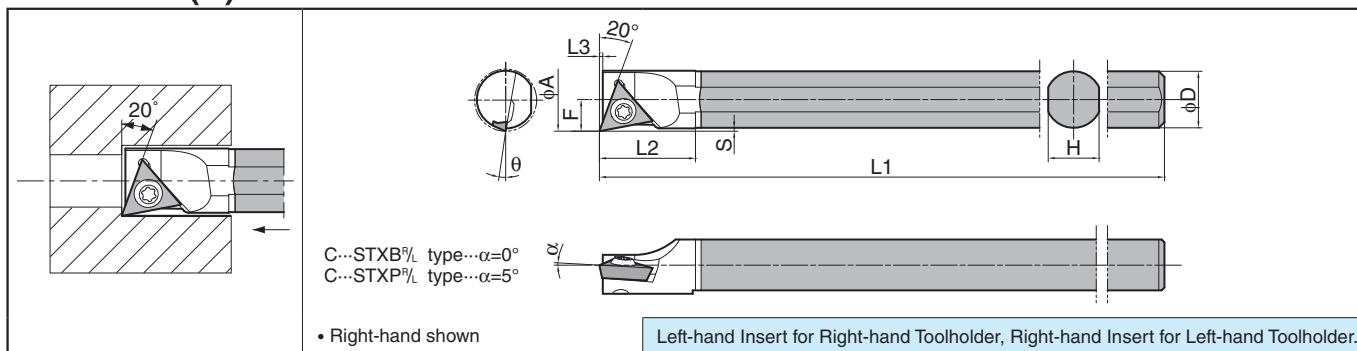
Recommended Cutting Conditions ● F91~F92

Applicable Sleeve ● F82~F84

● : Std. Item

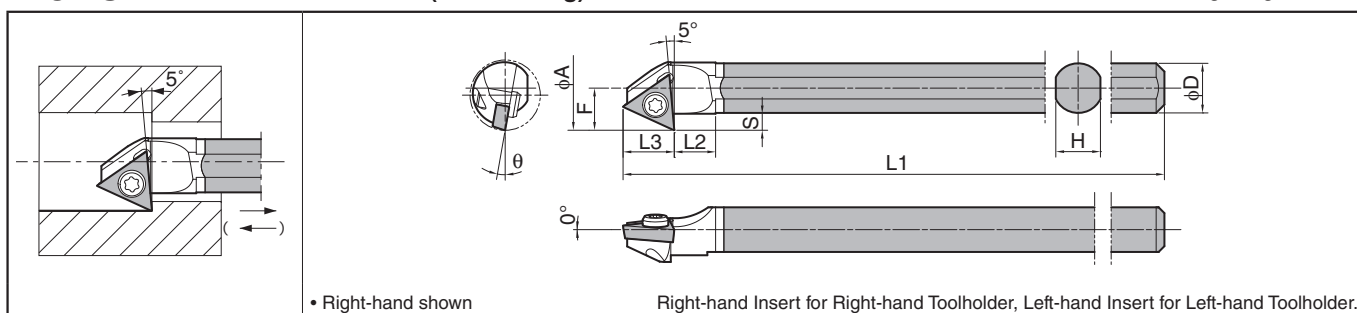
C...STXP(B) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length L/D≈7



C...STZB Carbide Shank Bar (Back Boring)

Max. Overhang Length L/D≈7



* 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	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r _c)	Spare Parts		
					φA	φD	H	L1	L2	L3	F	S				Clamp Screw	Wrench
		R	L														
C06J-STXB ^{R/L} 06-075	STXB ^{R/L} 07506B-06W	●	●	7.5	6	5.4	110	11	0.5	3.75			10°	0.03	SB-1STR	FT-6	
C08X-STXP ^{R/L} 08-09	STXP ^{R/L} 09008B-08W	●	●	9.0	8	7.0	143	14	0.6	4.6	0.5	SB-1TR					
C10X-STXP ^{R/L} 09-11	11010B-09W	●	●	11.0	10	9.0	164	17		5.6		SB-2TR			FT-8		
C06J-STZB ^{R/L} 06-085	STZB ^{R/L} 08506B-06W	●	●	8.5	6	5.4	110	5	5.7	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
Ref. to Page	B64, B67	B67	B67	B64	B67	B64, B68	B69	B69	B67	B64, B70
Insert	CF	PP	GP	DP	HQ	^{R/L}	^{R/L} -FSF	^{F/L} -USF	XP	Without Chipbreaker
Toolholder Description										
...STXB ^{R/L} 06-...	TBGT0601..	-	-	TBMT0601..	-	TBGT0601..	-	-	-	TBGW0601..
...STXP ^{R/L} 08-...	TPGT0802..	-	-	-	-	TPGH0802..	TPET0802..	TPET0802..	-	TPGB0802..
...STXP ^{R/L} 09-...	TPGT0902..	TPMT0902..	TPMT0902..	-	TPMT0902..	TPGH0902..	-	-	TPMT0902..	TPGB0902..
...STZB ^{R/L} 06-...	TBGT0601..	-	-	TBMT0601..	-	TBGT0601..	-	-	-	TBGW0601..
Applications	Non-ferrous Metals	Hard Materials								
Ref. to Page	C26, C27	C16								
Insert	PCD	CBN								
Toolholder Description										
...STXB ^{R/L} 06-...	TBMT0601..	-								
...STXP ^{R/L} 08-...	TPMH0802.. TPGB0802..	TPGB0802..								
...STXP ^{R/L} 09-...	TPMH0902.. TPGB0902..	TPGB0902..								
...STZB ^{R/L} 06-...	TBMT0601..	-								

C...STXP(B) Type Boring Bar Cutting Conditions

Recommended Cutting Conditions ● F91~F92

Toolholder Description	Insert Description (Grades)	V _c (m/min)	a _p (mm)	f (mm/rev)	Coolant
C06J-STXB ^{R/L} 06-075	TBGT0601003 1/8 (PR930)	30~100	0.02~0.1	0.02~0.04	Yes
C08X-STXP ^{R/L} 08-09	TPGH080201 1/8 (PR930)	30~100	0.05~0.15	0.03~0.08	Yes
C10X-STXP ^{R/L} 09-11	TPGH090201 1/8 (PR930)	30~100	0.05~0.15	0.03~0.08	Yes

Applicable Sleeve ● F81~F84

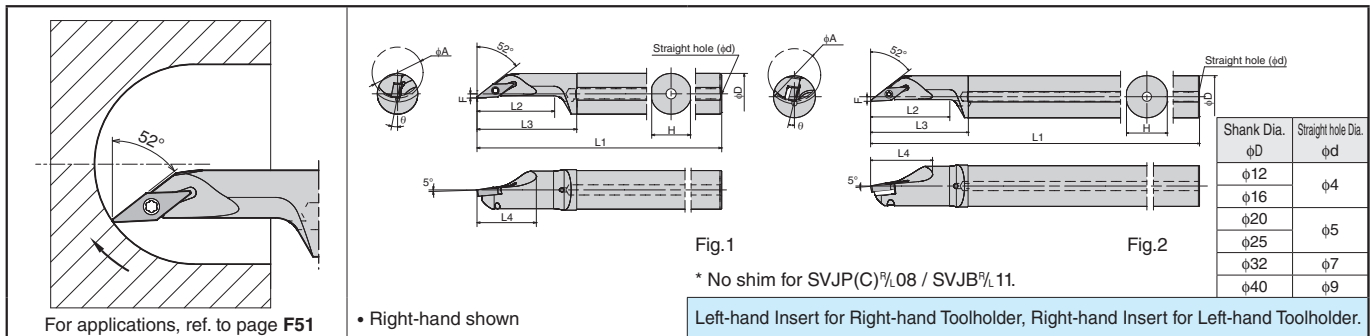
(Workpiece Material: Alloy Steel)

● : Std. Item



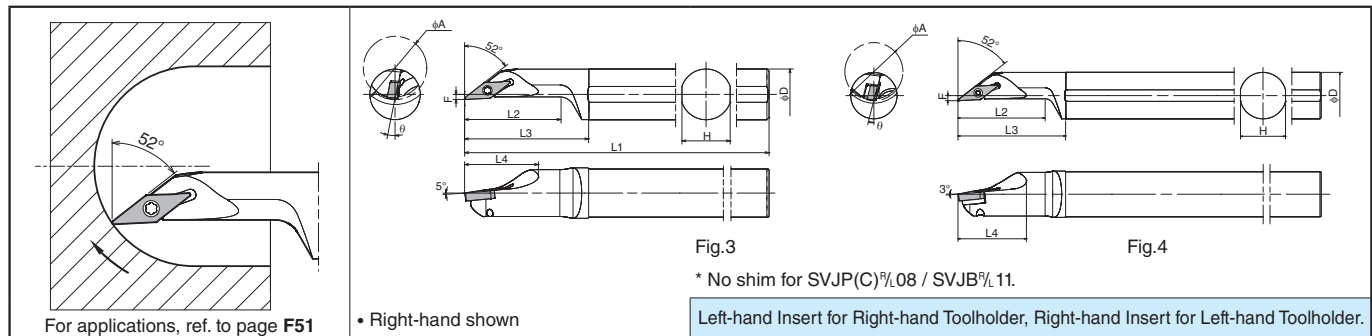
A-SVJP(C)(B)-AE Excellent Bar (Internal Spherical Machining / Internal Facing / Copying)

Max. Overhang Length L/D~5.5



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

Max. Overhang Length L/D~4



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R (r _c)	Coolant Hole	Drawing	Spare Parts	
	R	L		φD	H	L1	L2	L3	L4	F	S					Clamp Screw	Wrench
Excellent Bar	●	●	16	12	11	150	26	33	21	2	-	5°	0.2	Yes	Fig.1	SB-2050TR	FT-6
	●	●		12	11	150	26	33	20								
	●	●	20	16	15	180	36	43	22	3.5	-	5°	0.4	Yes	Fig.1	SB-2570TR	FT-8
	●	●		16	15	180	36	43	22								
	●	●	25	20	19	200	37.5	48	30	4.5	-	5°	0.4	Yes	Fig.2	SB-40125TRN	FT-15
	●	●		20	19	200	37.5	48	30								
Steel	●	●	30	25	24	250	45	58	33	3.5	-	8°	0.4	No	Fig.2	SB-40125TRN	FT-15
	●	●		25	24	250	45	58	33								
	●	●	40	32	31	300	60	74	45	4.5	-	8°	0.4	No	Fig.3	SB-2050TR	FT-6
	●	●		32	31	300	60	74	45								
	●	●	50	40	39	300	75	91	49	4.5	-	7°	0.4	No	Fig.4	SB-2570TR	FT-8
	●	●		40	39	300	75	91	49								

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Low Feed / Precision	Non-ferrous Metals	Non-ferrous Metals
Ref. to Page	B76	B73,B75	B73,B75	B73	B73,B75	B74	B73,B77	B77	B75	B75
Insert	CK	VF	PP	GP	HQ	1/4-F	1/4-FSF	F 1/4-USF	AH	1/4-A3
Toolholder Description	VPGT0802..	VCMT0802..	VCMT0802..	VCMT0802..	VCMT0802..	VBGT1103..	VBET1103..	VPET0802..	VCMT0802..	VCMT0802..
...SVJP 1/8-...	-	-	-	-	-	-	-	-	-	-
...SVJC 1/8-...	-	VCMT0802..	VCMT0802..	VCMT0802..	VCMT0802..	VBGT1103..	VBET1103..	VPET0802..	VCMT0802..	VCMT0802..
...SVJB 1/11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	VPET0802..	VCMT0802..	VCMT0802..
...SVJB 1/16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	VBGT1103..	VBET1103..	VPET0802..	VCMT0802..	VCMT0802..
Applications	Non-ferrous Metals	Hard Materials								
Ref. to Page	C28	C17								
Insert	PCD	CBN								
Toolholder Description	VCMT0802..	VCGW0802..								
...SVJP 1/8-...	-	-								
...SVJC 1/8-...	VCMT0802..	VCGW0802..								
...SVJB 1/11-...	VBMT1103..	VCGW1103..								
...SVJB 1/16-...	VBMT1604..	VCGW1604..								

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

Spare Parts

Description	Spare Parts		
	Shim	Shim Screw	Wrench (for Shim Screw)
□32S-SVJB 1/16-40A□	SVN-32N	SS-4N	LW-4
□40T-SVJB 1/16-50A□	SVN-32N	SS-4N	LW-4

* See P24 for spare parts of old products.

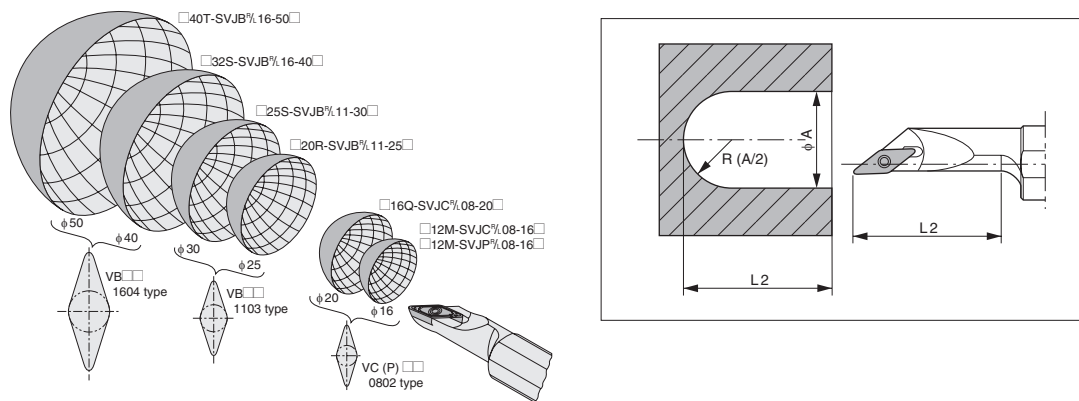
Recommended Cutting Conditions ● F91~F92
Applicable Sleeves ● F82~F84

● : Std. Item

Application of □...SVJB(C)-□, S...SVJP-□

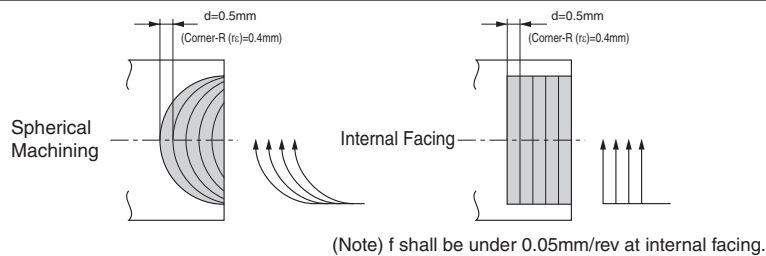
Ref. to Page for Toolholders F50

1. Application Range

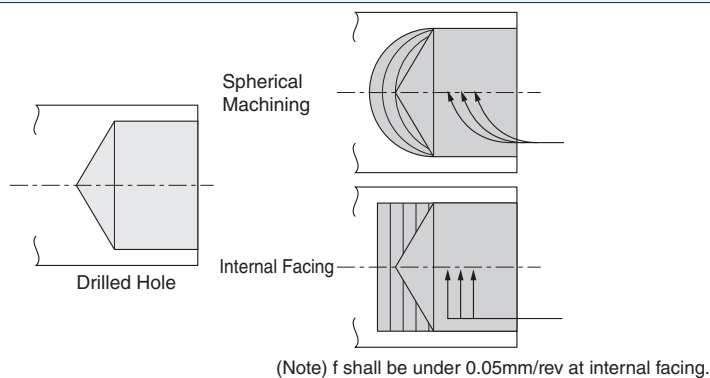


2. Machining method

Case with No Existing Hole

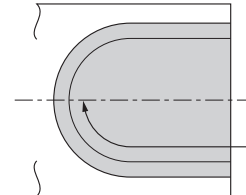


Case with Drilled Hole

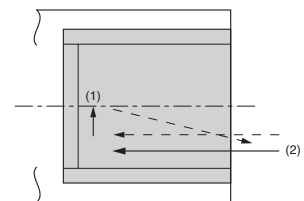


Finishing

Spherical Machining

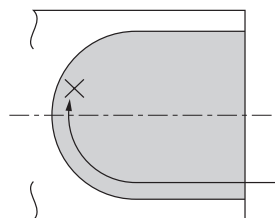


Internal Facing

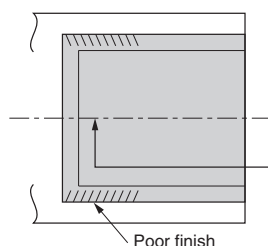
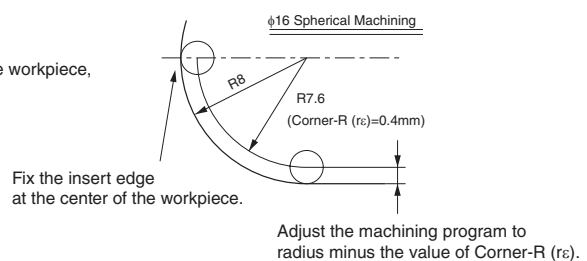


Machining Process
(1) Finish the internal face first.
(2) Next, finish the internal diameter.

3. Caution

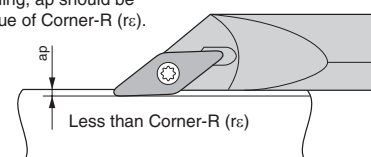


When machining past the center of the workpiece, insert may break.



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

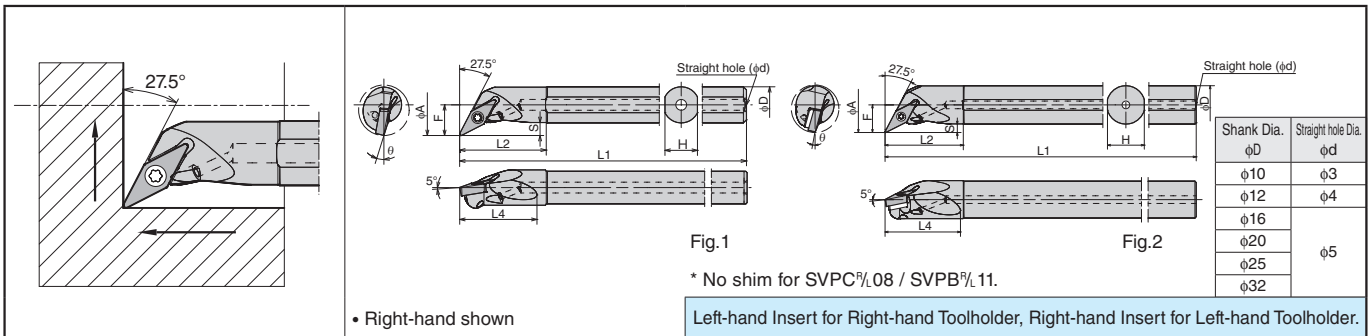
For internal profiling, a_p should be less than the value of Corner-R (r_c).



[Burrs may occur, if a_p is bigger than Corner-R (r_c)]

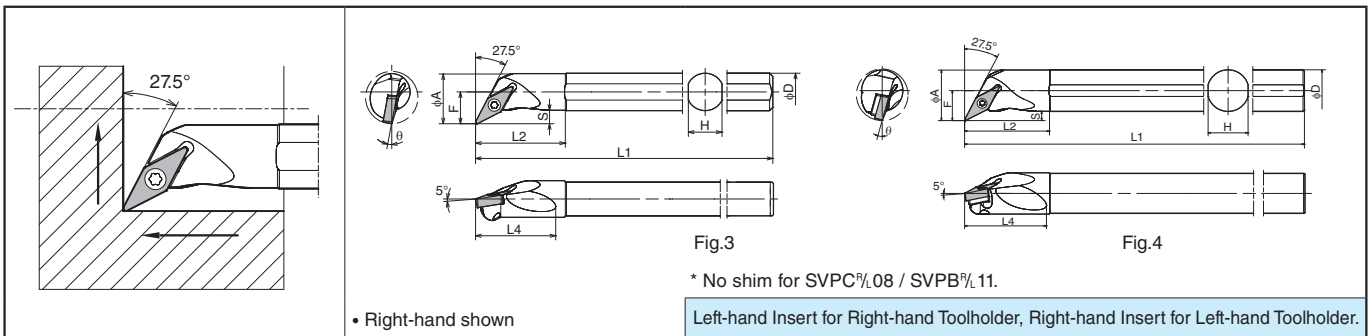
A-SVPC(B)-AE Excellent Bar (Copying / Undercutting)

Max. Overhang Length L/D≈5.5



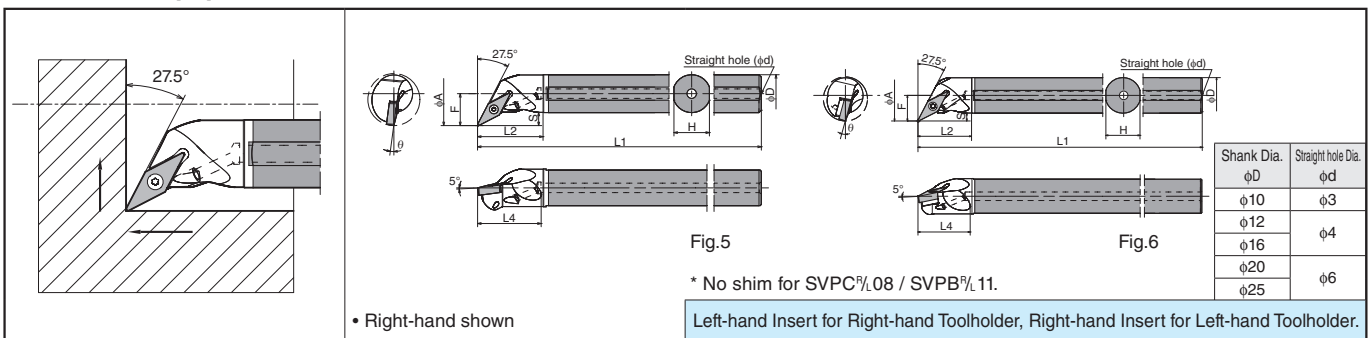
S-SVPC(B)-A Steel Bar (Copying / Undercutting)

Max. Overhang Length L/D≈4



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

Max. Overhang Length L/D≈7

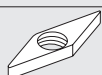


Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r _c)	Coolant Hole	Drawing	Spare Parts										
		R	L		φA	φD	H	L1	L2	L3	L4	F					S	Clamp Screw	Wrench								
																											
Excellent Bar	A10L-SVPC [®] /08-14AE	●	●	14	10	9	140	24	-	21	8.5	3	8°	0.4	Yes	Fig.1	SB-2050TR	FT-6									
	A12M-SVPB [®] /11-18AE	●	●	18	12	11	150	29		26	11	4.5					5°	SB-2570TR	FT-8								
	A16Q-SVPB [®] /11-22AE	●	●	22	16	15	180	35		33	13.5	5	13°					Fig.2	SB-40125TRN	FT-15							
	A20R-SVPB [®] /11-26AE	●	●	26	20	19	200	41		39	15.5	5									9°	Fig.3	SB-2050TR	FT-6			
	A25S-SVPB [®] /16-31AE	●	●	31	25	24	250	51		49	18	6.5	9°					Fig.4	SB-2570TR	FT-8							
	A32S-SVPB [®] /16-40AE	●	●	40	32	31	250	54		53	23	6.5					9°				Fig.5	SB-40125TRN	FT-15				
Steel	S10L-SVPC [®] /08-14A	●	●	14	10	9	140	24	-	21	8.5	3	8°	0.4	No	Fig.3	SB-2050TR	FT-6									
	S12M-SVPB [®] /11-18A	●	●	18	12	11	150	29		26	11	4.5					5°	Fig.4	SB-2570TR	FT-8							
	S16Q-SVPB [®] /11-22A	●	●	22	16	15	180	35		33	13.5	5	13°								Fig.5	SB-40125TRN	FT-15				
	S20R-SVPB [®] /11-26A	●	●	26	20	19	200	41		39	15.5	5												9°	Fig.6	SB-2050TR	FT-6
	S25S-SVPB [®] /16-31A	●	●	31	25	24	250	51		49	18	6.5	9°								Fig.7	SB-2570TR	FT-8				
	S32S-SVPB [®] /16-40A	●	●	40	32	31	250	54		53	23	6.5					9°	Fig.8	SB-40125TRN	FT-15							
Carbide	E10N-SVPCR08-14A	●		14	10	9	160	20	-	18.5	8.5	3	8°	0.4	Yes	Fig.5	SB-2050TR	FT-6									
	E12Q-SVPBR11-18A	●		18	12	11	180	23		22	11	4.5					5°	Fig.6	SB-2570TR	FT-8							
	E16X-SVPBR11-22A	●		22	16	15	220	28		27	13.5	5	13°								Fig.7	SB-40125TRN	FT-15				
	E20S-SVPBR11-26A	●		26	20	19	250	32		31	15.5	5												9°	Fig.8	SB-2050TR	FT-6
	E25T-SVPBR 16-31A	●		31	25	24	300	38		37	18	6.5															

● : Std. Item

● Spare Parts

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

* See P24 for spare parts of old products.

● Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Low Feed / Precision	Non-ferrous Metals
Ref. to Page	-	B73, B75	B73, B75	B73	B73, B75	B74	B73, B77	B74	-	B75
Insert	CK	VF	PP	GP	HQ	^{R/L} -F	^{R/L} -FSF	^{R/L} -Y	^F / _L -USF	AH
Toolholder Description										
...-SVPC ^{R/L} 08-...	-	VCMT0802..	VCMT0802..	-	VCMT0802..	-	-	-	-	-
...-SVPB ^{R/L} 11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	VBGT1103..	-	-
...-SVPB ^{R/L} 16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	-	-	VBGT1604..	-	VCGT1604..
Applications	Non-ferrous Metals	Non-ferrous Metals	Hard Materials							
Ref. to Page	B75	C28	C17							
Insert	^{R/L} -A3	PCD	CBN							
Toolholder Description										
...-SVPC ^{R/L} 08-...	-	VCMT0802..	VCGW0802..							
...-SVPB ^{R/L} 11-...	-	VBMT1103..	VBGW1103..							
...-SVPB ^{R/L} 16-...	VCGT1604..	VBMT1604..	VBGW1604..							

Recommended Cutting Conditions ● F91~F92

Applicable Sleeves ● F82~F84

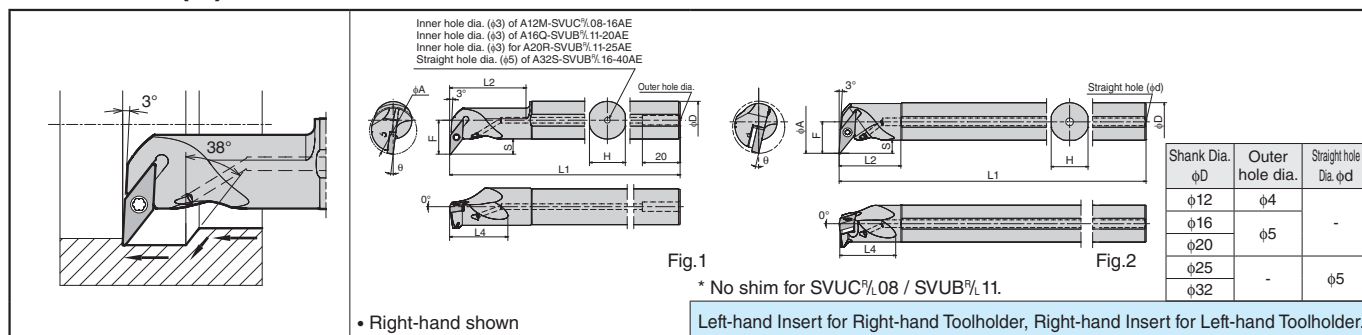
F



Boring

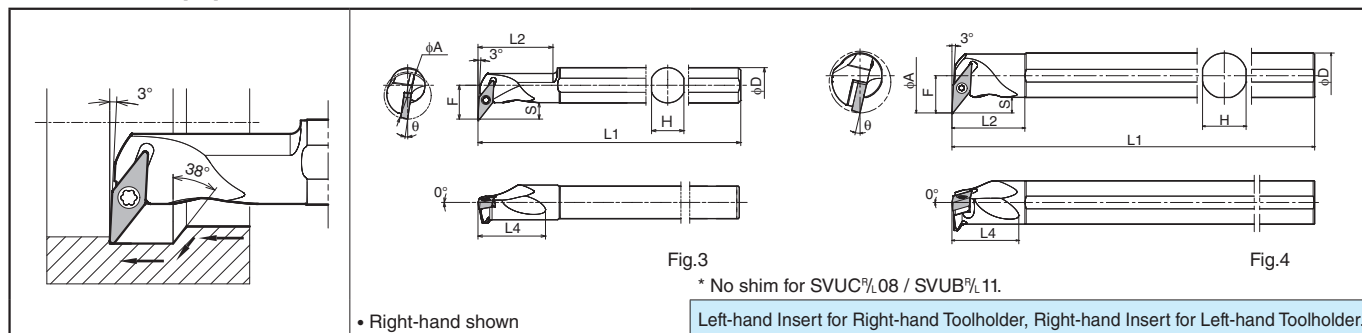
A-SVUC(B)-AE Excellent Bar (Copying)

Max. Overhang Length $L/D \sim 5.5$



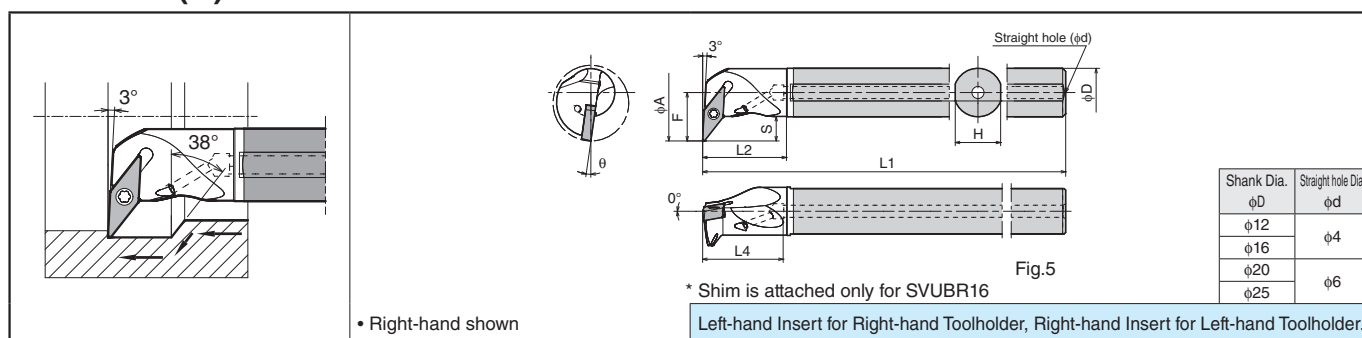
S-SVUC(B)-A Steel Bar (Copying)

Max. Overhang Length $L/D \sim 4$



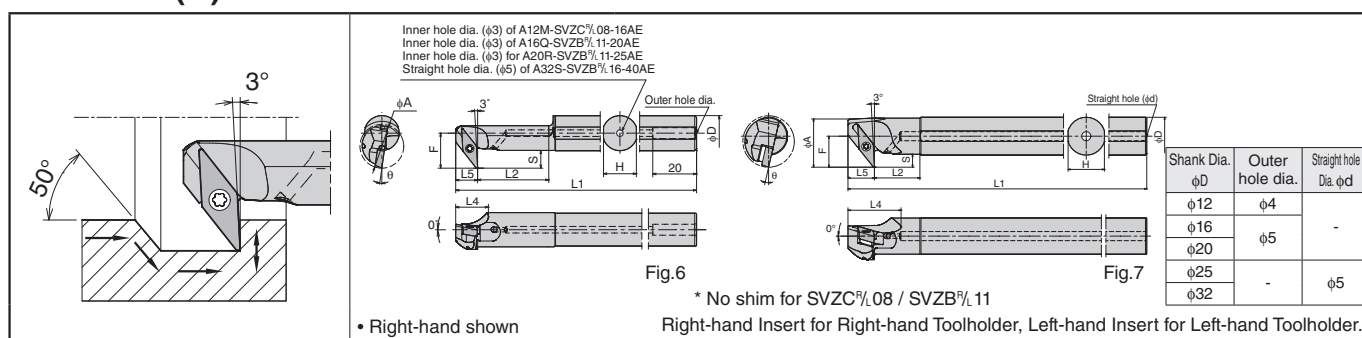
E-SVUC(B)-A Carbide Shank Bar (Copying)

Max. Overhang Length $L/D \sim 7$



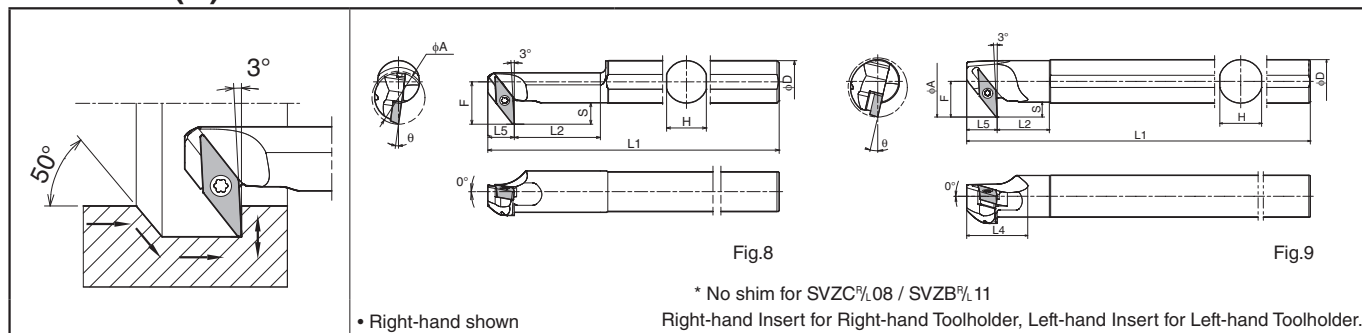
A-SVZC(B)-AE Excellent Bar (Back Boring)

Max. Overhang Length $L/D \sim 5.5$



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

Max. Overhang Length $L/D \sim 4$



● Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner-R(r _c)	Coolant Hole	Drawing	Spare Parts	
		R	L		φA	φD	H	L1	L2	L4	L5	F					S	Clamp Screw
																		
Excellent Bar	A12M-SVUC ^{R/L} 08-16AE	●	●	16	12	11	150	25.5	23	-	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	27		16	8	8°				SB-2570TR	FT-8
	A20R-SVUB ^{R/L} 11-25AE	●	●	25	20	19	200	40.5	31		18	8	7°				Fig.2 Fig.1	SB-40125TRN
	A25S-SVUB ^{R/L} 16-34AE	●	●	34	25	24	250	40	37		20.5	8.5	13°					
	A32S-SVUB ^{R/L} 16-40AE	●	●	40	32	31		84	47		28	12	9°					
Steel	S12M-SVUC ^{R/L} 08-16A	●	●	16	12	11	150	25.5	23	-	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	27		16	8	8°				SB-2570TR	FT-8
	S20R-SVUB ^{R/L} 11-25A	●	●	25	20	19	200	40.5	31		18	8	7°				Fig.4 Fig.3	SB-40125TRN
	S25S-SVUB ^{R/L} 16-34A	●	●	34	25	24	250	40	37		20.5	8.5	13°					
	S32S-SVUB ^{R/L} 16-40A	●	●	40	32	31		84	47		28	12	9°					
Carbide	E12Q-SVUCR08-18A	●		18	12	11	180	23	22	-	11.5	5.5	8°	0.4	Yes	Fig.5	SB-2050TR	FT-6
	E16X-SVUBR11-25A	●		25	16	15	220	28	27		16	8	8°				SB-2570TR	FT-8
	E20S-SVUBR11-29A	●		29	20	19	250	32	30		18	8	7°				SB-40125TRN	FT-15
	E25T-SVUBR16-34A	●		34	25	24	300	38	37		21	8.5	13°					
Excellent Bar	A12M-SVZC ^{R/L} 08-16AE	●	●	16	12	11	150	25.5	14	7.5	11.5	5.5	8°	0.4	Yes	Fig.6	SB-2050TR	FT-6
	A16Q-SVZB ^{R/L} 11-20AE	●	●	20	16	15	180	32.5	20	10	16	8	8°				SB-2570TR	FT-8
	A20R-SVZB ^{R/L} 11-25AE	●	●	25	20	19	200	40.5	23		18	8	7°					
	A25S-SVZB ^{R/L} 16-34AE	●	●	34	25	24	250	30	34	17.5	20.5	8.5	13°			Fig.7 Fig.6	SB-40125TRN	FT-15
	A32S-SVZB ^{R/L} 16-40AE	●	●	40	32	31		72.5	36		28	12	9°					
Steel	S12M-SVZC ^{R/L} 08-16A	●	●	16	12	11	150	25.5	14	7.5	11.5	5.5	8°	0.4	No	Fig.8	SB-2050TR	FT-6
	S16Q-SVZB ^{R/L} 11-20A	●	●	20	16	15	180	32.5	20	10	16	8	8°				SB-2570TR	FT-8
	S20R-SVZB ^{R/L} 11-25A	●	●	25	20	19	200	40.5	23		18	8	7°					
	S25S-SVZB ^{R/L} 16-34A	●	●	34	25	24	250	30	34	17.5	20.5	8.5	13°			Fig.9 Fig.8	SB-40125TRN	FT-15
	S32S-SVZB ^{R/L} 16-40A	●	●	40	32	31		72.5	36		28	12	9°					

● Spare Parts

Description	Spare Parts		
	Shim	Shim Screw	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	SS-4N	LW-4

* See P24 for spare parts of old products.

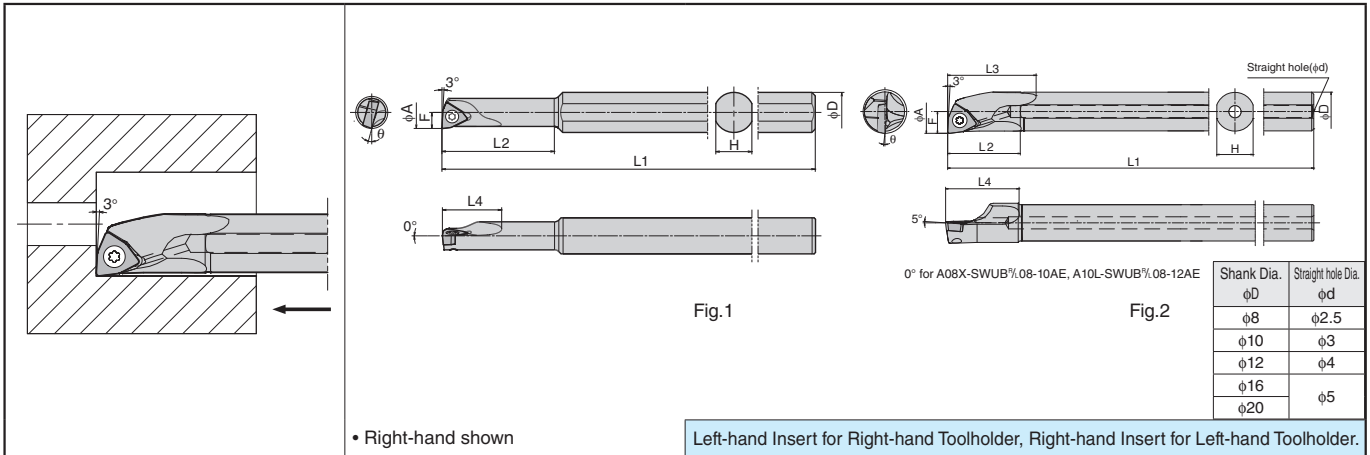
● Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Low Feed / Precision	Non-ferrous Metals
Ref. to Page	-	B73, B75	B73, B75	B73	B73, B75	B74	B73	B74	-	B75
Insert										
Toolholder Description										
...SVUC ^{R/L} 08-...	-	VCMT0802..	VCMT0802..	-	VCMT0802..	-	-	-	-	-
...SVUB ^{R/L} 11-...	-	VBMT1103..	VBMT1103..	VBMT1103..	VBMT1103..	VBGT1103..	VBET1103..	VBGT1103..	-	-
...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..	VBGT1103..	-	-
...SVZB ^{R/L} 16-...	-	VBMT1604..	VBMT1604..	VBMT1604..	VBMT1604..	-	-	VBGT1604..	-	VCGT1604..
Applications	Non-ferrous Metals	Non-ferrous Metals	Hard Materials							
Ref. to Page	B75	C28	C17							
Insert										
Toolholder Description										
...SVUC ^{R/L} 08-...	-	VCMT0802..	VCGW0802..							
...SVUB ^{R/L} 11-...	-	VBMT1103..	VBGW1103..							
...SVUB ^{R/L} 16-...	VCGT1604..	VBMT1604..	VBGW1604..							
...SVZC ^{R/L} 08-...	-	VCMT0802..	VCGW0802..							
...SVZB ^{R/L} 11-...	-	VBMT1103..	VBGW1103..							
...SVZB ^{R/L} 16-...	VCGT1604..	VBMT1604..	VBGW1604..							

Recommended Cutting Conditions ● F91~F92
Applicable Sleeves ● F82~F84

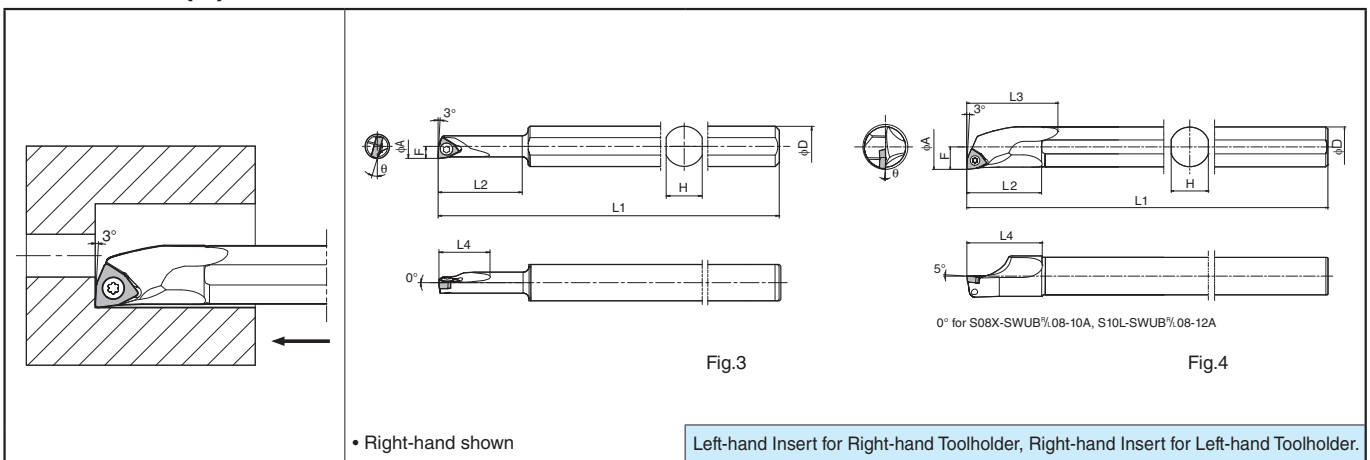
S / A-SWUB(P)-AE Excellent Bar (Boring)

Max. Overhang Length $L/D \sim 5.5$



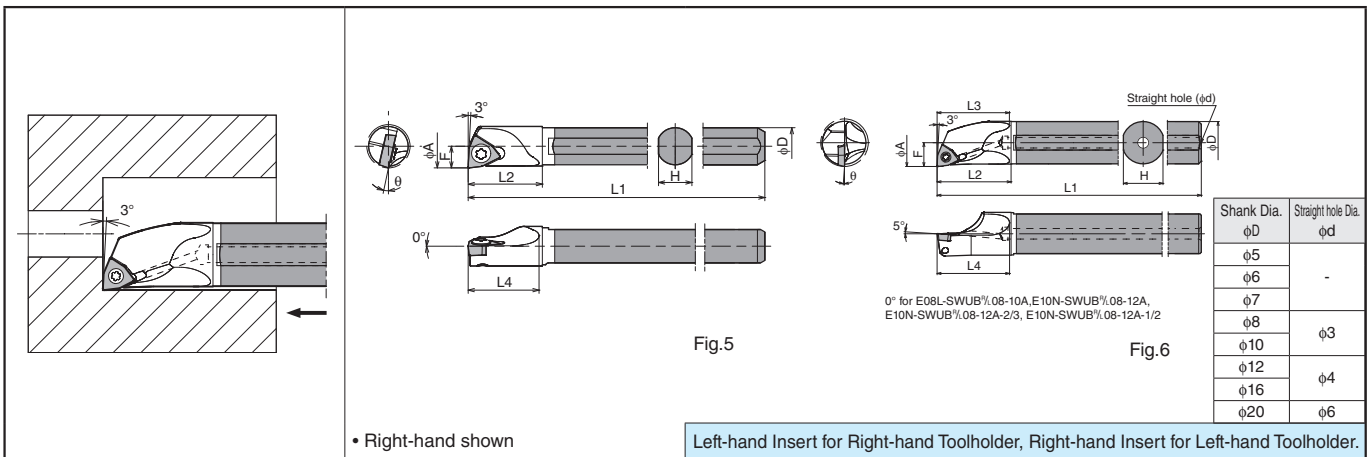
S-SWUB(P)-A Steel Bar (Boring)

Max. Overhang Length $L/D \sim 4$



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

Max. Overhang Length $L/D \sim 7$



● Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)								θ	Standard Corner R (r _c)	Coolant Hole	Drawing	Spare Parts	
		R	L	φA	φD	H	L1	L2	L3	L4	F	S					Clamp Screw	Wrench
																		
Excellent Bar	S10H-SWUB ^{R/L} 06-06AE	●	●	6				21		13	3		15°	0.2	No	Fig.1	SB-2035TR	FT-6
	S10H-SWUB ^{R/L} 06-07AE	●	●	7	10	9	100	25	-	15	3.5		13°					
	S10H-SWUB ^{R/L} 08-08AE	●	●	8				28			4		15°					
	A08X-SWUB ^{R/L} 08-10AE	●	●	10	8	7	120	16	21	16	5		13°	0.4	Yes	Fig.2	SB-2050TR	FT-8
	A10L-SWUB ^{R/L} 08-12AE	●	●	12	10	9	140	20	25	20	6		10°					
	A12M-SWUP ^{R/L} 11-14AE	●	●	14	12	11	150	24	30	24	7		4°					
	A16Q-SWUP ^{R/L} 11-18AE	●	●	18	16	15	180	30	37	30	9		1°	0.8			SB-2545TR	FT-15
	A16Q-SWUP ^{R/L} 16-18AE	●	●										3.5°					
	A20R-SWUP ^{R/L} 16-22AE	●	●	22	20	19	200	36	46	37	11		2°					
Steel	S10H-SWUB ^{R/L} 06-06A	●	●	6				21		13	3		15°	0.2	No	Fig.3	SB-2035TR	FT-6
	S10H-SWUB ^{R/L} 06-07A	●	●	7	10	9	100	25	-	15	3.5		13°					
	S10H-SWUB ^{R/L} 08-08A	●	●	8				28			4		15°					
	S08X-SWUB ^{R/L} 08-10A	●	●	10	8	7	120	16	21	16	5		13°	0.4	No	Fig.4	SB-2050TR	FT-8
	S10L-SWUB ^{R/L} 08-12A	●	●	12	10	9	140	20	25	20	6		10°					
	S12M-SWUP ^{R/L} 11-14A	●	●	14	12	11	150	24	30	24	7		4°					
	S16Q-SWUP ^{R/L} 11-18A	●	●	18	16	15	180	30	37	30	9		1°	0.8			SB-2545TR	FT-15
	S16Q-SWUP ^{R/L} 16-18A	●	●										3.5°					
	S20R-SWUP ^{R/L} 16-22A	●	●	22	20	19	200	36	46	37	11		2°					
Carbide	C05H-SWUB ^{R/L} 06-06A	●	●	6	5	4.4	100	11		11	3		15°	0.2	No	Fig.5	SB-2035TR	FT-6
	C06J-SWUB ^{R/L} 06-07A	●	●	7	6	5.4	110	12	-	12	3.5		13°					
	C07K-SWUB ^{R/L} 08-08A	●	●	8	7	6.4	125	13		13	4		15°					
	E08L-SWUB ^{R/L} 08-10A	●	●	10	8	7	140	16	15	15	5		13°	0.4	No	Fig.6	SB-2050TR	FT-8
	E10N-SWUB ^{R/L} 08-12A	●	●	12	10	9	160						10°					
	E10N-SWUBR 08-12A-2/3	●					105	20	19	19	6							
	E10N-SWUBR 08-12A-1/2	●		14	12	11	80							0.4	Yes	Fig.6	SB-2545TR	FT-15
	E12Q-SWUP ^{R/L} 11-14A	●	●				180						4°					
	E12Q-SWUPR 11-14A-2/3	●					120	23	22	22	7							
	E12Q-SWUPR 11-14A-1/2	●		18	16	15	90							0.8			SB-4065TR	FT-15
	E16X-SWUP ^{R/L} 11-18A	●	●				220						1°					
	E16X-SWUPR 11-18A-2/3	●					145											
	E16X-SWUPR 11-18A-1/2	●					110	28	27	27	9							
	E16X-SWUP ^{R/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-SWUP ^{R/L} 16-22A	●	●	22	20	19	250						2°	0.8			SB-4065TR	FT-15
	E20S-SWUPR 16-22A-2/3	●					165	32	31	31	11							
	E20S-SWUPR 16-22A-1/2	●					125											

● Applicable Inserts

Applications Ref. to Page	Minute ap B78	Finishing B79	Finishing B78	Finishing-Medium B79	Finishing B78	Finishing-Medium B79	Cast Iron B78, B79	Non-ferrous Metals C28, C29	Hard Materials C18	
Insert	CF	GP	^{R/L} -DP	HQ	^{R/L} -F	^{R/L} -Y	Without Chipbreaker	PCD	CBN	
Toolholder Description										
...-SWUB ^{R/L} 06-...	WBGTO601..	-	WBMT0601..	-	WBGTO601..	-	WBGW0601..	WBMT0601..	WBGW0601..	
...-SWUB ^{R/L} 08-...	-	-	WBMT0802..	-	WBGTO802..	-	WBGW0802..	WBMT0802..	WBGW0802..	
...-SWUP ^{R/L} 11-...	-	WPMT1102..	-	WPMT1102..	-	WPGT1102..	WPGW1102..	WPMT1102..	-	
...-SWUP ^{R/L} 16-...	-	WPMT1603..	-	WPMT1603..	-	WPGT1603..	WPGW1603..	-	-	

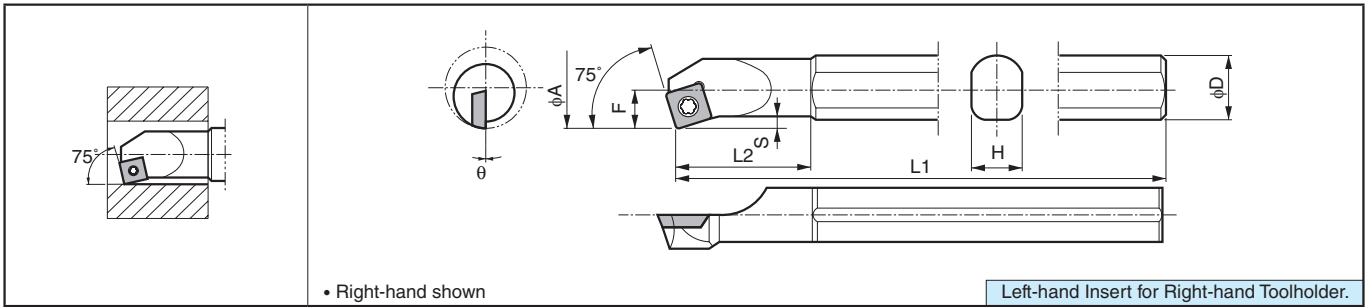
Recommended Cutting Conditions ● F91~F92
Applicable Sleeves ● F81~F84

● : Std. Item



S-SSKP (Boring)

Max. Overhang Length L/D≈3



Toolholder Dimensions

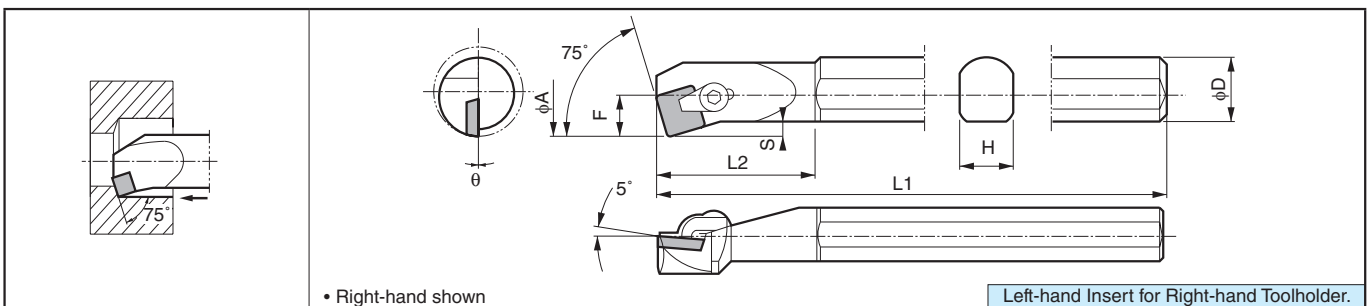
Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(°)	Spare Parts	
		R	L		φA	φD	H	L1	L2	F			S	Clamp Screw
S16Q-SSKPR09 -20	SSKPR 2016B-09	●		20	16	14	180	30	10	2.0	-3°	0.8		FT-15
S20R-SSKPR09 -25	2520B-09	●		25	20	18	200	35	12.5	2.5	0°			

Applicable Inserts

Applications	Finishing														
Ref. to Page	B63														
Insert															
Toolholder Description	SPGH0903..														
....SSKP ^{R/L} 09...															

S-CSKP (Boring)

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner- $R(r_c)$	Spare Parts					
					ϕA	ϕD	H	L1	L2	F			S	Clamp Set	Wrench		Shim	Shim Screw
		R	L															
S16N -CSKPR09 -20	CSKPR 2016B-09	●		20	16	14	160	40	10	2.0	0°	0.8				-	-	
S20Q -CSKPR09 -27	2720B-09	●		27	20	18	180	45	13.5	3.5						-	-	
S25X -CSKPR12 -34	3425B-12	●		34	25	23	220	60	17	4.5	0°	0.8				-	-	
S32S -CSKPR12 -43	4332B-12	●		43	32	30	250	75	21.5	5.5						KPS-42	SP3X10	

Applicable Inserts

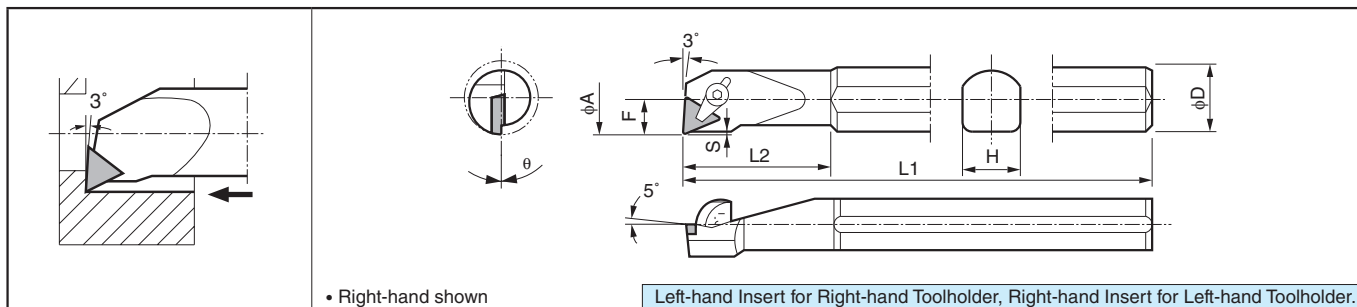
Applications	Medium	Medium	Finishing-Medium	Cast Iron	Cast Iron	Non-ferrous Metals											
Ref. to Page	B63	B63	B63	B63	B93	C29											
Insert	G	Standard		Without Chipbreaker	Ceramic	PCD											
Toolholder Description	SPMR0903..	SPMR0903..	SPGR0903..	SPMN0903.. SPGN0903..	SPGN0903..	-											
....CSKPR09...																	
....CSKPR12...	SPMR1203..	SPMR1203..	SPGR1203..	SPMN1203.. SPGN1203..	SPGN1203..	SPGN1203..											

Recommended Cutting Conditions F91~F92
Applicable Sleeves F83~F84

● : Std. Item

S-CTUP (Boring)

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(r_c)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F			S	Clamp Set		Wrench		Shim
																		
S12L-CTUPR 09-16	CTUP ^{R/L} 1612B-09	●		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			-	CPS-2	FH-2.5	-	-	-
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				-	CPS-3	-	LW-3	KPT-32	SP3X10
S40X-CTUP ^{R/L} 16-50	●	●	50	40	37	315	80	25	-				CPS-3	-	LW-3	KPT-32	SP3X10	

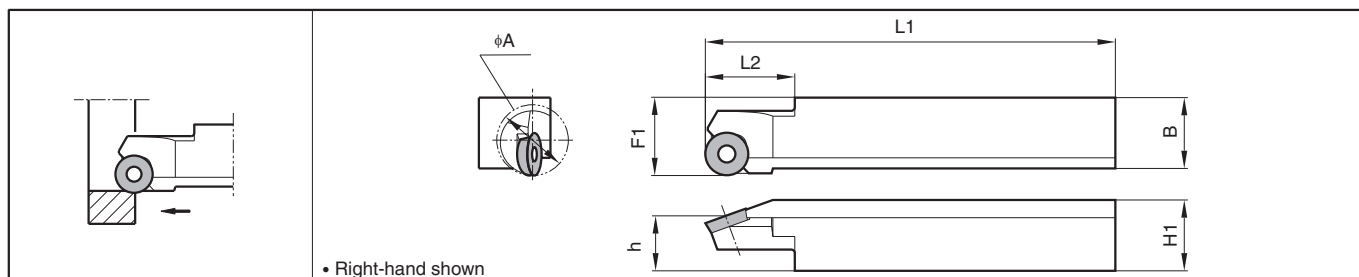
Applicable Inserts

Applications	Finishing	Finishing-Medium	Medium	Medium	Finishing	Finishing-Medium	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. to Page	B71	B71	B71	B71	B71	B72	B72	B93	C29	C18
Insert	GP	HQ	G	Standard	%L-F	%L-□	Without Chipbreaker	Ceramic	PCD	CBN
Toolholder Description										
----CTUPR09----	-	-	TPMR0902..	-	TPGR0902..	-	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 ● F91~F92

Applicable Sleeves ● F82~F84

SRCP-B (Boring)



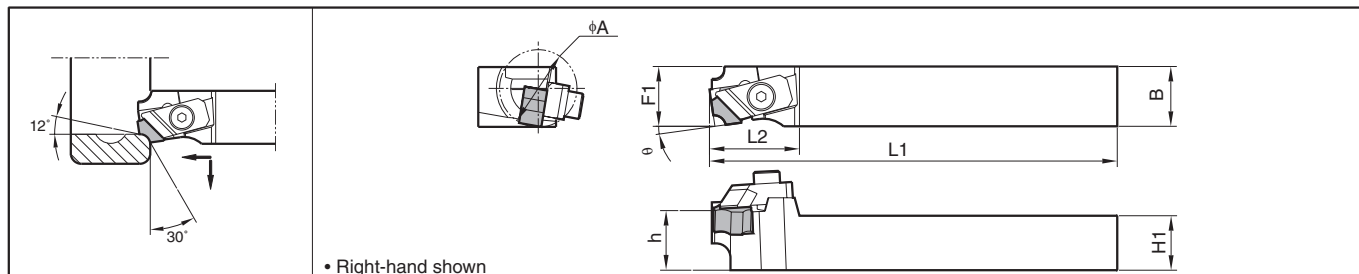
Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Spare Parts			Applicable Inserts B83
	R	L		H1	h	B	L1	L2	F1		Clamp Screw	Wrench		
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)			Angle (°)
		A	T	φd	
	RPMT 1203M0-BB 1604M0-BB	12.0	3.18	4.4	11°
		16.0	4.76	5.5	

CBSN-B (Internal Round Chamfering)



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Spare Parts			Applicable Inserts B83
	R	L		H1	h	B	L1	L2	F1	θ	Clamp Set	Wrench		
CBSN ^{R/L} 2020B-12-A20	●	●	20	20	21	20	125	32	20	9°	CP-RC ^{R/L}	LW-5		SNMF120400-21
2525B-12-A20	●	●	20	25	26	25	150	32	25	9°				

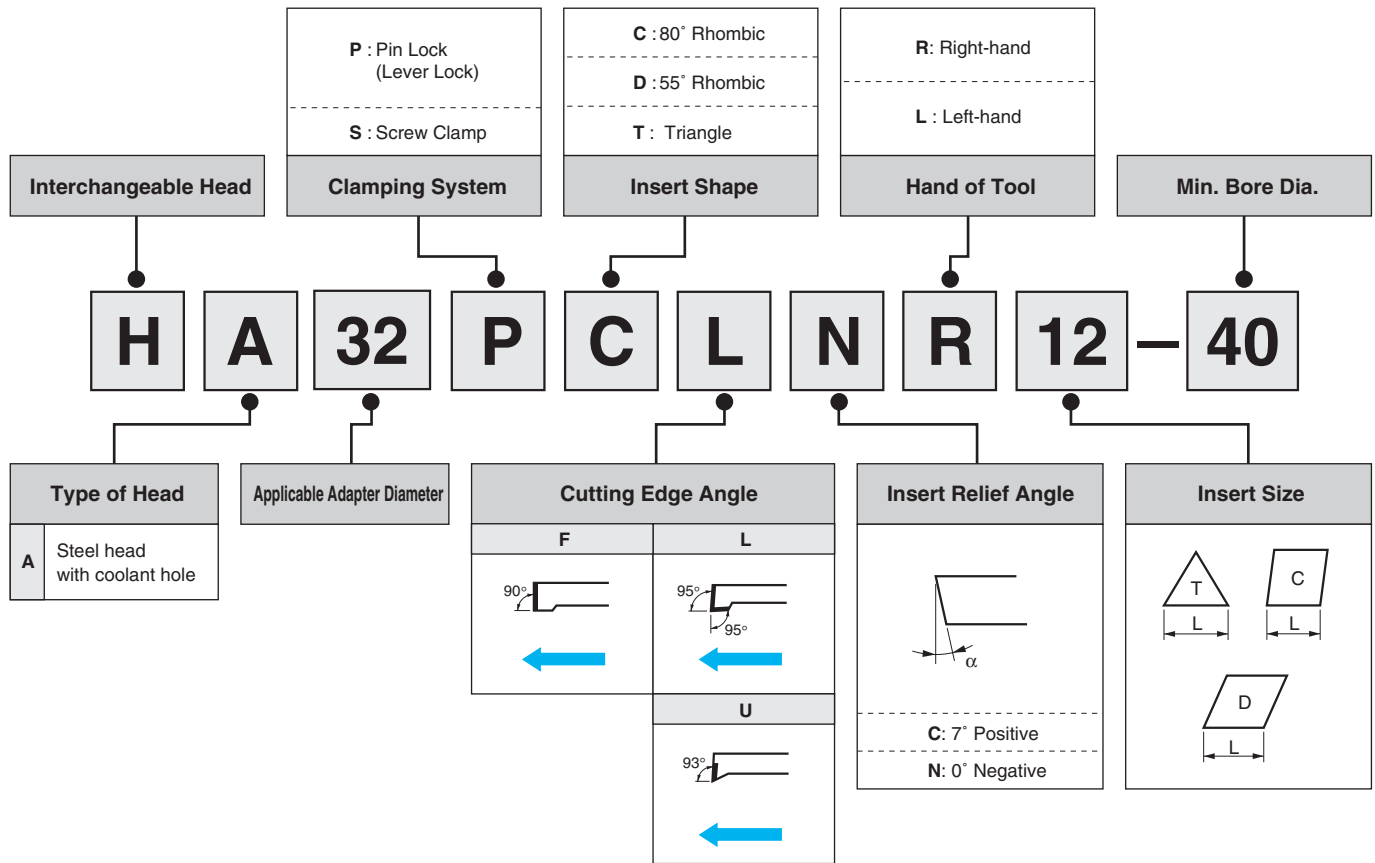
Clamp Set: CP-RCR for Right-hand Toolholder, and CP-RCL for Left-hand Toolholder.

Applicable Inserts

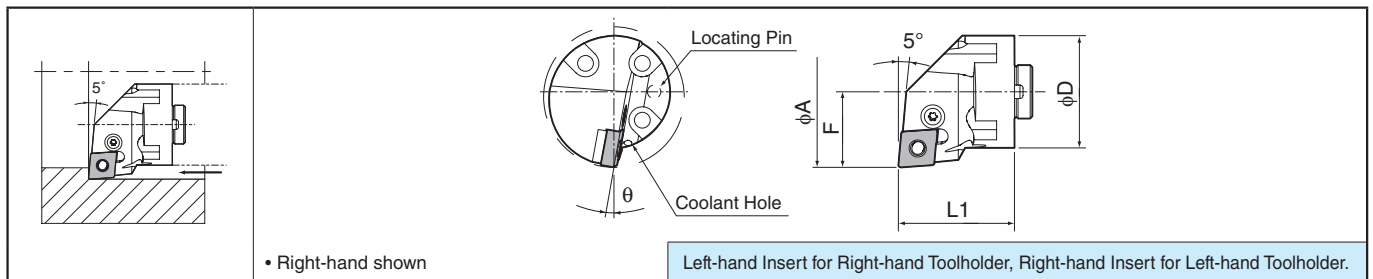
Insert	Description	Dimension (mm)				Angle (°)
		A	T	B	rε	
	SNMF 120406-21	12.70	4.76	1.5	0.6	21°
	120410-21			3.0	1.0	
	120416-21			3.1	1.6	
	120421-21			3.2	2.1	
	120426-21			3.3	2.6	

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

Identification System for Interchangeable Heads



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



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)			θ	Standard Corner-R(°)	Spare Parts						Applicable Boring Adapter F64
	R	L		φA	φD	L1			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PCLN [®] /L 12-40	●	●	40	32	41	22	10°	0.8	LL-2K	LS-2P	LC-4K	LSP-3K	*PC-2K	LTP-15	AD32U
HA40PCLN [®] /L 12-50	●	●	50	40		27									AD40V
HA50PCLN [®] /L 12-63	●	●	63	50		35									AD50W

* Punch (*PC-2K): Not included. Purchase separately.

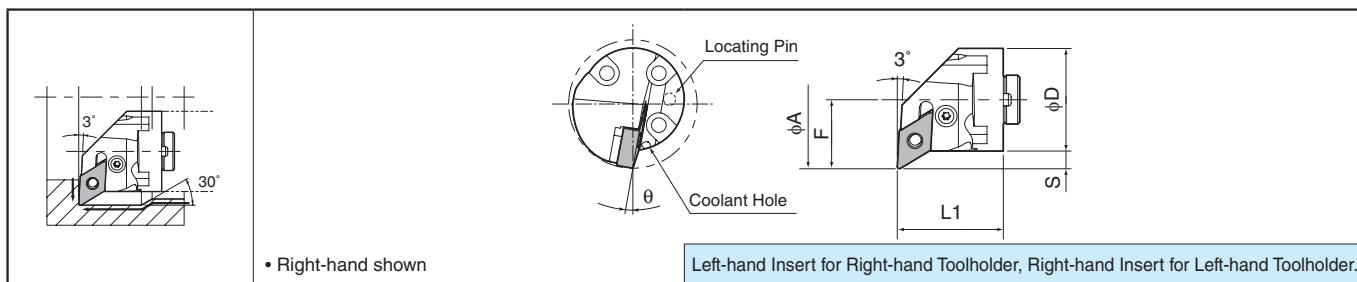
Applicable Inserts

Toolholder Description	Insert Description		Ref. to Page			
			Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN
HA32PCLN [®] /L 12-40	CN□A	1204..	B14~B20	B86	C23	C6,C7
HA40PCLN [®] /L 12-50	CN□G					
HA50PCLN [®] /L 12-63	CN□M					

Recommended Cutting Conditions F91~F92

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

HA...PDUN15 (Copying, with Coolant Hole)



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)				θ	Standard Corner-R (r _c)	Spare Parts						Applicable Boring Adapter F64
	R	L		ϕA	ϕD	L1	F			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PDUN [®] /L 15-43	●	●	43	32		25	9	12°	0.8	LL-3K	LS-3P	LD-4K43 (LD-4K)	LSP-3K	*PC-2K	LTP-15	AD32U
HA40PDUN [®] /L 15-50	●	●	50	40	41	27	7	10°								AD40V
HA50PDUN [®] /L 15-63	●	●	63	50		35	10									AD50W

* Punch (*PC-2K): Not included. Purchase separately.

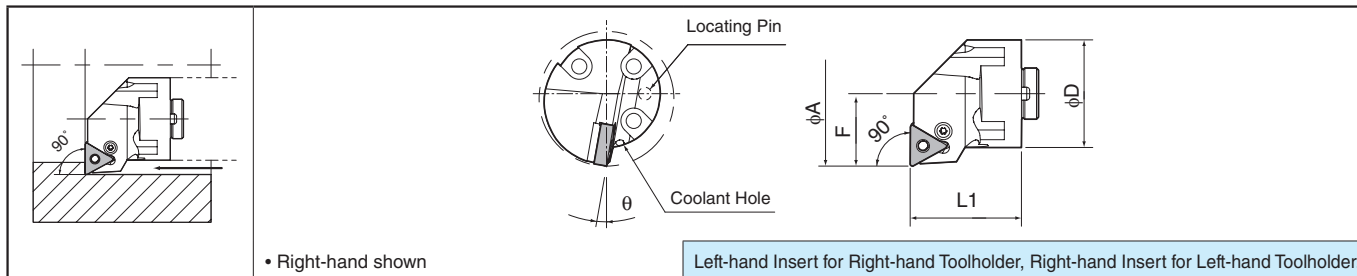
* Shim: LD-4K43 is attached to Toolholder. When using DN□□1506 Insert, purchase LD-4K separately.

Applicable Inserts

Toolholder Description	Insert Description				Ref. to Page			
	Shim: LD-4K43		Shim: LD-4K		Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN
HA32PDUN [®] /L 15-43	DN□A		DN□A		B21~B27	B87	C23	C8,C9
HA40PDUN [®] /L 15-50	DN□G	1504..	DN□G	1506..				
HA50PDUN [®] /L 15-63	DN□M		DN□M					

Recommended Cutting Conditions F91~F92

HA...PTFN16 (Internal, with Coolant Hole)



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)				θ	Standard Corner-R (r _c)	Spare Parts						Applicable Boring Adapter F64
	R	L		ϕA	ϕD	L1	F			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PTFN [®] /L 16-40	●	●	40	32		22		10°	0.8	LL-1K	LS-1P	LT-3K	LSP-2K	*PC-2K	LTP-10	AD32U
HA40PTFN [®] /L 16-50	●	●	50	40	41	27										AD40V
HA50PTFN [®] /L 16-63	●	●	63	50		35		8°								AD50W

* Punch (*PC-2K): Not included. Purchase separately.

Applicable Inserts

Toolholder Description	Insert Description		Ref. to Page			
			Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN
HA32PTFN [®] /L 16-40	TN□A		B33~B38	B91	C23	C11
HA40PTFN [®] /L 16-50	TN□G	1604..				
HA50PTFN [®] /L 16-63	TN□M					

Recommended Cutting Conditions
F91~F92

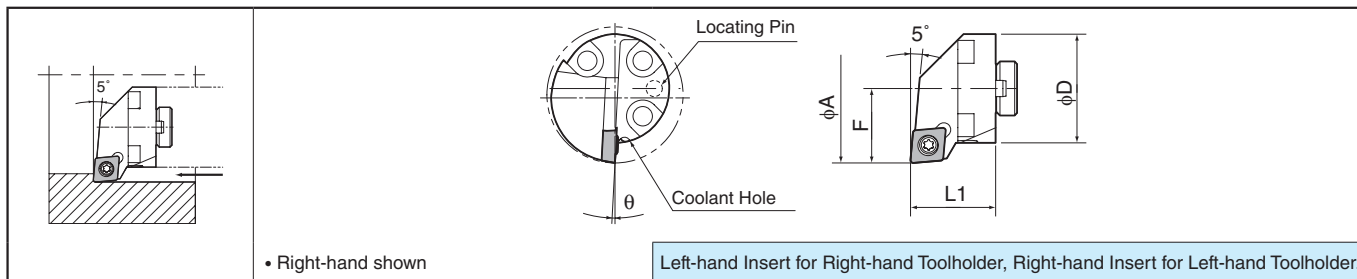
Reference

Wrenches (LTP-10, LTP-15) are Torx Plus.
The size of Torx Plus is engraved on the long shaft.

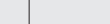
Wrench Description	LTP-10	LTP-15
Engraved Size	10IP	15IP

● : Std. Item

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



Toolholder Dimensions

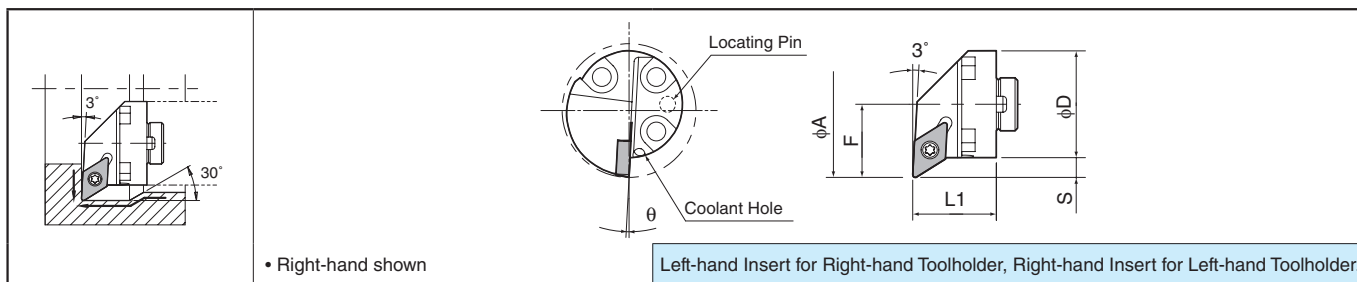
Description	Std.		Min. Bore Dia.	Dimension (mm)				θ	Standard Corner-R(r _(ε))	Spare Parts		Applicable Boring Adapter F64	Applicable Inserts	
	R	L		φA	φD	L1	F			S	Clamp Screw			Wrench
														
HA32SCLC ^{R/L} 09-40	●	●	40	32	25	22	-	3°	0.8	SB-3580TR	FTS-15	AD32U	CC..09T3..	

Applicable Inserts

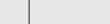
Insert Description	Ref. to Page		
	Cermet / Coated Carbide / Carbide	PCD	CBN
CC..09T3..	B48~B53	C24	C14

Recommended Cutting Conditions F91~F92

HA...SDUC11 (Copying, with Coolant Hole)



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)				θ	Standard Corner-R(_{rc})	Spare Parts		Applicable Boring Adapter F64	Applicable Inserts	
	R	L		φA	φD	L1	F			S	Clamp Screw			Wrench
														
HA32SDUC ^{R/L} 11-40	●	●	40	32	25	22	6	3°	0.8	SB-3580TR	FTS-15	AD32U	DC..11T3..	

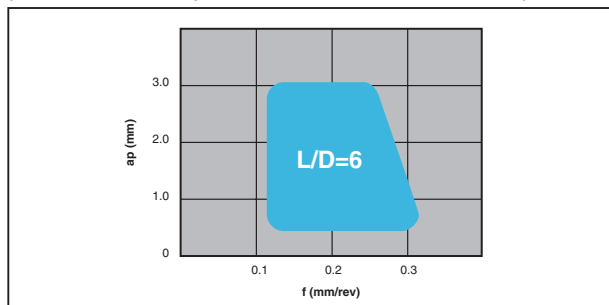
Applicable Inserts

Insert Description	Ref. to Page		
	Cermet / Coated Carbide / Carbide	PCD	CBN
DC..11T3..	B55~B61	C25	C15

Recommended Cutting Conditions F91~F92

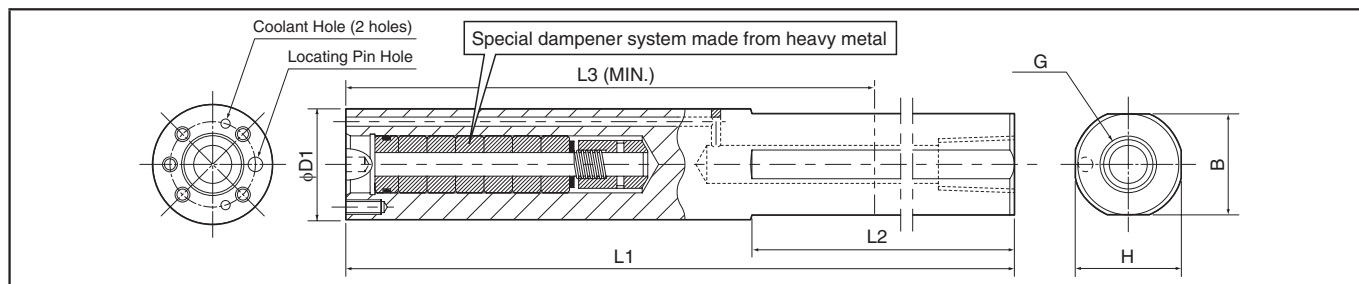
Possible machining area (Guide-Line for Overhang Length of AD Bars)

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



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

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



Dimensions

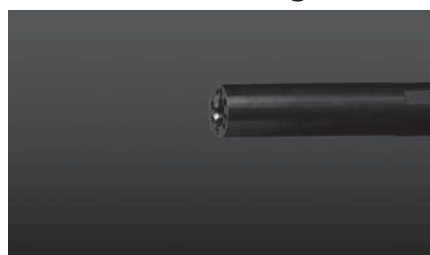
Description	Std.	Dimension (mm)							Spare Parts		
		φD1	H	B	L1	L2	L3 (MIN.)	G	Clamp Bolt		Wrench
AD 32U	●	32	31	29	310	200	200	Rp3/8	HH5×20 (3 pcs)	HH5×30 (1 pcs)	LW-4
AD 40V	●	40	39	37	360	248	228		HH6×20 (3 pcs)	HH6×30 (1 pcs)	LW-5
AD 50W	●	50	47	47	410	280	276				

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 [®] /L 12-40	AD32U	HH5×20	LW-4
	PDUN [®] /L 15-43		HH5×30	
	PTFN [®] /L 16-40			
	SCLC [®] /L 09-40			
	SDUC [®] /L 11-40		HH5×20	
HA40	PCLN [®] /L 12-50	AD40V	HH5×20	LW-4
	PDUN [®] /L 15-50		HH5×30	
	PTFN [®] /L 16-50			
HA50	PCLN [®] /L 12-63	AD50W	HH6×20	LW-5
	PDUN [®] /L 15-63		HH6×30	
	PTFN [®] /L 16-63			

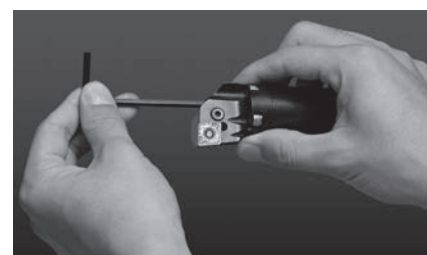
How to exchange heads



1. No head attached



2. Align hole positions

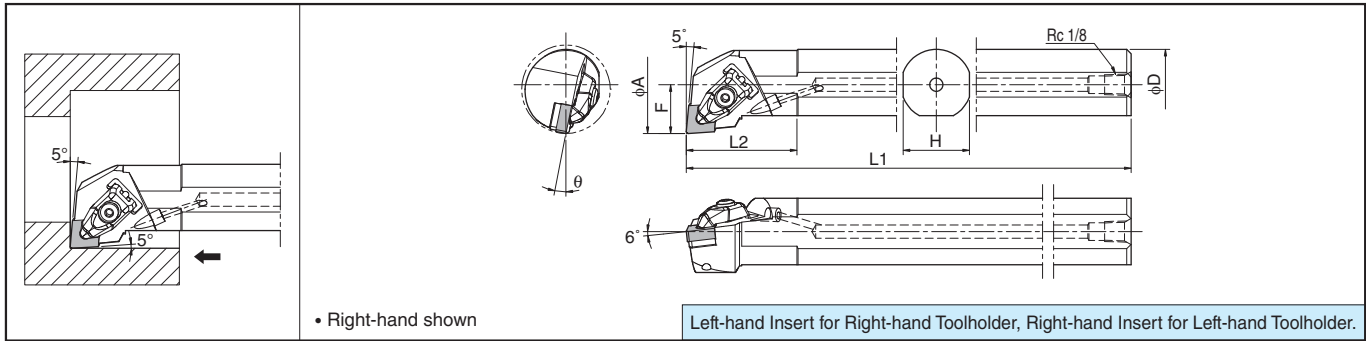


3. Tighten 3 bolts to attach the head

For lever lock type Interchangeable head, use 2 short bolts for upper side and 1 long bolt for lower side.
HA32 SCLC[®]/L 09-40 and HA32 SDUC[®]/L 11-40 use HH5 X 20 for all 3 bolts.

A-DCLN (Boring / Internal Facing)

Max. Overhang Length L/D≈~3



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R (r _c)	Spare Parts								
	R	L		φA	φD	H	L1	L2	F			S	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									
A32S-DCLN ^{R/L} 12-40	●	●	40	32	30	250	50	22	-	11°		CP-3D	CS-3D	SP-3D	DC-42	SB-4085TR	DN10	LW-3	FT-15	
A40T-DCLN ^{R/L} 12-50	●	●	50	40	37	300	60	27	-	11°							DN20			

*When using inserts whose corner-R(r_c) is greater than 1.6mm, it will be necessary additional modifications of the shim in order to prevent workpiece and shim from interfering each other.

*Not applicable to high-pressure coolant.

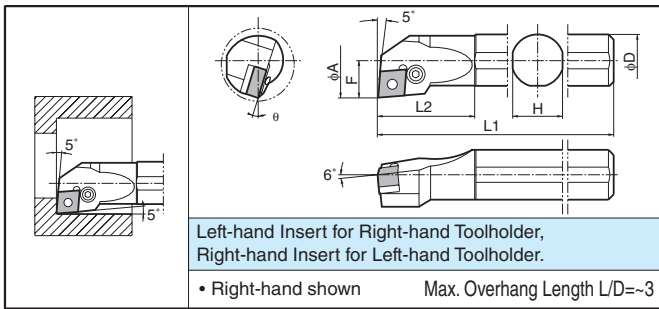
Applicable Inserts

Applications	Finishing	Finishing-Medium	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing
Ref. to Page	B14	B14	B14	B14	B14	B14	B14	B14	B14	B15	B15
Insert											
Toolholder Description	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Single Steel / Roughing / High Feed Rate	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	
Ref. to Page	B15	B15	B16	B17	B20	B17	B17	B17	B17	B18	B18
Insert											
Toolholder Description	CNMG1204..	CNMG1204..	CNMG1204..	CNMM1204..	CNGG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	
Ref. to Page	B18	B19	B19	B19	B19	B86	B19	B19	C23	C6,C7	
Insert											
Toolholder Description	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMA1204.. CNGA1204..	CNMA1204.. CNGA1204..	CN_G1204..	CNGG1204..	CNMM1204..	CNGA1204..	

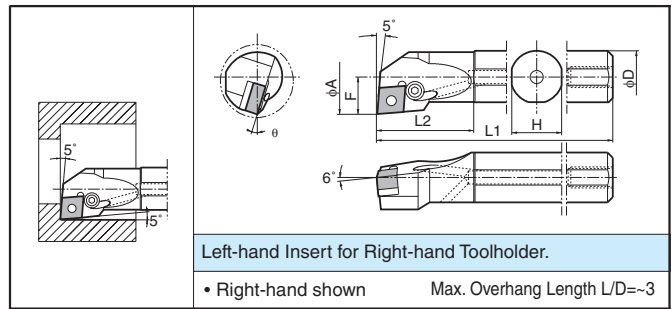
Recommended Cutting Conditions ● F91~F92

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

S-PCLN○○ (Boring / Internal Facing)



A-PCLN09



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)					θ	Standard Corner-R (r _c)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S16M-PCLN ^{R/L} 09-20	PCLN ^{R/L} 2016B-09	●	●	20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q-PCLN ^{R/L} 09-27	PCLN ^{R/L} 2720B-09	●	●	27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	
S25R-PCLN ^{R/L} 09-32	3225B-09	●	●	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	PCLN ^{R/L} 4032B-12	●	●	40	32	30	250	50	21	10°							
S40T-PCLN ^{R/L} 12-50	5040B-12	●	●	50	40	37	300	60	25								
A16M-PCLN ^{R/L} 09-20	PCLN ^{R/L} 2016B-09H	●		20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PCLN ^{R/L} 09-27	PCLN ^{R/L} 2720B-09H	●		27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	
A25R-PCLN ^{R/L} 09-32	3225B-09H	●		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	Finishing-Medium	Medium-Roughing	Medium-Roughing
Ref. to Page	B14	B14	B14	B14	B14	B14	B14	B14	B14	B15	B15
Insert	WP (Wiper)	WQ (Wiper)	PP	GP	PQ	HQ	CQ	CJ	GS	PG	
Toolholder Description											
...PCLN ^{R/L} 09-...	-	-	-	CNMG0904..	-	CNMG0904..	-	-	CNMG0904..	-	-
...PCLN ^{R/L} 12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..
Applications	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Single Side / Roughing / High Feed Rate	Finishing	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	
Ref. to Page	B15	B15	B15	B16	B17	B20	B20	B17	B17	B17	
Insert	PS	HS	PT	Standard	PX	^{R/L} -S	^{R/L}	XP	XQ	XS	
Toolholder Description											
...PCLN ^{R/L} 09-...	-	-	-	-	-	CNMG0904..	CNMG0904..	-	-	-	-
...PCLN ^{R/L} 12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMM1204..	-	CNMG1204..	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	Non-ferrous Metals	Non-ferrous Metals	
Ref. to Page	B18	B18	B18	B19	B19	B19	B19	B86	B19	B19	
Insert	MQ	MS	MU	C	ZS	GC	Without Chipbreaker	Ceramic	AH	^{R/L} -A3	
Toolholder Description											
...PCLN ^{R/L} 09-...	-	-	-	-	-	-	-	-	-	-	-
...PCLN ^{R/L} 12-...	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMG1204..	CNMA1204.. CNGA1204..	CNMA1204.. CNGA1204..	CN_G1204..	CNMG1204..	CNMG1204..
Applications	Non-ferrous Metals	Hard Materials									
Ref. to Page	C23	C6,C7									
Insert	PCD	CBN									
Toolholder Description											
...PCLN ^{R/L} 09-...	-	-									
...PCLN ^{R/L} 12-...	CNMG1204..	CNGA1204..									

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	

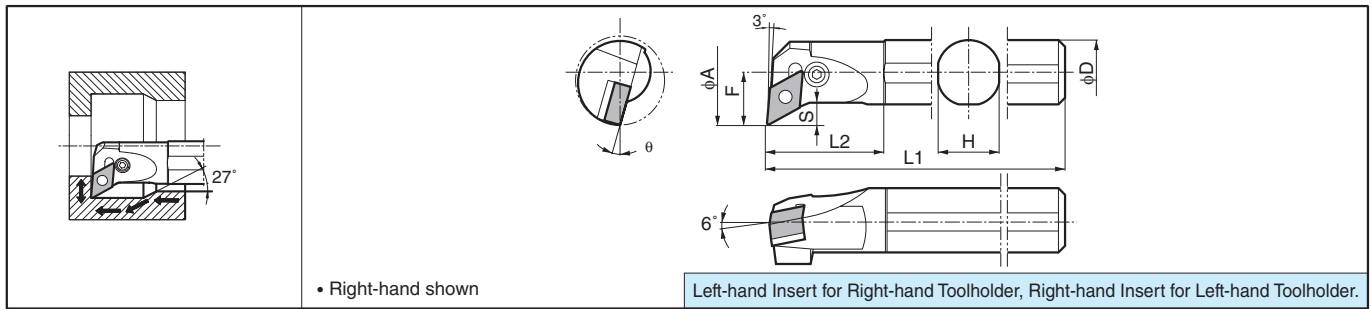
- For Coolant Sleeve, Coolant Joint, ref. to page F83~F84.

Recommended Cutting Conditions F91~F92

● : Std. Item

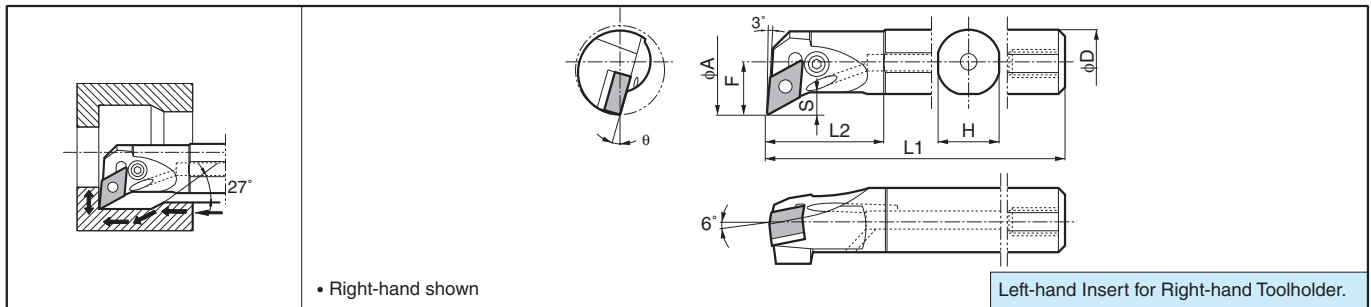
S-PDUN11 (Copying)

Max. Overhang Length L/D≈3



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

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)							θ	Standard Corner-R(°)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F	S			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S20Q -PDUN ^{R/L} 11-27	PDUN ^{R/L} 2720B-11	●	●	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	3225B-11	●	●	32	25	24	200	40	17	7.6	15°								
S32S -PDUN ^{R/L} 11-40	4032B-11	●	●	40	32	31	250	45	22	8.5	12°								
A20Q -PDUNR 11-27	PDUNR 2720B-11H	●		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 -PDUNR 11-32	3225B-11H	●		32	25	24	200	40	17	7.6	15°								
A32S -PDUNR 11-40	4032B-11H	●		40	32	31	250	45	22	8.5	12°								

Applicable Inserts

Applications	Finishing	Finishing-Medium	Medium-Roughing	Finishing	Medium					
Ref. to Page	B21	B21	B22	B27	B27					
Insert	GP	HQ	GS	^{R/L} -S	^{R/L}					
Toolholder Description	DNMG1104..	DNMG1104..	DNMG1104..	DNGG1104..	DNGG1104..					
....PDUN ^{R/L} 11....	DNMG1104..	DNMG1104..	DNMG1104..	DNGG1104..	DNGG1104..					

Recommended Cutting Conditions **F91~F92**

Applicable Coolant Sleeve / Joint

Toolholder Description	Applicable Coolant Sleeve	Applicable Coolant Joint
A20Q -PDUNR 11-27	SHC2040-70, SHC2050-95	SJS-8
A25R -PDUNR 11-32	SHC2540-70, SHC2550-95	
A32S -PDUNR 11-40	-	

For Coolant Sleeve, Coolant Joint, ref. to page **F83~F84**.

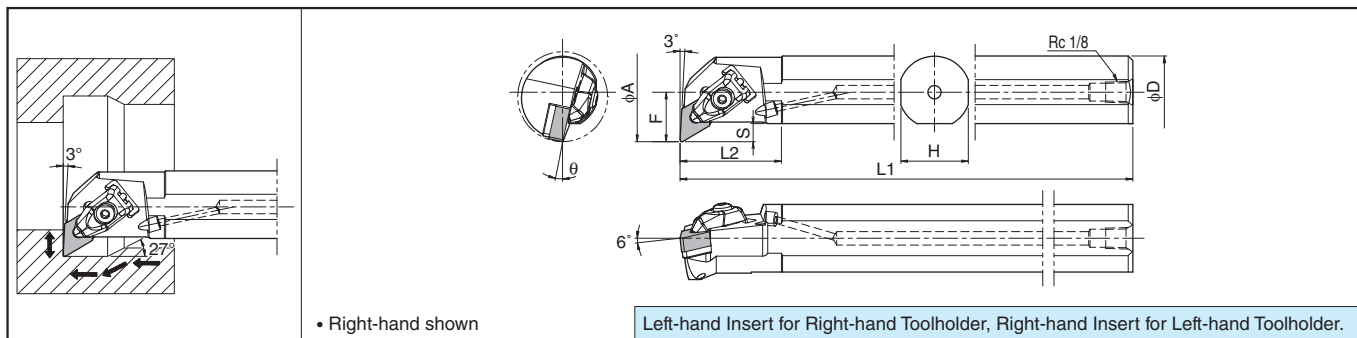
F



Boring

Boring Bar [DN15 Negative Insert]

A-DDUN (Boring / Copying)

Max. Overhang Length $L/D \sim 3$ 

Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(r_c)	Spare Parts						
	R	L		ϕA	ϕD	H	L1	L2	F	S		Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench (sold separately)
A32S-DDUN ^{R/L} 15-40	●	●	40	32	30	250	45	22	8	12°	0.8	CP-3D	CS-3D	SP-3D	DD-42	SB-4085TR	DN10	LW-3
A40T-DDUN ^{R/L} 15-50	●	●	50	40	37	300	55	27	8.5			CP-3D	CS-3D	SP-3D	DD-42	SB-4085TR	DN20	FT-15
A50U-DDUN ^{R/L} 15-63	●	●	63	50	47	350	65	35	10.5			CP-3D	CS-3D	SP-3D	DD-42	SB-4085TR	DN20	FT-15

When using inserts whose corner-R(r_c) 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.

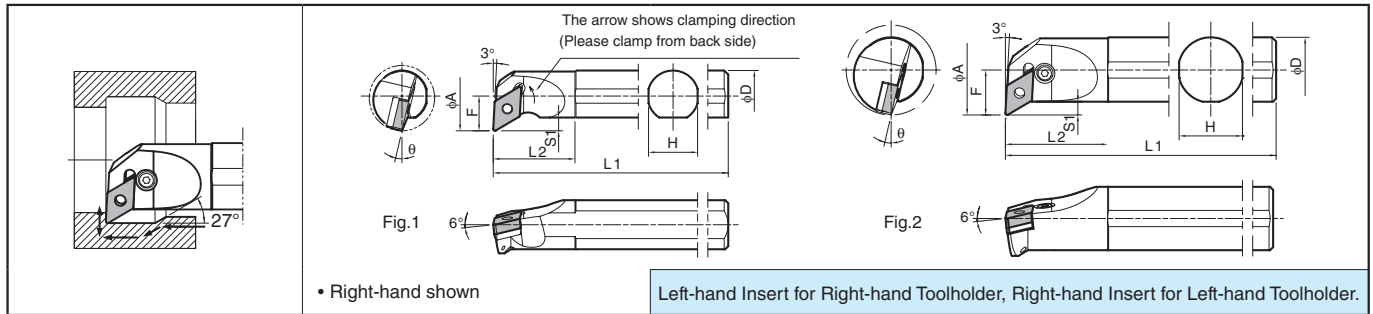
Applicable Inserts

Applications	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Ref. to Page	B21	B21	B22	B22	B22	B22	B23	B23	B23
Insert	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder Description	----	----	----	----	----	----	----	----	----
Applications	Roughing	Single Sided / Roughing / High Feed Rate	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing
Ref. to Page	B24	B24	B27	B24	B24	B24	B25	B25	B25
Insert	PH	PX	^{R/L}	XP	XQ	XS	MQ	MS	MU
Toolholder Description	----	----	----	----	----	----	----	----	----
Applications	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. to Page	B25	B26	B26	B26	B87	B26	B26	C23	C8,C9
Insert	TK	C	ZS	GC	Ceramic	AH	^{R/L} -A3	PCD	CBN
Toolholder Description	----	----	----	----	----	----	----	----	----
Applications	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. to Page	B25	B26	B26	B26	B87	B26	B26	C23	C8,C9
Insert	TK	C	ZS	GC	Ceramic	AH	^{R/L} -A3	PCD	CBN
Toolholder Description	----	----	----	----	----	----	----	----	----

Recommended Cutting Conditions ● F91~F92

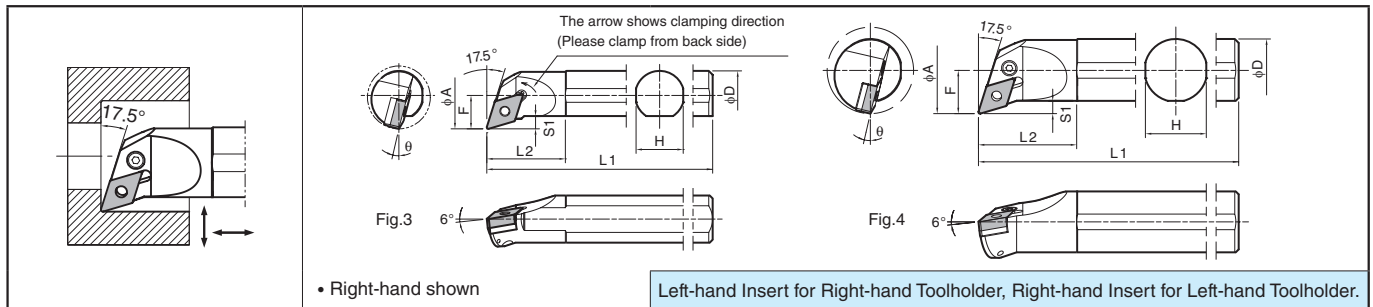
S-PDUN15 (Copying)

Max. Overhang Length L/D≈~3



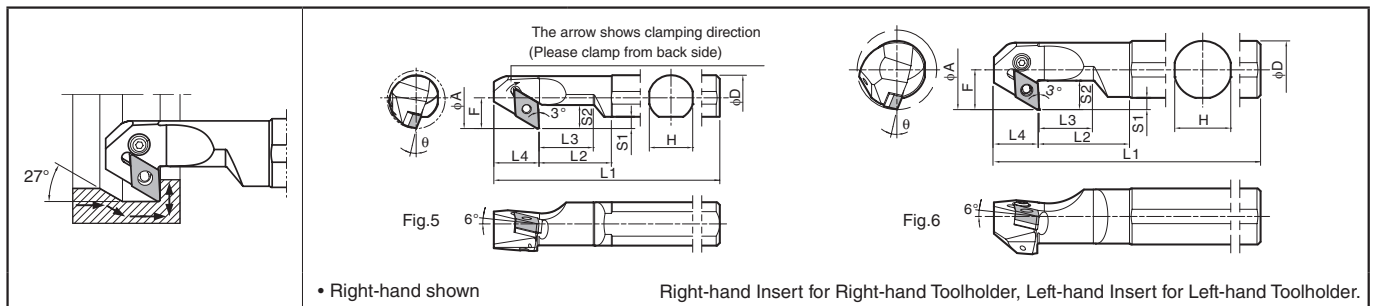
S-PDQN15 (Copying)

Max. Overhang Length L/D≈~3



S-PDZN15 (Back Boring)

Max. Overhang Length L/D≈~3



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)										θ	Standard Corner-R(r _c)	Drawing	Applicable Inserts	
	R	L		ϕA	ϕD	H	L1	L2	L3	L4	F	S1	S2					
S25R -PDUN [®] /L 15-32	●	●	32	25	24	200	40				17			13°	0.8	Fig.1	DN□A	1504..
S32S -PDUN [®] /L 15-44	●	●	44	32	31	250	50				22	6.5				Fig.2	DN□G	
S40T -PDUN [®] /L 15-54	●	●	54	40	39	300	65				27	7.5					DN□M	
S25R -PDQN [®] /L 15-32	●	●	32	25	24	200	40				17			13°	0.8	Fig.3	DN□A	1504..
S32S -PDQN [®] /L 15-44	●	●	44	32	31	250	50				22	6.5				Fig.4	DN□G	
S40T -PDQN [®] /L 15-54	●	●	54	40	39	300	65				27	7.5					DN□M	
S25R -PDZN [®] /L 15-32	●	●	32	25	24	225	40				17		13	13°	0.8	Fig.5	DN□A	1504..
S32S -PDZN [®] /L 15-44	●	●	44	32	31	275	50		30	25	22	6.5				Fig.6	DN□G	
S40T -PDZN [®] /L 15-54	●	●	54	40	39	325	65				27	7.5					DN□M	

Boring Bar [DN15 Negative Insert]

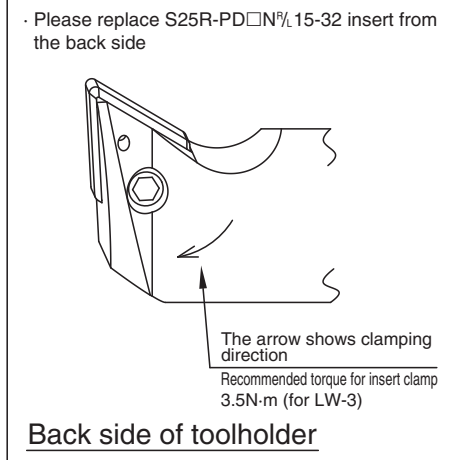
● Spare Parts (Common)

Toolholder Description	Spare Parts									
	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Lock Pin	Shim	Shim Screw	Wrench (for Shim Screw)
										
S25R - PD□N [°] /L 15-32	-	-	-	-	-	LW-3	PP-4	PD-42	SB-2050TR	FT-6
S32S - PD□N [°] /L 15-44	LL-3N	LS-2N	LD-42 *LD-42-20	LSP-2	PC-2		-	-	-	-
S40T - PD□N [°] /L 15-54							-	-	-	-

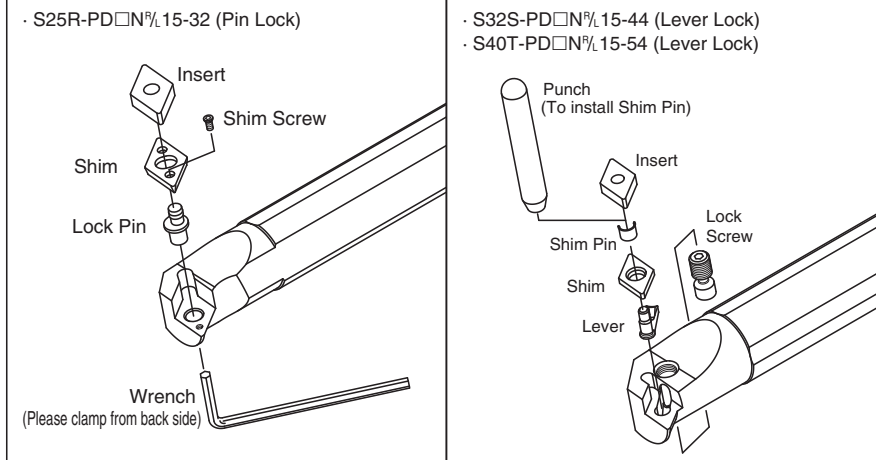
· Shim When using inserts whose corner-R(r_c) = 1.6mm or larger for S25R-PD□N[°]/L 15-32, use shim modified by additional processing to prevent interference between workpiece and shim.
When using inserts whose corner-R(r_c) = 1.6mm or larger for S32S-PD□N[°]/L 15-44 and S40T-PD□N[°]/L 15-54, purchase and use shim with * mark separately to prevent interference between workpiece and shim.

F

● How to change S25R-PD□N[°]/L 15-32 inserts



● How to assemble spare parts



● Applicable Inserts

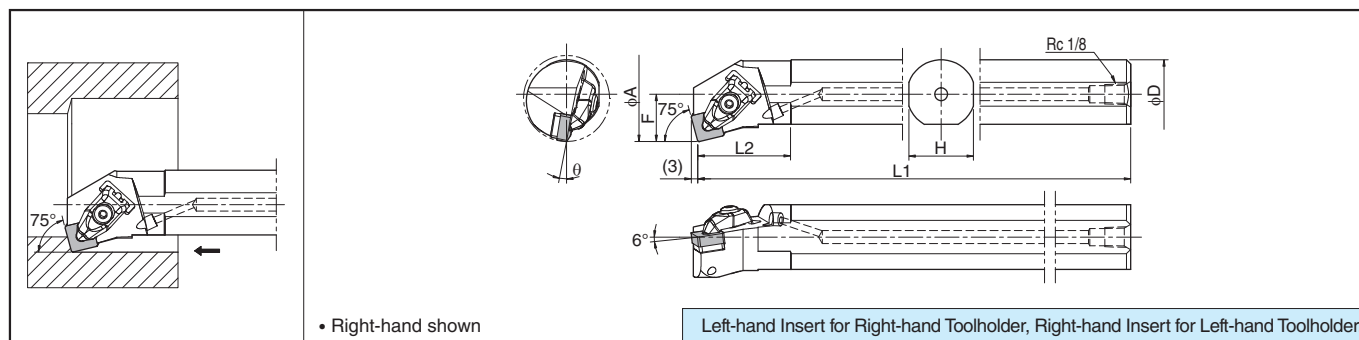
Applications Ref. to Page	Finishing B21	Finishing-Medium B21	Finishing-Medium B22	Finishing-Medium B22	Medium-Roughing B22	Medium-Roughing B22	Medium-Roughing B23	Medium-Roughing / High Feed Rate B23	Roughing B23
Insert	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder Description									
....PD□N [°] /L 15....	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..
Applications Ref. to Page	Roughing B24	Single Sided / Roughing / High Feed Rate B24	Medium B27	Soft Steel / Finishing B24	Soft Steel / Medium B24	Soft Steel / Roughing B24	Stainless Steel / Finishing B25	Stainless Steel / Medium-Roughing B25	Stainless Steel / Medium-Roughing B25
Insert	PH	PX	[°] /L	XP	XQ	XS	MQ	MS	MU
Toolholder Description									
....PD□N [°] /L 15....	DNMG1504..	DNMM1504..	DNGG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..
Applications Ref. to Page	Stainless Steel / Medium-Roughing B25	Cast Iron B26	Cast Iron B26	Cast Iron B26	Cast Iron B87	Non-ferrous Metals B26	Non-ferrous Metals B26	Non-ferrous Metals C23	Hard Materials C8,C9
Insert	TK	C	ZS	GC	Ceramic	AH	[°] /L-A3	PCD	CBN
Toolholder Description									
....PD□N [°] /L 15....	DNMG1504..	DNMG1504..	DNMG1504..	DNMG1504..	DNGA1504..	DN_G1504..	DNGG1504..	DNMM1504..	DNGA1504..

Recommended Cutting Conditions ● F91~F92

Boring Bar [SN12 Negative Insert]

A-DSKN (Boring)

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner- $R(t_c)$	Spare Parts						
	R	L		ϕA	ϕD	H	L1	L2	F	S		Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench (sold separately)
A25R-DSKN ^{R/L} 12-32	●	●	32	25	23	200	43	17	-	11°	0.8							
A32S-DSKN ^{R/L} 12-40	●	●	40	32	30	250	43	22	-	11°		CP-3D	CS-3D	SP-3D	DS-42	SB-4085TR	DN10	FT-15
A40T-DSKN ^{R/L} 12-50	●	●	50	40	37	300	53	27	-	11°							DN20	

*Not applicable to high-pressure coolant.

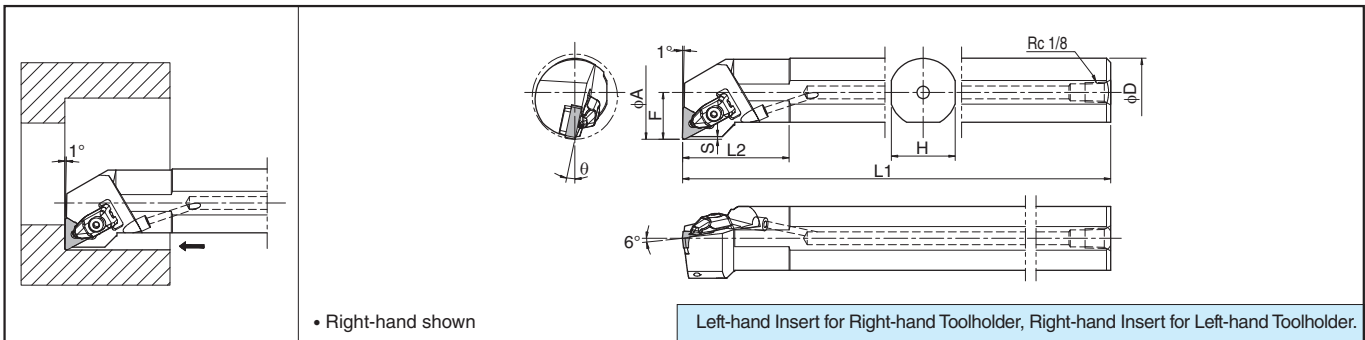
Applicable Inserts

Applications	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed Rate
Ref. to Page	B29	B29	B29	B29	B29	B29	B30	B30
Insert								
Toolholder Description	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
Ref. to Page	B32	B32	B30	B30	B30	B31	B31	B31
Insert								
Toolholder Description	SNGG1204..	SNGG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..	SNMG1204..
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Hard Materials			
Ref. to Page	B31	B31	B31	B89	C10			
Insert								
Toolholder Description	SNMG1204..	SNMG1204..	SN□A1204..	SN□A1204..	SNGA1204..			

Recommended Cutting Conditions ● F91~F92

A-DTFN (Boring)

Max. Overhang Length $L/D \approx 3$



● Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(°)	Spare Parts							
	R	L		φA	φD	H	L1	L2	F			S	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench
																	 for Clamp	 for Shim	
A25R-DTFN [®] 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 [®] 16-40	●	●	40	32	30	250	50	22	1.2	12°		CP-3D	CS-3D	SP-3D	DT-42	SB-4085TR	DN20	LW-3	FT-15
A40T-DTFN [®] 22-50	●	●	50	40	37	300	60	27	1.5	12°									

*Not applicable to high-pressure coolant.

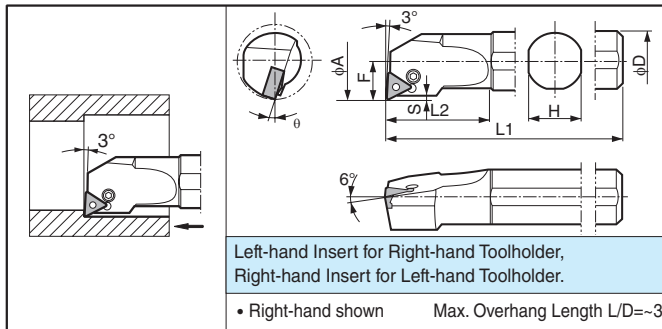
- **Applicable Inserts**

[illegible]

Recommended Cutting Conditions ➡ F91~F92

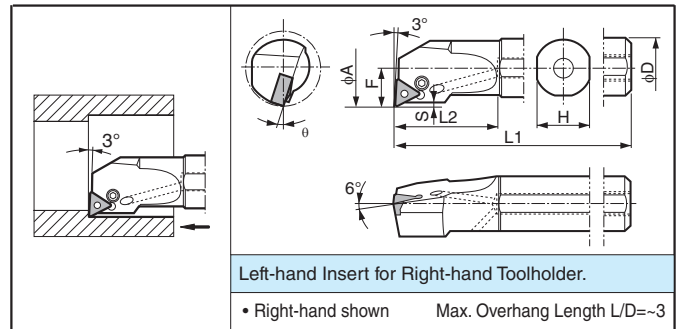
● : Std. Item

S-PTUN○○ (Boring)



A-PTUN11

(Internal, with Coolant Hole)
Twin-Hole Bar



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(r _c)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F			S	Lever	Lock Screw	Shim	Shim Pin	Punch
																 LSP P		
S16M-PTUN ^{R/L} 11-20	PTUN ^{R/L} 2016B-11	●	●	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	2520B-11	●	●	25	20	19	180	37	13.2	0.2	17°		LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
S25R-PTUN ^{R/L} 11-32	3225B-11	●	●	32	25	24	200	42	15.7	0.3	16°		LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
S16M-PTUN ^{R/L} 16-20	NEW -	●	●	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°		LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S25R-PTUN ^{R/L} 16-30		●	●	30	25	24	200	42	15.5	1.3	13°		LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S32S-PTUN ^{R/L} 16-40		●	●	40	32	30	250	50	22	0.7	13°		LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S40T-PTUN ^{R/L} 16-50		●	●	50	40	37	300	60	27	0.6	11°		LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A16M-PTUNR11-20	PTUNR2016B-11H	●		20	16	15	150	34	11	0.3	18°	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PTUNR11-25	2520B-11H	●		25	20	19	180	37	13.2	0.2	17°		LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
A25R-PTUNR11-32	3225B-11H	●		32	25	24	200	42	15.7	0.3	16°		LL-03TN	LS-03SN	-	P-03S	-	FH-2.5

• When using inserts whose corner-R(r_c) = 1.6mm or larger, purchase and use shim with * mark separately to prevent interference between workpiece and shim.

Applicable Inserts

Applications	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate
Ref. to Page	B33	B33	B33	B33	B33	B33	B33	B33	B34	B34
Insert	PP	GP	PQ	HQ	CQ	GS	PG	PS	HS	PT
Toolholder Description										
----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
Ref. to Page	B34	B34	B38	B38	B35	B35	B35	B36	B36	B36
Insert	GT	Standard	^{R/L} -S	^{R/L} -□	XP	XQ	XS	MQ	MS	MU
Toolholder Description										
----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	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. to Page	B36	B37	B37	B37	B37	B91	B37	B37	C23	C11
Insert	^{R/L} -ST	C	ZS	GC	Without Chipbreaker	Ceramic	AH	^{R/L} -A3	PCD	CBN
Toolholder Description										
----PTUN ^{R/L} 11----	-	-	-	-	-	-	-	-	-	-
----PTUN ^{R/L} 16----	TNMG1604..	TNMG1604..	TNMG1604..	TNMG1604..	TNMA1604.. TNGA1604..	TNGA1604..	TN_G1604..	TNGG1604..	TNMM1604..	TNGA1604..

Recommended Cutting Conditions ● F91~F92

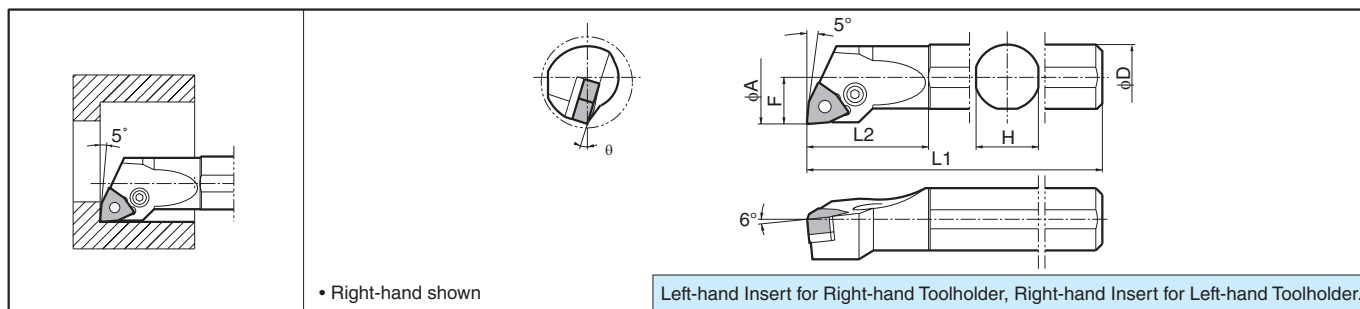
Applicable Coolant Sleeve / Joint

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, ref. to page ● F83~F84.

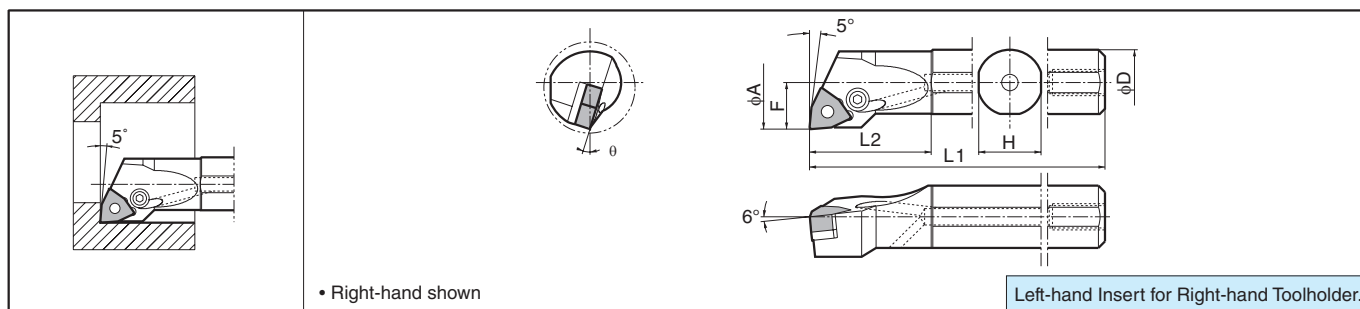
S-PWLN06 (Boring / Internal Facing)

Max. Overhang Length L/D≈3



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

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)					θ	Standard Corner R (r _c)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F		Lever	Lock Screw	Shim	Shim Pin LSP	Punch	Wrench
S16M-PWLN ^{R/L} 06-20	PWLN ^{R/L} 2016B-06	●	●	20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q-PWLN ^{R/L} 06-27	PWLN ^{R/L} 2720B-06	●	●	27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	
S25R-PWLN ^{R/L} 06-32	3225B-06	●	●	32	25	24	200	42	15.7	15°		LL-03SN	LS-03SN	-	P-03S	-	
A16M-PWLN ^R 06-20	PWLN ^R 2016B-06H	●		20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PWLN ^R 06-27	PWLN ^R 2720B-06H	●		27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	
A25R-PWLN ^R 06-32	3225B-06H	●		32	25	24	200	42	15.7	15°		LL-03SN	LS-03SN	-	P-03S	-	

Applicable Inserts

Applications	Finishing	Finishing-Medium	Medium-Roughing	Finishing	Medium						
Ref. to Page	B41	B41	B42	B44	B44						
Insert	GP	HQ	GS	^{R/L} -S	^{R/L}						
Toolholder Description											
....PWLN ^{R/L} 06....	WNMG0604..	WNMG0604..	WNMG0604..	WNGG0604..	WNGG0604..						

Recommended Cutting Conditions ➡ F91~F92

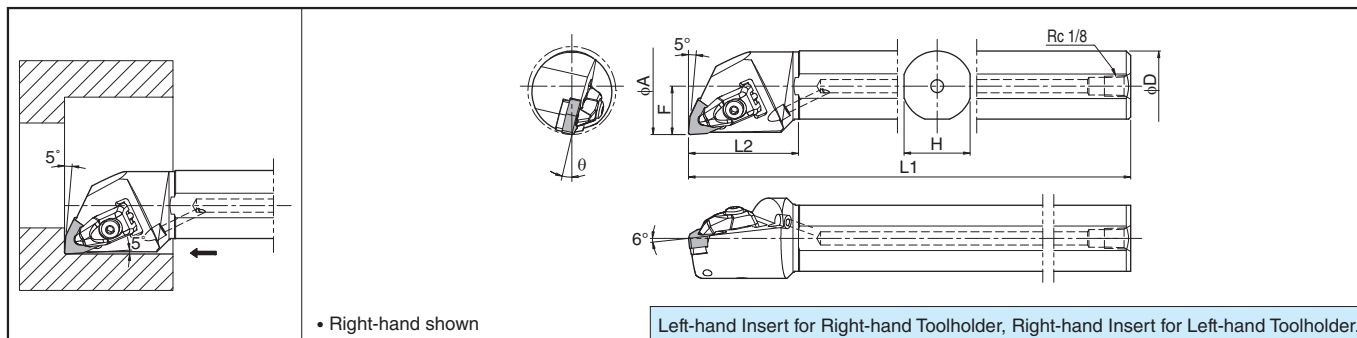
Applicable Coolant Sleeve / Joint

Toolholder Description	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PWLN ^R 06-20	SHC1640-70, SHC1650-95	SJS-8
A20M-PWLN ^R 06-27	SHC2040-70, SHC2050-95	
A25R-PWLN ^R 06-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint, ref. to page ➡ F83~F84.

A-DWLN (Boring / Internal Facing)

Max. Overhang Length L/D≈3



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R (r _c)	Spare Parts							
	R	L		φA	φD	H	L1	L2	F			S	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench
A25R-DWLN ^R /08-32	●	●	32	25	23	200	50	17	-	13°	0.8							 for Clamp	 for Shim
A32S-DWLN ^R /08-40	●	●	40	32	30	250	50	22	-	13°									
A40T-DWLN ^R /08-50	●	●	50	40	37	300	60	27	-	13°									

*Not applicable to high-pressure coolant.

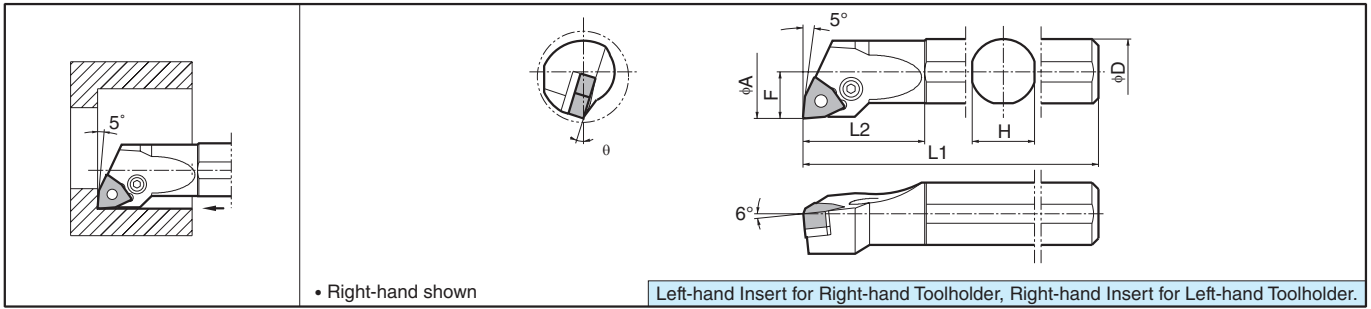
Applicable Inserts

Applications	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing / High Feed Rate	Roughing
Ref. to Page	B41	B41	B41	B41	B41	B41	B42	B42	B42	B42	B42
Insert	WP (Wiper)	WQ (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder Description											
---DWLN ^R /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	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. to Page	B43	B43	B43	B43	B43	B43	B44	B44	B44	C23	C13
Insert	XP	XQ	XS	MQ	MS	MU	C(GC)	ZS	AH	PCD	CBN
Toolholder Description											
---DWLN ^R /L08 ---	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNGG0804..	WNMM0804..	WNGA0804..

Recommended Cutting Conditions ● F91~F92

S-PWLN08 (Boring / Internal Facing)

Max. Overhang Length L/D≈3



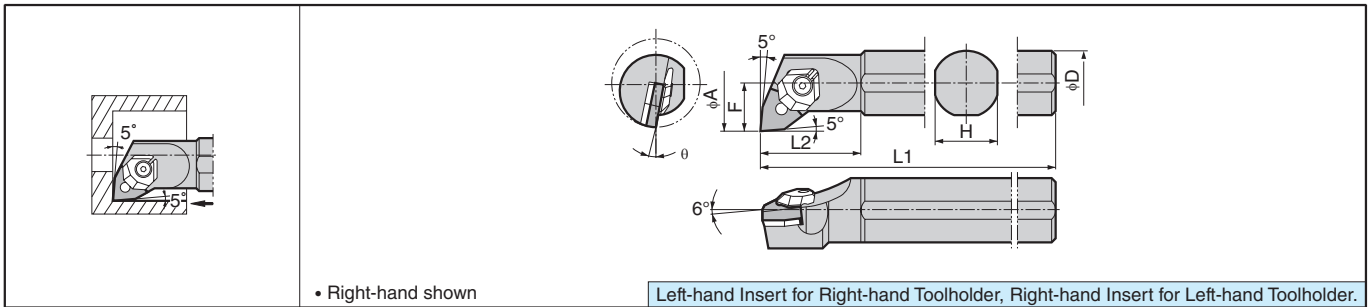
Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(r _c)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
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



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)						θ	Standard Corner-R(r _c)	Spare Parts					
		R	L		φA	φD	H	L1	L2	F			Clamp Set	Wrench	Shim	Shim Pin	Wrench	
S25S-WWLN ^{R/L} 08 -28E	WWLN ^{R/L} 2825B-08E	●	●	28	25	24		36	14	13°			WCS-8	LW-3	WWP-42	WP5X11	LW-2	
S25S-WWLN ^{R/L} 08 -34E	3425B-08E	●	●	34	25	24	250	40	17	11°		1.2			*WWP			
S32S-WWLN ^{R/L} 08 -40E	4032B-08E	●	●	40	32	30		50	20	10°					-42-16			

When using inserts whose corner-R(r_c) = 1.6mm or larger, purchase and use shim with * mark separately to prevent interference between workpiece and shim.

Applicable Inserts

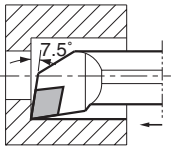
Applications	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Ref. to Page	B41	B41	B41	B41	B41	B41	B42	B42	B42	B42	B42
Insert	WP (Wiper)	WQ (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder Description	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	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. to Page	B43	B43	B43	B43	B43	B43	B44	B44	B44	C23	C13
Insert	XP	XQ	XS	MQ	MS	MU	C(GC)	ZS	AH	PCD	CBN
Toolholder Description	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNGG0804..	WNMM0804..	WNGA0804..
...	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNMG0804..	WNGG0804..	WNMM0804..	WNGA0804..

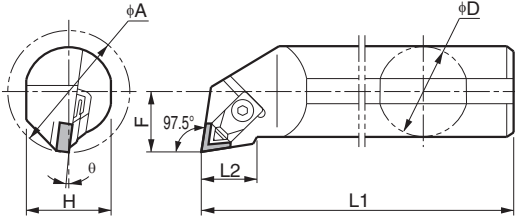
In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

Recommended Cutting Conditions **F91~F92**

S-CELN (Boring / Internal Facing)

Max. Overhang Length L/D≈~3





• Right-hand shown

● **Applicable Inserts**

Cast Iron / Hard Materials
● B87
Ceramic

ENG1307..

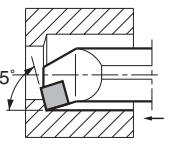
Toolholder Dimensions

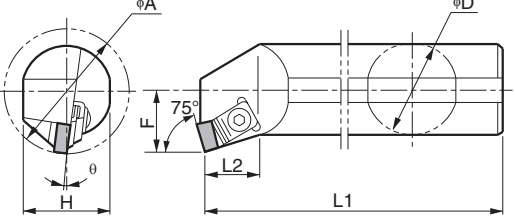
Recommended Cutting Conditions ● **F91~F92**

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)					θ	Standard Corner-R(r _c)	Spare Parts				
		R	L		φA	φD	H	L1	L2	F		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S40T-CELNR13-50	CELNR 5040B-13	●		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	Cast Iron / Hard Materials
● B89	● B31	● C19
Ceramic	Coated Carbide	CBN (KBN900)
		
SNGN1207..(1204..) SNMN1207..	(SNMN1204..)	(SNMN1204..)

Toolholder Dimensions

Recommended Cutting Conditions ● **F91~F92**

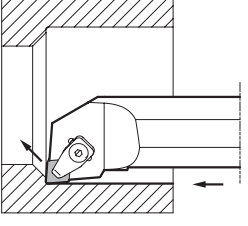
Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)					θ	Standard Corner-R(r _c)	Spare Parts				
		R	L		φA	φD	H	L1	L2	F		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S40T-CSKN^{R/L}12-50	CSKN^{R/L} 5040B-12	●	●	50	40	37	300	26	27	10.5°	0.8	CB-13/12	CE-320	LW-4	SP-141P (SP-143P)	M3X8 (M3X12)

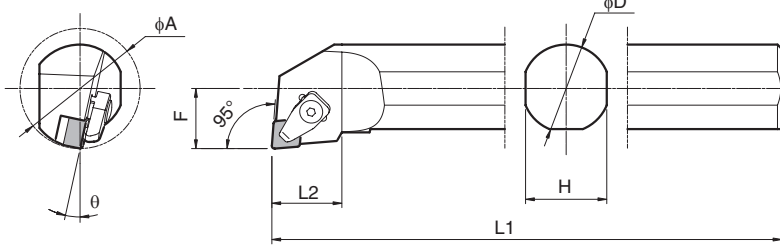
· Chipbreaker: CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.

· Shim & Shim Screw : When using SN□□1204 Insert, purchase spare parts in () separately.

S-CCLN-GX (Boring / Internal Facing)

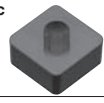
Max. Overhang Length L/D≈3





• Right-hand shown

Applicable Inserts

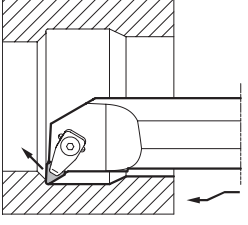
Cast Iron	➡ B86
Ceramic	
CNGX1207..	

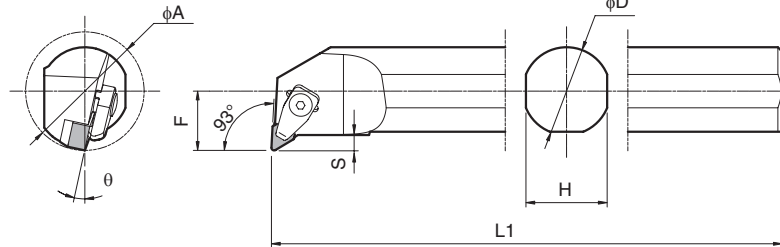
Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)					θ	Std. Corner-R(r _ε)	Spare Parts				Recommended Cutting Conditions
	R	L		φA	φD	H	L1	L2			F	Clamp Set	Wrench	Shim	
															
S32S- CCLN ^{R/L} 12-40GX	●	●	40	32	30	250	32	22	14°	1.2		LW-4	-	-	F91~F92
S40T- CCLN ^{R/L} 12-50GX	●	●	50	40	37	300	32	27	12°	1.2		LW-4	SP-441P	M3X8	

S-CDUN-GX (Boring / Copying)

Max. Overhang Length L/D≈3





• Right-hand shown

Applicable Inserts

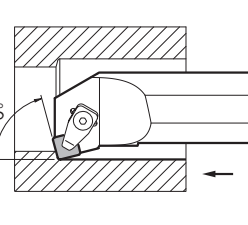
Cast Iron	➡ B87
Ceramic	
DNGX1207..	

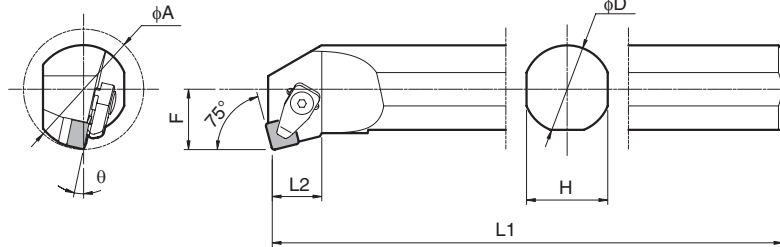
Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)						θ	Std. Corner-R(r _ε)	Spare Parts				Recommended Cutting Conditions
	R	L		φA	φD	H	L1	L2	F			Clamp Set	Wrench	Shim	Shim Screw	
S32S- CDUN ^{R/L} 12-40GX	●	○	40	32	30	250	7.5	22	14°	1.2					F91~F92	
S40T- CDUN ^{R/L} 12-50GX	●	○	50	40	37	300	7.5	27	12°	1.2						

S-CSKN-GX (Boring)

Max. Overhang Length L/D≈3





• Right-hand shown

Applicable Inserts

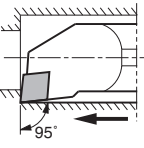
Cast Iron	➡ B90
Ceramic	
SNGX1207..	

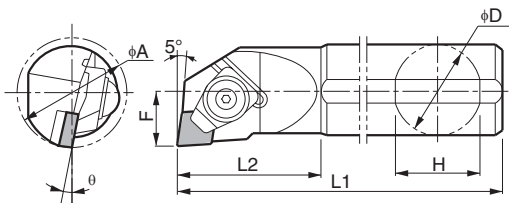
Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)					θ	Std. Corner-R(r _ε)	Spare Parts				Recommended Cutting Conditions	
	R	L		φA	φD	H	L1	L2			F	Clamp Set	Wrench	Shim		Shim Screw
																
S32S- CSKN ^{R/L} 12-40GX	●	○	40	32	30	250	22.5	22	14°	1.2		LW-4	-	-	F91~F92	
S40T- CSKN ^{R/L} 12-50GX	●	○	50	40	37	300	22.5	27	12°	1.2		LW-4	SP-141P	M3X8		

● : Std. Item ○ : Check Availability

S-CCLN-A (Boring / Internal Facing)





• Right-hand shown

● **Applicable Inserts**

Hard Materials / Cast Iron
● C19
CBN(KBN900)

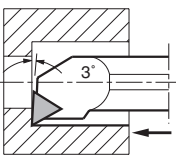
CNMN0903..

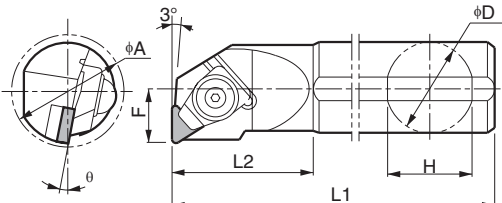
Recommended Cutting Conditions ● **F91~F92**

● Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)					θ	Std. Corner-R(r _c)	Spare Parts				
		R	L		φA	φD	H	L1	L2			F	Clamp Set	Wrench	Shim	Shim Screw
																
S32S-CCLN ^R /09-40A	CCLN ^R /L 4032B-09A	●	●	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	● B91
CBN(KBN900)	Ceramic
	
TNMN1103..	TNGN1103..

Recommended Cutting Conditions ● **F91~F92**

● Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)					θ	Std. Corner-R(r _c)	Spare Parts				
		R	L		φA	φD	H	L1	L2			F	Clamp Set	Wrench	Shim	Shim Screw
																
S25X-CTUNR11-30A	CTUNR3025B-11A	●		30	25	24	220	40	15	10°	0.8	CE-360S	LW-4	SP-210A	BH3X6	

Sleeves for Boring Bars

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. φD1 (mm)	EZB	EZG EZFG EZT EZVB	EZ Bar PLUS	HP	Shank Dia. φD (mm)	
		EZH 01712ST-80	12	EZBR ...017...	-		-	1.7	(General purpose)
		02012ST-80		EZBR ...020...	-		HPB% 0202-...	2	
		02512ST-80		EZBR ...025...	EZ ...025...		-	2.5	
		03012ST-80		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
		03512ST-80		EZBR ...035...	EZ ...035...		-	3.5	
		04012ST-80		EZBR ...040...	EZ ...040...		HP ...04-...	4	
		05012ST-80		EZBR ...050...	EZ ...050...		HP ...05-...	5	
		06012ST-80		EZBR ...060...	EZ ...060...		HP 0606-...	6	
		07012ST-80		EZBR ...070...	EZ ...070...		HP ...07-...	7	
	EZH 01716HP-100	EZH 01716ST-100	16	EZBR ...017...	-		-	1.7	(General purpose)
	02016HP-100	02016ST-100		EZBR ...020...	-		HPB% 0202-...	2	
	02516HP-100	02516ST-100		EZBR ...025...	EZ ...025...		-	2.5	
	03016HP-100	03016ST-100		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
	03516HP-100	03516ST-100		EZBR ...035...	EZ ...035...		-	3.5	
	04016HP-100	04016ST-100		EZBR ...040...	EZ ...040...		HP ...04-...	4	
	04516HP-100	-		-	-		045X- ...050EZ	4.5	
	05016HP-100	05016ST-100		EZBR ...050...	EZ ...050...		HP ...05-...	5	
	06016HP-100	06016ST-100		EZBR ...060...	EZ ...060...		HP 0606-...	6	
	07016HP-100	07016ST-100		EZBR ...070...	EZ ...070...		HP ...07-...	7	
EZH 01719CT-120	EZH 01719HP-120	EZH 01719ST-120	19.05	EZBR ...017...	-		-	1.7	Citizen Machinery
	02019CT-120	02019ST-120		EZBR ...020...	-		HPB% 0202-...	2	
	02519CT-120	02519ST-120		EZBR ...025...	EZ ...025...		-	2.5	
	03019CT-120	03019ST-120		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
	03519CT-120	03519ST-120		EZBR ...035...	EZ ...035...		-	3.5	
	04019CT-120	04019ST-120		EZBR ...040...	EZ ...040...		HP ...04-...	4	
	-	04519HP-120		-	-		045X- ...050EZ	4.5	
	05019CT-120	05019ST-120		EZBR ...050...	EZ ...050...		HP ...05-...	5	
	06019CT-120	06019ST-120		EZBR ...060...	EZ ...060...		HP 0606-...	6	
	07019CT-120	07019ST-120		EZBR ...070...	EZ ...070...		HP ...07-...	7	
EZH 01720CT-120	EZH 01720HP-120	EZH 01720ST-120	20	EZBR ...017...	-		-	1.7	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
	02020CT-120	02020ST-120		EZBR ...020...	-		HPB% 0202-...	2	
	02520CT-120	02520ST-120		EZBR ...025...	EZ ...025...		-	2.5	
	03020CT-120	03020ST-120		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
	03520CT-120	03520ST-120		EZBR ...035...	EZ ...035...		-	3.5	
	04020CT-120	04020ST-120		EZBR ...040...	EZ ...040...		HP ...04-...	4	
	-	04520HP-120		-	-		045X- ...050EZ	4.5	
	05020CT-120	05020ST-120		EZBR ...050...	EZ ...050...		HP ...05-...	5	
	06020CT-120	06020ST-120		EZBR ...060...	EZ ...060...		HP 0606-...	6	
	07020CT-120	07020ST-120		EZBR ...070...	EZ ...070...		HP ...07-...	7	
EZH 01722CT-135	EZH 01722HP-135	EZH 01722ST-135	22	EZBR ...017...	-		-	1.7	Star Micronics Nomura DS Tsugami
	02022CT-135	02022ST-135		EZBR ...020...	-		HPB% 0202-...	2	
	02522CT-135	02522ST-135		EZBR ...025...	EZ ...025...		-	2.5	
	03022CT-135	03022ST-135		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
	03522CT-135	03522ST-135		EZBR ...035...	EZ ...035...		-	3.5	
	04022CT-135	04022ST-135		EZBR ...040...	EZ ...040...		HP ...04-...	4	
	-	04522HP-135		-	-		045X- ...050EZ	4.5	
	05022CT-135	05022ST-135		EZBR ...050...	EZ ...050...		HP ...05-...	5	
	06022CT-135	06022ST-135		EZBR ...060...	EZ ...060...		HP 0606-...	6	
	07022CT-135	07022ST-135		EZBR ...070...	EZ ...070...		HP ...07-...	7	
EZH 01725.0CT-135	EZH 01725.0HP-135	EZH 01725.0ST-135	25	EZBR ...017...	-		-	1.7	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
	02025.0CT-135	02025.0ST-135		EZBR ...020...	-		HPB% 0202-...	2	
	02525.0CT-135	02525.0ST-135		EZBR ...025...	EZ ...025...		-	2.5	
	03025.0CT-135	03025.0ST-135		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
	03525.0CT-135	03525.0ST-135		EZBR ...035...	EZ ...035...		-	3.5	
	04025.0CT-135	04025.0ST-135		EZBR ...040...	EZ ...040...		HP ...04-...	4	
	-	04525.0HP-135		-	-		045X- ...050EZ	4.5	
	05025.0CT-135	05025.0ST-135		EZBR ...050...	EZ ...050...		HP ...05-...	5	
	06025.0CT-135	06025.0ST-135		EZBR ...060...	EZ ...060...		HP 0606-...	6	
	07025.0CT-135	07025.0ST-135		EZBR ...070...	EZ ...070...		HP ...07-...	7	
EZH 01725.4CT-120	EZH 01725.4HP-120	EZH 01725.4ST-120	25.4	EZBR ...017...	-		-	1.7	Citizen Machinery
	02025.4CT-120	02025.4ST-120		EZBR ...020...	-		HPB% 0202-...	2	
	02525.4CT-120	02525.4ST-120		EZBR ...025...	EZ ...025...		-	2.5	
	03025.4CT-120	03025.4ST-120		EZBR ...030...	EZ ...030...		HPB% 0303-...	3	
	03525.4CT-120	03525.4ST-120		EZBR ...035...	EZ ...035...		-	3.5	
	04025.4CT-120	04025.4ST-120		EZBR ...040...	EZ ...040...		HP ...04-...	4	
	-	04525.4HP-120		-	-		045X- ...050EZ	4.5	
	05025.4CT-120	05025.4ST-120		EZBR ...050...	EZ ...050...		HP ...05-...	5	
	06025.4CT-120	06025.4ST-120		EZBR ...060...	EZ ...060...		HP 0606-...	6	
	07025.4CT-120	07025.4ST-120		EZBR ...070...	EZ ...070...		HP ...07-...	7	

• Choose sleeves (φD1) to meet with φD dimension of bar.

• Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT/HP sleeves.

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
EZH-ST sleeve description		01725.4CT/HP-120	02025.4CT/HP-120	02525.4CT/HP-120	03025.4CT/HP-120	03525.4CT/HP-120
		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
EZ Bars	Boring Bars	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
	Internal Grooving	01725.4ST-120	02025.4ST-120	02525.4ST-120	03025.4ST-120	03525.4ST-120
	Internal Threading					
EZ Bar PLUS						
2-Edge Tip-Bars	Boring Bars		HPB [®] /L 0202-		HPB [®] /L 0303-	
	Internal Grooving					
	Face Grooving					
	Internal Threading					
	Boring Bars					

Shank Size (Hole Dia.: mm)		04 (4mm)	045 (4.5mm)	05 (5mm)	06 (6mm)	07 (7mm)
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
		04020CT/HP-120	04520HP-120	05020CT/HP-120	06020CT/HP-120	07020CT/HP-120
		04022CT/HP-135	04522HP-135	05022CT/HP-135	06022CT/HP-135	07022CT/HP-135
		04025.0CT/HP-135	04525.0HP-135	05025.0CT/HP-135	06025.0CT/HP-135	07025.0CT/HP-135
EZH-ST sleeve description		04025.4CT/HP-120	04525.4HP-120	05025.4CT/HP-120	06025.4CT/HP-120	07025.4CT/HP-120
		EZH 04012ST-80		EZH 05012ST-80	EZH 06012ST-80	EZH 07012ST-80
		04016ST-100		05016ST-100	06016ST-100	07016ST-100
		04019ST-120		05019ST-120	06019ST-120	07019ST-120
		04020ST-120		05020ST-120	06020ST-120	07020ST-120
EZ Bars	Boring Bars	04022ST-135		05022ST-135	06022ST-135	07022ST-135
		04025.0ST-135		05025.0ST-135	06025.0ST-135	07025.0ST-135
	Internal Grooving	04025.4ST-120		05025.4ST-120	06025.4ST-120	07025.4ST-120
	Internal Threading					
EZ Bar PLUS						
2-Edge Tip-Bars	Boring Bars		S045X- SCLCR03-050EZ		S060X- SCLCR04-070EZ	
	Internal Grooving		C045X- SCLCR03-050EZ		C060X- SCLCR04-070EZ	
	Face Grooving					
	Internal Threading					
	Boring Bars					

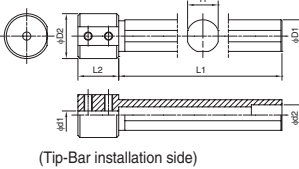
Note 1) When attaching 2-Edge Tip-Bars to EZH-CT/HP Sleeve (Adjustable overhang length), detach Adjustable Pin.
Overhang length of bar is not adjustable.

F



Boring

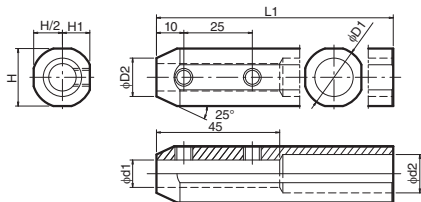
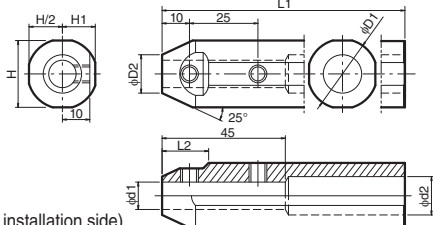
Sleeves for Tip-Bars

Shape	Description	(Previous Description)	Std.	Dimension (mm)							Spare Parts	
											Screw	Wrench
				φD1	φD2	φd1	φd2	H	L1	L2		
 (Tip-Bar installation side)	PH 0212-60	PH -0212	○	12	19	1.8	6	11	60	20	HS3X4	LW-1.5
	0312-60	-0312	○			2.8						
	0412-60	-0412	○			3.8						
	0512-60	-0512	○			4.8	8				HS4X4	LW-2
	0612-60	-0612	○			5.8						
	0712-60	-0712	○			6.8						
	PH 0216-80	PH -0216	○	16	22	1.8	Rp ¹ / ₄ (PS ¹ / ₄)	15	80	20	HS3X4	LW-1.5
	0316-80	-0316	○			2.8						
	0416-80	-0416	○			3.8						
	0516-80	-0516	○			4.8					HS4X4	LW-2
	0616-80	-0616	○			5.8						
	0716-80	-0716	○			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 type sleeve	PH0212-60	PH0312-60	PH0412-60	PH0512-60	PH0612-60	PH0712-60
Description	PH0216-80	PH0316-80	PH0416-80	PH0516-80	PH0616-80	PH0716-80
1-Edge Tip-Bars	Boring Bars	PSB ¹ / ₂ 0202-	PSB ¹ / ₂ 0303-	PSB ¹ / ₂ 0404-	PSB ¹ / ₂ 0505-	PSB ¹ / ₂ 0606-
			PSBT ¹ / ₂ 0415-	PSBT ¹ / ₂ 0515-		
	Internal Grooving		PSG ¹ / ₂ 0510-	PSG ¹ / ₂ 0610-	PSG ¹ / ₂ 0710-	PSG ¹ / ₂ 0810-
			PSG ¹ / ₂ 0520-	PSG ¹ / ₂ 0620-	PSG ¹ / ₂ 0720-	PSG ¹ / ₂ 0820-
	Face Grooving					PSFG ¹ / ₂ 0810-
						PSFG ¹ / ₂ 0820-
						PSFG ¹ / ₂ 0830-
Internal Threading			PSTR0604-	PSTR0805-		

SHA sleeves (Applicable Toolholders F84)

														
Fig.1										Fig.2				

Description	Std.	Dimension (mm)								Drawing	Spare Parts		Applicable Machine Manufacturer
		φd1	φD1	φD2	φd2	H	H1	L1	L2		Screw	Wrench	
													
SHA 0820-120	●	8	20	14	12	19	9.25	120	-	Fig.1	HS6x4P	LW-3	Amada Machine Tools Eguro Tsumami Citizen Machinery
SHA 1020-120	●	10											
SHA 0825.0-135	●	8											
SHA 1025.0-135	●	10	25	14	14	24	11.5	135	17	Fig.2			
SHA 1225.0-135	●	12									16		
SHA 0819-120	●	8	19.05	14	12	18	8.75	120	-	Fig.1	HS6x4P	LW-3	Citizen Machinery
SHA 1019-120	●	10											
SHA 0820-120	●	8	20	14	12	19	9.25	120	-	Fig.1			
SHA 1020-120	●	10											
SHA 0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig.2	HS6x4P	LW-3	Star Micronics Nomura DS
SHA 1025.4-120	●	10											
SHA 1225.4-120	●	12											
SHA 0822-125	●	8	22	14	14	21	10	125	-	Fig.1			
SHA 1022-125	●	10											
SHA 1222-125	●	12											
SHA 0823-120	●	8	23	14	14	22	10.5	120	16	Fig.2	HS6x4P	LW-3	Nomura DS
SHA 1023-120	●	10											
SHA 1223-120	●	12											

* Length of φd1...45mm (All of SHA sleeves)

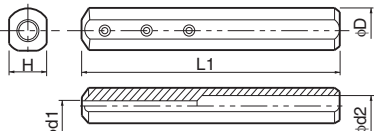
· Choose sleeves(φd1) to meet with φD dimension of toolholder.

· Machine manufacturers in random order.

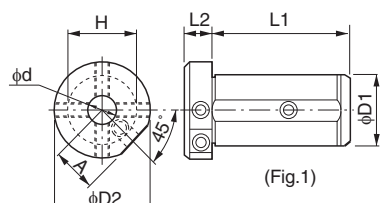
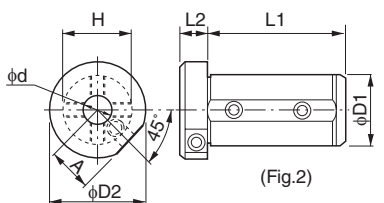
● : Std. Item

○ : Check Availability

Sleeves for Boring Bars

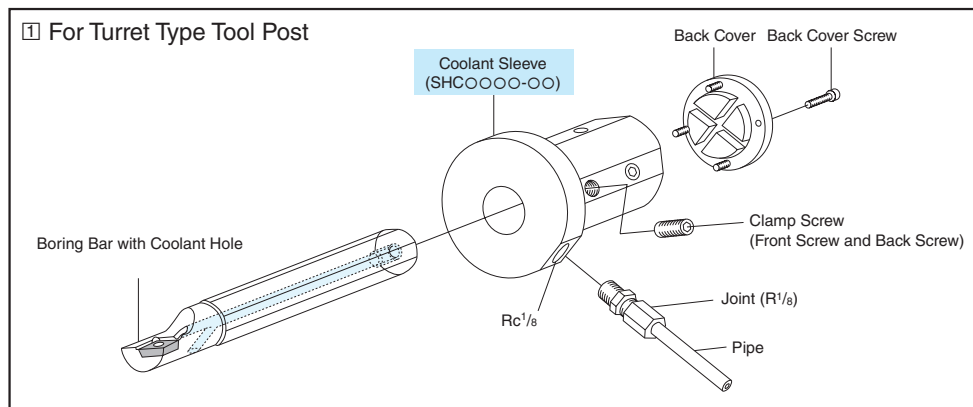
Shape	Description	(Previous Description)	Std.	Dimension (mm)					Spare Parts	
									Screw	Wrench
				φD	φd1	φd2	H	L1		
 (Toolholder installation side)	SH 0416-100	SH -0516	●	16	4	5	14	100	HS4X4	LW-2
	0516-100	-0616	●		5	6				
	0616-100	-0716	●		6	7				
	0716-100	-0816	●		7	8				
	SH 0820-120	SH -1020	●	20	8	9	18	120	HS4X4	LW-2
	1020-120	-1220	●		10	11				
	1225-150	-1625	●	25	12	13	23	150	HS5X5	LW-2.5
	1632-180	-2032	●	32	16	18	30	180		
	2032-180	-2532	●		20	22				

Coolant Sleeve Dimensions

 (Fig.1)	 (Fig.2)	Accessories ● Back Cover / SHL-4...SHC00040-70 SHL-5...SHC00050-95 ● Back Cover Screw ● Shank Clamp Screw (Note) To stabilize the Toolholder and to prevent coolant leaks, tighten all 4 screws of coolant sleeve securely.
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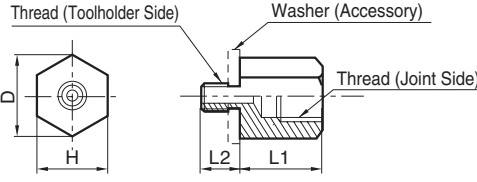
Description	(Previous Description)	Std.	Dimension (mm)							Drawing	Spare Parts						
			φD1	φD2	φd	L1	L2	H	A		Front Screw	Wrench	Back Screw	Wrench	Back Cover	Back Cover Screw	Wrench
																	
SHC 0840-70	SHC-084070	●	40	56	8	70	16	38	27	Fig.1	HS6X22	LW-3	HS6X14	LW-3	SHL-4	HH3X6	LW-2.5
1040-70	-104070	●			10												
1240-70	-124070	●			12												
1640-70	-164070	●			16												
2040-70	-204070	●			20												
2540-70	-254070	●			25												
SHC 0850-95	SHC-085095	●	50	65	8	95	16	47	30.5	Fig.1	HS6X22	LW-3	HS6X14	LW-3	SHL-5	HH3X12	LW-2.5
1050-95	-105095	●			10												
1250-95	-125095	●			12												
1650-95	-165095	●			16												
2050-95	-205095	●			20												
2550-95	-255095	●			25												

How to Install



Sleeves for Boring Bars

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

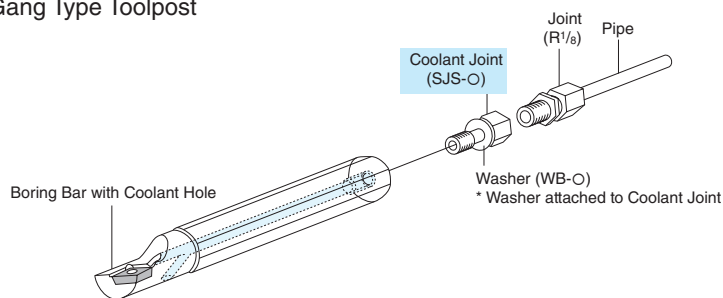
	Description	Std.	Dimension (mm)				Thread (Toolholder Side)	Thread (Joint Side)	Spare Parts	
			D	L1	L2	H			Washer	
	SJS-5	●	15	15	7	13	M5XP0.8	Rc1/8 (PT1/8)	WB-5	
	SJS-6	●			9		M6XP1.0		WB-6	
	SJS-8	●			13		M8XP1.25		WB-8	

● List of toolholders and applicable joints

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

* This Coolant Joint is not applicable for Dynamic Bar

② For Gang Type Toolpost



■ SHA / SH / SHC Sleeves and Applicable Toolholders

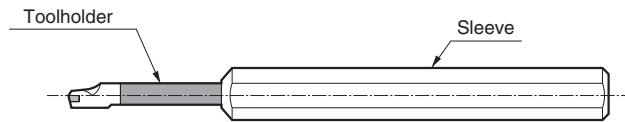
Shank Size (Hole Dia.: mm)	04 (4mm)	05 (5mm)	06 (6mm)	07 (7mm)	08 (8mm)	10 (10mm)	12 (12mm)	16 (16mm)	20 (20mm)	25 (25mm)
Sleeve Description	SH0416-100	SH0516-100	SH0616-100	SH0716-100	SH0820-120	SH1020-120	SH1225-150	SH1632-180	SH2032-180	
					SHA0819-120	SHA1019-120				
					SHA0820-120	SHA1020-120				
					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
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%0808A-EH	SIGE%1010B-EH	SIGE%1412C-EH	SIGE%1616C-EH	SIGE%2020D-EH	SIGE%2525E-EH
						SIGE%1210B-EH	SIGE%1612C-EH			KIGBA%3525-16
					SIGE%0808A-WH	SIGE%1010B-WH	SIGE%1412C-WH	KIGM%2016B-3V	KIGM%2520B-3V	KIGM%3225B-4V
						SIGE%1210B-WH	SIGE%1612C-WH			KITG%3525T-16
					SIGER1008B-WH-90	SIGER1210B-WH-90	SIGER1412C-WH-90			
							GIV%1412-1SE	GIV%1216-1SS	GIV%1420-1S	GIV%2025-1B
							GIV%1612-1AE	GIV%2016-1BE	GIV%1620-1A	GIV%2025-2B
								GIV%2016-2BE	GIV%2520-1CE	GIV%3225-1CE
								GIV%1616-1AW	GIV%2720-2CE	GIV%3225-2CE
									GIV%2020-1BW	GIV%2525-1CW
Internal Threading Toolholder Description							SINR0612S-06E	SINR0816S-08E	SIN%2420S-16	CIN%3025S-16
								SIN%1216S-11E	SINR2420S-22	CINR3025S-22
								SIN%1516S-11		
								SIN%1616S-16		

* For SHA sleeves, please ref. to page **F82**.

For SH / SHC sleeves, please ref. to page **F83**.

C...-AS (Assembly List)

C...-AS (Assembly List)



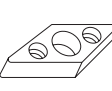
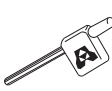
Assembly configuration

Assembly (Discontinued Description)	Toolholder (Discontinued Description)	Alternative Toolholder (Dynamic Bar)	Sleeve Description	Remarks
C04G- SCLCR03-05-AS SCLCL03-05-AS	C04G- SCLCR03-05 SCLCL03-05	C04G- SCLCR03-05A SCLCL03-05A	SH0416-100	
C05H- SCLCR03-06-AS SCLCL03-06-AS	C05H- SCLCR03-06 SCLCL03-06	C05H- SCLCR03-06A SCLCL03-06A	SH0516-100	
C05H- SWUBR06-06-AS SWUBL06-06-AS	C05H- SWUBR06-06 SWUBL06-06	C05H- SWUBR06-06A SWUBL06-06A	SH0516-100	
C06J- SCLCR04-07-AS SCLCL04-07-AS	C06J- SCLCR04-07 SCLCL04-07	C06J- SCLCR04-07A SCLCL04-07A	SH0616-100	
C06J- SWUBR06-07-AS SWUBL06-07-AS	C06J- SWUBR06-07 SWUBL06-07	C06J- SWUBR06-07A SWUBL06-07A	SH0616-100	
C07K- SCLCR04-08-AS SCLCL04-08-AS	C07K- SCLCR04-08 SCLCL04-08	C07K- SCLCR04-08A SCLCL04-08A	SH0716-100	
C07K- SWUBR08-08-AS SWUBL08-08-AS	C07K- SWUBR08-08 SWUBL08-08	C07K- SWUBR08-08A SWUBL08-08A	SH0716-100	
C08L- STUPR08-10-AS	C08L- STUPR08-10	E08L- STLPR08-10A	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- STLPR09-12A	SH1020-120	
C10N- STUPR11-12-AS	C10N- STUPR11-12	E10N- STLPR11-12A	SH1020-120	
C12Q- STUPR09-16-AS	C12Q- STUPR09-16	E12Q- STLPR09-16A	SH1225-150	
C12Q- STUPR11-14-AS	C12Q- STUPR11-14	E12Q- STLPR11-14A	SH1225-150	
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	E16X- STLPR11-18A	SH1632-180	
C20S- STUPR11-25-AS	C20S- STUPR11-25	E20S- STLPR11-22A	SH2032-180	
C20S- STUPR16-25-AS	C20S- STUPR16-25	E20S- STLPR16-25A	SH2032-180	

* "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[®]/L 16-40E S40T-SVJB[®]/L 16-50E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S25X-SVPB[®]/L 16-34E S32S-SVPB[®]/L 16-40E					
S25X-SVUB[®]/L 16-34E S32S-SVUB[®]/L 16-40E					
S25X-SVZB[®]/L 16-34E S32S-SVZB[®]/L 16-40E					

· S32S-SVJB[®]/L 16-40E and S40T-SVJB[®]/L 16-50E have been shifted to A32S-SVJB[®]/L 16-40AE and A40T-SVJB[®]/L 16-50AE respectively. Ref. to page [F50](#)

· S25X-SVPB[®]/L 16-34E and S32S-SVPB[®]/L 16-40E have been shifted to A25S-SVPB[®]/L 16-31AE and A32S-SVPB[®]/L 16-40AE respectively. Ref. to page [F52](#)

· S25X-SVUB[®]/L 16-34E and S32S-SVUB[®]/L 16-40E have been shifted to A25S-SVUB[®]/L 16-34AE and A32S-SVUB[®]/L 16-40AE respectively. Ref. to page [F55](#)

· S25X-SVZB[®]/L 16-34E and S32S-SVZB[®]/L 16-40E have been shifted to A25S-SVZB[®]/L 16-34AE and A32S-SVZB[®]/L 16-40AE respectively. Ref. to page [F55](#)

Alternative Toolholder Reference Table for Boring Bar

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	Ref. to Page	Coolant hole	Description	Ref. to Page
Excellent Bar	CC..	No	S08X-SCLC [®] /06-10E	Yes	A08X-SCLC [®] /06-10AE	F37	No	S08X-SCLC [®] /06-10A	F37
			S10H-SCLC [®] /03-05E	No	S10H-SCLC [®] /03-05AE		-	-	-
			S10H-SCLC [®] /03-06E		S10H-SCLC [®] /03-06AE				
			S10J-SCLC [®] /04-07E		S10H-SCLC [®] /04-07AE				
			S10J-SCLC [®] /04-08E		S10H-SCLC [®] /04-08AE				
	CP..	Yes	A08H-SCLC [®] /06-10E	Yes	A08X-SCLC [®] /06-10AE	F39	No	S08X-SCLC [®] /06-10A	F37
		No	S10M-SCLP [®] /08-12E	Yes	A10L-SCLP [®] /08-12AE	F39	No	S10L-SCLP [®] /08-12A	F39
			S12M-SCLP [®] /08-14E		A12M-SCLP [®] /08-14AE			S12M-SCLP [®] /08-14A	
			S12M-SCLP [®] /09-16E		A12M-SCLP [®] /09-16AE			S12M-SCLP [®] /09-16A	
			S16Q-SCLP [®] /09-18E		A16Q-SCLP [®] /09-18AE			S16Q-SCLP [®] /09-18A	
			S16R-SCLP [®] /09-20E		A20R-SCLP [®] /09-22AE			S20R-SCLP [®] /09-22A	
			S20X-SCLP [®] /09-25E						
		Yes	A10X-SCLP [®] /08-12E	Yes	A10L-SCLP [®] /08-12AE	F39	No	S10L-SCLP [®] /08-12A	F39
			A12X-SCLP [®] /08-14E		A12M-SCLP [®] /08-14AE			S12M-SCLP [®] /08-14A	
			A12X-SCLP [®] /09-16E		A12M-SCLP [®] /09-16AE			S12M-SCLP [®] /09-16A	
			A16M-SCLP [®] /09-18E		A16Q-SCLP [®] /09-18AE			S16Q-SCLP [®] /09-18A	
			A16M-SCLP [®] /09-20E		A20R-SCLP [®] /09-22AE			S20R-SCLP [®] /09-22A	
			A20Q-SCLP [®] /09-25E						
	DC..	No	S10M-SDUC [®] /07-14E	Yes	A10L-SDUC [®] /07-14AE	F41	No	S10L-SDUC [®] /07-14A	F41
			S12M-SDUC [®] /07-16E		A12M-SDUC [®] /07-16AE			S12M-SDUC [®] /07-16A	
			S16Q-SDUC [®] /07-20E		A16Q-SDUC [®] /07-20AE			S16Q-SDUC [®] /07-20A	
			S16Q-SDUC [®] /11-25E		A16Q-SDUC [®] /11-23AE			S16Q-SDUC [®] /11-23A	
			S20Q-SDUC [®] /11-32E		A20R-SDUC [®] /11-27AE			S20R-SDUC [®] /11-27A	
		No	S10M-SDZC [®] /07-14E	Yes	A10L-SDZC [®] /07-14AE	F43	No	S10L-SDZC [®] /07-14A	F43
			S12M-SDZC [®] /07-16E		A12M-SDZC [®] /07-16AE			S12M-SDZC [®] /07-16A	
			S16Q-SDZC [®] /07-20E		A16Q-SDZC [®] /07-20AE			S16Q-SDZC [®] /07-20A	
			S16Q-SDZC [®] /11-25E		A16Q-SDZC [®] /11-23AE			S16Q-SDZC [®] /11-23A	
			S20Q-SDZC [®] /11-32E		A20R-SDZC [®] /11-27AE			S20R-SDZC [®] /11-27A	
	TB..	No	S06H-STUB [®] /06-08E	No	S06H-STLB [®] /06-08AE	F47	No	S06H-STLB [®] /06-08A	F47
	TP..	No	S08K-STUP [®] /08-10E	Yes	A08X-STLP [®] /08-10AE	F47	No	S08X-STLP [®] /08-10A	F47
			S10M-STUP [®] /09-12E		A10L-STLP [®] /09-12AE			S10L-STLP [®] /09-12A	
			S10M-STUP [®] /11-12E		A10L-STLP [®] /11-12AE			S10L-STLP [®] /11-12A	
			S12M-STUP [®] /09-16E		A12M-STLP [®] /09-16AE			S12M-STLP [®] /09-16A	
			S12M-STUP [®] /11-14E		A12M-STLP [®] /11-14AE			S12M-STLP [®] /11-14A	
			S12M-STUP [®] /11-16E		A16Q-STLP [®] /11-18AE			S16Q-STLP [®] /11-18A	
			S16R-STUP [®] /11-18E		A20R-STLP [®] /11-22AE			S20R-STLP [®] /11-22A	
			S16R-STUP [®] /11-20E		A20R-STLP [®] /16-25AE			-	-
			S20X-STUP [®] /11-25E		A25S-STLP [®] /16-27AE			-	-
			S20X-STUP [®] /16-25E						
		Yes	S25X-STUP [®] /16-32E	Yes	A08X-STLP [®] /08-10AE	F47	No	S25S-STLP [®] /16-27A	F47
			A08H-STUP [®] /08-10E		A10L-STLP [®] /09-12AE			S08X-STLP [®] /08-10A	
			A10X-STUP [®] /09-12E		A10L-STLP [®] /11-12AE			S10L-STLP [®] /09-12A	
			A10X-STUP [®] /11-12E		A12M-STLPR09-16AE			S10L-STLP [®] /11-12A	
			A12X-STUPR09-16E		A12M-STLP [®] /11-14AE			S12M-STLPR09-16A	
			A12X-STUP [®] /11-14E		A12M-STLPR11-14AE			S12M-STLP [®] /11-14A	
			A12X-STUPR11-16E		A16Q-STLP [®] /11-18AE			S12M-STLPR11-14A	
			A16M-STUP [®] /11-18E		A20R-STLP [®] /11-22AE			S16Q-STLP [®] /11-18A	
			A16M-STUP [®] /11-20E		A20R-STLP [®] /16-25AE			S20R-STLP [®] /11-22A	
			A20Q-STUP [®] /11-25E		A25S-STLP [®] /16-27AE			-	-
			A20Q-STUP [®] /16-25E						
	VB..	No	S20R-SVJB [®] /11-25E	Yes	A20R-SVJB [®] /11-25AE	F50	No	S20R-SVJB [®] /11-25A	F50
			S25S-SVJB [®] /11-30E		A25S-SVJB [®] /11-30AE			S25S-SVJB [®] /11-30A	
			S32S-SVJB [®] /16-40EN		A32S-SVJB [®] /16-40AE			S32S-SVJB [®] /16-40A	
			S40T-SVJB [®] /16-50EN		A40T-SVJB [®] /16-50AE			S40T-SVJB [®] /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

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	Ref. to Page	Coolant hole	Description	Ref. to Page
Excellent Bar	VB..	No	S12M-SVPB [®] /L 11-20E	Yes	A12M-SVPB [®] /L 11-18AE	F52	No	S12M-SVPB [®] /L 11-18A	F52
			S16Q-SVPB [®] /L 11-25E		A16Q-SVPB [®] /L 11-22AE			S16Q-SVPB [®] /L 11-22A	
			S25X-SVPB [®] /L 16-34EN		A25S-SVPB [®] /L 16-31AE			S25S-SVPB [®] /L 16-31A	
			S32S-SVPB [®] /L 16-40EN		A32S-SVPB [®] /L 16-40AE			S32S-SVPB [®] /L 16-40A	
		No	S16Q-SVUB [®] /L 11-20E	Yes	A16Q-SVUB [®] /L 11-20AE	F55	No	S16Q-SVUB [®] /L 11-20A	F55
			S20R-SVUB [®] /L 11-25E		A20R-SVUB [®] /L 11-25AE			S20R-SVUB [®] /L 11-25A	
			S25X-SVUB [®] /L 16-34EN		A25S-SVUB [®] /L 16-34AE			S25S-SVUB [®] /L 16-34A	
			S32S-SVUB [®] /L 16-40EN		A32S-SVUB [®] /L 16-40AE			S32S-SVUB [®] /L 16-40A	
		No	S16Q-SVZB [®] /L 11-20E	Yes	A16Q-SVZB [®] /L 11-20AE	F55	No	S16Q-SVZB [®] /L 11-20A	F55
			S20R-SVZB [®] /L 11-25E		A20R-SVZB [®] /L 11-25AE			S20R-SVZB [®] /L 11-25A	
			S25X-SVZB [®] /L 16-34EN		A25S-SVZB [®] /L 16-34AE			S25S-SVZB [®] /L 16-34A	
			S32S-SVZB [®] /L 16-40EN		A32S-SVZB [®] /L 16-40AE			S32S-SVZB [®] /L 16-40A	
	VC..	No	S12M-SVJC [®] /L 08-16E	Yes	A12M-SVJC [®] /L 08-16AE	F50	No	S12M-SVJC [®] /L 08-16A	F50
			S16Q-SVJC [®] /L 08-20E		A16Q-SVJC [®] /L 08-20AE			S16Q-SVJC [®] /L 08-20A	
		No	S10M-SVPC [®] /L 08-16E	Yes	A10L-SVPC [®] /L 08-14AE	F52	No	S10L-SVPC [®] /L 08-14A	F52
		No	S12M-SVUC [®] /L 08-16E	Yes	A12M-SVUC [®] /L 08-16AE	F55	No	S12M-SVUC [®] /L 08-16A	F55
	VP..	No	S12M-SVZC [®] /L 08-16E	Yes	A12M-SVZC [®] /L 08-16AE	F55	No	S12M-SVZC [®] /L 08-16A	F55
			S12M-SVJP [®] /L 08-16E	Yes	A12M-SVJP [®] /L 08-16AE	F50	No	S12M-SVJP [®] /L 08-16A	F50
	WB..	No	S08X-SWUB [®] /L 08-10E	Yes	A08X-SWUB [®] /L 08-10AE	F57	No	S08X-SWUB [®] /L 08-10A	F57
			S10M-SWUB [®] /L 08-12E		A10L-SWUB [®] /L 08-12AE			S10L-SWUB [®] /L 08-12A	
			S10H-SWUB [®] /L 06-06E		S10H-SWUB [®] /L 06-06AE			S10H-SWUB [®] /L 06-06A	
			S10H-SWUB [®] /L 06-07E	No	S10H-SWUB [®] /L 06-07AE			S10H-SWUB [®] /L 06-07A	
			S10J-SWUB [®] /L 08-08E		S10H-SWUB [®] /L 08-08AE			S10H-SWUB [®] /L 08-08A	
	WP..	No	S12M-SWUP [®] /L 11-14E	Yes	A12M-SWUP [®] /L 11-14AE	F57	No	S12M-SWUP [®] /L 11-14A	F57
			S12M-SWUP [®] /L 11-16E		A16Q-SWUP [®] /L 11-18AE			S16Q-SWUP [®] /L 11-18A	
			S16N-SWUP [®] /L 11-18E		A16Q-SWUP [®] /L 16-18AE			S16Q-SWUP [®] /L 16-18A	
			S16Q-SWUP [®] /L 16-20E		A20R-SWUP [®] /L 16-22AE			S16Q-SWUP [®] /L 16-22A	
			S20R-SWUP [®] /L 16-25E					S20R-SWUP [®] /L 16-22A	
Steel Bar	CC..	No	S08X-SCLC [®] /L 06-10	No	S08X-SCLC [®] /L 06-10A	F37	-	-	-
	CP..	No	S10M-SCLP [®] /L 08-12	No	S10L-SCLP [®] /L 08-12A	F39	-	-	-
			S12M-SCLP [®] /L 08-14		S12M-SCLP [®] /L 08-14A				
			S12M-SCLP [®] /L 09-16		S12M-SCLP [®] /L 09-16A				
			S16N-SCLP [®] /L 09-18		S16Q-SCLP [®] /L 09-18A				
			S16Q-SCLP [®] /L 09-20		S20R-SCLP [®] /L 09-22A				
			S20R-SCLP [®] /L 09-25		S25S-SCLP [®] /L 09-27A				
			S25S-SCLP [®] /L 09-30						
	DC..	No	S16Q-SDUC [®] /L 07-14	No	S16Q-SDUC [®] /L 07-14A	F41	-	-	-
			S16Q-SDUC [®] /L 07-16		S20R-SDUC [®] /L 11-20A				
			S20R-SDUC [®] /L 11-20		S16Q-SDUC [®] /L 11-23A				
			S25X-SDUC [®] /L 11-25				No	S25S-SDUC [®] /L 11-32A	F41
		No	S16Q-SDZC [®] /L 07-14	No	S16Q-SDZC [®] /L 07-14A	F43	-	-	-
			S16Q-SDZC [®] /L 07-16		S20R-SDZC [®] /L 11-20A				
			S20R-SDZC [®] /L 11-20		S16Q-SDZC [®] /L 11-23A				
			S25X-SDZC [®] /L 11-25						
							No	S25S-SDZC [®] /L 11-32A	F43

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

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Description)				Alternative Toolholder					
Shank type	Insert Shape	Coolant hole	Description	Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)		
				Coolant hole	Description	Ref. to Page	Coolant hole	Description	Ref. to Page
Steel Bar	TB..	No	S06H-STUB [®] /06-08	No	S06H-STLB [®] /06-08A	F47	-	-	-
	TP..	No	S08K-STUP [®] /08-10	No	S08X-STLP [®] /08-10A	F47	-	-	-
			S10M-STUP [®] /09-12		S10L-STLP [®] /09-12A				
			S12M-STUP [®] /09-16		S12M-STLP [®] /09-16A				
			S16Q-STUP [®] /11-20		S16Q-STLP [®] /11-18A				
			S20R-STUP [®] /11-25		S20R-STLP [®] /11-22A				
			S25X-STUP [®] /16-32		S25S-STLP [®] /16-27A				
	WB..	No	S10H-SWUB [®] /06-06	No	S10H-SWUB [®] /06-06A	F57	-	-	-
			S10H-SWUB [®] /06-06-15		S10H-SWUB [®] /06-07A				
			S10H-SWUB [®] /06-07		S10H-SWUB [®] /08-08A				
			S10J-SWUB [®] /08-08						
			S10J-SWUB [®] /08-08-20						
Carbide Shank Boring Bar	CC..	No	C04G-SCLC [®] /03-05	No	C04G-SCLC [®] /03-05A	F37	-	-	-
			C05H-SCLC [®] /03-06		C05H-SCLC [®] /03-06A				
			C06J-SCLC [®] /04-07		C06J-SCLC [®] /04-07A				
			C07K-SCLC [®] /04-08		C07K-SCLC [®] /04-08A				
			C08L-SCLC [®] /06-10						
		Yes	E08L-SCLC [®] /06-10	Yes	E08L-SCLC [®] /06-10A				
	CP..	No	C10N-SCLP [®] /08-12	Yes	E10N-SCLP [®] /08-12A	F39	-	-	-
			C10N-SCLPR08-12-1/2		E10N-SCLPR08-12A-1/2				
			C10N-SCLPR08-12-2/3		E10N-SCLPR08-12A-2/3				
			C12Q-SCLP [®] /09-16		E12Q-SCLP [®] /09-16A				
			C12Q-SCLPR09-16-1/2		E12Q-SCLPR09-16A-1/2				
			C12Q-SCLPR09-16-2/3		E12Q-SCLPR09-16A-2/3				
			C16X-SCLP [®] /09-20		E16X-SCLP [®] /09-18A				
			C16X-SCLPR09-20-1/2		E16X-SCLPR09-18A-1/2				
			C16X-SCLPR09-20-2/3		E16X-SCLPR09-18A-2/3				
			C20S-SCLP [®] /09-25		E20S-SCLP [®] /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 [®] /08-12	Yes	E10N-SCLP [®] /08-12A	F39	-	-	-
			E12Q-SCLP [®] /09-16		E12Q-SCLP [®] /09-16A				
			E16X-SCLP [®] /09-20		E16X-SCLP [®] /09-18A				
			E20S-SCLP [®] /09-25		E20S-SCLP [®] /09-22A				
	DC..	No	C10N-SDUC [®] /07-14	Yes	E10N-SDUC [®] /07-14A	F41	-	-	-
			C12Q-SDUC [®] /07-16		E12Q-SDUC [®] /07-16A				
			C12Q-SDUC [®] /11-20		E16X-SDUC [®] /11-23A				
			C16X-SDUC [®] /11-25		E20S-SDUC [®] /11-27A				
			C20S-SDUC [®] /11-32						
	TB..	No	C10L-STUB [®] /06-08	No	C06J-STLB [®] /06-08A	F47	-	-	-
	TP..	No	C08L-STUP [®] /08-10	Yes	E08L-STLP [®] /08-10A				
			C10N-STUP [®] /09-12		E10N-STLP [®] /09-12A				
			C10N-STUPR09-12-1/2		E10N-STLPR09-12A-1/2				
			C10N-STUPR09-12-2/3		E10N-STLPR09-12A-2/3				
			C10N-STUP [®] /11-12		E10N-STLP [®] /11-12A				
			C10N-STUPR11-12-1/2		E10N-STLPR11-12A-1/2				
			C10N-STUPR11-12-2/3		E10N-STLPR11-12A-2/3				
			C12Q-STUP [®] /09-16		E12Q-STLP [®] /09-16A				
			C12Q-STUPR09-16-1/2		E12Q-STLPR09-16A-1/2				
			C12Q-STUPR09-16-2/3		E12Q-STLPR09-16A-2/3				
			C12Q-STUP [®] /11-14		E12Q-STLP [®] /11-14A				
			C12Q-STUPR11-14-1/2		E12Q-STLPR11-14A-1/2				
			C12Q-STUPR11-14-2/3		E12Q-STLPR11-14A-2/3				
			C12Q-STUP [®] /11-16		E12Q-STLP [®] /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

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	Ref. to Page	Coolant hole	Description	Ref. to Page
Carbide Shank Boring Bar	TP..	No	C16X-STUP [®] /L 11-18	Yes	E16X-STLP [®] /L 11-18A	F47	-	-	-
			C16X-STUPR11-18-1/2		E16X-STLPR11-18A-1/2				
			C16X-STUPR11-18-2/3		E16X-STLPR11-18A-2/3				
			C16X-STUP [®] /L 11-20		E16X-STLP [®] /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 [®] /L 11-25		E20S-STLP [®] /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 [®] /L 16-25		E20S-STLP [®] /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 [®] /L 08-10	Yes	E08L-STLP [®] /L 08-10A	F47	-	-	-
			E10N-STUP [®] /L 09-12		E10N-STLP [®] /L 09-12A				
			E10N-STUP [®] /L 11-12		E10N-STLP [®] /L 11-12A				
			E12Q-STUP [®] /L 09-16		E12Q-STLP [®] /L 09-16A				
			E12Q-STUP [®] /L 11-14		E12Q-STLP [®] /L 11-14A				
			E12Q-STUP [®] /L 11-16		E12Q-STLP [®] /L 11-14A				
			E16X-STUP [®] /L 11-18		E16X-STLP [®] /L 11-18A				
			E16X-STUP [®] /L 11-20		E16X-STLP [®] /L 11-18A				
			E20S-STUPR11-25		E20S-STLPR11-22A				
			E20S-STUPR16-25		E20S-STLPR16-25A				
	WB..	No	C05H-SWUB [®] /L 06-06	No	C05H-SWUB [®] /L 06-06A	F57	-	-	-
			C06J-SWUB [®] /L 06-07		C06J-SWUB [®] /L 06-07A				
			C07K-SWUB [®] /L 08-08		C07K-SWUB [®] /L 08-08A				
			C08L-SWUB [®] /L 08-10		C08L-SWUB [®] /L 08-10A				
		Yes	C10N-SWUB [®] /L 08-12	Yes	E10N-SWUB [®] /L 08-12A				
			C10N-SWUBR08-12-1/2		E10N-SWUBR08-12A-1/2				
			C10N-SWUBR08-12-2/3		E10N-SWUBR08-12A-2/3				
	WP..	No	C12Q-SWUP [®] /L 11-14	Yes	E12Q-SWUP [®] /L 11-14A	F57	-	-	-
			C12Q-SWUPR11-14-1/2		E12Q-SWUPR11-14A-1/2				
			C12Q-SWUPR11-14-2/3		E12Q-SWUPR11-14A-2/3				
			C12Q-SWUP [®] /L 11-16		E12Q-SWUP [®] /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 [®] /L 11-18		E16X-SWUP [®] /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 [®] /L 16-20		E16X-SWUP [®] /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 [®] /L 16-25		E20S-SWUP [®] /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.



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 / VNB-T)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						VNB02 type		VNB03 type		VNB04 VNB04 type		VNB05 VNB06 VNB07 VNB05 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	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

F

Boring

Recommended Cutting Conditions

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 Grade	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 Interruption	EZB-F EZB-H	PR1225	0.05 0.15	30 - 70 - 110 30 - 60 - 90	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2	0.01 - 0.04 - 0.07 0.03 - 0.07 - 0.1
			Finishing	Continuous Interruption	F	PR1425	0.1 0.2	40 - 80 - 120 40 - 70 - 100	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	CF	PR1425	0.1 0.2	40 - 80 - 120 40 - 70 - 100	0.05 - 0.15 - 0.25 0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
	Medium-carbon Steel Medium-carbon Alloy	HB ≤ 300	Finishing (Solid type)	Continuous Interruption	EZB-F EZB-H	PR1225	0.05 0.15	30 - 70 - 110 30 - 60 - 90	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2	0.01 - 0.04 - 0.07 0.03 - 0.07 - 0.1
			Finishing	Continuous Interruption	F	PR1425	0.1 0.2	40 - 80 - 120 40 - 70 - 120	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	CF	PR1425	0.1 0.2	40 - 80 - 120 40 - 70 - 100	0.05 - 0.15 - 0.25 0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
	High-carbon Alloy	HB ≤ 280	Finishing (Solid type)	Continuous Interruption	EZB-F EZB-H	PR1225	0.05 0.15	30 - 70 - 110 30 - 60 - 90	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2	0.01 - 0.04 - 0.07 0.03 - 0.07 - 0.1
			Finishing	Continuous Interruption	F	PR1425	0.1 0.2	40 - 80 - 120 40 - 70 - 100	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	CF	PR1425	0.1 0.2	40 - 80 - 120 40 - 70 - 100	0.05 - 0.15 - 0.25 0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
M	Stainless Steel	HB ≤ 220	Finishing (Solid type)	Continuous Interruption	EZB-F EZB-H	PR1225	0.05 0.15	30 - 60 - 80 30 - 60 - 80	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2	0.01 - 0.03 - 0.05 0.02 - 0.05 - 0.07
			Finishing	Continuous Interruption	F	PR1225	0.1 0.2	30 - 60 - 80 30 - 60 - 80	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	CF	PR1225	0.1 0.2	30 - 60 - 80 30 - 60 - 80	0.05 - 0.15 - 0.25 0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
	Stainless Steel	HB ≤ 300	Finishing (Solid type)	Continuous Interruption	EZB-F EZB-H	PR1225	0.05 0.15	30 - 60 - 80 30 - 60 - 80	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2	0.01 - 0.03 - 0.05 0.02 - 0.05 - 0.07
			Finishing	Continuous Interruption	F	PR1225	0.1 0.2	30 - 60 - 80 30 - 60 - 80	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	CF	PR1225	0.1 0.2	30 - 60 - 80 30 - 60 - 80	0.05 - 0.15 - 0.25 0.05 - 0.15 - 0.25	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
	Gray Cast Iron	HB ≤ 250	Finishing (Solid type)	Continuous Interruption	(VNB) (VNB-NB)	KW10	0.03 0.2	30 - 60 - 100 30 - 60 - 100	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing	Continuous Interruption	F	KW10	0.1 0.2	30 - 60 - 100 30 - 60 - 80	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	Without Chipbreaker	KW10	0.2 0.4	30 - 60 - 100 30 - 60 - 80	0.1 - 0.2 - 0.3 0.1 - 0.2 - 0.3	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
K	Nodular Cast Iron	HB ≤ 270	Finishing (Solid type)	Continuous Interruption	(VNB) (VNB-NB)	KW10	0.03 0.2	30 - 60 - 80 30 - 60 - 80	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing	Continuous Interruption	F, U	KW10	0.1 0.2	30 - 60 - 80 30 - 60 - 80	0.05 - 0.08 - 0.1 0.05 - 0.1 - 0.15	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
			Finishing-Medium	Continuous Interruption	Without Chipbreaker	KW10	0.2 0.4	30 - 60 - 100 30 - 60 - 80	0.1 - 0.2 - 0.3 0.1 - 0.2 - 0.3	0.03 - 0.05 - 0.07 0.03 - 0.07 - 0.1
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB ≤ 100	High Speed Machining (Rainbow Surface Gloss)	Continuous Interruption	Without Chipbreaker	KPD001	0.05	150 - 200 - 300	0.05 - 0.1 - 0.3	0.05 - 0.1 - 0.15
			Finishing	Continuous Interruption	F, U	KW10	0.1 0.2	100 - 150 - 200 100 - 150 - 200	0.05 - 0.3 - 0.5 0.05 - 0.3 - 0.5	0.03 - 0.1 - 0.2 0.03 - 0.1 - 0.2
S	Titanium Alloy	HB ≤ 400	Precision Finishing (Rainbow Surface Gloss)	Continuous Interruption	Without Chipbreaker	KPD001	0.1 0.2	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	0.1 0.2	20 - 40 - 60 20 - 40 - 60	0.05 - 0.2 - 0.5 0.05 - 0.2 - 0.5	0.03 - 0.1 - 0.2 0.03 - 0.1 - 0.2
	Heat-resistant Alloys	HB ≤ 350	Finishing (Solid type)	Continuous Interruption	(VNB)	KW10	0.2 0.2	10 - 30 - 50 10 - 30 - 50	0.05 - 0.1 - 0.3 0.05 - 0.1 - 0.3	0.03 - 0.05 - 0.1 0.03 - 0.05 - 0.08
			Finishing	Continuous Interruption	F, U	KW10	0.2 0.2	10 - 30 - 50 10 - 30 - 50	0.05 - 0.2 - 0.4 0.05 - 0.2 - 0.4	0.03 - 0.05 - 0.1 0.03 - 0.05 - 0.1
H	Hardened Steel Hard Materials	40~50 HRC	Finishing	Continuous Interruption	(VNB)	PR930	0.2 0.2	30 - 50 - 70 30 - 50 - 70	0.05 - 0.1 - 0.4 0.05 - 0.1 - 0.2	0.01 - 0.02 - 0.05 0.01 - 0.02 - 0.03
		45~68 HRC	Finishing	Continuous Interruption	ME MES	KBN05M	0.2 0.4	60 - 100 - 140 60 - 80 - 120	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2	0.02 - 0.05 - 0.1 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.



Boring

Recommended Cutting Conditions

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

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grade	Corner- R(r _c)	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	PV7010 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	PV7010 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	PV7010 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	PV7010 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	PV7010 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	PV7010 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
	Stainless Steel	HB ≤ 220	Finishing	Continuous Interruption	MQ	CA6525	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	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
		HB ≤ 300	Finishing	Continuous Interruption	MQ	CA6525	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	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 Machining	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	CA4505 CA4515	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	CA4505 CA4515	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 Machining	Continuous Interruption	Without Chipbreaker	KBN475 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	CA4505 CA4515	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	CA4505 CA4515	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 Machining (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	Continuous Interruption	FSF, USF	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 Alloy	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.