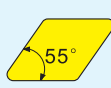
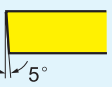
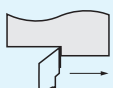
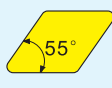
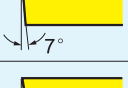
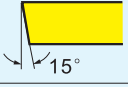
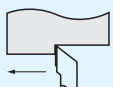
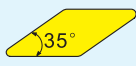
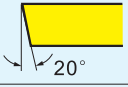
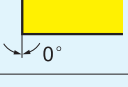
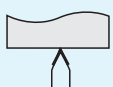
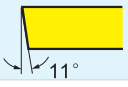


External turning toolholders code key

Insert mounting method	Insert shape		Insert clearance angle	Cutting direction
 D-Double clamping	 C	 D	 B	 L-Left hand
 P-Lever Clamp	 K	 R	 C	
 M-multi Clamp	 S	 T	 D	 R-Right hand
 S-Screw Clamp	 V	 W	 E	
 C-Top Clamp			 N	 N-neutral
			 P	

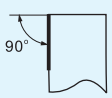
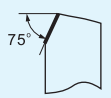
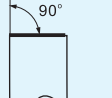
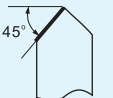
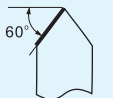
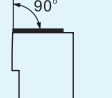
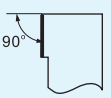
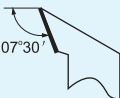
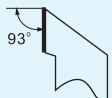
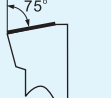
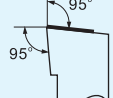
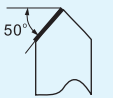
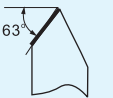
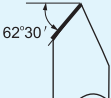
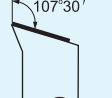
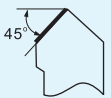
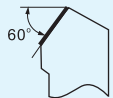
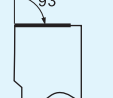
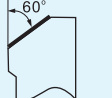
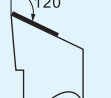
M

C

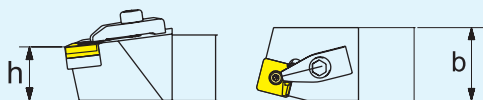
L

N

R

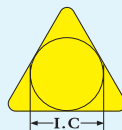
Tool holder style							
A	B	C	D	E	F	G	H
							
J	K	L	M	N	O	P	Q
							
R	S	T	U	V	W	X	
							

Tool holder height and width



NO.	b	h	NO.	b	h
05	0.3125	0.3125	24	1.50	1.50
06	0.375	0.375	32	2.00	2.00
08	0.50	0.50	64	0.75	1.00
10	0.625	0.625	66	0.75	1.50
12	0.75	0.75	85	1.00	1.25
16	1.00	1.00	86	1.00	1.50
20	1.25	1.25	91	1.25	1.50

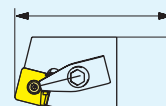
Insert I.C size



Number of 1/8" of inscribed circle

- 2 = 0.250"
- 3 = 0.375"
- 4 = 0.500"
- 5 = 0.625"
- 6 = 0.750"
- 7 = 0.875"
- 8 = 1.000"

Tool Length



- J = 3-1/2"
- A = 4"
- B = 4-1/2"
- C = 5"
- D = 6"
- E = 7"
- F = 8"

16 - 4 D

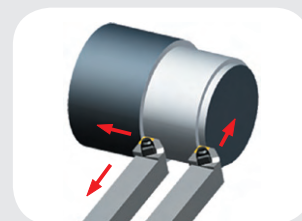
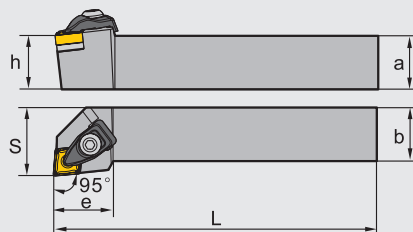


Applicable toolholders to **CN**□□

D-type clamping

DCLNR/L

95°



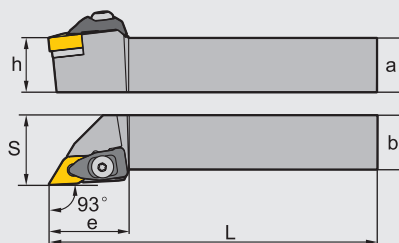
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e	 P30-34/78						
DCLNR/L 10-3A	0.625	0.625	4.00	0.625	0.75	0.945							
DCLNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	0.945	CN□□32□□	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
DCLNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	0.945							
DCLNR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.102							
DCLNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.102	CN□□43□□	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
DCLNR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.102							

Applicable toolholders to DN□□

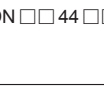
D-type clamping

DDJNR/L

93°



A

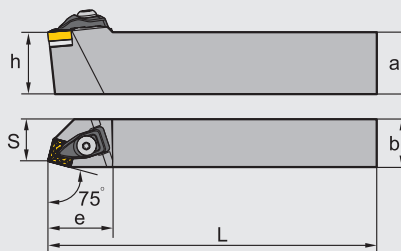
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e							
DDJNR/L 10-3A	0.625	0.625	4.00	0.625	0.75	1.18	 P35-40/80	 CM5×22C	 D11BM	 WH30L	 C1RA	 SM5×8.65XA1	 SPR6
DDJNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.18							
DDJNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.18							
DDJNR/L 85-3E	1.25	1.00	7.00	1.25	1.25	1.18							
DDJNR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.378	 P41-45	 CM6×25C	 D15BM	 WH40L	 C2RA	 SM6×10XA1	 SPR4
DDJNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.378							
DDJNR/L 20-4E	1.25	1.25	7.00	1.25	1.57	1.378							

Applicable toolholders to SN□□

D-type clamping

DSBNR/L

75°

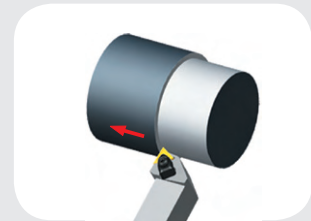
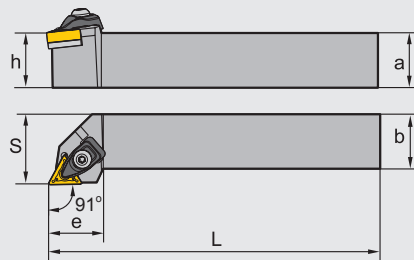


Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e							
DSBNR/L 10-3A	0.625	0.625	4.00	0.625	0.512	1.024	 P41-45	 CM5×22C	 S09BM	 WH30L	 C1RA	 SM5×8.65XA1	 SPR6
DSBNR/L 12-4C	0.75	0.75	5.00	0.75	0.669	1.339							
DSBNR/L 16-4D	1.00	1.00	6.00	1.00	0.866	1.339							
DSBNR/L 85-4E	1.25	1.00	7.00	1.25	0.866	1.339							
DSBNR/L 20-5E	1.25	1.25	7.00	1.25	1.063	1.614							

Applicable toolholders to **TN**□□ **D-type clamping**

DTGNR/L

91°

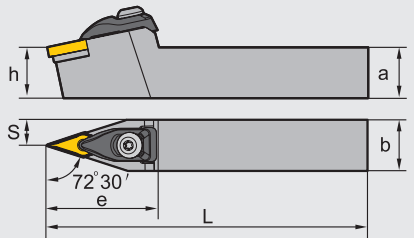


Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e	 P47-51/83						
DTGNR/L 10-3A	0.625	0.625	4.00	0.625	0.75	1.00							
DTGNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.00	TN □□ 33 □□	CM5×22C	T16BM	WH30L	C1RA	SM5×8.65XA1	SPR6
DTGNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.00							

Applicable toolholders to **VN**□□ **D-type clamping**

DVVNN

72°30'



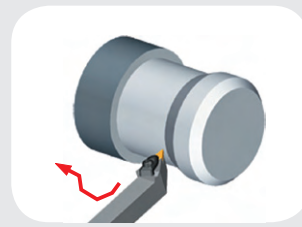
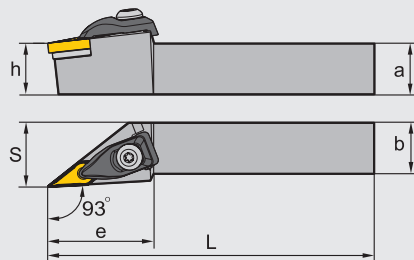
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e	 P52-53/84						
DVVNN 12-3C	0.75	0.75	5.00	0.75	0.394	1.732							
DVVNN 16-3D	1.00	1.00	6.00	1.00	0.492	1.732	VN □□ 33 □□	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6

Applicable toolholders to VN□□

D-type clamping

DVJNR/L

93°



A

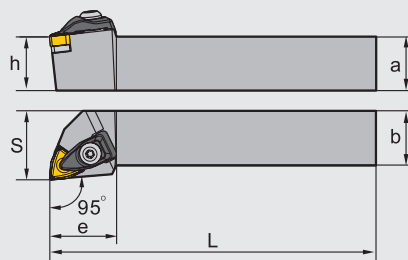
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e							
DVJNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.614	 P52-53/84	 CM5 ×22C	 V16BM	 WH30L	 C6RA	 SM5×8.65XA1	 SPR6
DVJNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.614							

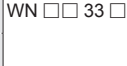
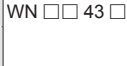
Applicable toolholders to WN□□

D-type clamping

DWLNR/L

95°



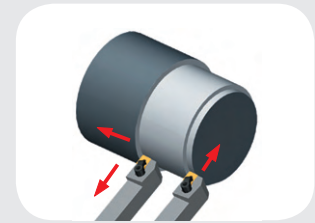
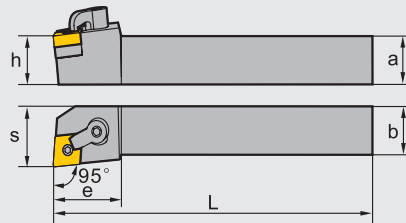
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Shim screw	Spring
	a	b	L	h	s	e							
DWLNR/L 10-3A	0.625	0.625	4.00	0.625	0.75	0.945	 P54-57/85	 CM5 ×22C	 W06BM	 WH30L	 C1RA	 SM5×8.65XA1	 SPR6
DWLNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	0.945							
DWLNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	0.945	 WN □□ 33 □□	 CM5 ×22C	 W06BM	 WH30L	 C1RA	 SM5×8.65XA1	 SPR6
DWLNR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.22							
DWLNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.22							
DWLNR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.22	 WN □□ 43 □□	 CM6 ×25C	 W08BM	 WH40L	 C2RA	 SM6×10XA1	 SPR4

Applicable toolholders to **CN**□□

M-Mulit clamp

MCLNR/L

95°



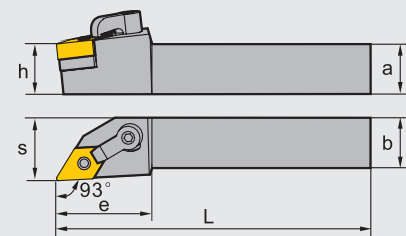
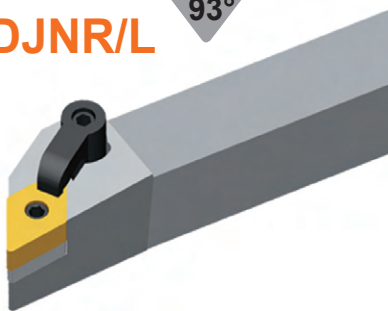
Type	Dimension(inch)						Applicable inserts 	Clamping screw 	Shim 	Wrench 	Clamp 	Clamping stud 
	a	b	L	h	s	e						
MCLNR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.25	CN□□43□□	DM6×25	C12BM	WH30L	C1RD	TM6×17
MCLNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.25		DM6×30				
MCLNR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.25						
MCLNR/L 16-5D	1.00	1.00	6.00	1.00	1.25	1.50	CN□□54□□	DM6×30	C16BM	WH30L	C2RD	TM8×21
MCLNR/L 20-5E	1.25	1.25	7.00	1.25	1.57	1.50						
MCLNR/L 20-6E	1.25	1.25	7.00	1.25	1.57	1.77						
MCLNR/L 24-6F	1.50	1.50	8.00	1.50	2.00	1.77	CN□□64□□	DM8×30X	C19BM	WH40L	C5RD	TM10×21

Applicable toolholders to **DN**□□

M-Mulit clamp

MDJNR/L

93°



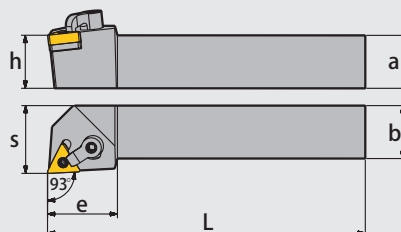
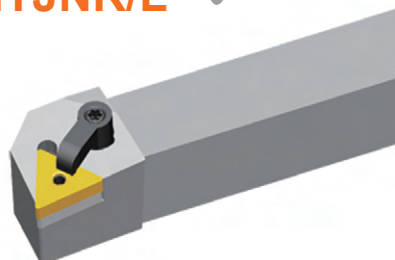
Type	Dimension(inch)						Applicable inserts 	Clamping screw 	Shim 	Wrench 	Clamp 	Clamping stud 
	a	b	L	h	s	e						
MDJNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.25	DN□□33□□	DM6×25	D11BM	WH20L WH30L	C1RD	TM5×13
MDJNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.25		DM6×30				
MDJNR/L 85-3E	1.25	1.00	7.00	1.25	1.25	1.25						
MDJNR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.50	DN□□44□□	DM6×25	D15BM	WH30L	C2RD	TM6×19
MDJNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.50						
MDJNR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.50		DM6×30				

Applicable toolholders to TN□□

M-Mulit clamp

MTJNR/L

93°



A

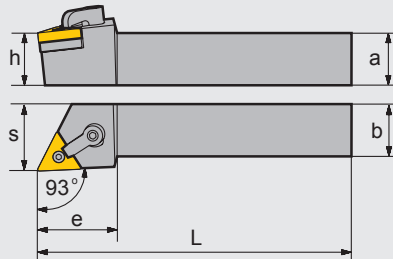
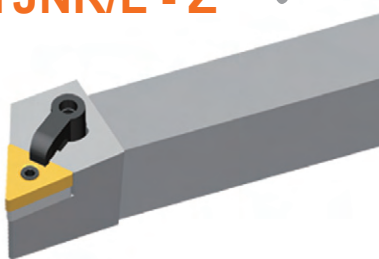
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	a	b	L	h	s	e						
MTJNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.25	 P47-51/83	DM6×25	T16BM	 WH20L WH30L	 C1RD	 TM5×13
MTJNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.25		DM6×30				
MTJNR/L 85-3E	1.25	1.00	7.00	1.25	1.25	1.25		DM6×30				
MTJNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.42	 TN □ □ 43 □ □	DM6×30	T22BM	 WH30L	 C2RD	 TM6×17
MTJNR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.42		DM6×30				

Applicable toolholders to TN□□

M-Mulit clamp

MTJNR/L - Z

93°



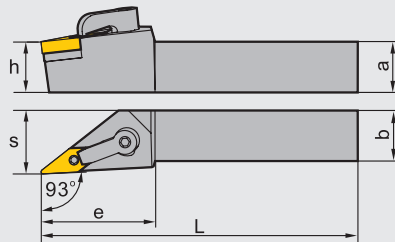
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	a	b	L	h	s	e						
MTJNR/L 12-3C-Z	0.75	0.75	5.00	0.75	1.00	1.25	 P47-51/83	DM6×25	T16BM	 WH20L WH30L	 C1RD	 TM5×13
MTJNR/L 16-3D-Z	1.00	1.00	6.00	1.00	1.25	1.25		DM6×30				
MTJNR/L 85-3E-Z	1.25	1.00	7.00	1.25	1.25	1.25		DM6×30				
MTJNR/L 16-4D-Z	1.00	1.00	6.00	1.00	1.25	1.42	 TN □ □ 43 □ □	DM6×30	T22BM	 WH30L	 C2RD	 TM6×17
MTJNR/L 85-4E-Z	1.25	1.00	7.00	1.25	1.25	1.42		DM6×30				

Applicable toolholders to VN□□

M-Mult clamp

MVJNR/L

93°



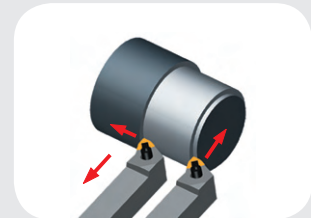
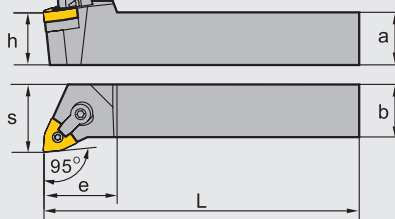
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	a	b	L	h	s	e	 P52-53/84					
MVJNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.77	VN □ □ 33 □ □ VN □ □ 33 □ □	DM6×25	V16BM	WH20L WH30L	C3RD	TM5×13
MVJNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.77						
MVJNR/L 85-3E	1.25	1.00	7.00	1.25	1.25	1.77						
MVJNR/L 20-3E	1.25	1.25	7.00	1.25	1.57	1.77						

Applicable toolholders to WN□□

M-Mult clamp

MWLNR/L

95°



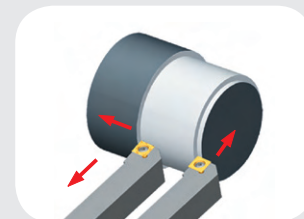
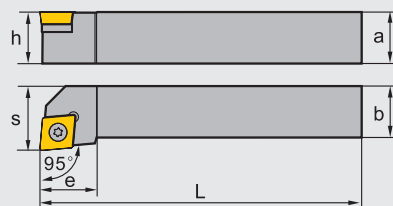
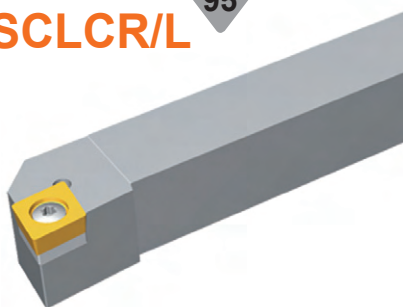
Type	Dimension(inch)						Applicable inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	a	b	L	h	s	e	 P54-57/85					
MWLNR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.18	WN □□ 33 □□	DM6×25	W06BM	WH20L	C1RD	TM5×13
MWLNR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.18		DM6×30				
MWLNR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.18	WN □□ 43 □□	DM6×25	W08BM	WH30L	C1RD	TM6×17
MWLNR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.38		DM6×30				
MWLNR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.38						
MWLNR/L 20-4E	1.25	1.25	7.00	1.25	1.50	1.38						

Applicable toolholders to **CC**□□

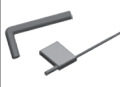
S-Screw clamp

SCLCR/L

95°



A

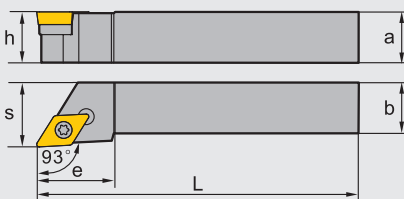
Type	Dimension(inch)						Applicable inserts	Screw	Shim	Shim screw	Shim Wrench
	a	b	L	h	s	e	 P58-59/87				
SCLCR/L 05-2J	0.3125	0.3125	2.36	0.3125	0.39	0.39	CC □ □ 2(1.5) □ □	I60M2.5×6.5	--	--	WT07IP
SCLCR/L 06-2J	0.375	0.375	2.75	0.375	0.47	0.39					
SCLCR/L 08-3J	0.50	0.50	3.50	0.50	0.63	0.63					
SCLCR/L 10-3A	0.625	0.625	4.00	0.625	0.79	0.63	CC □ □ 3(2.5) □ □	I60M3.5×8	--	--	WT15IP
SCLCR/L 12-4C	0.75	0.75	5.00	0.75	1.00	1.00					
SCLCR/L 16-4D	1.00	1.00	6.00	1.00	1.25	1.02	CC □ □ 43 □ □	I60M4×11X	C12BS	SM6×10XA	WT15IP WT40L
SCLCR/L 85-4E	1.25	1.00	7.00	1.25	1.25	1.02					

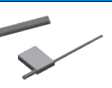
Applicable toolholders to **DC**□□

S-Screw clamp

SDJCR/L

93°



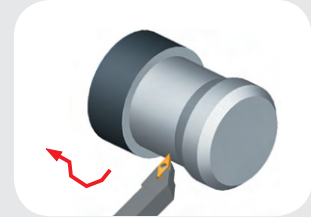
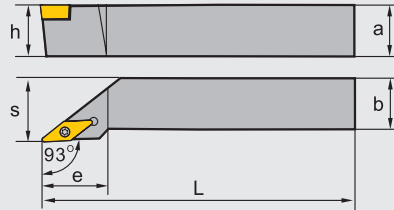
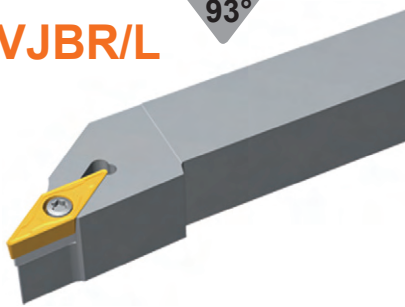
Type	Dimension(inch)						Applicable inserts	Screw	Shim	Shim screw	Wrench
	a	b	L	h	s	e	 P60-61/89				
SDJCR/L06-2J	0.375	0.375	2.75	0.375	0.47	0.60	DC □ □ 2(1.5) □ □	I60M2.5×6.5	--	--	WT07IP
SDJCR/L08-2J	0.50	0.50	3.50	0.50	0.63	0.60					
SDJCR/L10-2A	0.625	0.625	4.00	0.625	0.79	0.71					
SDJCR/L10-3A	0.625	0.625	4.00	0.625	0.79	0.95	DC □ □ 3(2.5) □ □	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
SDJCR/L12-3C	0.75	0.75	5.00	0.75	1.00	0.95					
SDJCR/L16-3D	1.00	1.00	6.00	1.00	1.25	1.14					
SDJCR/L85-3E	1.25	1.00	7.00	1.25	1.25	1.44					

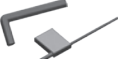
Applicable toolholders to VB□□

S-Screw clamp

SVJBR/L

93°



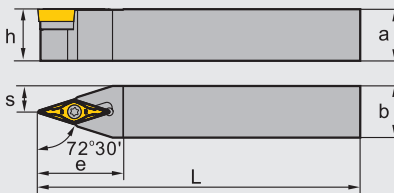
Type	Dimension(inch)						Applicable inserts	Screw	Shim	Shim screw	Wrench
	a	b	L	h	s	e	 P69/92				
SVJBR/L 08-2J	0.50	0.50	3.50	0.50	0.63	1.06	VB□□2(1.5)□□	I60M2.5×6.5	--	--	WT07IP
SVJBR/L 10-2A	0.625	0.625	4.00	0.625	0.79	1.06					
SVJBR/L 12-2C	0.75	0.75	5.00	0.75	1.00	1.06					
SVJBR/L 16-2D	1.00	1.00	6.00	1.00	1.25	1.06					
SVJBR/L 10-3A	0.625	0.625	4.00	0.625	0.79	1.42	VB□□33□□	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
SVJBR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.61					
SVJBR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.61					
SVJBR/L 85-3E	1.25	1.00	7.00	1.25	1.25	1.61					

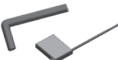
Applicable toolholders to VB□□

S-Screw clamp

SVVBN

72°30'



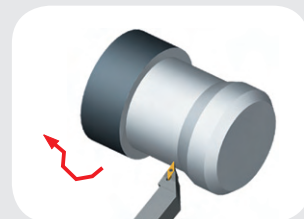
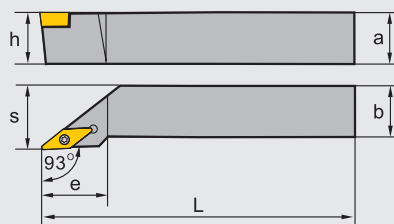
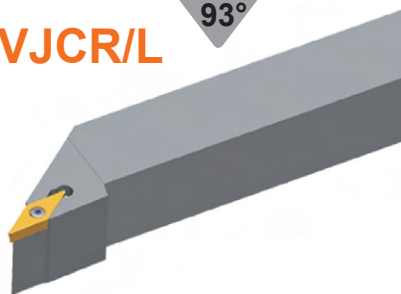
Type	Dimension(inch)						Applicable inserts	Screw	Shim	Shim crew	Wrench
	a	b	L	h	s	e	 P69/92				
SVVBN 08-2J	0.50	0.50	3.50	0.50	0.24	1.06	VB□□2(1.5)□□	I60M2.5×6.5	--	--	WT07IP
SVVBN 10-2A	0.625	0.625	4.00	0.625	0.31	1.06					
SVVBN 12-2C	0.75	0.75	5.00	0.75	0.39	1.18					
SVVBN 10-3A	0.625	0.625	4.00	0.625	0.31	1.30	VB□□33□□	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
SVVBN 12-3C	0.75	0.75	5.00	0.75	0.39	1.30					
SVVBN 16-3D	1.00	1.00	6.00	1.00	0.49	1.50					

Applicable toolholders to VC□□□

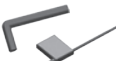
S-Screw clamp

SVJCR/L

93°



A

Type	Dimension(inch)						Applicable inserts	Screw	Shim	Shim screw	Wrench
	a	b	L	h	s	e	 P67-68/93				
SVJCR/L 06-2J	0.375	0.375	2.36	0.375	0.47	0.87	VC□□22□□	I60M2.5×6.5	--	--	WT07IP
SVJCR/L 08-2J	0.50	0.50	3.50	0.50	0.63	1.06					
SVJCR/L 10-2A	0.625	0.625	4.00	0.625	0.79	1.06					
SVJCR/L 12-2C	0.75	0.75	5.00	0.75	1.00	1.06					
SVJCR/L 16-2D	1.00	1.00	6.00	1.00	1.25	1.06					
SVJCR/L 10-3A	0.625	0.625	4.00	0.625	0.79	1.42	VC□□33□□	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
SVJCR/L 12-3C	0.75	0.75	5.00	0.75	1.00	1.61					
SVJCR/L 16-3D	1.00	1.00	6.00	1.00	1.25	1.61					
SVJCR/L 85-3E	1.25	1.00	7.00	1.25	1.25	1.61					

Applicable toolholders to TC□□

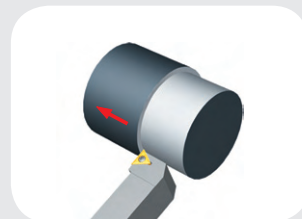
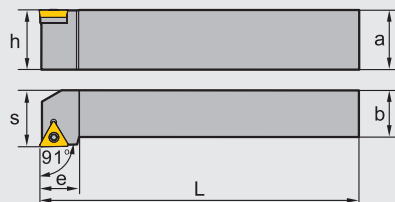
S-Screw clamp

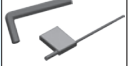
STGCR/L

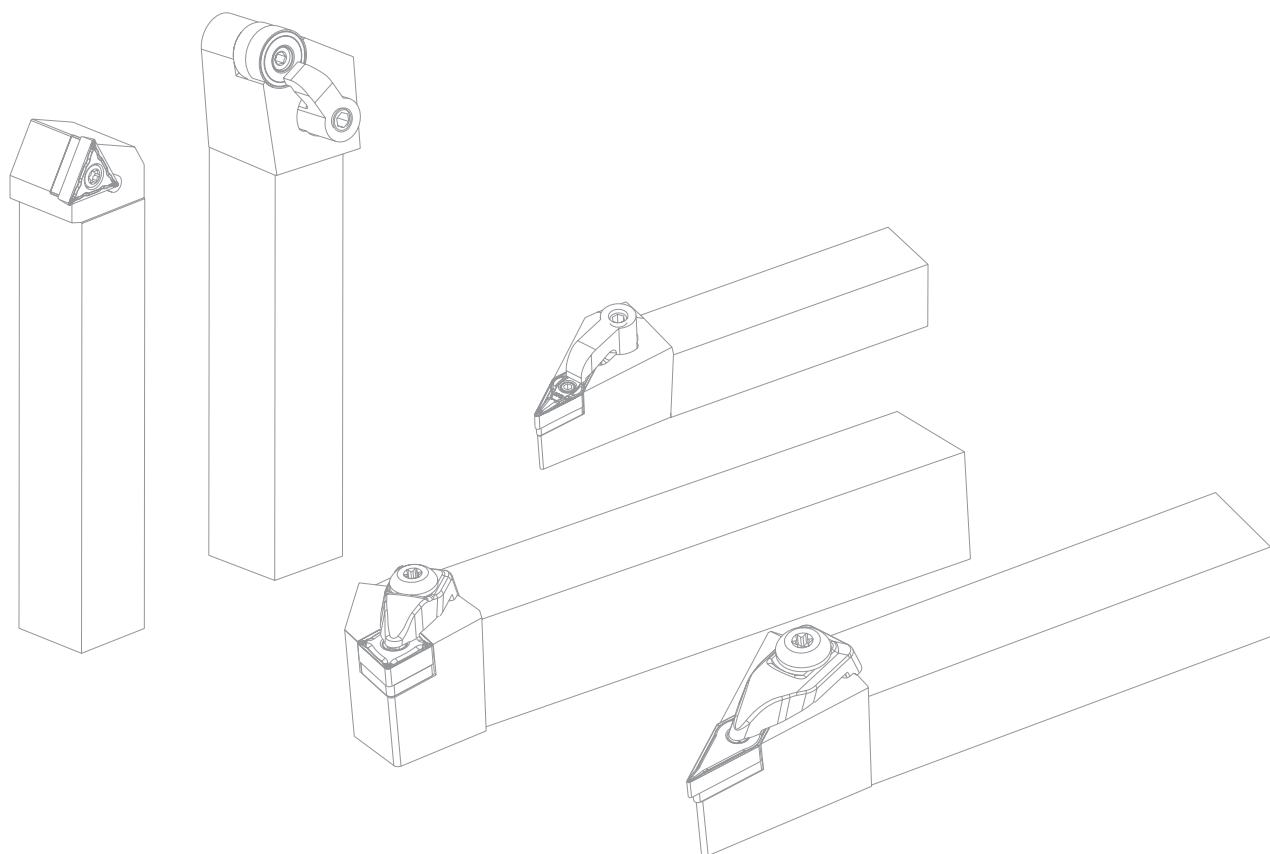
91°



R-type shown



Type	Dimension(inch)						Applicable inserts	Screw	Shim	Shim screw	Wrench
	a	b	L	h	s	e	 P64-66/90-91				
STGCR/L 05-1.8J	0.3125	0.3125	2.36	0.3125	0.39	0.43	TC□□1.8(1.5)□□	I60M2.2×5.5	--	--	WT06IP
STGCR/L 06-1.8J	0.375	0.375	2.36	0.375	0.47	0.43	TC□□1.8(1.5)□□	I60M2.2×5.5	--	--	WT06IP
STGCR/L 08-2J	0.50	0.50	3.50	0.50	0.63	0.55	TC□□2(1.5)□□	I60M2.5×6.5	--	--	WT07IP
STGCR/L 10-2A	0.625	0.625	4.00	0.625	0.79	0.63	TC□□2(1.5)□□	I60M2.5×6.5	--	--	WT07IP
STGCR/L 12-3C	0.75	0.75	5.00	0.75	1.00	0.83	TC□□3(2.5)□□	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
STGCR/L 16-3D	1.00	1.00	6.00	1.00	1.25	0.83	TC□□3(2.5)□□	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L



Internal turning tools



Boring Bars code key

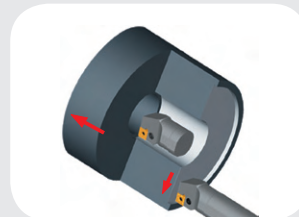
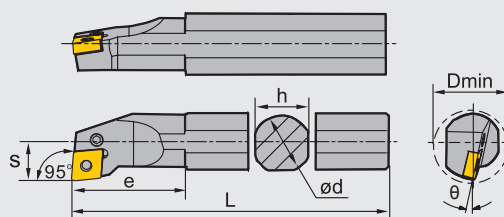
Boring bars type	Boring bars diameter	Boring bars length	Insert shape	
Steel with cooling hole A	 Round shanks: shown in 1/16" increments	 H = 4" J = 4-1/2" K = 5" M = 6" Q = 7" R = 8" S = 10" T = 12" U = 14" V = 16" Y = 20"	 C	 D
Carbide C	04 = 0.250" 05 = 0.3125" 06 = 0.375" 08 = 0.500" 10 = 0.625" 12 = 0.750" 16 = 1.000" 20 = 1.250" 24 = 1.500" 32 = 2.000" 40 = 2.500"		 K	 R
Carbide with cooling hole E			 S	 T
Steel S			 V	 W

S 16 T - S C L C R - 3

Insert mounting method	Boring bars style	Insert clearance angle	Cutting direction	Insert I.C size
 P-Lever Clamp	 K	 B	 L-Left hand	 Number of 1/8" of inscribed circle
 M-multi Clamp	 F	 C		2 = 0.250" 3 = 0.375" 4 = 0.500" 5 = 0.625" 6 = 0.750" 7 = 0.875" 8 = 1.000"
 S-Screw Clamp	 U	 D		
 C-Top Clamp	 L	 E	 R-Right hand	
	 Q	 N		
		 P		

Applicable Boring bars to **CN**□□**PCLNR/L**

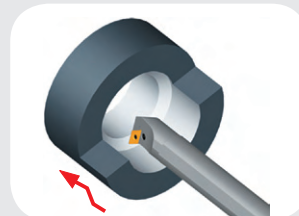
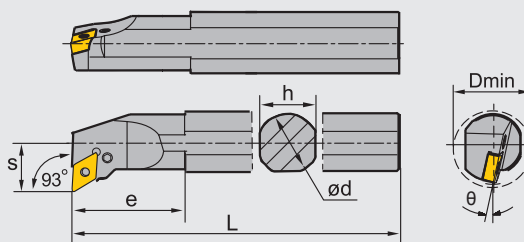
95°



Type	Dimension(Inch)							Applicable inserts	Screw	Wrench	Lever	Shim	Shim screw
	D	d	h	L	s	θ	e						
S16Q-PCLNR/L-3	1.26	1.00	0.906	7	0.669	-10°	1.378	 P30-34/78	 LEM5x9B	 WH20L	 L3C	 --	 --
S16T-PCLNR/L-3	1.26	1.00	0.906	12	0.669	-10°	1.378						
S16Q-PCLNR/L-4	1.26	1.00	0.906	7	0.669	-12°	1.575						
S16T-PCLNR/L-4	1.26	1.00	0.906	12	0.669	-12°	1.575	 CN□□43□□	 LEM6x13.4A	 WH25L	 L4A	 --	 --
A16R-PCLNR/L-4	1.26	1.00	0.945	8	0.669	-12°	1.575						

Applicable Boring bars to **DN**□□**PDUNR/L**

93°

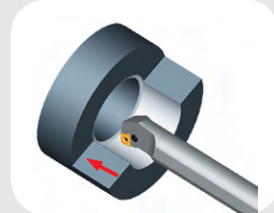
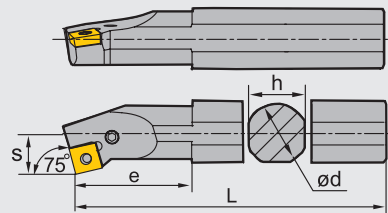


Type	Dimension(Inch)							Applicable inserts	Screw	Wrench	Lever	Shim	Shim pin
	D	d	h	L	S	θ	e						
S16Q-PDUNR/L-3	1.26	1.00	0.906	7	0.669	-13°	1.378	 P35-40	 LEM5x12B	 WH20L	 L3D	 --	 --
S16T-PDUNR/L-3	1.26	1.00	0.906	12	0.669	-13°	1.378						

Applicable toolholders to **SN**□□

PSKNR/L

75°

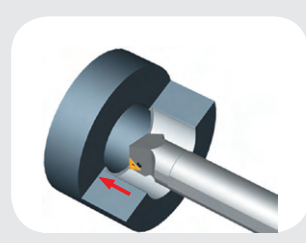
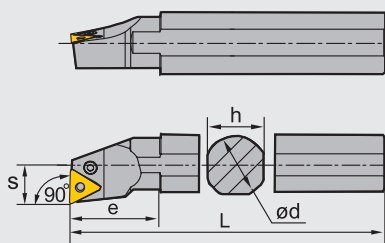


Type	Dimension(inch)							Applicable inserts	Screw	Wrench	Lever	Shim	Shim screw
	D	d	h	L	s	θ	e	 P41-45					
S16Q-PSKNR/L-4	1.26	1.00	0.906	7	0.669	-12°	1.654	SN□□43□□	LEM6x13.4A	WH25L	L4A	--	--
S16T-PSKNR/L-4	1.26	1.00	0.906	12	0.669	-12°	1.654						
A16R-PSKNR/L-4	1.26	1.00	0.945	8	0.669	-12°	1.654						

Applicable Boring bars to **TN**□□

PTFNR/L

90°

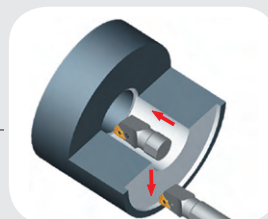
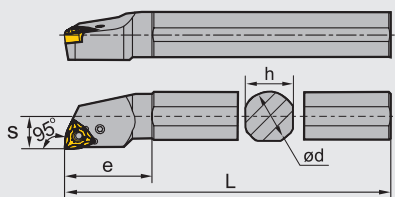


Type	Dimension(inch)							Applicable inserts	Screw	Wrench	Lever	Shim	Shim screw
	D	d	h	L	s	θ	e	 P47-51/83					
S16Q-PTFNR/L-2	1.26	1.00	0.906	7	0.669	-10°	1.378	TN□□22□□	LEM5x9B	WH20L	L2	--	--
S16T-PTFNR/L-2	1.26	1.00	0.906	12	0.669	-10°	1.378						
S16Q-PTFNR/L-3	1.26	1.00	0.906	7	0.669	-12°	1.654	TN□□33□□	LEM5x12B	WH20L	L3B	--	--
S16T-PTFNR/L-3	1.26	1.00	0.906	12	0.669	-12°	1.654						
A16R-PTFNR/L-3	1.26	1.00	0.945	8	0.669	-12°	1.575		LEM6x17	WH25L	L3	T16APB	SP3

Applicable toolholders to WN□□

PWLNR/L

95°

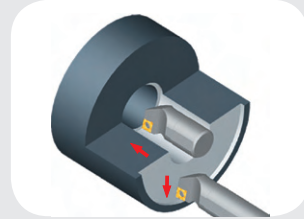
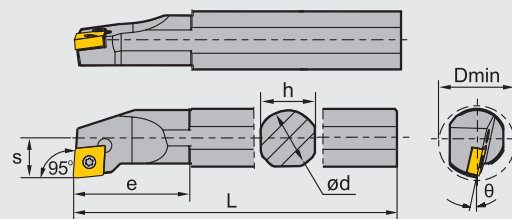


Type	Dimension(inch)							Applicable inserts	Screw	Wrench	Lever	Shim	Shim screw
	D	d	h	L	s	θ	e	 P54-57/85					
S16Q-PWLNR/L-3	1.26	1.00	0.906	7	0.669	-13°	1.378	WN□□3(2.5)□□	LEM5x12B	WH20L	L3B	--	--
S16T-PWLNR/L-3	1.26	1.00	0.906	12	0.669	-13°	1.378	WN□□33□□					
S16Q-PWLNR/L-4	1.26	1.00	0.906	7	0.669	-13°	1.772						
S16T-PWLNR/L-4	1.26	1.00	0.906	12	0.669	-13°	1.772	WN□□43□□	LEM6x13.4A	WH25L	L4A	--	--
A16T-PWLNR/L-4	1.26	1.00	0.906	12	0.669	-13°	1.772						

Applicable Boring bars to CC□□

SCLCR/L

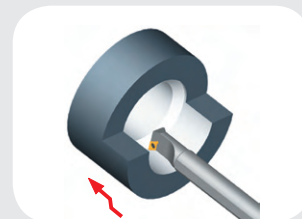
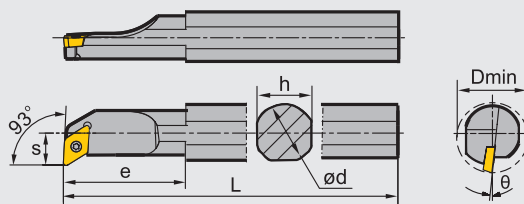
95°



Type	Dimension(inch)							Applicable inserts	Screw	Wrench	Shim	Shim screw
	D	d	h	L	s	θ	e	 P58-59/87				
S05K-SCLCR/L-2	0.394	0.3125	0.276	5	0.197	-15°	0.551	CC□T2(1.5)□	I60M2.5×5.5	WT07IP	--	--
S06M-SCLCR/L-2	0.472	0.375	0.354	6	0.236	-13°	0.551					
S08M-SCLCR/L-2	0.630	0.500	0.433	6	0.354	-10°	0.984					
S08M-SCLCR/L-3	0.630	0.500	0.433	6	0.354	-10°	0.984	CC□T3(2.5)□	I60M3.5×8	WT15IP	--	--
S10M-SCLCR/L-3	0.787	0.625	0.594	6	0.433	-12°	1.280					
S10R-SCLCR/L-3	0.787	0.625	0.591	8	0.433	-12°	1.280					
S12Q-SCLCR/L-3	0.787	0.750	0.709	7	0.512	-8°	1.496					
S12S-SCLCR/L-3	0.984	0.750	0.709	10	0.512	-8°	1.496					
S16Q-SCLCR/L-3	1.260	1.000	0.906	7	0.669	-6°	1.772	CC□T3(2.5)□	I60M3.5×10	WT15IP	--	--
S16T-SCLCR/L-3	1.260	1.000	0.906	12	0.669	-6°	1.772					
S16Q-SCLCR/L-4	1.260	1.000	0.906	7	0.669	-6°	1.772	CC□T43□	I60M4×11X	WT15IP	--	--
S16T-SCLCR/L-4	1.260	1.000	0.906	12	0.669	-6°	1.772					
S20R-SCLCR/L-4	1.575	1.250	1.181	8	0.866	-10°	1.969	CC□T43□	I60M4×11X	WH40L WT15IP	C12BS	SM6x10xA
S20U-SCLCR/L-4	1.575	1.250	1.181	14	0.866	-10°	1.969					
S24S-SCLCR/L-4	1.969	1.500	1.457	10	10.63	-8°	2.362					
S24V-SCLCR/L-4	1.969	1.500	1.457	16	1.063	-8°	2.362					
A05F-SCLCR/L-2	0.394	0.315	0.295	3.15	0.197	-15°	0.551	CC□T2(1.5)□	I60M2.5×5.5	WT07IP	--	--
A06H-SCLCR/L-2	0.472	0.375	0.374	4	0.236	-13°	0.551					
A08K-SCLCR/L-2	0.630	0.500	0.453	5	0.354	-10°	0.984					
A08K-SCLCR/L-3	0.630	0.500	0.453	5	0.354	-10°	0.984	CC□T3(2.5)□	I60M3.5×8	WT15IP	--	--
A10M-SCLCR/L-3	0.787	0.625	0.610	6	0.433	-12°	1.280					
A12Q-SCLCR/L-3	0.984	0.750	0.748	7	0.512	-8°	1.496					
A16R-SCLCR/L-3	1.260	1.000	0.945	8	0.669	-6°	1.772		I60M3.5×10			
A16R-SCLCR/L-4	1.260	1.000	0.945	8	0.669	-6°	1.772	CC□T43□	I60M4×11X	WT15IP	C12BS	SM6×10XA
A20S-SCLCR/L-4	1.575	1.250	1.220	10	0.866	-10°	1.969			WH40L WT15IP		

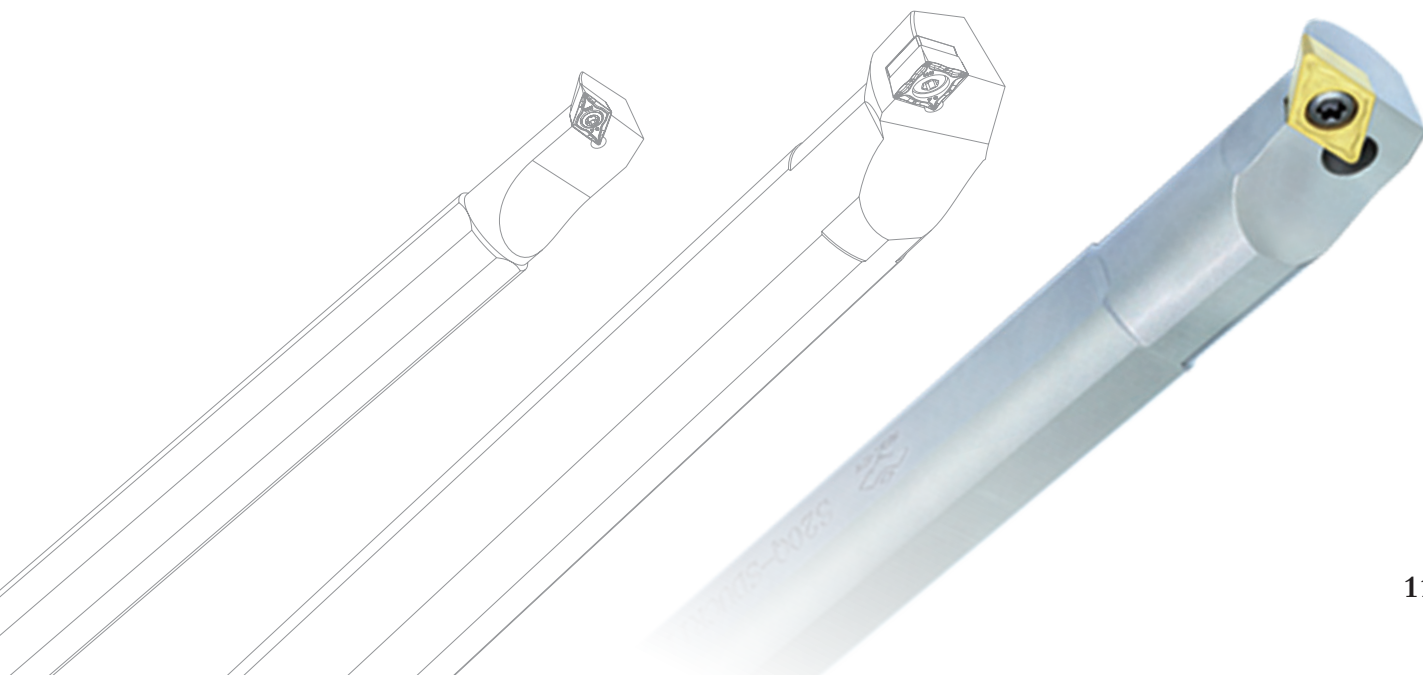
Applicable Boring bars to **DC**□□**SDUCR/L**

93°



A

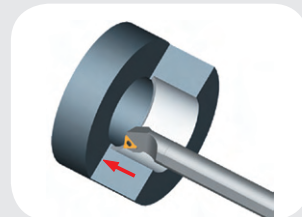
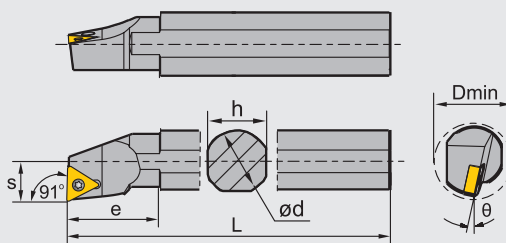
Type	Dimension(inch)							Applicable inserts	Screw	Wrench
	D	d	h	L	s	θ	e	 P60-61/89		
S06M-SDUCR/L-2	0.512	0.375	0.354	6	0.276	-8°	0	DC□T2(1.5)□	I60M2.5×5.5	WT071P
S08M-SDUCR/L-2	0.630	0.500	0.433	6	0.354	-8°	0.866		I60M2.5×6.5	
S10M-SDUCR/L-2	0.787	0.625	0.591	6	0.433	-6°	1.063			
S10R-SDUCR/L-2	0.787	0.625	0.591	8	0.433	-6°	1.063			
S12Q-SDUCR/L-3	0.984	0.750	0.709	7	0.512	-6°	1.575	DC□T3(2.5)□	I60M3.5×8	WT151P
S12S-SDUCR/L-3	0.984	0.750	0.709	10	0.512	-6°	1.575		I60M3.5×10	
S16Q-SDUCR/L-3	1.260	1.000	0.906	7	0.669	-6°	1.811			
S16T-SDUCR/L-3	1.260	1.000	0.906	12	0.669	-6°	1.811			
A06H-SDUCR/L-2	0.512	0.375	0.374	4	0.276	-8°	0	DC□T2(1.5)□	I60M2.5×5.5	WT071P
A08K-SDUCR/L-2	0.630	0.500	0.453	5	0.354	-8°	0.866		I60M2.5×6.5	
A10M-SDUCR/L-2	0.787	0.625	0.610	6	0.433	-6°	1.063			
A12Q-SDUCR/L-3	0.984	0.750	0.748	7	0.512	-6°	1.575		I60M3.5×8	WT151P
A16R-SDUCR/L-3	1.260	1.000	0.945	8	0.669	-6°	1.811	DC□T3(2.5)□	I60M3.5×10	

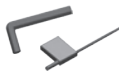


Applicable Boring bars to TC□□

STFCR/L

90°



Type	Dimension(inch)							Applicable inserts	Screw	Wrench	Shim	Shim screw
	D	d	h	L	s	θ	e	 P64-66/90-91				
S08M-STFCR/L-2	0.630	0.500	0.433	6	0.354	-10°	1.181	TC□T2(1.5)□	I60M2.5×6.5	WT07IP	--	--
S10M-STFCR/L-2	0.787	0.625	0.591	6	0.433	-6°	1.378					
S10R-STFCR/L-2	0.787	0.625	0.591	8	0.433	-6°	1.378					
S12Q-STFCR/L-2	0.984	0.750	0.709	7	0.512	-3°	1.417					
S12S-STFCR/L-2	0.984	0.750	0.709	10	0.512	-3°	1.417					
S16Q-STFCR/L-3	1.260	1.000	0.906	7	0.669	-6°	1.929	TC□T3(2.5)□	I60M3.5×10	WT15IP	--	--
S16T-STFCR/L-3	1.260	1.000	0.906	12	0.669	-6°	1.292					
S20R-STFCR/L-3	1.575	1.250	1.181	8	0.866	-10°	1.969		I60M3.5×12	WT15IP WH35L	T16BS	SM5×8.65XA
S20U-STFCR/L-3	1.575	1.250	1.181	14	0.866	-10°	1.969					
S24S-STFCR/L-3	1.969	1.500	1.457	10	1.063	-8°	2.362					
S24V-STFCR/L-3	1.969	1.500	1.457	16	1.063	-8°	2.362	TC□T2(1.5)□	I60M2.5×6.5	WT07IP	--	--
A08K-STFCR/L-2	0.630	0.500	0.453	5	0.354	-10°	1.024					
A10M-STFCR/L-2	0.787	0.625	0.610	6	0.433	-6°	1.181					
A12Q-STFCR/L-2	0.984	0.750	0.748	7	0.512	-3°	1.417					
A16R-STFCR/L-3	1.260	1.000	0.946	8	0.669	-6°	1.772					
A20S-STFCR/L-3	1.575	1.250	1.220	10	0.866	-10°	1.929	TC□T3(2.5)□	I60M3.5×10	WT15IP	--	--
									I60M3.5×12	WT15IP/WH35L	T16BS	SM5×8.65XA

● Recommended cutting parameters for general turning

ISO	Materials		Hardness HB	CVD Coating					PVD Coating			Cermet	Coated cermet	Cemented carbide	
				YBC151	YBC251	YBC152	YBC252	YBC351	YBG102	YBG202	YBG205	YNG151	YNG151C	YC10	YC40
				Feed rate (inch/rev)											
				0.004-0.024	0.004-0.031	0.004-0.024	0.004-0.031	0.008-0.039	0.008-0.016	0.004-0.024	0.002-0.031	0.002-0.008	0.002-0.008	0.004-0.016	0.004-0.020
				Cutting speed (SFPM)											
P	Carbon steel	C=0.15%	125	1400-650	1400-600	1650-900	1600-800	1200-550	1500-700	1200-600	1200-500	1800-1100	1900-1100	1200-550	1000-500
		C=0.35%	150	1200-600	1300-600	1500-800	1500-750	1000-500	1400-700	1000-550	1000-550	1600-1000	1700-1000	900-500	700-400
		C=0.60%	200	1000-500	1200-500	1300-700	1300-650	850-400	1200-600	850-500	900-550	1500-850	1600-850	800-400	600-260
	Alloy steel	Anneal	180	1100-550	1200-500	1300-600	1300-650	650-300	1200-600	650-400	700-450	1300-800	1400-800	600-300	500-260
		Hardened	275	750-300	700-300	900-500	850-450	450-230	800-400	450-300	500-300	1000-600	1000-600	400-230	400-160
		Hardened	300	700-300	600-230	850-500	800-400	400-200	700-300	400-260	450-300	800-560	900-550	300-200	260-130
		Hardened	350	600-260	550-230	750-400	700-400	350-200	650-300	360-240	400-260	800-500	800-500	300-180	230-150
	High alloy steel	Anneal	200	1000-500	850-400	1200-600	1000-550	550-260	1000-500	600-300	600-300	1100-650	1200-650	500-260	450-200
		Hardene	325	450-300	300-160	600-400	500-300	300-130	400-260	300-200	300-200	550-360	600-360	200-130	150-100
	Cast steel	Non-Alloy	180	800-400	650-300	900-500	800-450	450-240	750-400	450-300	450-300	850-560	1000-550	400-240	300-200
		Low alloy	200	750-230	550-200	900-350	700-350	400-260	650-300	400-300	400-350	850-560	1000-550	300-360	260-200
		High alloy	225	500-230	450-160	700-350	600-300	300-180	550-260	300-180	300-200	850-300	900-300	300-180	240-110

ISO	Materials		Hardness HB	CVD Coating			PVD Coating		Cermet	Coated cermet
				YBM151	YBM251	YBM253	YBG202	YBG205	YNG151	YNG151C
				Feed rate (inch/rev)						
				0.008-0.024	0.008-0.024	0.008-0.024	0.004-0.016	0.008-0.016	0.004-0.012	0.004-0.012
				Cutting speed (SFPM)						
M	Stainless steel	Ferrite	180	900-600	800-450	850-450	1000-600	1000-650	1100-700	1100-700
		Austenite	260	800-500	650-360	700-360	800-500	900-550	800-500	900-450
		Martensite	330	650-450	700-400	750-400	850-550	850-500	900-550	1000-500

Recommended cutting parameters for general turning

ISO	Materials		Hardness HB	CVD Coating					Cermet	Coated cermet	Cemented carbide	
				YBD052	YBD151	YBD102	YBD152	YBD252	YNG151	YNG151C	YC10	YC40
				Feed rate(inch/rev)								
				0.004-0.016	0.004-0.024	0.004-0.016	0.004-0.020	0.004-0.031	0.004-0.016	0.004-0.016	0.004-0.012	0.004-0.016
				Cutting speed(SFPM)								
K	Malleable cast iron	Ferrite	130	1150-750	1000-700	1000-700	1050-350	800-550	1000-500	1000-600	500-300	3500-150
		Pearlite	230	800-350	700-300	750-300	750-300	600-250	700-400	800-500	400-230	260-100
	Low cast iron		180	1700-650	1500-600	1500-650	1600-600	1250-500	1300-800	1400-900	550-300	400-200
	High cast iron		260	750-400	700-350	700-400	700-300	550-300	1200-800	1200-850	400-230	300-130
	Nodular Cast iron	Ferrite	160	1000-500	1000-450	1000-500	950-450	700-350	1100-600	1200-700	450-260	400-150
Pearlite		250	750-350	700-300	700-350	700-300	550-300	1000-650	1100-700	360-230	260-100	

ISO	Materials					Hardness HB	PVD Coating				Cemented carbide
							YBG102	YBG105	YBG202	YBG212	YD101
							Feed rate (inch/rev)				
							0.002-0.006				0.002-0.014
							Cutting speed (SFPM)				
N	Al alloy		No heat treatment			60					5700-2600
			Heat treatment			100					1700-800
	Cast aluminum alloy		No heat treatment			75				1500-600	
			Heat treatment			90				1000-360	
	Copper alloy		Lead alloy			110				2000-650	
			Copper,pure copper			90				1000-650	
Copper,nonleaded Copper,electrolytic copper			100				700-400				
S	Ni-base alloy		Ni-base alloy			40	300-100	300-130	300-100	300-100	230-70

ISO	Materials	Hardness	Feed rate (inch/rev)	Grade			
				YCB012	YCB011	YBZ221	YCD011
				Cutting speed (SFPM)			
H	Hard steel	45HRC	0.1-0.2	500-820			
			0.1-0.2				
			0.1-0.3				
	Super hard steel	50-60HRC	0.1-0.2	500-656			
			0.1-0.2				
			0.1-0.5				
K	Grey cast iron	170-220HB	0.1-0.5		1300-4900		
			0.1-0.5				
			0.5-1.0		1300-4900		
			0.5-1.0				
	Ductile cast iron	170-230HB	0.1-0.2		320-980		
			0.1-0.2				
			0.3-1.5		320-1600		
			0.3-1.5				
	Chilled cast iron	500HB	0.1-0.5		160-490		
			0.1-0.5				
			0.5-1.5		65-160		
			0.5-1.5				
N	Aluminum silicon alloy(≤12%Si)	75-90	0.1-0.4				2950-16400
	Aluminum silicon alloy(>12%Si)	80-110	0.1-0.4				980-2950
	Copper alloy	90-110HB	0.1-0.3				1300-3900
	Reinforced plastics		0.1-0.5				650-3200

● Frequent problems of turning and solutions



Common problem			Solutions		Tool material		Cutting conditions			Tool shape							Machine clamping system		
					Harder materials	Tougher materials	Cutting speed	Feed rate	Cutting depth	Cutting liquid	Change chipbreaker of inserts	Rake face	Nose radius	Approach angle	Cutting edge strength	Increase precision of inserts	Increase rigidity of tool holder	Clamping of toolholder and workpiece	Overhang of toolholder
Over abrasion on nose	Bad precision during machining	Abrasion intensified on flank	✓								↑								
		Unsuitable cutting conditions			↓	↑													
Surface precision deterioration	Bad surface quality	Abrasion intensified and cutting edge not sharp enough	✓		↓			✓		↑	↑		↓	✓					
		Breakage		✓		↓	↓		✓		↑		↑			✓	✓	✓	
		Unsuitable geometrical shape of cutting edge						✓		↑		↓	✓						
		Unsuitable cutting conditions			↑	↓	↓	✓											
		Shake and vibration		✓	↓	↓	↓	✓	✓	↑	↓	↑	↓		✓	✓	✓	✓	
		Built-up edge			↑	↑		✓	✓	↑		↓	✓						
Radiation	Effect of cutting heat	Unsuitable cutting conditions			↓	↓	↓												
		Unsuitable geometrical shape of cutting edge	✓						✓	↑			↓						
Bad precision of dimensions	Dimensions fluctuate during cutting	Unsuitable inserts precision												✓					
		Location removed of workpiece or tools							✓	↑	↓	↑			✓	✓	✓	✓	
Breakage	Abrasion intensified on flank and rake face	Abrasion on clearance face	✓		↓				✓	↑	↑		↓						
		Abrasion on rake face	✓		↓	↓	↓		✓	↑			↓						
	Light breakage	Shake and impact		✓		↓	↓		✓				↓	↑		✓	✓	✓	
	Built-up edge	Unsuitable workpiece hardness for cutting conditions			↑	↑		✓	✓	↑			↓	✓					
	Thermal cracking	Hardness of workpiece material and tool material unsuitable for cutting conditions			↓	↓	↓	✓	✓	↑			↓						
	Cutting edge nose deformation	Occurring during intermittent machining with high feed rate	✓		↑	↓	↓	✓	✓	↑	↑	↓	↓						
	Tool life	Unsuitable materials and cutting conditions		✓		↓	↓		✓		↑	↓	↑		✓	✓	✓	✓	
Chip controlling	Intertwist of long chips	Unsuitable cutting condition			↓	↑	↑	✓											
		Unsuitable geometry							✓		↓	↑							
	Too short chips lead to splash	Unsuitable cutting condition				↓	↓	✓											
		Unsuitable geometrical shape of cutting edge							✓		↑	↓							
Burr and knockdown flange	Steel and Al, burrs occurring	Unsuitable cutting condition			↑	↓		✓											
		Unsuitable tool abrasion and geometrical shape	✓						✓	↑	↓	↑	↓						
	Cast iron, knockdown flange	Unsuitable cutting conditions			↓	↑		✓											
		Unsuitable tool abrasion and geometrical shape	✓						✓	✓	↓	↓	↓						
	Soft steel, raw edges	Unsuitable cutting condition				↓	↓												
		Unsuitable tool abrasion and geometrical shape	✓						✓	↑	↑		↑		✓	✓	✓	✓	