

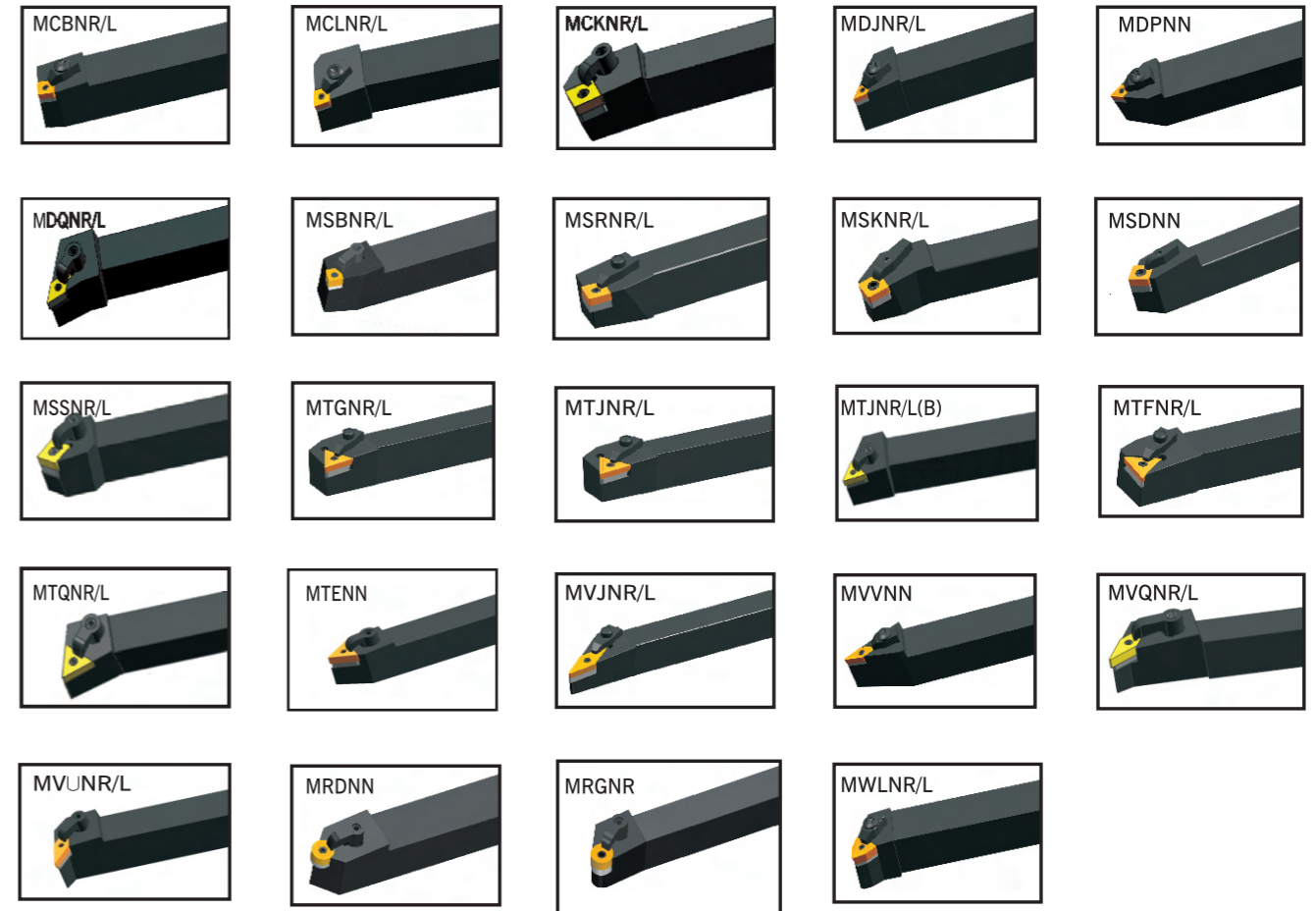
ZZ HARDMETAL is a modern joint-stock company focusing on R & D, production and distribution in the area of CNC cutter. The company is located in Zhuzhou--the biggest manufacturing bases of CNC cutter and carbide in China.

Our company's main products include external turning tools, internal turning tools of M,P,D,S,W,C type and threading tools, parting and grooving tools, indexable milling tools, drilling tools. At the same time, we can also undertake all types of non-standard tools.

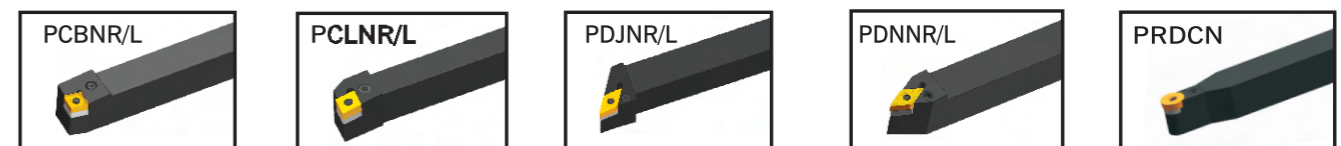
Based on the excellent design, top-class CNC center, accurate testing equipment and perfect management process, Sant series' quality is always in the leading level. Since the establishment of our company we has always insisted: "United and Innovative, Honest and Pragmatic, Pioneering for progress, Pursuing win-win outcomes". We've established good cooperation relationship with many large and medium-size enterprises and dealers all over the world. We'll work hard together persistently to support high-quality products and satisfactory service for all the customers!



M Top and hole clamping



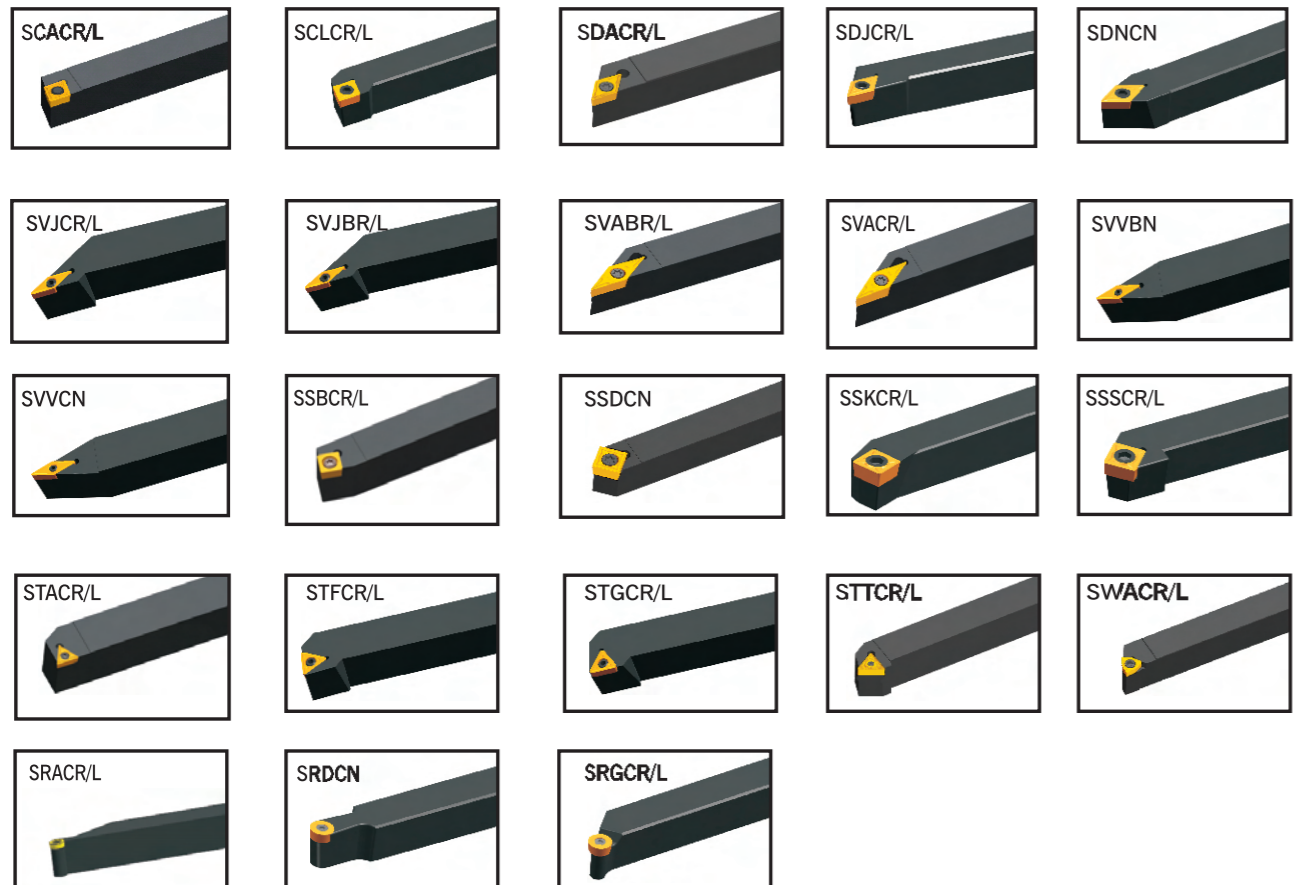
P Hole clamping



Turning tools

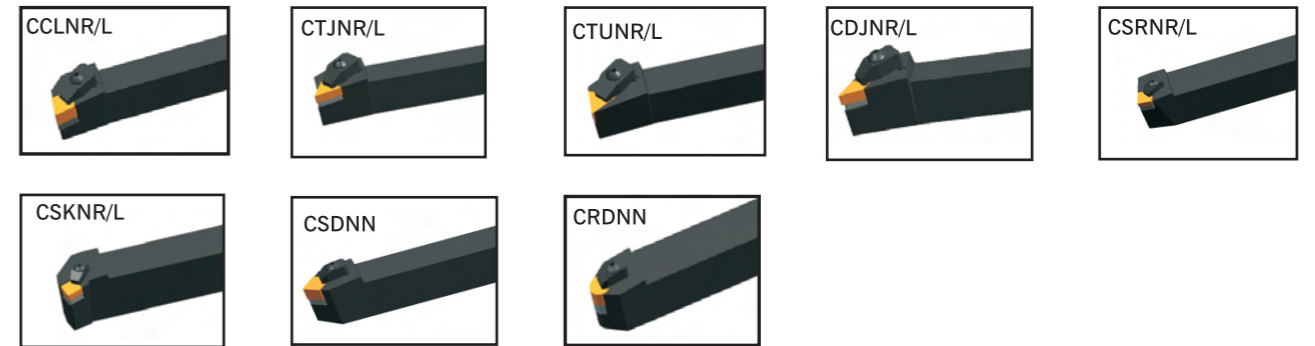


S Screw on



Turning tools

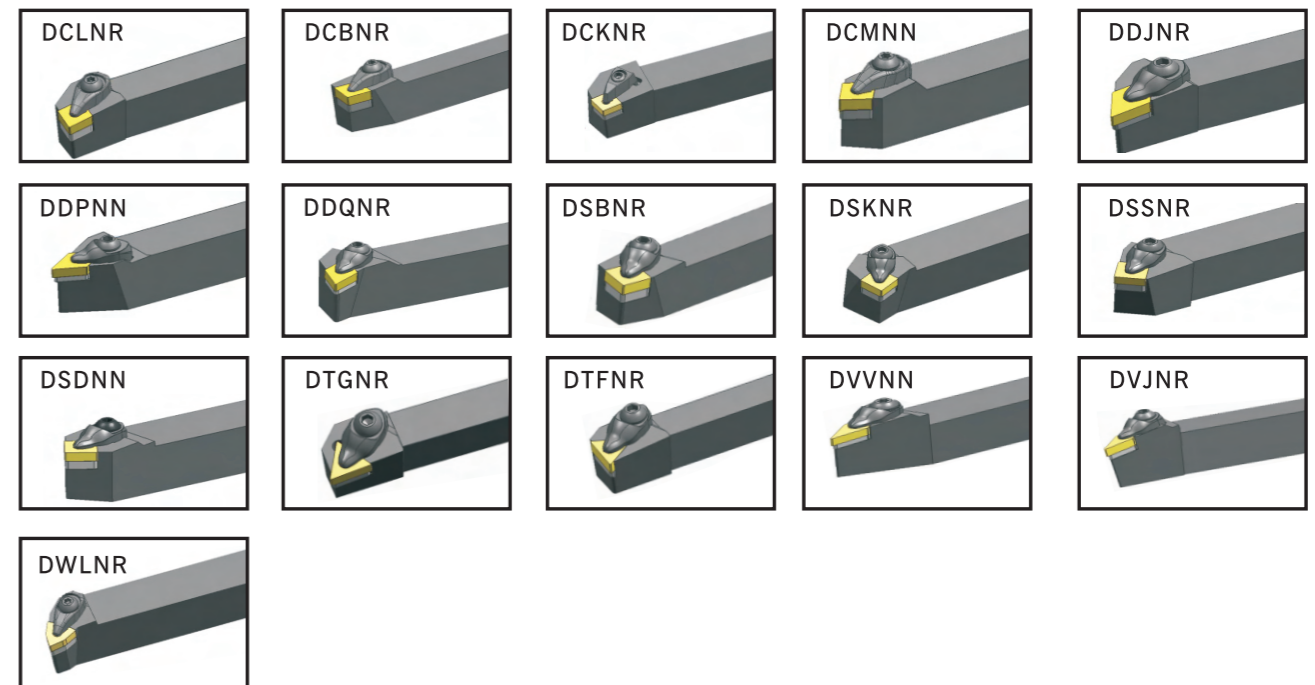
C Top clamping



W Wedge clamping



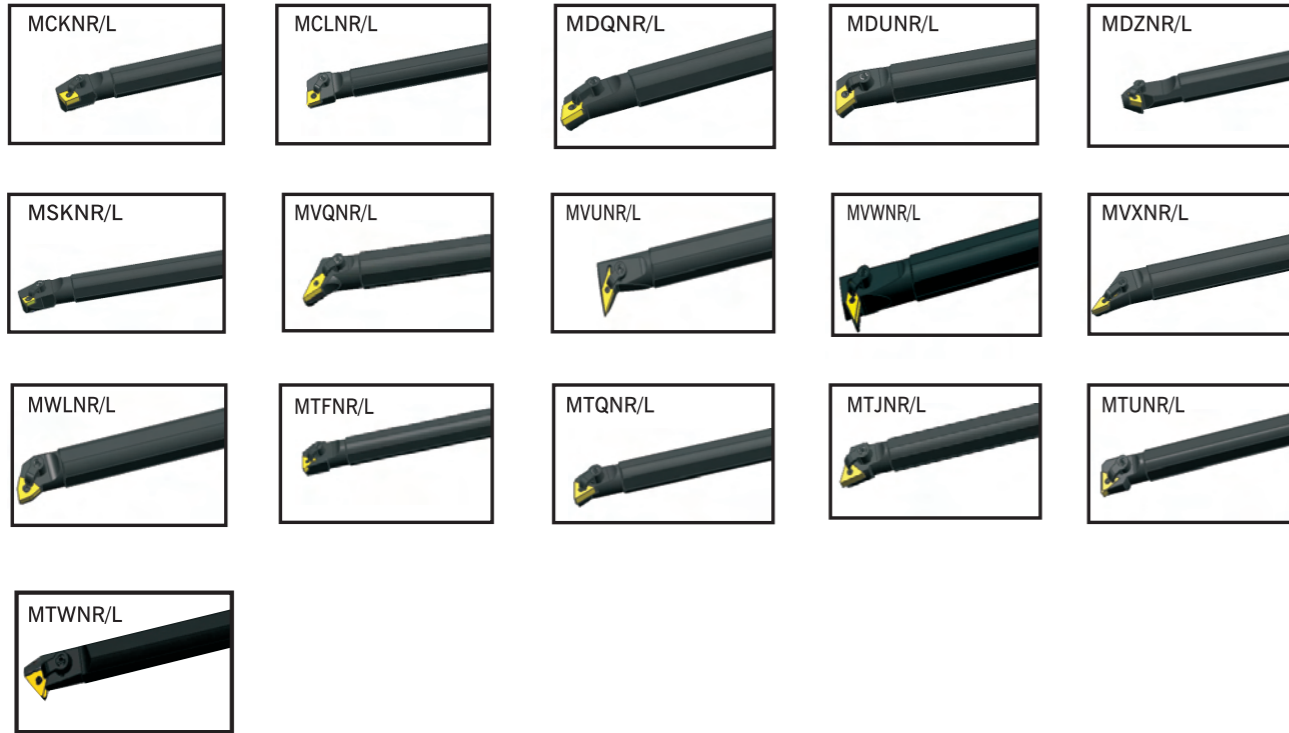
D Wedge clamping



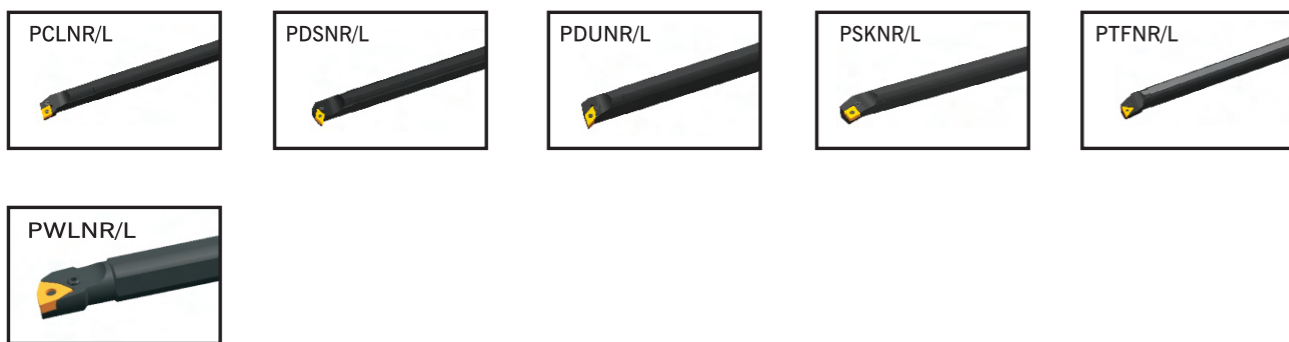
Turning tools

Interanal toolholders

M top and hole clamping



P Hole clamping

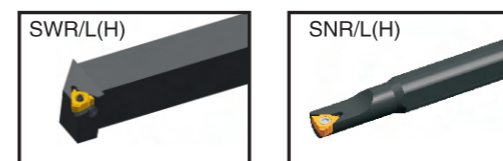


Turning tools

S Screw on

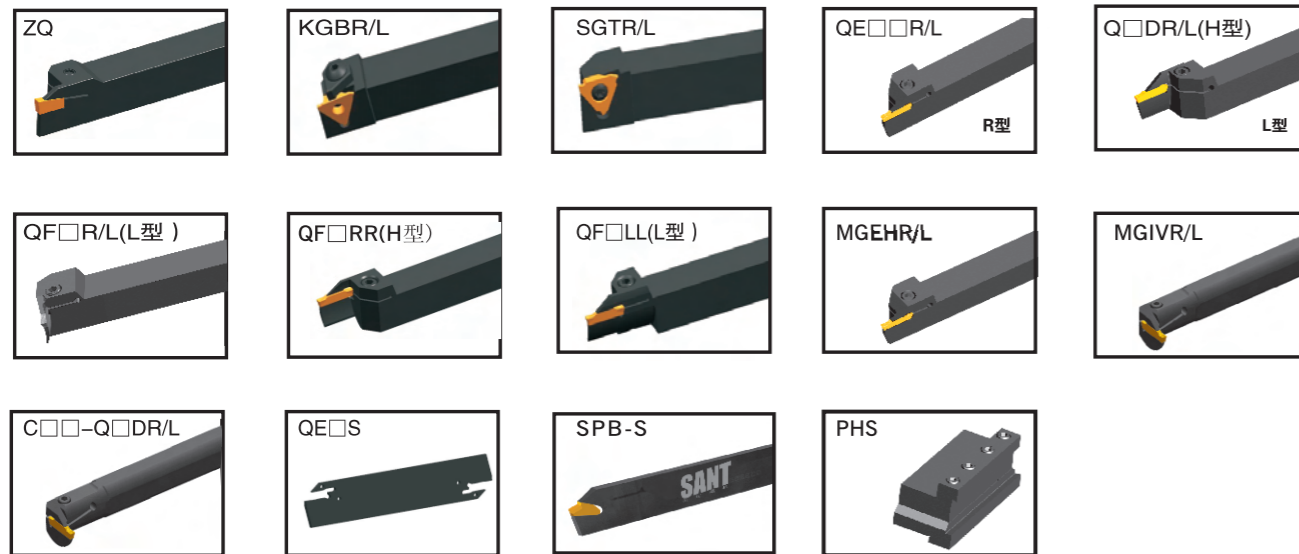


Threading tools



Parting, grooving tools

External Parting, Surface Grooving Tools



Example



Clamping system

Hole clamping	Screw on	Top and hole clamping	Top clamping
P	S	M	C

2. Insert shape

C	D	R	S	T	V	W

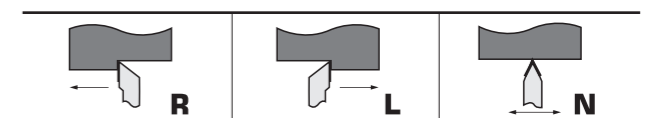
3. Holder style and lead angle

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

4. Insert clearance angle

N	B	C	P	D	E
0°	5°	7°	11°	15°	20°

5. Hand of tools



Turning tools

6. Height

 <p>Integers to be preceded by 0 eg:h=8 indicated by 08</p>	记号 Symbol	12	16	20	25	32	40	50
	高度/mm Height/mm	12	16	20	25	32	40	50

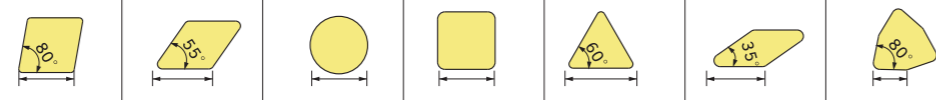
7. Shank width

 <p>Integers to be preceded by 0 eg:b=8 indicated by 08</p>	记号 Symbol	12	16	20	25	32	40	50
	高度/mm Height/mm	12	16	20	25	32	40	50

8. Tool length

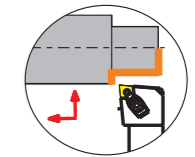
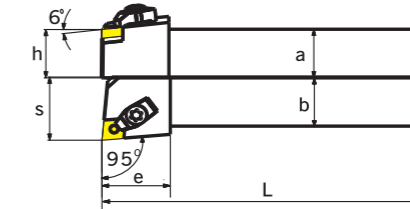
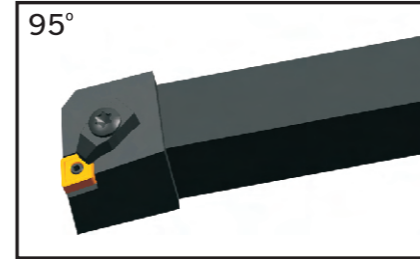
Code	H	K	M	P	Q	R	S	T	U	V
Length	100	125	150	170	180	200	250	300	350	400

9. Cutting edge length

Insert Shape	C	D	R	S	T	V	W
							
Inscribed Circle	Cutting Edge Length						
5.556					09		
6.350	06	07			11		
9.525	09	11	09	09	16	16	
12.700	12	15	12	12	22	22	
15.875	16	19	15	15	27		
19.050	19		19	19	33		
25.400	25		25	25	44		

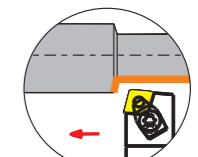
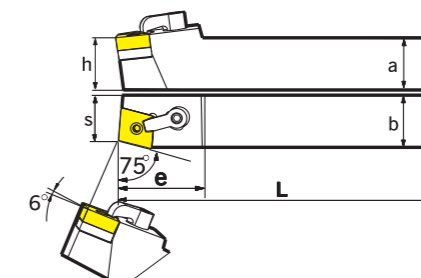
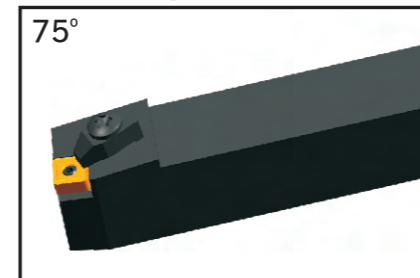
Turning tools







MCLNR/L



Type	Dimension(mm)								Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud	
	Stock		a	b	L	h	s	e							
	R	L													
MCLNR/L	1616H12	●	●	16	16	100	16	20	32	CN □ 1204□	WS061025	MC1204	S3	MCL1814	MSP617
	2020K12	●	●	20	20	125	20	25	32						
	2525M12	●	●	25	25	150	25	32	32		WS061030				
	3225P12	●	●	32	25	170	32	32	32						
	3232P12	●	●	32	32	170	32	40	32						
MCLNR/L	2525M16	●	●	25	25	150	25	32	38	CN □ 1606□	WS061030	MC1604	S3	MCL2114	MSP821
	3225P16	●	●	32	25	170	32	32	38						
	3232P16	●	●	32	32	170	32	40	38						
	3232P19	●	●	32	32	170	32	40	45						
MCLNR/L	4040R19	●	●	40	40	200	40	50	45	CN □ 1906□	Ws081030	MC1904	S4	MCL2217	MSP1021

MCBNR/L

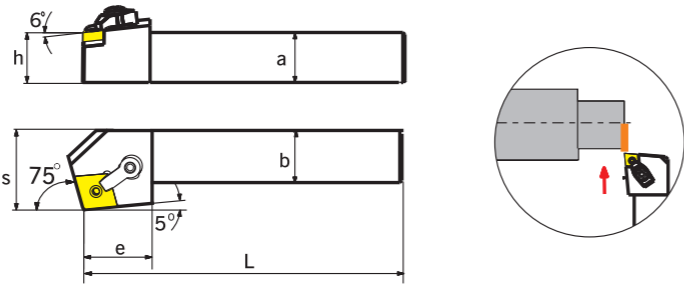


Type	Dimension(mm)								Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud						
	Stock		a	b	L	h	s	e												
	R	L																		
MCBNR/L	2020K12	●	●	20	20	125	20	17	32	CN □ 1204□	WS061025	MC1204	S3	MCL1814	MSP617					
	2525M12	●	●	25	25	150	25	22	32											
	3225P12	●	●	32	25	170	32	22	32		WS061030									
	2525M16	●	●	25	25	150	25	22	40											
	3225P16	●	●	32	25	170	32	22	40							CN □ 1606□	WS061030	MC1604	S3	MCL2114
	3232P16	●	●	32	32	170	32	27	40											
	3232P19	○	○	32	32	170	32	27	45											
4040R19	○	○	40	40	200	40	35	45	CN □ 1906□	WS081030	MC1904	S4	MCL2217	MSP1021						

● Stock ○ in Production order

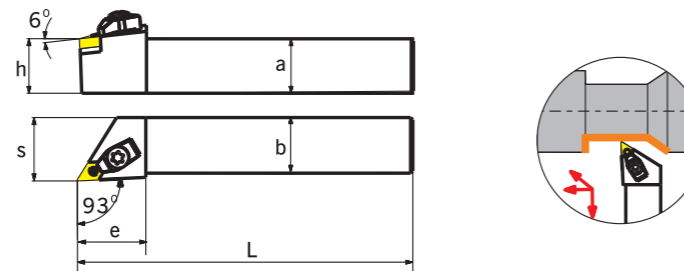
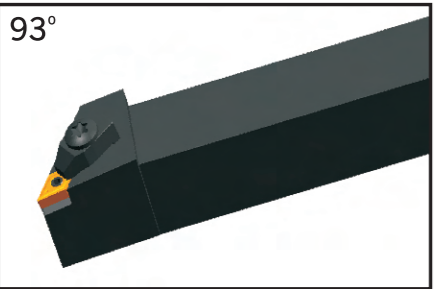
Turning tools

MCKNR/L



Type	Dimension(mm)								Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	Stock		a	b	L	h	s	e						
	R	L												
MCKNR/L 2020K12	●	●	20	20	125	20	17	32	CN \square 1204 \square	WS061025	MC1204	S3	MCL1814	MSP617
2525M12	●	●	25	25	150	25	22	32		WS061030				
3225P12	●	●	32	25	170	32	22	32						
2525M16	●	●	25	25	150	25	22	40	CN \square 1606 \square	WS061030	MC1604	S3	MCL2114	MSP821
3225P16	●	●	32	25	170	32	22	40						
3232P16	●	●	32	32	170	32	27	40						
3232P19	○	○	32	32	170	32	27	45	CN \square 1906 \square	WS081030	MC1904	S4	MCL2217	MSP1021

MDJNR/L

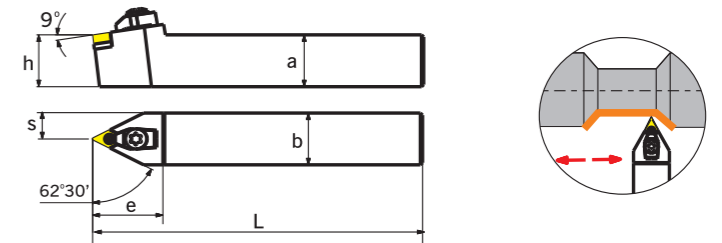
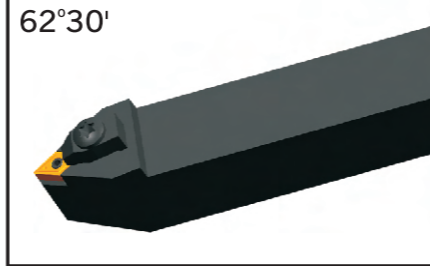


Type	Dimension(mm)								Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	Stock		a	b	L	h	s	e						
	R	L												
MDJNR/L 1616H11			16	16	100	16	20	32	DN \square 1104 \square	WS061025	MD1103	S2	MCL1814	MSP513
2020K11	●	●	20	20	125	20	25	32		WS061030				
2525M11	●	●	25	25	150	25	32	32						
3225P11	○	○	32	25	170	32	32	32	DN \square 1504 \square	WS061025				
2020K1504/06	●	●	20	20	125	20	25	38						
2525M1504/06	●	●	25	25	150	25	32	38						
3225P1504/06	○	○	32	25	170	32	32	38	DN \square 1506 \square	WS061030	MD1504	S3	MCL2114	04:MSP617 06:MSP619
3232P1504/06	○	○	32	32	170	32	40	38						
4040P15			40	40	170	40	48	45						

● Stock ○ in Production order

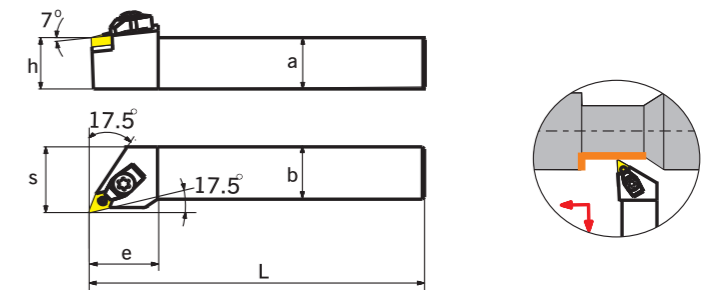
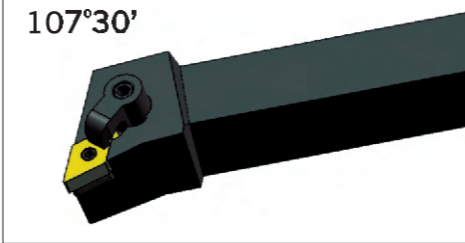
Turning tools

MDPNN



Type	Dimension(mm)								Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	Stock		a	b	L	h	s	e						
	R	L												
MDPNN 1616H11	○		16	16	100	16	8	35	DN \square 1104 \square	WS061025	MD 1103	S2	MCL1814	MSP513
2020K11	●	●	20	20	125	20	10	35		WS061030				
2525M11	●	●	25	25	150	25	12.5	35						
3225P11	○		32	25	170	32	12.5	35	DN \square 1504 \square	WS061025				
2020K1504/06	●	●	20	20	125	20	10	40						
2525M1504/06	●	●	25	25	150	25	12.5	40						
3225P1504/06	○		32	25	170	32	12.5	40	DN \square 1506 \square	WS061030	MD1504	S3	MCL2114	04:MSP617 06:MSP619
3232P1504/06			32	32	170	32	16	42						

MDQNR/L

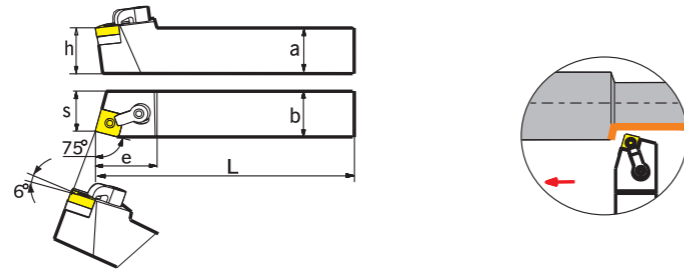
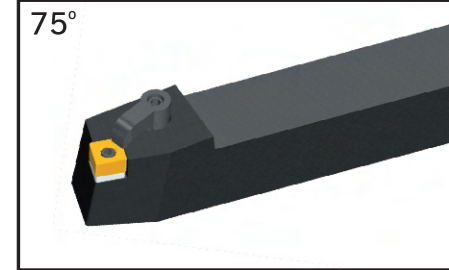


Type	Dimension(mm)								Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud
	Stock		a	b	L	h	s	e						
	R	L												
MDQNR/L 1616H11	○		16	16	100	16	8	35	DN \square 1104 \square	WS061025	MD 1103	S2	MCL1814	MSP513
2020K11	●	●	20	20	125	20	10	35		WS061030				
2525M11	●	●	25	25	150	25	12.5	35						
3225P11	○		32	25	170	32	12.5	35	DN \square 1504 \square	WS061025				
2020K1504/06	●	●	20	20	125	20	10	40						
2525M1504/06	●	●	25	25	150	25	12.5	40						
3225P1504/06	○		32	25	170	32	12.5	40	DN \square 1506 \square	WS061030	MD1504	S3	MCL2114	04:MSP617 06:MSP619
3232P1504/06			32	32	170	32	16	42						

● Stock ○ in Production order

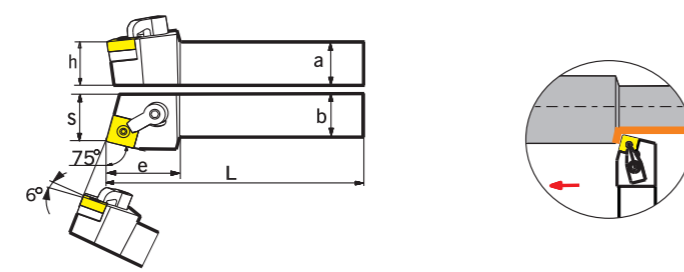
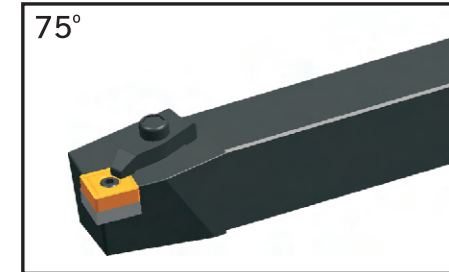
Turning tools

MSBNR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud		
	Stock		a	b	L	h	s							e	
	R	L													
MSBNR/L	2020K12	●	●	20	20	125	20	17	32	SN□□ 1204□□	WS061025	MS1204	S3	MCL1814	MSP617
	2525M12	●	●	25	25	150	25	22	32						
	3225P12	●	●	32	25	170	32	22	32	SN□□ 1506□□	WS061030	MS1504	S3	MCL2114	MSP821
	2525M15	●	●	25	25	150	25	22	38						
	3232P15	●	●	32	32	170	32	29	38	SN□□ 1906□□	WS081030	MS1904	S4	MCL2217	MSP1021
	3232P19	●	●	32	32	170	32	27	45						
	4040R19	●	●	40	40	200	40	35	45	SN□□ 2509□□	WS101035	MS2508	S4, S5	MCL3220	MSP1229
	4040S25	●	●	40	40	250	40	35	60						

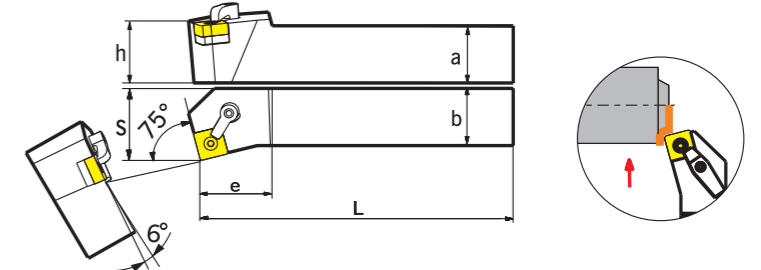
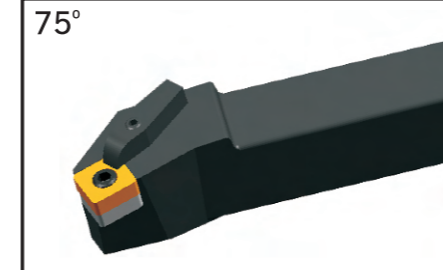
MSRNR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clamp	Clamping stud		
	Stock		a	b	L	h	s							e	
	R	L													
MSRNR/L	2020K12	●	●	20	20	125	20	17	32	SN□□ 1204□□	WS061025	MS1204	S3	MCL1814	MSP617
	2525M12	●	●	25	25	150	25	22	32						
	3225P12	●	●	32	25	170	32	22	32	SN□□ 1506□□	WS061030	MS1504	S3	MCL2114	MSP821
	2525M15	●	●	25	25	150	25	22	38						
	3232P15	●	●	32	32	170	32	29	38	SN□□ 1906□□	WS081030	MS1904	S4	MCL2217	MSP1021
	3232P19	●	●	32	32	170	32	27	45						
	4040R19	●	●	40	40	200	40	35	45	SN□□ 2509□□	WS101035	MS2508	S4, S5	MCL3220	MSP1229
	4040S25	●	●	40	40	250	40	35	60						

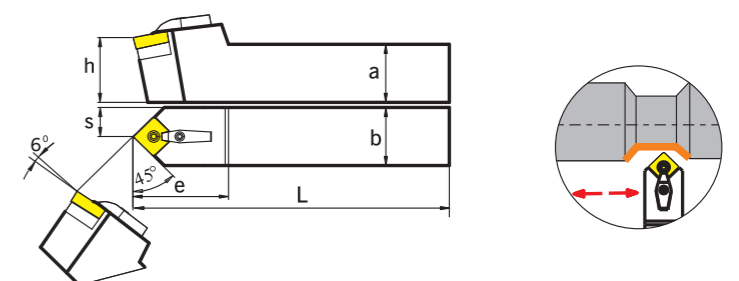
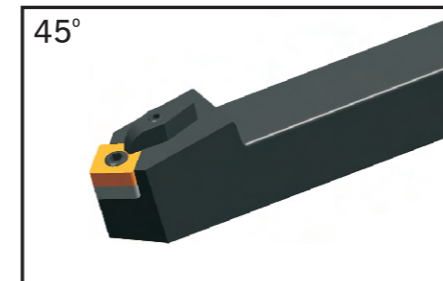
Turning tools

MSKNR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud		
	Stock 库存		a	b	L	h	s							e	
	R	L													
MSKNR/L	2020K12	●	●	20	20	125	20	25	32	SN□□ 1204□□	WS061025	MS1204	S3	MCL1814	MSP617
	2525M12	●	●	25	25	150	25	32	32						
	3225P12	○	○	32	25	170	32	32	32	SN□□ 1506□□	WS061030	MS1504	S3	MCL2114	MSP821
	2525M15	●	●	25	25	150	25	32	38						
	3232P15	○	○	32	32	170	32	40	38	SN□□ 1906□□	WS081030	MS1904	S4	MCL2217	MSP1021
	3232P19	○	○	32	32	170	32	40	45						
	4040R19	○	○	40	40	200	40	50	45	SN□□ 2509□□	WS101035	MS2508	S4, S5	MCL3220	MSP1229
	4040S25	○	○	40	40	250	40	50	50						

MSDNN



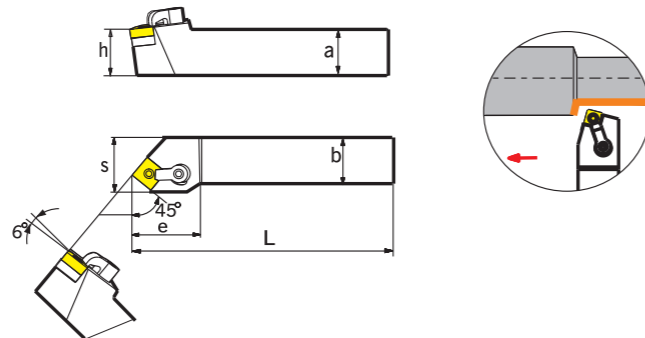
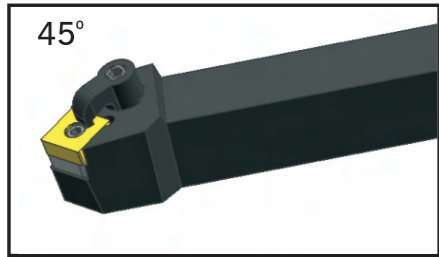
Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud		
	Stock		a	b	L	h	s							e	
	R	L													
MSDNN	2020K12	●	●	20	20	125	20	10	35	SN□□ 1204□□	WS061025	MS1204	S3	MCL1814	MSP617
	2525M12	●	●	25	25	150	25	12.5	35						
	3225P12	○	○	32	25	170	32	12.5	35	SN□□ 1506□□	WS061030	MS1504	S3	MCL2114	MSP821
	2525M15	●	●	25	25	150	25	12.5	42						
	3232P15	○	○	32	32	170	32	16	42	SN□□ 1906□□	WS081030	MS1904	S4	MCL2217	MSP1021
	3232P19	○	○	32	32	170	32	16	42						
	4040R19	○	○	40	40	200	40	20	50	SN□□ 2509□□	WS101035	MS2508	S4, S5	MCL3220	MSP1229
	4040S25	○	○	40	40	250	40	20	50						

● Stock ○ in Production order

Turning tools

MSSNR/L

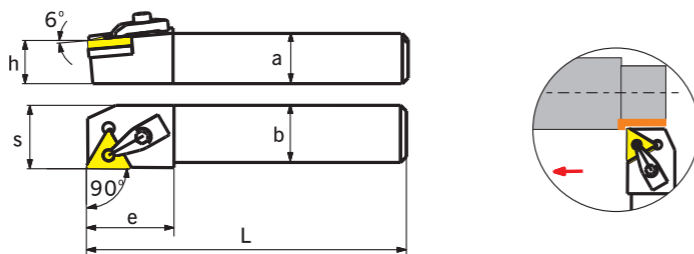
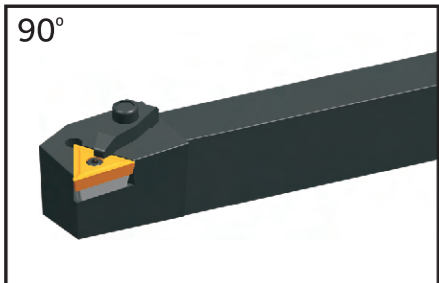
45°



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud	
	Stock	R	L	a	b	L	h							s
MSSNR/L 2020K12	●	●	20	20	125	20	25	35	SN□□ 1204□□	WS061025	MS1204	S3	MCL1814	MSP617
2525M12	●	●	25	25	150	25	32	35						
3225P12	●	○	32	25	170	32	40	35						
3232P12	●	○	32	32	170	32	40	42	SN□□ 1506□□	WS061030	MS1504	S3	MCL2114	MSP821
2525M15	●	○	25	25	150	25	32	42						
3232P15	○	○	32	32	170	32	40	42						
3232P19	○	○	32	32	170	32	40	42	SN□□ 1906□□	WS 081030	MS 1904	S4	MCL2217	MSP1021
4040R19			40	40	200	40	50	42						
4040S25			40	40	250	40	50	50						
			40	40	250	40	50	50	SN□□ 2509□□	WS101035	MS2508	S4, S5	MCL3220	MSP1229

MTGNR/L

90°



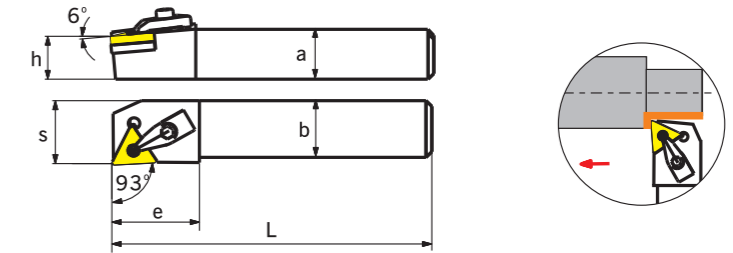
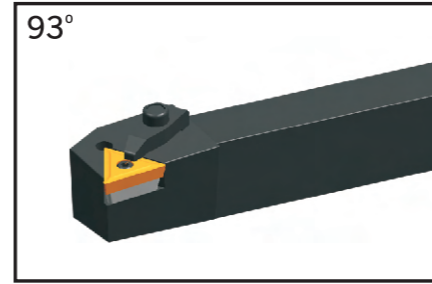
Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud	
	Stock	R	L	a	b	L	h							s
MTGNR/L 2020K16	●	●	20	20	125	20	25	33	TN□□ 1604□□	WS061025	MT1603	S2, S3	MCL1814	MSP513
2525M16	●	●	25	25	150	25	32	33						
3225P16	○	○	32	25	170	32	32	33						
2525M22	●	●	25	25	150	25	32	35	TN□□ 2204□□	WS061030	MT2204	S3	MCL2114	MSP617
3225P22	○	○	32	25	170	32	32	35						
3232P22	○	○	32	32	170	32	40	40						

● Stock ○ in Production order

Turning tools

MTJNR/L

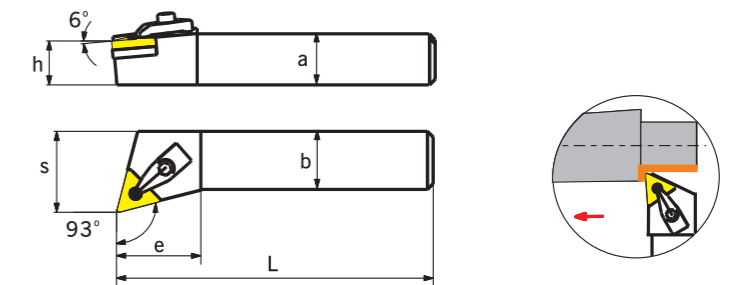
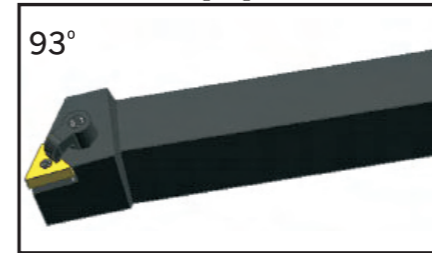
93°



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud	
	Stock	R	L	a	b	L	h							s
MTJNR/L 1616H16	●	●	16	16	100	16	20	30	TN□□ 1604□□	WS061025	MT1603	S2, S3	MCL1814	MSP513
2020K16	●	●	20	20	125	20	25	32						
2525M16	○	○	25	25	150	25	32	32						
3225P16	●	●	32	25	170	32	32	32	TN□□ 2204□□	WS061030	MT2204	S3	MCL2114	MSP617
3232P16	○	○	32	32	170	32	32	32						
2525M22	○	○	25	25	150	25	32	36						
3225P22			32	25	170	32	32	36						
3232P22			32	32	170	32	32	36						

MTJNR/L(B)

93°

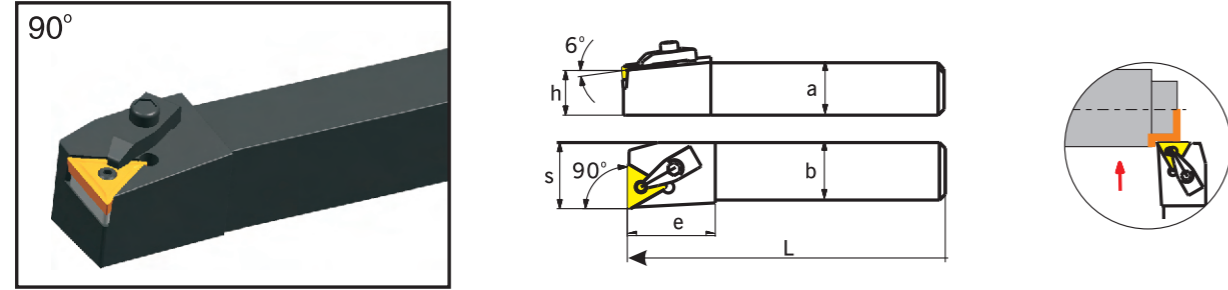


Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud	
	Stock	R	L	a	b	L	h							s
MTJNR/L 1616H16B	●	●	16	16	100	16	20	30	TN□□ 1604□□	WS061025	MT1603	S2, S3	MCL1814	MSP513
2020K16B	●	●	20	20	125	20	25	32						
2525M16B	○	○	25	25	150	25	32	32						
3225P16B	●	●	32	25	170	32	32	32	TN□□ 2204□□	WS061030	MT2204	S3	MCL2114	MSP617
3232P16B	○	○	32	32	170	32	32	32						
2525M22B	○	○	25	25	150	25	32	36						
3225P22B			32	25	170	32	32	36						
3232P22B			32	32	170	32	32	36						

● Stock ○ in Production order

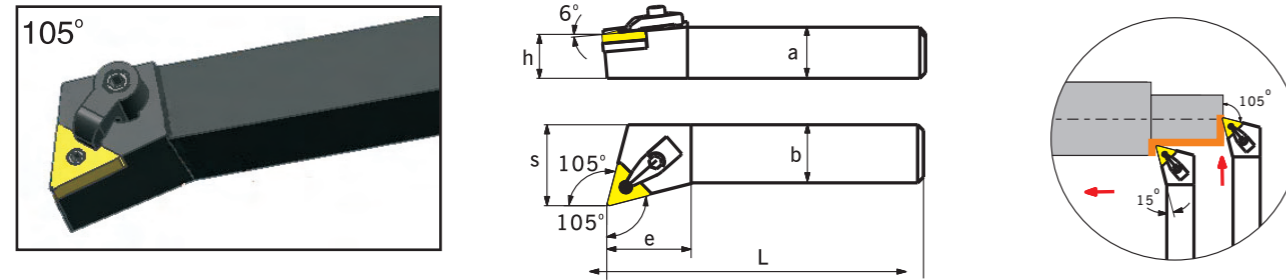
Turning tools

MTFNR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud		
	Stock		a	b	L	h	s							e	
	R	L													
MTFNR/L	1616H16	●	●	16	16	100	16	20	30	TN□□ 1604□□	WS061025	MT1603	S2, S3	MCL1814	MSP513
	2020K16	●	●	20	20	125	20	25	32						
	2525M16	●	●	25	25	150	25	32	32						
	3225P16	●	●	32	25	170	32	32	32						
	3232P16	○	○	32	32	170	32	32	32						
	2525M22	●	●	25	25	150	25	32	36						
3225P22	○	○	32	25	170	32	32	36	TN□□ 2204□□	WS061030	MT2204	S3	MCL2114	MSP617	
3232P22	○	○	32	32	170	32	32	36							

MTQNR/L

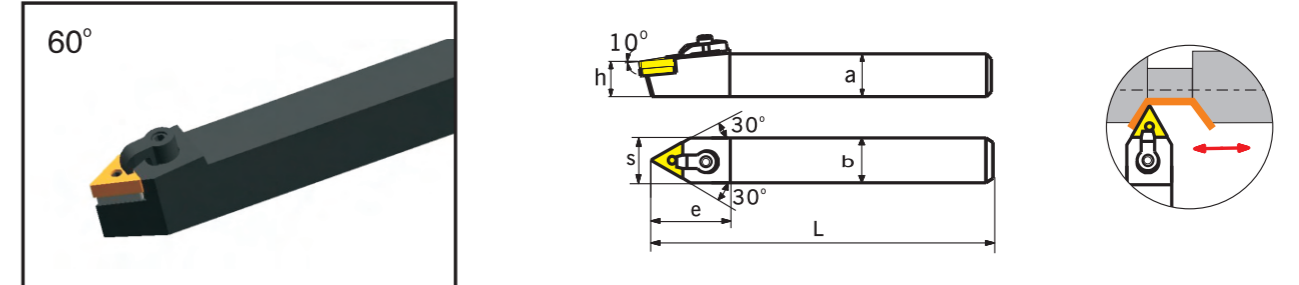


Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud								
	Stock		a	b	L	h	s							e							
	R	L																			
MTQNR/L	2020K16	●	●	20	20	125	20	25	32	TN□□ 1604□□	WS061025	MT1603	S2, S3	MCL1814	MSP513						
	2525M16	●	●	25	25	150	25	32	32												
	3225P16	○	○	32	25	170	32	32	32												
	2525M22	●	●	25	25	150	25	32	36												
	3232P22	○	○	32	32	170	32	40	36							TN□□ 2204□□	WS061030	MT2204	S3	MCL2114	MSP617

● Stock ○ in Production order

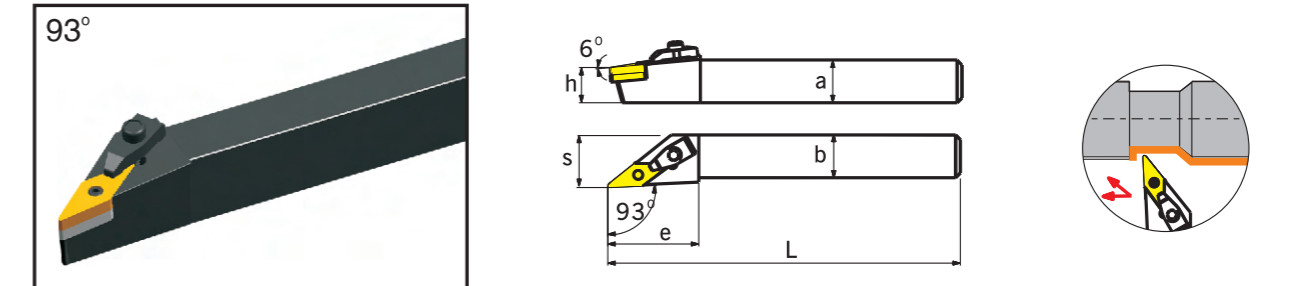
Turning tools

MTENN



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud		
	Stock		a	b	L	h	s							e	
	R	L													
MTENN	1616H16	●	●	16	16	100	16	16	30	TN□□ 1604□□	WS061025	MT1603	S2, S3	MCL1814	MSP513
	2020K16	○	○	20	20	125	20	20	32						
	2525M16	●	○	25	25	150	25	25	32						
	3232P16	○	○	32	32	170	32	32	36						

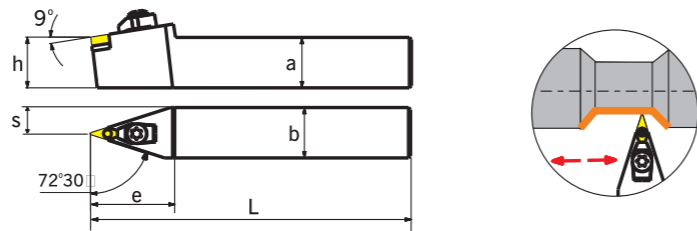
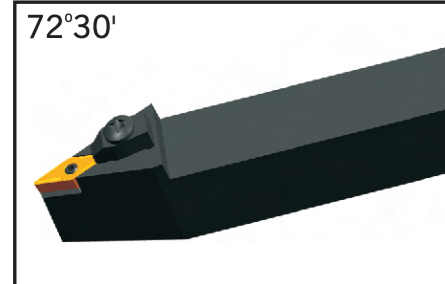
MVJNR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud		
	Stock		a	b	L	h	s							e	
	R	L													
MVJNR/L	1616H16	●	●	16	16	100	16	20	45	VN□□ 1604□□	WS061025	MV1603	S2, S3	MCL2414	MSP513
	2020K16	●	●	20	20	125	20	25	45						
	2525M16	○	○	25	25	150	25	32	45						
	3225P16	●	○	32	25	170	32	32	45						
	3232P16	○	○	32	32	170	32	40	45						

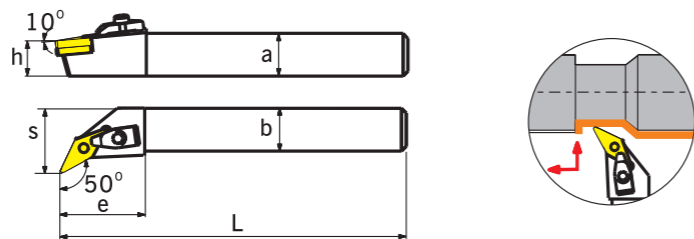
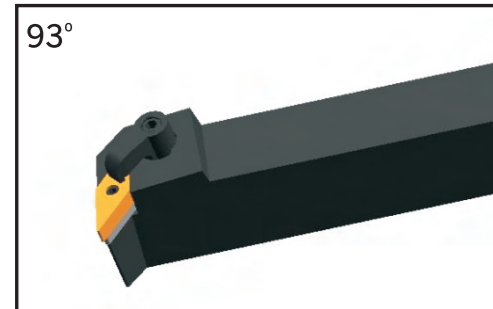
Turning tools

MVVNN



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud
	Stock 库存	a	b	L	h	s	e						
MVVNN 2020K16	●	20	20	125	20	10	45	VN□□ 1604□□	WS061025	MV1603	S2 S3	MCL2414	MSP513
2525M16	●	25	25	150	25	12.5	45		WS061030				
3225P16	○	32	25	170	32	12.5	45						
3232P16	●	32	32	170	32	16	45						

MVUNR/L

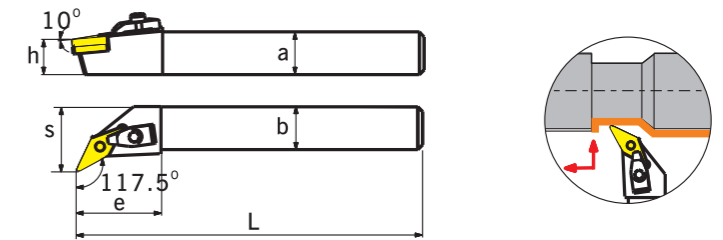
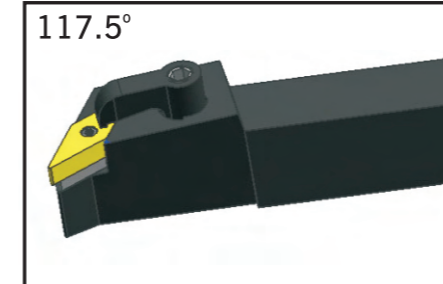


Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud
	Stock	a	b	L	h	s	e						
MVUNR/L 1616H16	●	16	16	100	16	20	45	VN□□ 1604□□	WS061025	MV1603	S2 S3	MCL2414	MSP513
2020K16	●	20	20	125	20	25	45		WS061030				
2525M16	○	25	25	150	25	32	45						
3225P16	●	32	25	170	32	32	45						
3232P16	○	32	32	170	32	40	45						

● Stock ○ in Production order

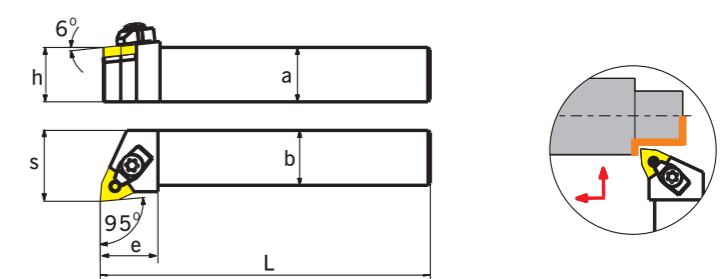
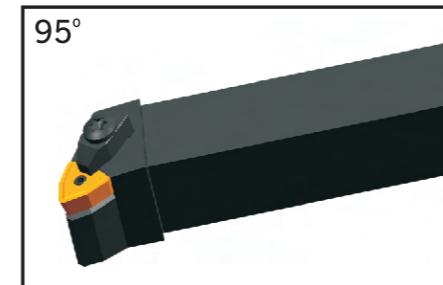
Turning tools

MVQNR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud
	Stock	a	b	L	h	s	e						
MVQNR/L 1616H16	●	16	16	100	16	20	45	VN□□ 1604□□	WS061025	MV1603	S2 S3	MCL2414	MSP513
2020K16	●	20	20	125	20	25	45		WS061030				
2525M16	○	25	25	150	25	32	45						
3225P16	●	32	25	170	32	32	45						
3232P16	○	32	32	170	32	40	45						

MWLNLR/L



Type	Dimension(mm)							Applicable Inserts	Clamping screw	Shim	Wrench	Clampd	Clamping stud
	Stock	a	b	L	h	s	e						
MWLNLR/L 2020K06	○	20	20	125	20	25	30	WN□□ 0604□□	WS061025	MW0603	S2 S3	MCL1814	MSP513
2525M06	○	25	25	150	25	32	30		WS061030				
2020K08	●	20	20	125	20	25	30	Wn□□ 0804□□	WS061025	MW0804	S3	MCL1814	MSP617
2525M08	●	25	25	150	25	32	35		WS061030				
3225P08	●	32	25	170	32	32	35						
3232P08	●	32	32	170	32	40	35						

● Stock ○ in Production order