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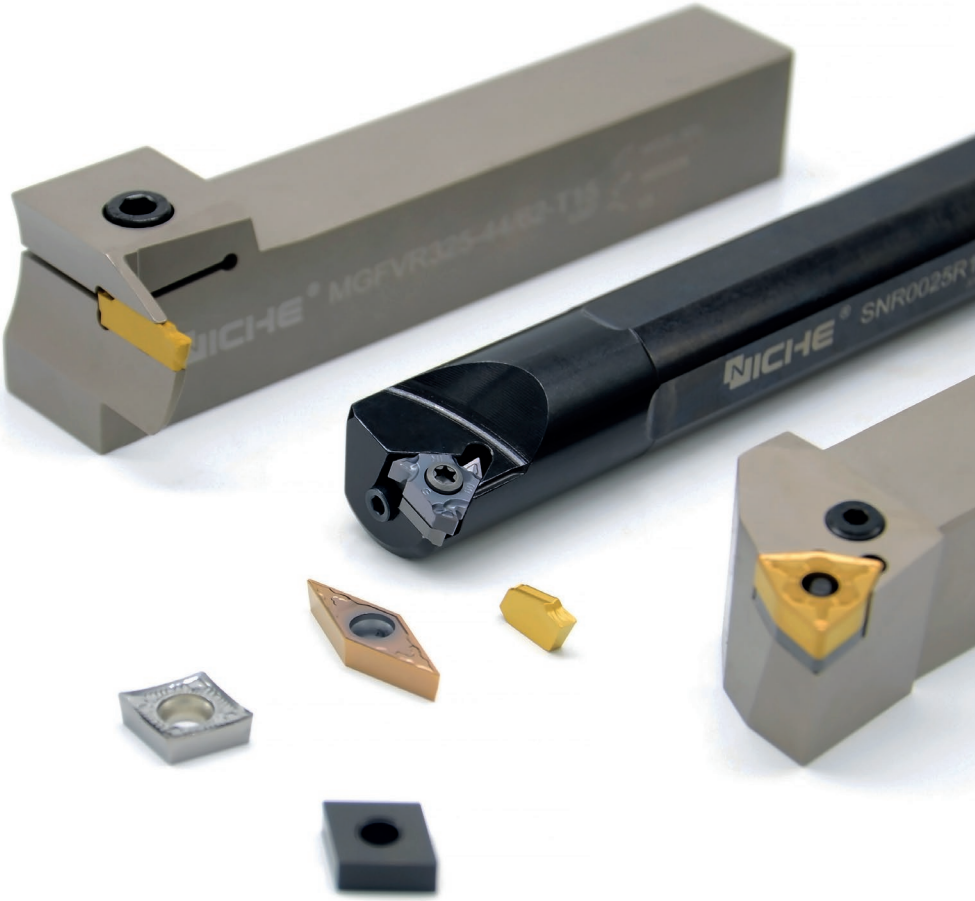

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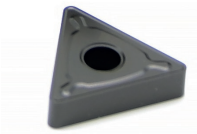
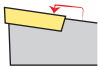
CONTENTS



TURNING TOOL HOLDERS

1	2	3	4	5	6	7		8	9
P	S	K	N	R	25	25	–	M	12

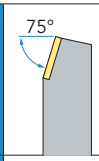
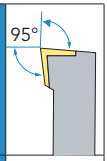
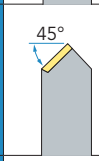
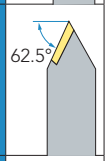
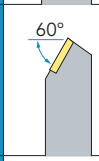
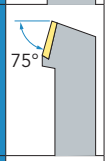
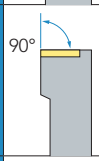
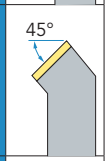
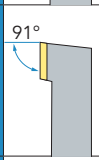
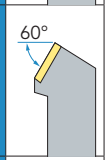
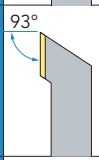
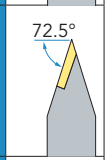
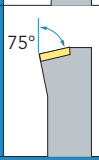
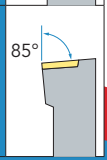
1 INSERT CLAMPING

C		Top Clamping without hole
A		Top and Hole Clamping (Multi clamp, pin and clamp)
B		Top and Hole Clamping (Wedge clamp, pin and clamp)
M		Top and Hole Clamping (Multi clamp, pin and clamp)
P		Lever Clamping
S		Screw-on Clamping
W		Top and Hole Clamping (Wedge clamp, pin and clamp)

2 INSERT SHAPE

C		80°
D		55°
R		
S		90°
T		60°
V		35°
W		80°

3 LEAD ANGLE

B		L	
D		N	
E		R	
F		S	
G		T	
J		V	
K		Y	

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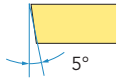
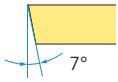
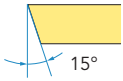
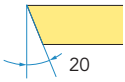
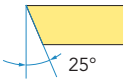
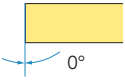
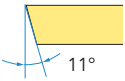
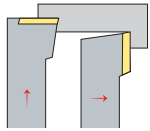
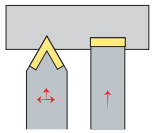
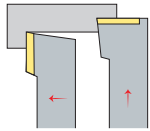
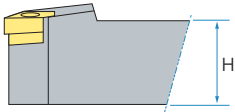
4 INSERT CLEARANCE ANGLE

B	
C	
D	
E	
F	
N	
P	

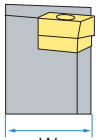
5 HAND OF TOOL

L	
N	
R	

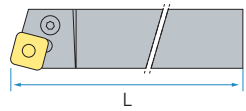
6 SHANK HEIGHT



7 SHANK WIDTH



8 HOLDER LENGTH



A	32	H	100	Q	180
B	40	J	110	R	200
C	50	K	125	S	250
D	60	L	140	T	300
E	70	M	150	U	350
F	80	N	160	V	400
G	90	P	170	W	450

9 INSERT CUTTING EDGE LENGTH

A, B, K, H		P	
C, D, E, M, V		R	
H		S	
L		T	
O		W	

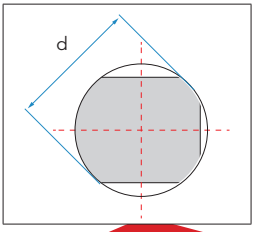
BORING BARS

1	2	3		4	5	6	7	8		9
S	12	M	–	S	T	F	P	R	–	S

1 BORING BAR TYPE

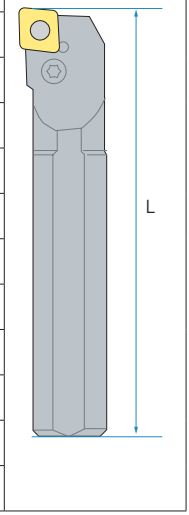
A	Steel with coolant hole
E	Carbide bar with fixed steel head and coolant hole
C	Carbide Shank
S	Steel Shank
X	Special Type

2 BAR DIAMETER

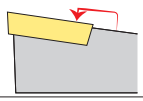
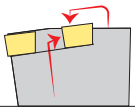
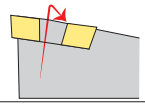
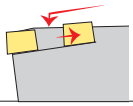
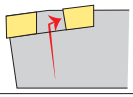
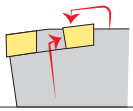


3 BAR LENGTH

H	100
J	110
K	125
M	150
N	160
Q	180
R	200
S	250
T	300
U	350
V	400
W	450
Y	500



4 INSERT MOUNTING METHOD

C	
M	
S	
A	
P	
W	

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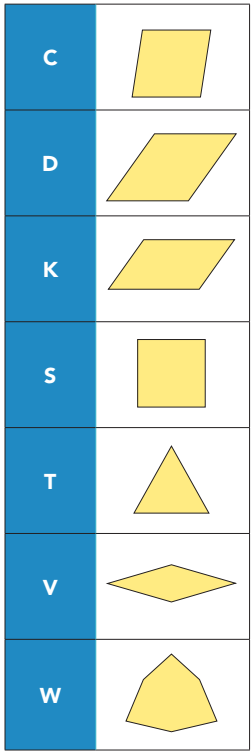
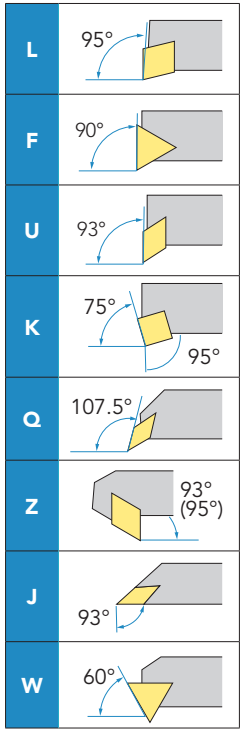
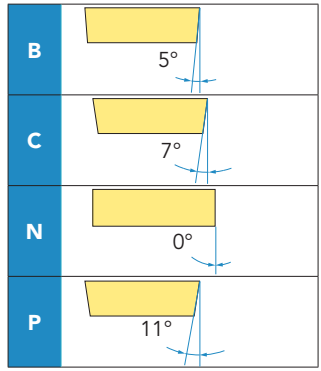
5 INSERT SHAPE



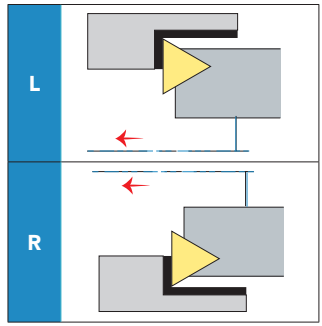
6 BORING BAR LEAD ANGLE



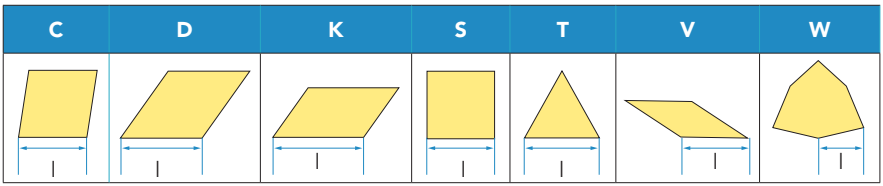
7 INSERT RELIEF ANGLE



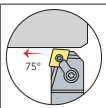
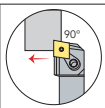
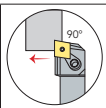
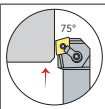
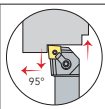
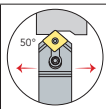
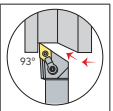
8 BORING BAR DIRECTION



9 INSERT CUTTING EDGE LENGTH



DOUBLE CLAMPING

Cutting Direction							
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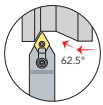
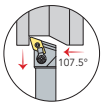
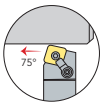
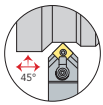
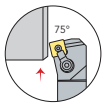
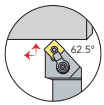
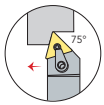
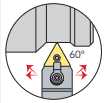
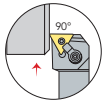
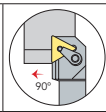
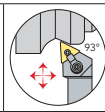
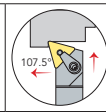
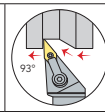
Page	18	19	20	21	22-23	24	24
Turning	●		●		●	●	●
Back Turning					●		●
Copying							●
Facing		●		●	●		
Chamfering							

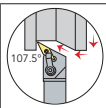
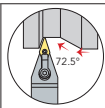
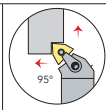
DOUBLE CLAMPING

Cutting Shape							
	MDPNN	MDQNR/L	MSBNR/L	MSDNN	MSKNR/L	MSSNR/L	MTBNR/L
Approach Angle	62.5°	107.5°	75°	45°	75°	62.5°	75°
Page	25	26	27	27	28	29	29
Turning		●	●	●		●	●
Back Turning			●				
Copying	●		●				
Facing					●	●	
Chamfering							

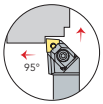
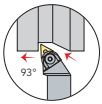
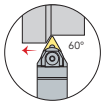
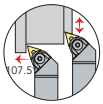
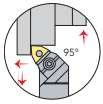
DOUBLE CLAMPING

Cutting Shape							
	MTENN	MTFNR/L	MTGNR/L	MTJNR/L	MTQNR/L	MVJNR/L	MVUNR/L
Approach Angle	60°	90°	90°	93°	107.5°	93°	95°
Page	30	31-32	33	34	35	36	37
Turning	●		●	●	●	●	●
Back Turning				●		●	
Copying	●			●		●	
Facing		●		●			●
Chamfering							

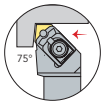
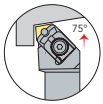
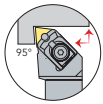
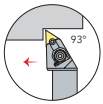
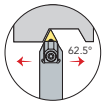
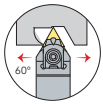
DOUBLE CLAMPING

Cutting Shape							
	MVQNR/L	MVVNN	MWLNR/L				
Approach Angle	107.5°	72.5°	95°				
Page	38	39	40-41				
Turning	●	●	●				
Back Turning	●		●				
Copying	●	●					
Facing			●				
Chamfering							

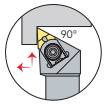
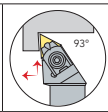
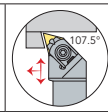
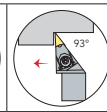
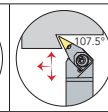
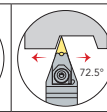
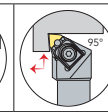
WEDGE CLAMPING

Cutting Shape							
	WCLNR/L	WTJNR/L	WTENN	WTQNR/L	WWLNR/L		
Approach Angle	95°	93°	60°	107.5°	95°		
Page	42	43	44	45	46		
Turning	●	●	●	●	●		
Back Turning	●	●		●	●		
Copying		●	●	●			
Facing	●				●		
Chamfering							

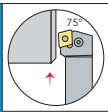
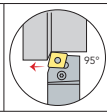
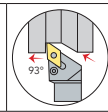
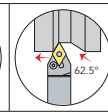
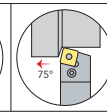
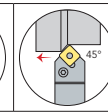
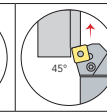
WIDE TOP CLAMPING

Cutting Shape							
	BCBNR/L	BCKNR/L	BCLNR/L	BCMNN	BDJNR/L	BDNN	BTENN
Approach Angle	75°	75°	95°	50°	93°	62.5°	60°
Page	47	48	49	50	50	51	51
Turning	●		●	●	●	●	●
Back Turning			●		●		
Copying					●		●
Facing		●	●				
Chamfering							

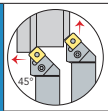
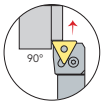
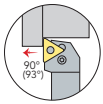
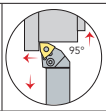
WIDE TOP CLAMPING

Cutting Shape							
	BTGNR/L	BTJNR/L	BTQNR/L	BVJNR/L	BVQNR/L	BVVNN	BWLNR/L
Approach Angle	90°	93°	107.5°	93°	107.5°	72.5°	95°
Page	52	52	53	54	55	55	56-57
Turning	●	●	●	●	●	●	●
Back Turning		●	●	●	●		●
Copying		●	●	●	●	●	
Facing							●
Chamfering							

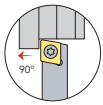
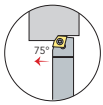
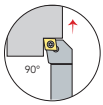
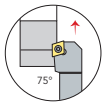
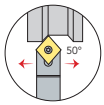
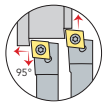
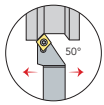
LEVER CLAMPING

Cutting Shape							
	PCKNR/L	PCLNR/L	PDJNR/L	PDNNR/L	PSBNR/L	PSDNN	PSKNR/L
Approach Angle	75°	95°	93°	62.5°	75°	45°	75°
Page	58	59-60	61	61	62	62	63
Turning	●	●	●	●	●	●	
Back Turning		●	●				
Copying			●	●			
Facing		●					●
Chamfering							

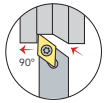
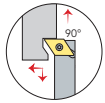
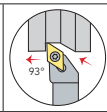
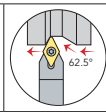
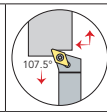
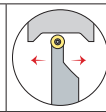
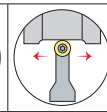
LEVER CLAMPING

Cutting Shape							
	PSSNR/L	PTFNR/L	PTG(J)NR/L	PWLNR/L			
Approach Angle	45°	90°	90° (93°)	95°			
Page	64	65	66	67			
Turning	●		●	●			
Back Turning				●			
Copying							
Facing	●	●		●			
Chamfering							

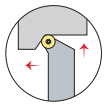
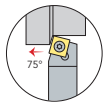
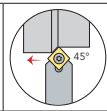
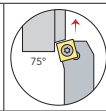
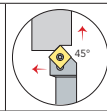
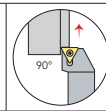
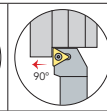
SCREW-ON CLAMPING

Cutting Shape							
	SCACR/L	SCBCR/L	SCFCR/L	SCKCR/L	SCMCN	SCLCR/L	SCSCR/L
Approach Angle	90°	75°	90°	75°	50°	95°	45°
Page	68	68	69	70	71	72-73	74
Turning	●	●			●	●	●
Back Turning						●	
Copying							
Facing			●	●		●	
Chamfering							

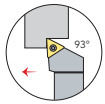
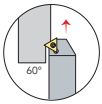
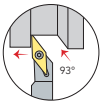
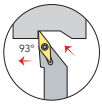
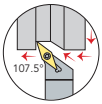
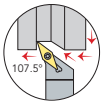
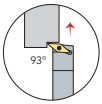
SCREW-ON CLAMPING

Cutting Shape							
	SDACR/L	SDFCR/L	SDJCR/L	SDNCN	SDQCR/L	SRACR/L	SRDCN
Approach Angle	90°	90°	93°	62.5°	107.5°		
Page	74	75	76	77	78-79	80	80
Turning	●		●	●	●	●	●
Back Turning			●				
Copying	●		●	●		●	●
Facing		●			●		
Chamfering							

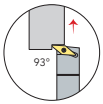
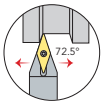
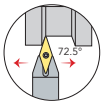
SCREW-ON CLAMPING

Cutting Shape							
	SRGCR/L	SSBCR/L	SSDCN	SSKCR/L	SSSCR/L	STFCR/L	STGCR/L
Approach Angle		75°	45°	75°	45°	90°	90°
Page	81	81	82	83	84	85-86	87
Turning	●	●	●		●		●
Back Turning							
Copying	●						
Facing				●	●	●	
Chamfering							

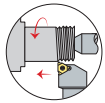
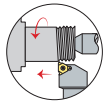
SCREW-ON CLAMPING

Cutting Shape							
	STJCR/L	STWCR/L	SVJBR/L	SVJCR/L	SVQBR/L	SVQCR/L	SVUBR/L
Approach Angle	93°	60°	93°	93°	107.5°	107.5°	93°
Page	87	88-89	90-91	92-93	94-95	96-97	98-99
Turning	●	●	●	●	●	●	●
Back Turning							
Copying			●	●	●	●	
Facing		●	●	●	●	●	
Chamfering							

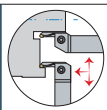
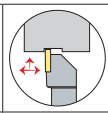
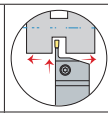
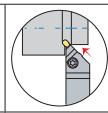
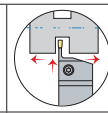
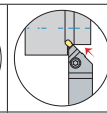
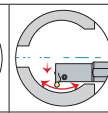
SCREW-ON CLAMPING

Cutting Shape							
	SVUCR/L	SVVBN	SVVCN				
Approach Angle	93°	72.5°	72.5°				
Page	100-101	102	103				
Turning	●	●	●				
Back Turning							
Copying		●	●				
Facing							
Chamfering							

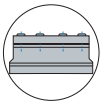
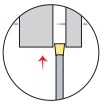
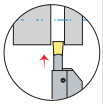
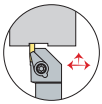
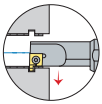
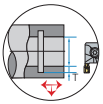
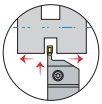
THREADING TOOL HOLDERS

Cutting Shape							
	SNR/L	SER/L					
Approach Angle							
Page	119	120-121					
Turning							
Back turning							
Copying							
Threading	•	•					
Grooving							

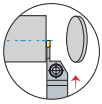
GROOVING TOOL HOLDERS

Cutting Shape							
	FGHH	JSTGR/L	MGEHR/L	MGEUR/L	MGFHR	MGFVR	MGIVR/L
Approach Angle							
Page	136	137	138	139	140	141	142
Turning							
Back turning							
Copying							
Threading							
Grooving	•	•	•	•	•	•	•

GROOVING TOOL HOLDERS

Cutting Shape							
	SMBB	SPB	SPH	SGBAR/L	SNGR/L	TTIR/L	TTER/L
Approach Angle							
Page	143	144	145	146	146	147	148-149
Turning							
Back turning							
Parting-off		•	•				
Threading							
Grooving				•	•	•	•

GROOVING TOOL HOLDERS

Cutting Shape							
	ZQ						
Approach Angle							
Page	150						
Turning							
Back turning							
Copying							
Threading							
Grooving	•						

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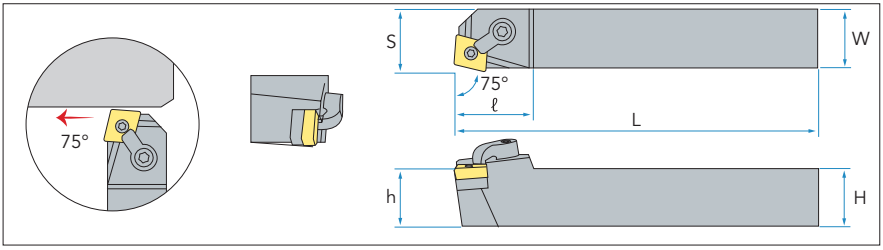
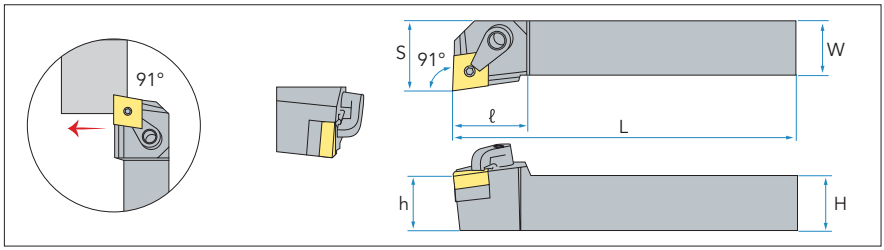
FOR A BETTER US

MCBNR/L

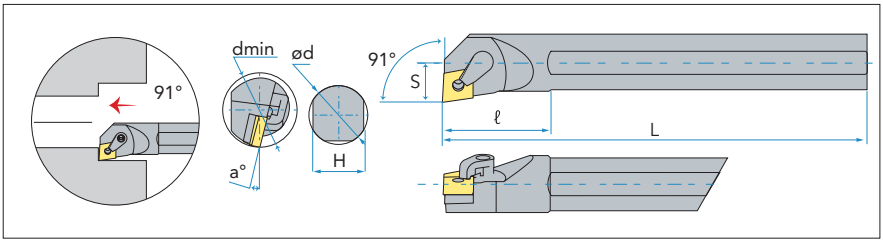


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MCBNR/L2020K12	20	20	125	32	20	20,7	CN**1204	MC1204	CTM617	HL1814	ML0625	L2.5 L3.0
MCBNR/L2525M12	25	25	150	32	25	25,2						
MCBNR/L3232P12	32	32	170	32	32	30,8						
MCBNR/L3232P16	32	32	170	40	32	31,9	CN**1606	MC1604	CTM822	HL2217	ML0830	L3.0; L4.0
MCBNR/L3232P19	32	32	170	40	32	32,7	CN**1906	MC1904	CTM1022			L4.0

MCFNR/L

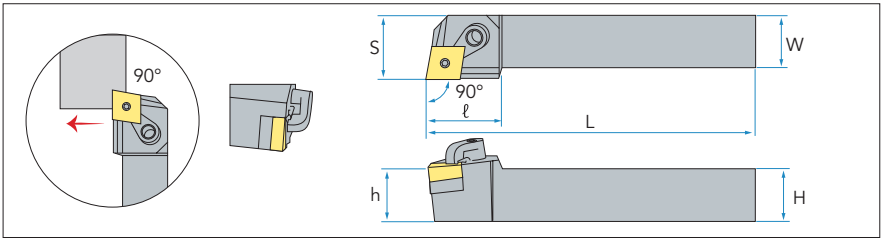


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MCFNR/L2020K12	20	20	125	28	20	25,5	CN**1204	MC1204	CTM617	HL1814	ML0625	L2.5 L3.0
MCFNR/L2525M12	25	25	150	30	25	32						
MCFNR/L3232P12	32	32	170	30	32	40						



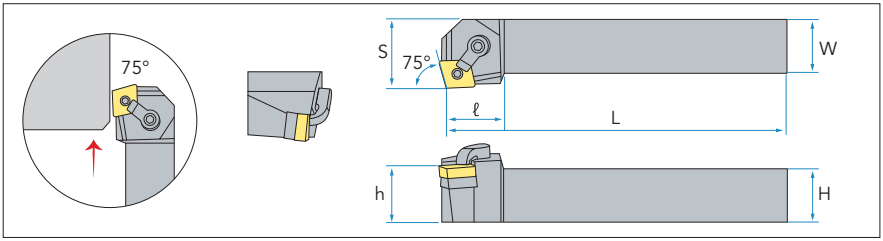
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ød	S	L	l	H	α°						
S20Q-MCFNR/L12	Ø23	20	13	180	40	18	15°	CN**1204	X	CTM613	HL1812	ML0622	L2.5 L3.0
S25R-MCFNR/L12	Ø32	25	17	200	47	23	13°				HL1814	ML0625	

MCGNR/L

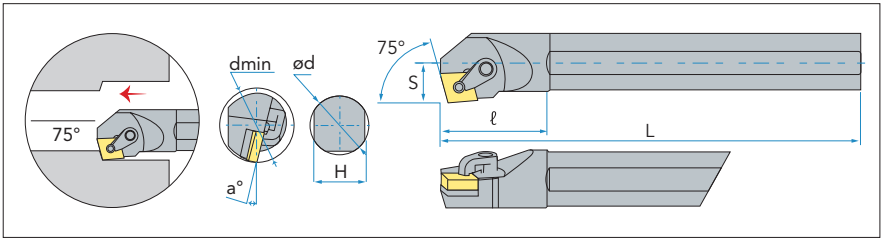


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MCGNR/L2020K12	20	20	125	28	20	25	CN**1204	MC1204	CTM617	HL1814	ML0625	L2.5 L3.0
MCGNR/L2525M12	25	25	150	30	25	32						
MCGNR/L3232P12	32	32	170	30	32	40						
MCGNR/L3232P16	32	32	170	36	32	40	CN**1606	MC1604	CTM822	HL2217	ML0830	L3.0; L4.0
MCGNR/L3232P19	32	32	170	38	32	40	CN**1906	MC1904	CTM1022			L4.0

MCKNR/L

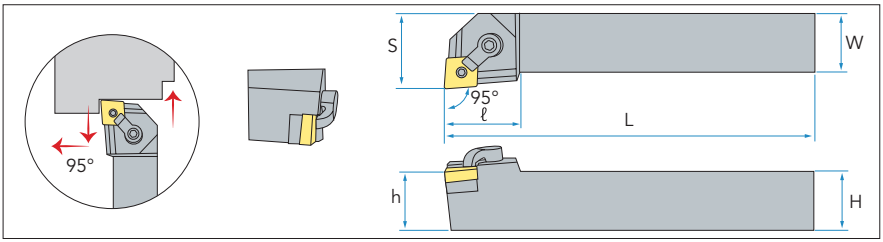


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MCKNR/L2020K12	20	20	125	28	20	25	CN**1204	MC1204	CTM617	HL1814	ML0625	L2.5 L3.0
MCKNR/L2525M12	25	25	150	28	25	32						
MCKNR/L3232P12	32	32	170	35	32	40						
MCKNR/L3232P16	32	32	170	35	32	40	CN**1606	MC1604	CTM822	HL2217	ML0830	L3.0; L4.0
MCKNR/L3232P19	32	32	170	38	32	40	CN**1906	MC1904	CTM1022			L4.0



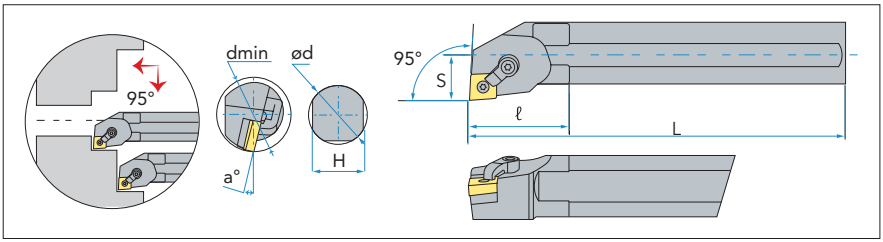
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ød	S	L	l	H	α°						
S20Q-MCKNR/L12	Ø30	20	14	180	45	18	15°	CN**1204	X	CTM613	HL1812	ML0622	L2.5 L3.0
S25R-MCKNR/L12	Ø34	25	17	200	45	23	13°				HL1814	ML0625	
S32S-MCKNR/L12	Ø40	32	22,5	250	50	30	17°		MC1204	CTM617			
S40T-MCKNR/L12	Ø52	40	26	300	55	38	15°						
S50U-MCKNR/L12	Ø62	50	31	350	70	48	12°						

MCLNR/L



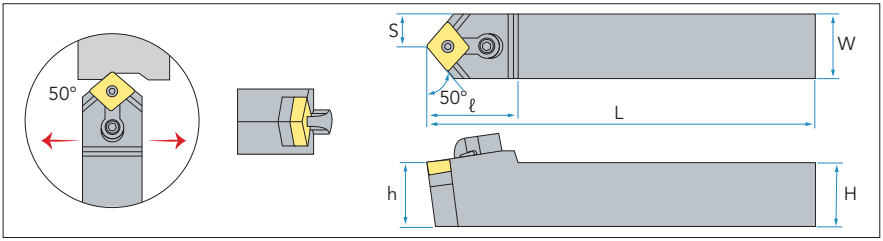
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MCLNR/L1616H12	16	16	100	30	16	20	CN**1204	MC1204	CTM617	HL1814	ML0625	L2.5 L3.0
MCLNR/L2020K12	20	20	125	32	20	25						
MCLNR/L2525M12	25	25	150	32	25	32						
MCLNR/L3232P12	32	32	170	32	32	40						
MCLNR/L2525M16	25	25	150	34	25	32	CN**1606	MC1604	CTM822	HL2217	ML0830	L3.0 L4.0
MCLNR/L3232P16	32	32	170	34	32	40						
MCLNR/L3232P19	32	32	170	38	32	40	CN**1906	MC1904	CTM1022			L4.0
MCLNR/L4040R19	40	40	200	38	40	50						

MCLNR/L



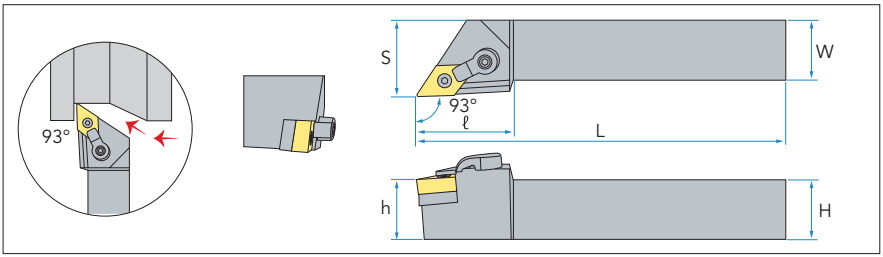
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ød	S	L	l	H	α°						
S16Q-MCLNR/L09	Ø22	16	11	180	35	15	17°	CN**0903	X	CTM509	HL1511	ML0519	L2.0 L2.5
S20Q-MCLNR/L09	Ø26	20	13	180	33	18	15°		MC0903				
S20Q-MCLNR/L12	Ø26	20	13	180	33	18	15°	CN**1204	X	CTM613	HL1812	ML0622	L2.5 L3.0
S25R-MCLNR/L12	Ø34	25	17	200	40	23	13°				HL1814	ML0625	
S32S-MCLNR/L12	Ø45	32	22,5	250	50	30	17°		MC1204	CTM617			
S40T-MCLNR/L12	Ø54	40	27	300	55	38	15°						
S50U-MCLNR/L12	Ø62	50	31	350	60	48	12°						
S60V-MCLNR/L12	Ø72	60	36	400	70	58	12°						
S32S-MCLNR/L16	Ø45	32	22,5	250	50	30	17°	CN**1606	MC1604	CTM822	HL2217	ML0830	L3.0 L4.0
S40T-MCLNR/L16	Ø52	40	27	300	55	38	15°						
S50U-MCLNR/L19	Ø62	50	31	350	75	48	12°	CN**1906	MC1904	CTM1022			L4.0

MCMNN



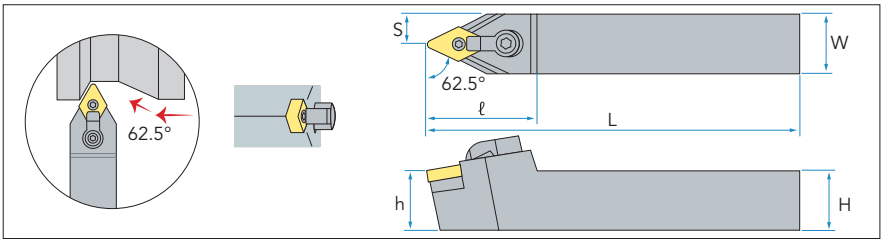
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MCMNN2020K12	20	20	125	35	20	10	CN**1204	MC1204	CTM617	HL1814	ML0625	L2.5 L3.0
MCMNN2525M12	25	25	150	35	25	12,5						
MCMNN3232P12	32	32	170	38	32	16						
MCMNN2525M16	25	25	150	43	25	12,5	CN**1606	MC1604	CTM822	HL2217	ML0830	L3.0; L4.0

MDJNR/L



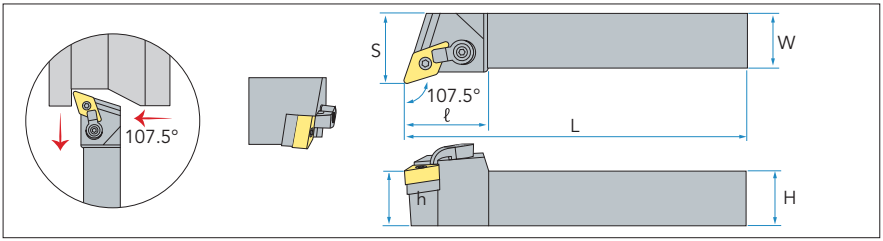
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MDJNR/L1616H11	16	16	100	34	16	20	DN**1104	MD1103	CTM513	HL1814	ML0625	L2.0 L3.0
MDJNR/L2020K11	20	20	125	34	20	25						
MDJNR/L2525M11	25	25	150	34	25	32						
MDJNR/L2020K15	20	20	125	38	20	25	DN**1504 DN**1506	MD1506 MD1504	CTM619	HL2114		L2.5 L3.0
MDJNR/L2525M15	25	25	150	38	25	32						
MDJNR/L3232P15	32	32	170	40	32	40						

MDPNN

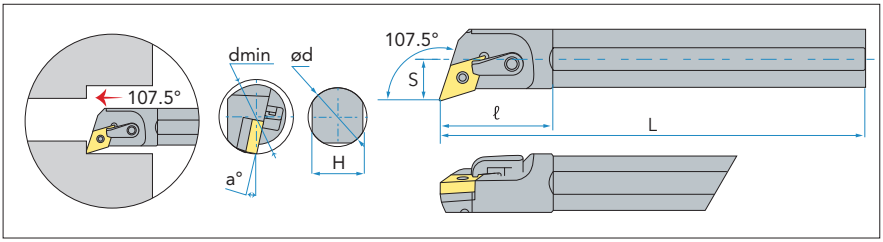


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MDPNN1616H11	16	16	100	38	16	8	DN**1104	MD1103	CTM513	HL2114	ML0625	L2.0 L3.0
MDPNN2020K11	20	20	125	38	20	10						
MDPNN2020K15	20	20	125	43	20	10	DN**1504 DN**1506	MD1506 MD1504	CTM619			L2.5 L3.0
MDPNN2525M15	25	25	150	43	25	12,5						

MDQNR/L

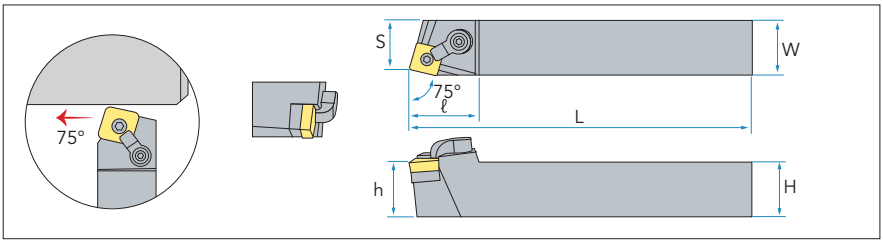


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MDQNR/L1616H11	16	16	100	31	16	20	DN**1104	MD1103	CTM513	HL1814	ML0625	L2.0 L3.0
MDQNR/L2020K11	20	20	125	31	20	25				HL2114		
MDQNR/L2525M11	25	25	150	34	25	32						
MDQNR/L2020K15	20	20	125	37	20	25	DN**1504 DN**1506	MD1504 MD1506	CTM619			L2.5 L3.0
MDQNR/L2525M15	25	25	150	34	25	32			CTM1022			
MDQNR/L3232P15	32	32	170	37	32	40						



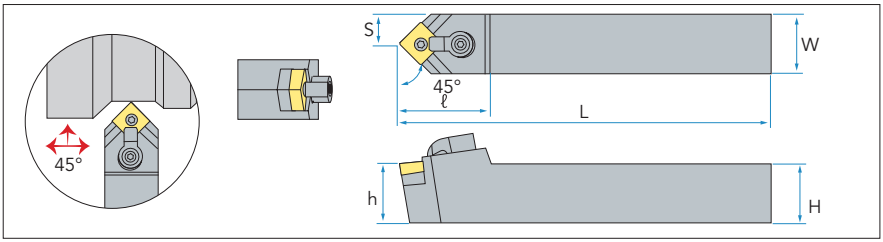
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	$\alpha°$						
S25R-MDQNR/L15	Ø32	25	17	200	45	23	13°	DN**1504	X	CTM613	HL2114	ML0625	L2.5 L3.0
S32S-MDQNR/L15	Ø45	32	22,5	250	50	30	17°		MD1504	CTM617			
S40T-MDQNR/L15	Ø54	40	27	300	60	38	15°						
S50U-MDQNR/L15	Ø62	50	31	350	70	48	12°						

MSBNR/L



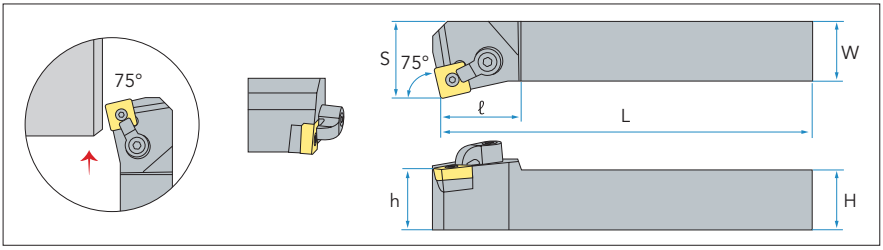
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MSBNR/L2020K12	20	20	125	32	20	17	SN**1204	MS1204	CTM617	HL1814	ML0625	L2.5 L3.0
MSBNR/L2525M12	25	25	150	32	25	22						
MSBNR/L3232P12	32	32	170	35	32	29						
MSBNR/L3232P19	32	32	170	42	32	27	SN**1906	MS1904	CTM1022	HL2217	ML0830	L4.0
MSBNR/L4040R19	40	40	200	42	40	35						

MSDNN

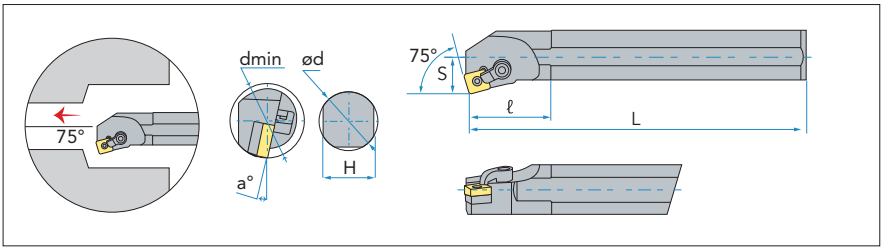


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MSDNN1616H12	16	16	100	35	16	8	SN**1204	MS1204	CTM617	HL1814	ML0625	L2.5 L3.0
MSDNN2020K12	20	20	125	35	20	10						
MSDNN2525M12	25	25	150	35	25	12,5						
MSDNN3232P12	32	32	170	38	32	16						
MSDNN2525M15	25	25	150	43	25	12,5	SN**1506	MS1504	CTM822	HL2217	ML0830	L3.0 L4.0
MSDNN3232P15	32	32	170	45	32	16						
MSDNN3232P19	32	32	170	47	32	16	SN**1906	MS1904	CTM1022			L4.0
MSDNN4040R19	40	40	200	47	40	20						

MSKNR/L

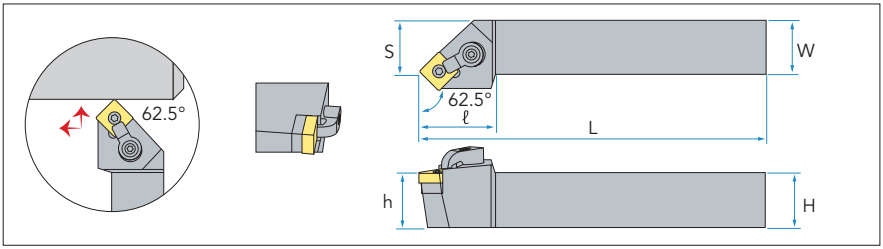


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MSKNR/L2020K12	20	20	125	29	20	25	SN**1204	MS1204	CTM617	HL1814	ML0625	L2.5 L3.0
MSKNR/L2525M12	25	25	150	29	25	32						
MSKNR/L2525M15	25	25	150	33	25	32	SN**1506	MS1504	CTM822	HL2217	ML0830	L3.0 L4.0
MSKNR/L3232P15	32	32	170	35	32	40						
MSKNR/L3232P19	32	32	170	35	32	40	SN**1906	MS1904	CTM1022			L4.0
MSKNR/L4040R19	40	40	200	38	40	50						



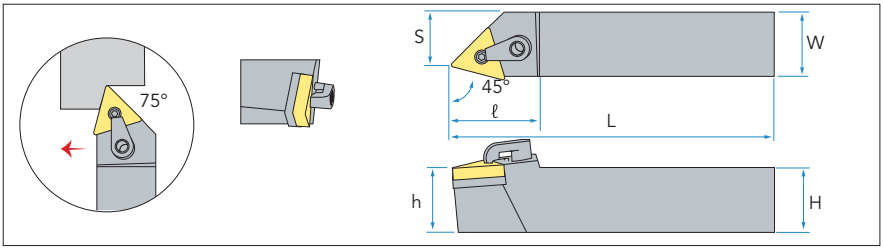
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°						
S20Q-MSKNR/L12	Ø28	20	13	180	45	18	15°	SN**1204	X	CTM613	HL1812	ML0622	L2.5 L3.0
S25R-MSKNR/L12	Ø34	25	17	200	45	23	13°				HL1814	ML0625	
S32S-MSKNR/L12	Ø44	32	22	250	50	30	17°		MS1204	CTM617			
S40T-MSKNR/L12	Ø54	40	27	300	45	38	15°						
S50U-MSKNR/L12	Ø62	50	34	350	70	48	12°						

MSSNR/L



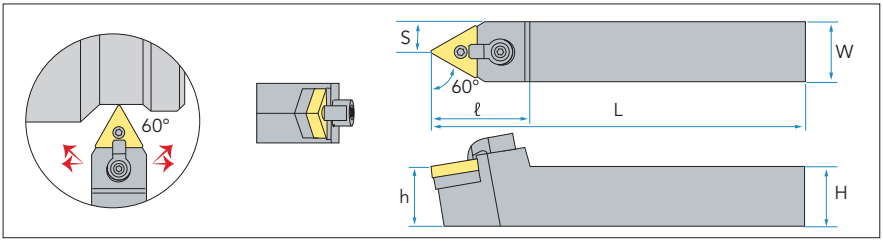
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MSSNR/L2020K12	20	20	125	33	20	25	SN**1204	MS1204	CTM617	HL1814	ML0625	L2.5 L3.0
MSSNR/L2525M12	25	25	150	35	25	32						
MSSNR/L3232P12	32	32	170	35	32	40						
MSSNR/L2525M15	25	25	150	41	25	32	SN**1506	MS1504	CTM822	HL2217	ML0830	L3.0 L4.0
MSSNR/L3232P15	32	32	170	42	32	40						
MSSNR/L3232P19	32	32	170	45	32	40	SN**1906	MS1904	CTM1022			L4.0
MSSNR/L4040R19	40	40	200	45	40	50						

MTBNR/L



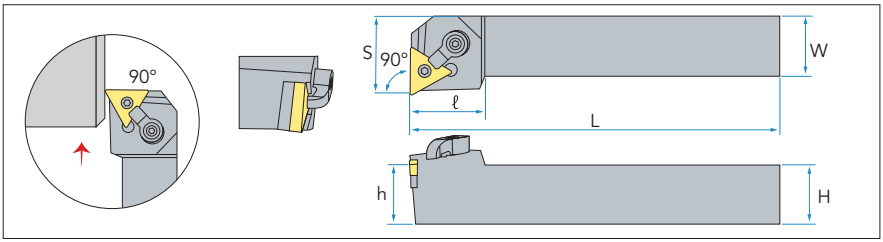
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MTBNR/L2020K16	20	20	125	34	20	15,5	TN**1604	MT1603	CTM513	HL1814	ML0625	L2.0 L3.0
MTBNR/L2525M16	25	25	150	34	25	20,5						

MTENN



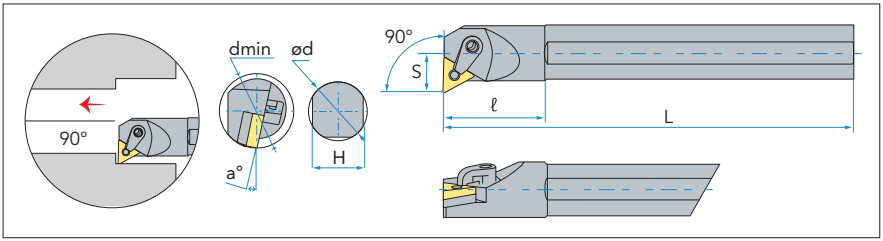
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MTENN1616H16	16	16	100	34	16	8	TN**1604	MT1603	CTM513	HL1814	ML0625	L2.0 L3.0
MTENN2020K16	20	20	125	34	20	10						
MTENN2525M16	25	25	150	34	25	12,5						
MTENN3232P16	32	32	170	34	32	16						
MTENN2525M22	25	25	150	38	25	12,5	TN**2204	MT2204	CTM617	HL1917	ML0830	L2.5 L4.0
MTENN3232P22	32	32	170	40	32	16						

MTFNR/L



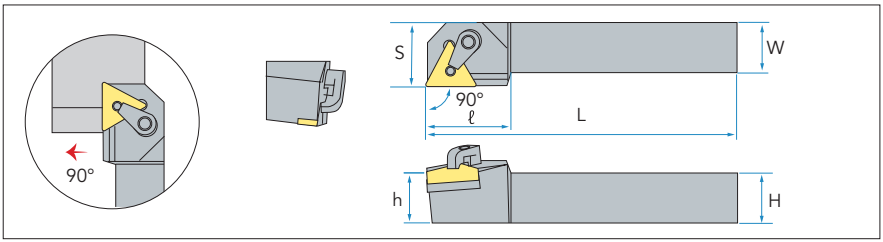
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MTFNR/L1616H16	16	16	100	29	16	20	TN**1604	MT1603	CTM513	HL1814	ML0625	L2.0 L3.0
MTFNR/L2020K16	20	20	125	29	20	25						
MTFNR/L2525M16	25	25	150	30	25	32						
MTFNR/L3232P16	32	32	170	32	32	40						
MTFNR/L2525M22	25	25	150	36	25	32	TN**2204	MT2204	CTM617	HL1917	ML0830	L2.5 L4.0
MTFNR/L3232P22	32	32	170	36	32	40						

MTFNR/L



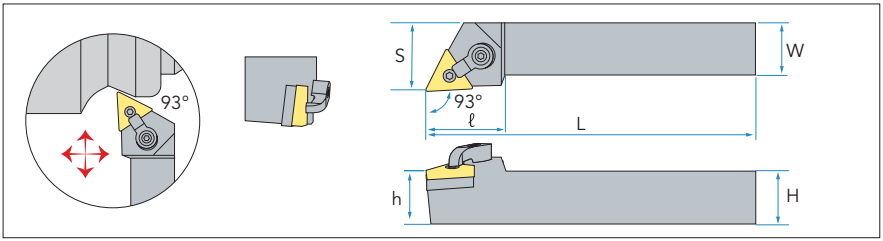
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°						
S20Q-MTFNR/L16	Ø28	20	13	180	40	18	15°	TN**1604	X	CTM510	HL1812	ML0622	L2.0 L3.0
S25R-MTFNR/L16	Ø34	25	17	200	45	23	13°				HL1814	ML0625	
S32S-MTFNR/L16	Ø45	32	22,5	250	45	30	17°		MT1603	CTM513			
S40T-MTFNR/L16	Ø52	40	27	300	60	38	15°						
S50U-MTFNR/L16	Ø62	50	31	350	65	48	12°						
S40T-MTFNR/L22	Ø52	40	27	300	55	38	15°	TN**2204	MT2204	CTM617	HL1917	ML0830	L2.5 L4.0
S50U-MTFNR/L22	Ø62	50	31	350	70	48	12°						

MTGNR/L

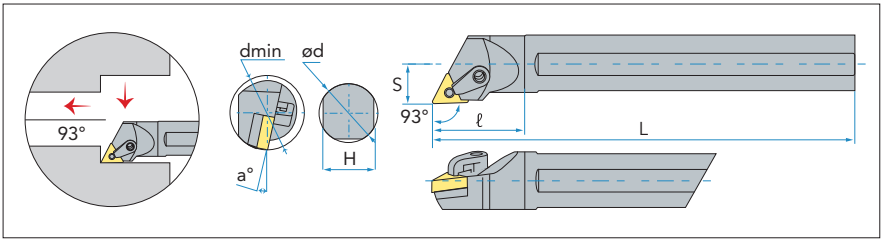


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MTGNR/L1616H16	16	16	100	29	16	20	TN**1604	MT1603	CTM513	HL1814	ML0625	L2.0 L3.0
MTGNR/L2020K16	20	20	125	29	20	25						
MTGNR/L2525M16	25	25	150	30	25	32						
MTGNR/L2525M22	25	25	150	32	25	32	TN**2204	MT2204	CTM617	HL2217	ML0830	L2.5 L4.0
MTGNR/L3232P22	32	32	170	32	32	40						

MTJNR/L

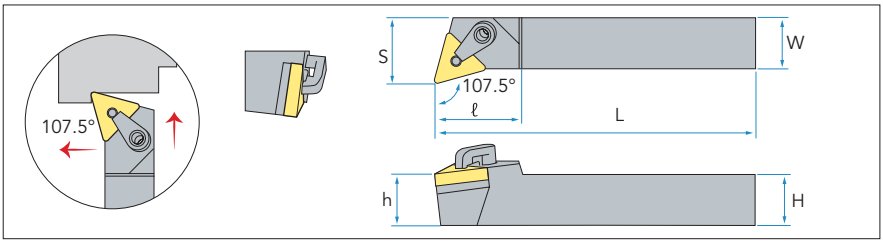


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MTJNR/L1616H16	16	16	100	30	16	20	TN**1604	MT1603	CTM513	HL1814	ML0625	L2.0 L3.0
MTJNR/L2020K16	20	20	125	30	20	25						
MTJNR/L2525M16	25	25	150	32	25	32						
MTJNR/L3232P16	32	32	170	35	32	40						
MTJNR/L2525M22	25	25	150	34	25	32	TN**2204	MT2204	CTM617	HL1917	ML0830	L2.5 L4.0
MTJNR/L3232P22	32	32	170	35	32	40						
MTJNR/L4040R22	40	40	200	38	40	50						

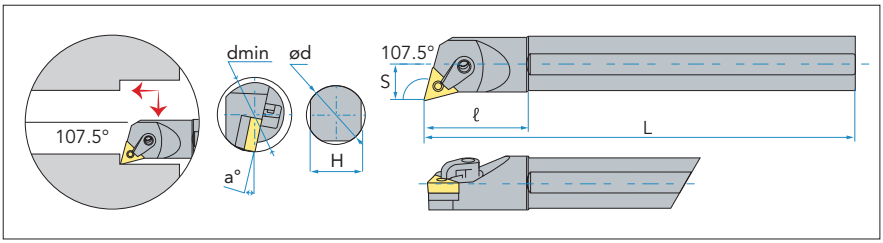


Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°						
S20Q-MTJNR/L16	Ø28	20	13	180	45	18	15°	TN**1604	X	CTM510	HL1812	ML0622	L2.0 L3.0
S25R-MTJNR/L16	Ø34	25	17	200	45	23	12°				HL1814	ML0625	
S32S-MTJNR/L16	Ø44	32	22	250	54	30	17°		MT1603	CTM513			

MTQNR/L

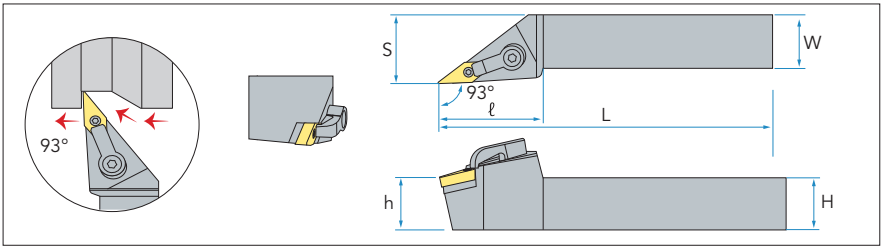


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MTQNR/L1616H16	16	16	100	30	16	20	TN**1604	MT1603	CTM513	HL1814	ML0625	L2.0 L3.0
MTQNR/L2020K16	20	20	125	30	20	25						
MTQNR/L2525M16	25	25	150	32	25	32						
MTQNR/L3232P16	32	32	170	35	32	40						
MTQNR/L2525M22	25	25	150	32	25	32	TN**2204	MT2204	CTM617	HL1917	ML0830	L2.5 L4.0
MTQNR/L3232P22	32	32	170	35	32	40						



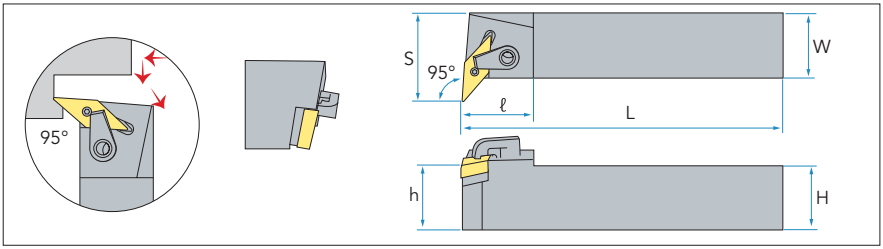
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°						
S20Q-MTQNR/L16	Ø28	20	13	180	42	18	15°	TN**1604	X	CTM510	HL1812	ML0622	L2.0 L3.0
S25R-MTQNR/L16	Ø34	25	17	200	45	23	12°				HL1814	ML0625	
S32S-MTQNR/L16	Ø45	32	22,5	250	54	30	17°		MT1603	CTM513			
S40T-MTQNR/L16	Ø52	40	27	300	60	38	15°						
S50U-MTQNR/L16	Ø62	50	31	350	65	48	12°						

MVJNR/L

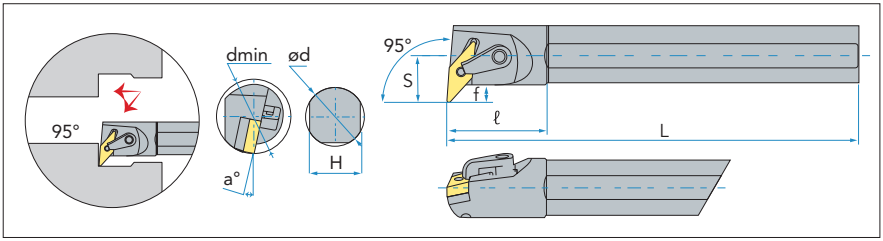


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MVJNR/L1616K16	16	16	125	44	16	20	VN**1604	MV1603	CTM513	HL2414	ML0625	L2.0 L3.0
MVJNR/L2020K16	20	20	125	44	20	25						
MVJNR/L2525M16	25	25	150	44	25	32						
MVJNR/L3232P16	32	32	170	46	32	40						

MVUNR/L

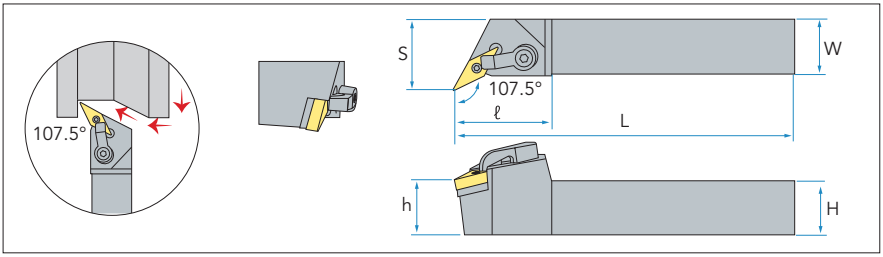


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MVUNR/L2020K16	20	20	125	30	20	29	VN**1604	MV1603	CTM513	HL1814	ML0625	L2.0 L3.0
MVUNR/L2525M16	25	25	150	30	25	34						

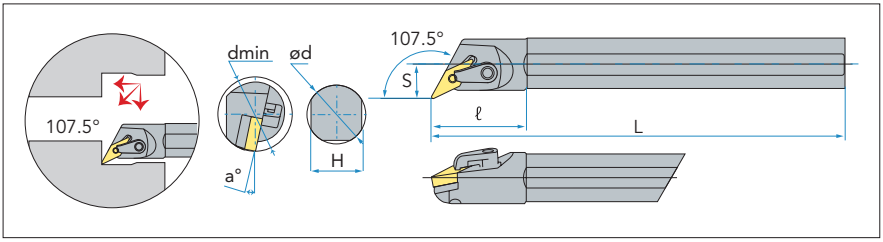


Part No.	Dimensions								Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	f	α°						
S25R-MVUNR/L16	Ø38	25	20	200	50	23	7,5	12°	VN**1604	X	CTM510	HL2114	ML0625	L2.0 L3.0
S32S-MVUNR/L16	Ø44	32	22	250	50	30	5,5	17°		MV1603	CTM513			
S40T-MVUNR/L16	Ø54	40	27	300	60	38	6,5	15°						
S50U-MVUNR/L16	Ø64	50	32	350	70	48	5,5	12°						

MVQNR/L

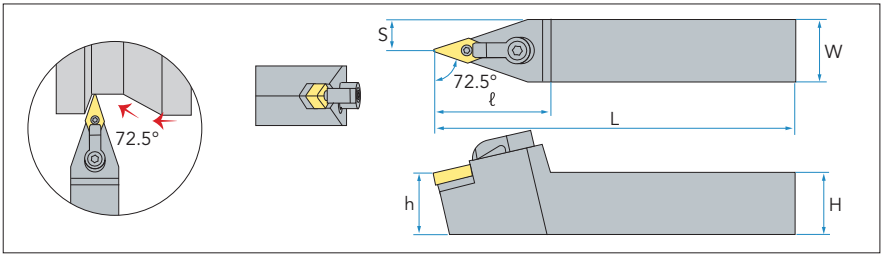


Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MVQNR/L2020K16	20	20	125	40	20	25	VN**1604	MV1603	CTM513	HL2114	ML0625	L2.0 L3.0
MVQNR/L2525M16	25	25	150	40	25	32						
MVQNR/L3232P16	32	32	170	40	32	40						



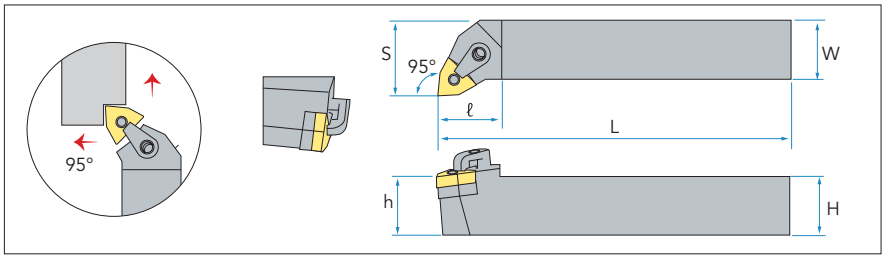
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°						
S25R-MVQNR/L16	Ø34	25	17	200	50	23	12°	VN**1604	X	CTM510	HL2114	ML0625	L2.0 L3.0
S32S-MVQNR/L16	Ø46	32	23	250	50	30	17°		MV1603	CTM513	HL2414		
S40T-MVQNR/L16	Ø54	40	27	300	55	38	15°						
S50U-MVQNR/L16	Ø64	50	32	350	60	48	12°						

MVVNN



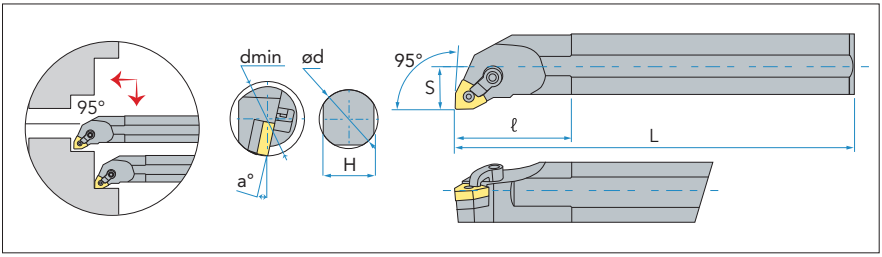
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MVVNN2020K16	20	20	125	46	20	10	VN**1604	MV1603	CTM513	HL2414	ML0625	L2.0 L3.0
MVVNN2525M16	25	25	150	47	25	12,5						

MWLNR/L



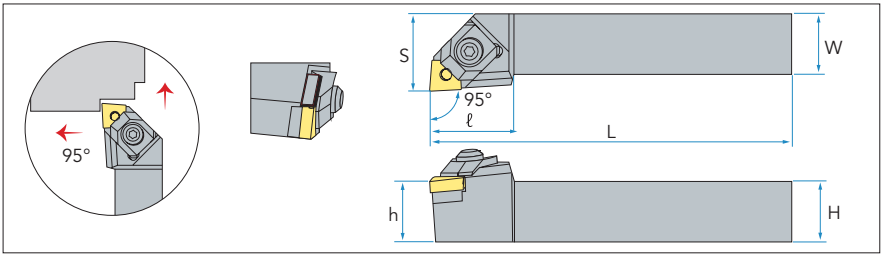
Part No.	Dimensions						Insert	Shim	Pin	Clamp	Screw	Wrench
	H	W	L	ℓ	h	s						
MWLNR/L1616H06	16	16	100	27	16	20	WN**0604	MW0603	CTM513	HL1814	ML0625	L2.0 L3.0
MWLNR/L2020K06	20	20	125	27	20	25						
MWLNR/L2525M06	25	25	150	27	25	32						
MWLNR/L1616H08	16	16	100	27	16	20	WN**0804	MW0804	CTM617			L2.5 L3.0
MWLNR/L2020K08	20	20	125	28	20	25						
MWLNR/L2525M08	25	25	150	30	25	32						
MWLNR/L3232P08	32	32	170	30	32	40						
MWLNR/L4040R08	40	40	200	38	40	50						

MWLNR/L



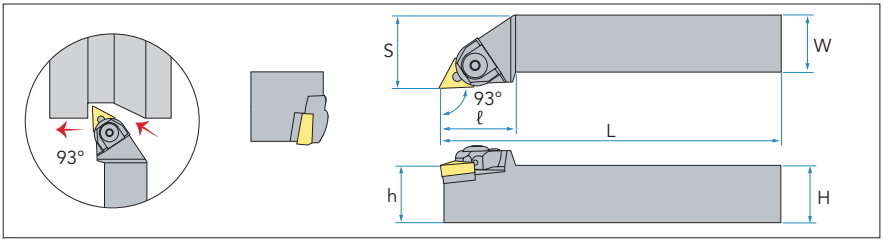
Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Wrench
	dmin	Ød	S	L	ℓ	H	α^{o}						
S16Q-MWLNR/L06	Ø25	16	11	180	38	15	17°	WN**0604	X	CTM510	HL1511	ML0519	L2.0 L2.5
S20Q-MWLNR/L06	Ø30	20	13	180	42	18	15°						
S25R-MWLNR/L06	Ø34	25	17	200	45	23	13°				HL1814	ML0625	L2.0;L3.0
S20Q-MWLNR/L08	Ø30	20	13	180	40	18	15°	WN**0804		CTM613	HL1812	ML0622	L2.5 L3.0
S25R-MWLNR/L08	Ø34	25	17	200	45	23	13°				HL1814	ML0625	
S32S-MWLNR/L08	Ø44	32	22	250	50	30	17°		MW0804	CTM617			
S40T-MWLNR/L08	Ø52	40	27	300	55	38	15°						
S50U-MWLNR/L08	Ø62	50	31	350	60	48	12°						

WCLNR/L

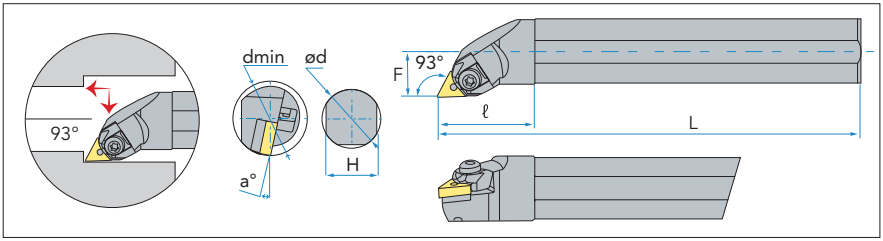


Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	H	W	L	ℓ	h	s							
WCLNR/L2020K12	20	20	125	35	20	25	CN**1204	YC12-1 YC12-2	CSM6	CR05	MC1204	CTM6-S	L3.0 L4.0
WCLNR/L2525M12	25	25	150	35	25	32							

WTJNR/L

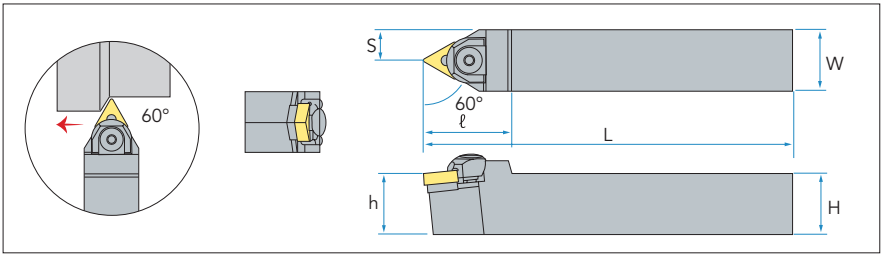


Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	H	W	L	ℓ	h	s							
WTJNR/L1616K16	16	16	125	32	16	21	TN**1604	WT16	WTCW	KH540	MT16-S	CTM5-S	L2.5 L4.0
WTJNR/L2020K16	20	20	125	32	20	25							
WTJNR/L2525M16	25	25	150	35	25	32							
WTJNR/L2525M22	25	25	150	36	25	32	TN**2204	WT22			MT2204	CTM6-S	L3.0 L4.0
WTJNR/L3232P22	32	32	170	36	32	40							



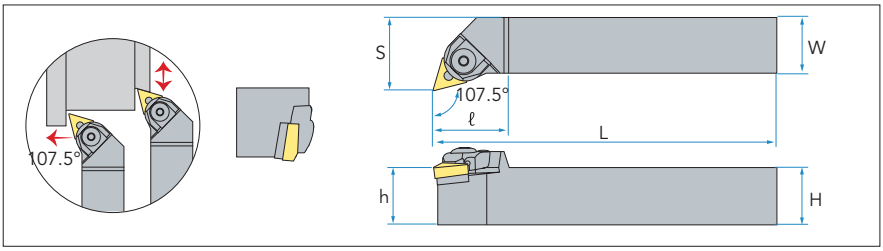
Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	dmin	Ø d	L	ℓ	F	α°							
S25R-WTJNR/L16	Ø32	25	200	47	17	12°	TN**1604	WT16N	WTCW	KH540	X	CTM5-11	L2.5 L4.0
S32S-WTJNR/L16	Ø44	32	250	54	22	17°		WT16			MT16-S	CTM5-S	
S32S-WTJNR/L22	Ø44	32	250	60	22,5	17°	TN**2204	WT22N			MT2204	CTM6-S	L3.0 L4.0
S40T-WTJNR/L22	Ø52	40	300	60	27	15°							

WTENN

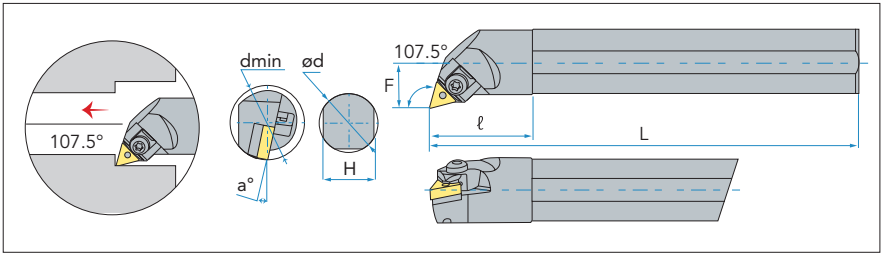


Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	H	W	L	ℓ	h	s							
WTENN2020K16	20	20	125	34	20	10	TN**1604	WT16	WTCW	KH540	MT16-S	CTM5-S	L2.5 L4.0
WTENN2525M16	25	25	150	35	25	12,5							
WTENN2525M22	25	25	150	38	25	12,5	TN**2204	WT22			MT2204	CTM6-S	L3.0 L4.0
WTENN3232P22	32	32	170	38	32	16							

WTQNR/L

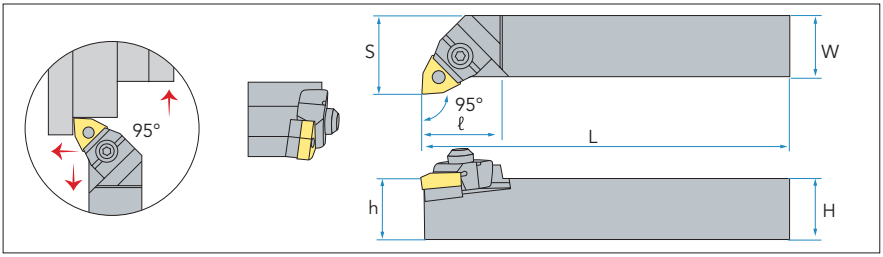


Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	H	W	L	ℓ	h	s							
WTQNR/L1616K16	16	16	125	34	16	20	TN**1604	WT16	WTCW	KH540	MT16-S	CTM5-S	L2.5 L4.0
WTQNR/L2020K16	20	20	125	32	20	26							
WTQNR/L2525M16	25	25	150	32	25	32							
WTQNR/L3232P16	32	32	170	35	32	40							

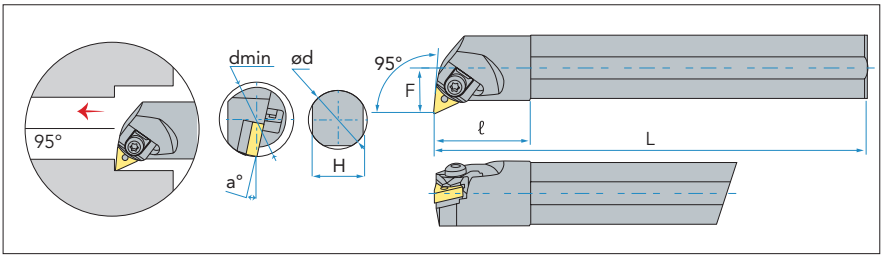


Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	dmin	Ø d	L	ℓ	F	α°							
S25R-WTQNR/L16	Ø32	25	200	47	17	13°	TN**1604	WT16N	WTCW	KH540	X	CTM5-11	L2.5 L4.0
S32S-WTQNR/L16	Ø40	32	250	47	22	17°		WT16			MT16-S	CTM5-S	
S32S-WTQNR/L22	Ø44	32	250	47	22	17°	TN**2204	WT22N			MT2204	CTM6-S	L3.0 L4.0
S40T-WTQNR/L22	Ø52	40	300	60	27	15°							

WWLNR/L

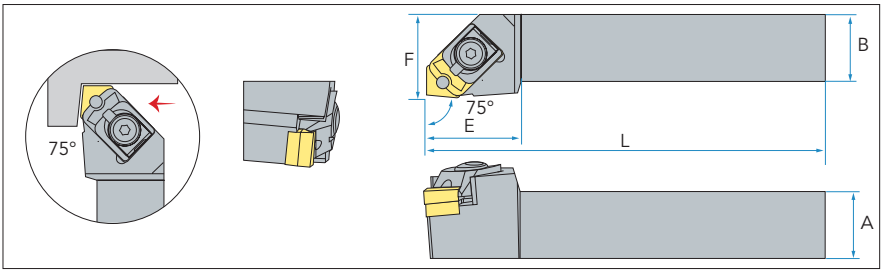


Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	H	W	L	ℓ	h	s							
WWLNR/L1616K08	16	16	125	32	16	22	WN**0804	YW08	WTCW	KH540	WW08	CTM6-S	L3.0 L4.0
WWLNR/L2020K08	20	20	125	32	20	26							
WWLNR/L2525M08	25	25	150	35	25	32							
WWLNR/L3232P08	32	32	170	35	32	40							



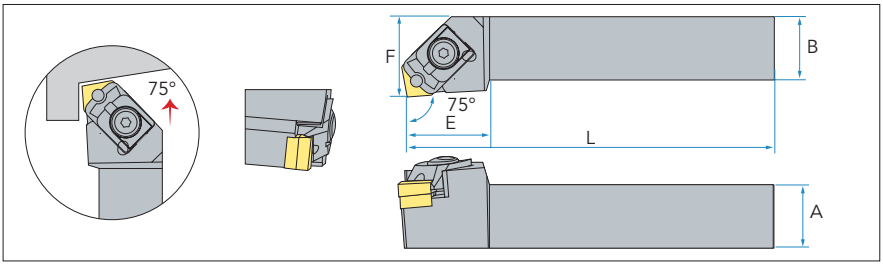
Part No.	Dimensions						Insert	Clamp	Screw	Slopper Ring	Shim	Pin	Wrench
	dmin	Ø d	L	ℓ	F	α°							
S25R-WWLNR/L16	Ø32	25	200	47	17	13°	TN**1604	WT16N	WTCW	KH540	X	CTM5-11	L2.5 L4.0
S32S-WWLNR/L16	Ø40	32	250	54	22	17°		WT16			MT16-S	CTM5-S	

BCBNR/L

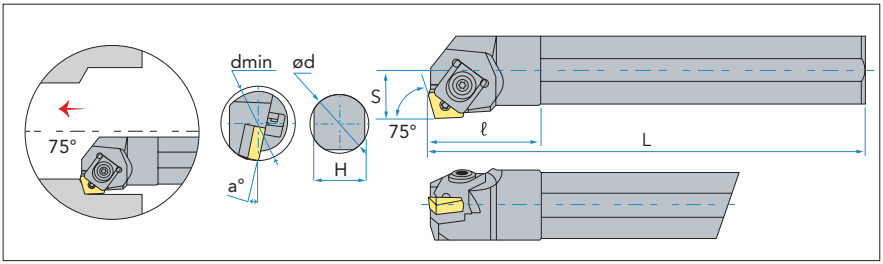


Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BCBNR/L2020K12	20	20	125	36	25	CN**1204	MC1204	CTM6-S	BC12-100	BCS08	CR07	L3.0 L4.0
BCBNR/L2525M12	25	25	150	34	26							
BCBNR/L3232P12	32	32	170	34	31							

BCKNR/L

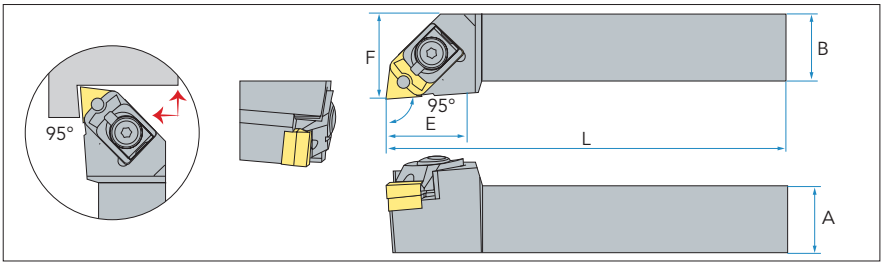


Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BCKNR/L2020K12	20	20	125	33	24	CN**1204	MC1204	CTM6-S	BC12-100	BCS08	CR07	L3.0 L4.0
BCKNR/L2525M12	25	25	150	32	32							
BCKNR//L3232P12	32	32	170	32	40							

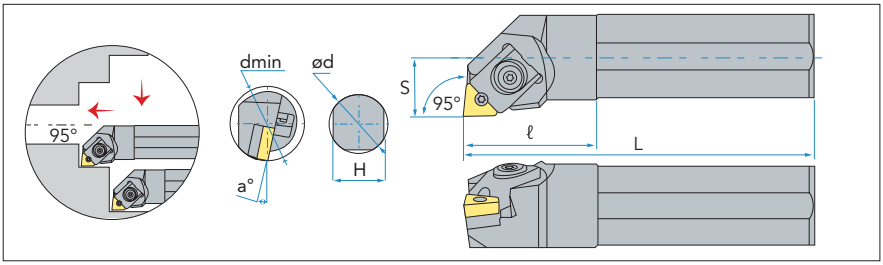


Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°							
S32S-BCKNR/L12	40	32	30	250	22	50	17°	CN**1204	BC12-100	CTM6-S	MC1204	BCS08	CR07	L3.0 L4.0
S40T-BCKNR/L12	50	40	38	300	27	50	15°							
S50U-BCKNR/L12	63	50	48	350	31	50	12°							

BCLNR/L

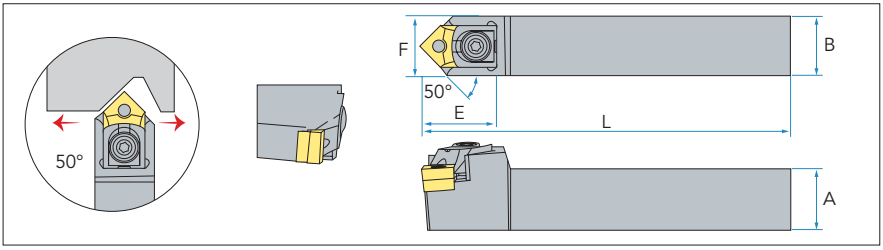


Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BCLNR/L2020K12	20	20	125	32	25	CN**1204	MC1204	CTM6-S	BC12	BCS08	CR07	L3.0 L4.0
BCLNR/L2525M12	25	25	150	37	32							
BCLNR/L3232P12	32	32	170	36	40							
BCLNR/L3232P16	32	32	170	38	40	CN**1606	MC1604	CTM8-S				



Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°							
S25T-BCLNR/L12	30	25	23	300	17	50	13°	CN**1204	BC12	CTM6-N	X	BCS08	CR07	L4.0
S25R-BCLNR/L12	30	25	23	200	17	50	13°							
S32S-BCLNR/L12	40	32	30	250	22	50	17°			CTM6-S	MC1204			L3.0 L4.0
S32U-BCLNR/L12	40	32	30	350	22	50	17°							
S40T-BCLNR/L12	50	40	38	300	27	50	15°							
S40W-BCLNR/L12	50	40	38	450	27	50	15°							
S50U-BCLNR/L12	60	50	48	350	31	50	12°							
S50Y-BCLNR/L12	60	50	48	500	31	50	12°							

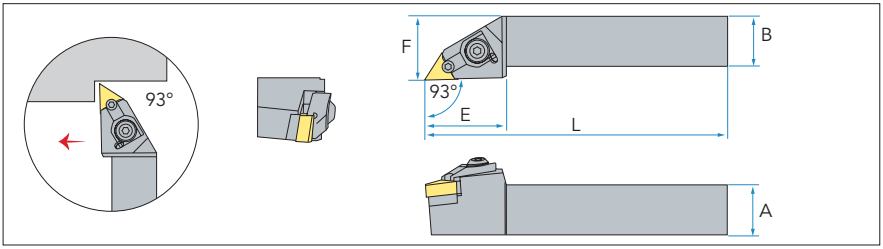
BCMNN



Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BCMNN2020K12	20	20	125	42	10	CN**1204	MC1204	CTM6-S	BC12	BCS08	CR07	L3.0 L4.0
BCMNN2525M12	25	25	150	42	12,5							
BCMNN3232P12	32	32	170	42	16							

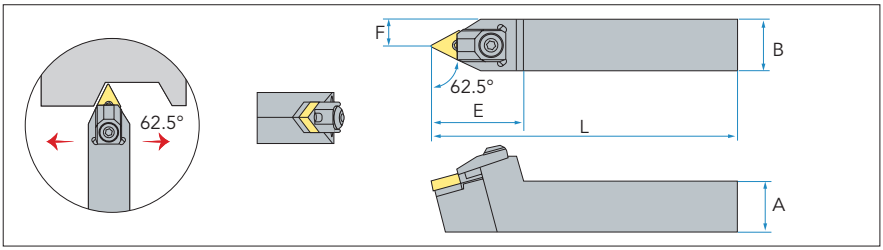
Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BCMNN2020K12-100	20	20	125	40	10	CN**1204	MC1204	CTM6-S	BC12-100	BCS08	CR07	L3.0 L4.0
BCMNN2525M12-100	25	25	150	40	12,5							
BCMNN3232P12-100	32	32	170	40	16							

BDJNR/L



Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BDJNR/L2020K15	20	20	125	46	26	DN**1504 DN**1506	MD1506 MD1504	CTM6-L	BD15	BCS08	CR07	L3.0 L4.0
BDJNR/L2525M15	25	25	150	46	32							
BDJNR/L3232P15	32	32	170	46	40							

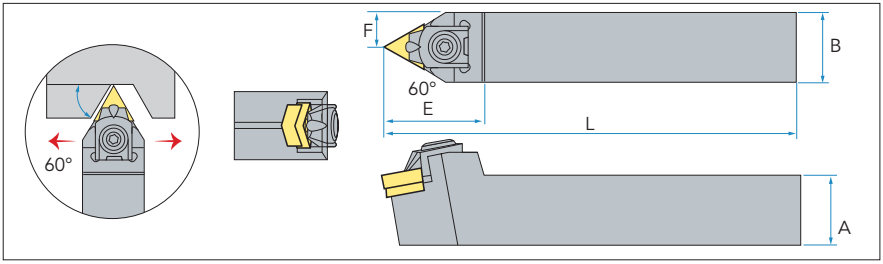
BDNN



Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BDNN2020K15	20	20	125	50	10	DN**1504 DN**1506	MD1506 MD1504	CTM6-L	BD15	BCS08	CR07	L3.0 L4.0
BDNN2525M15	25	25	150	50	12,5							
BDNN3232P15	32	32	170	50	16							

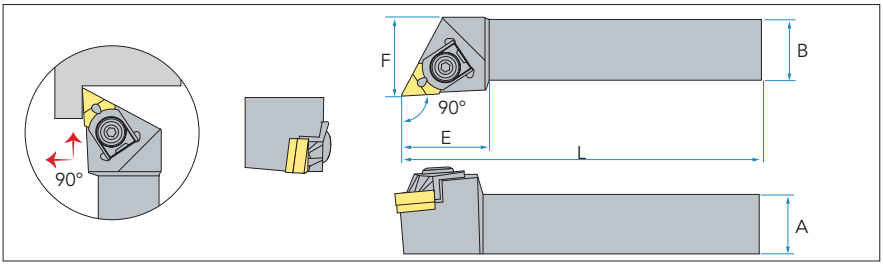
Note:
BDNN2020K1504
BDNN2020K1506

BTENN



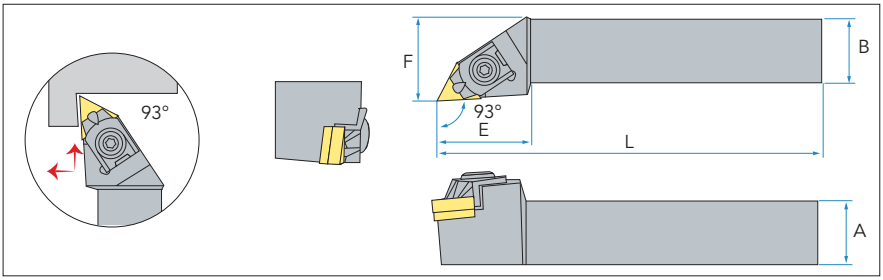
Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BTENN2020K16	20	20	125	40	10	TN**1604	MT16-S	CTM5-S	BT16	BCS08	CR07	L2.5 L4.0
BTENN2525M16	25	25	150	40	12,5							
BTENN3232P16	32	32	170	40	16							

BTGNR/L



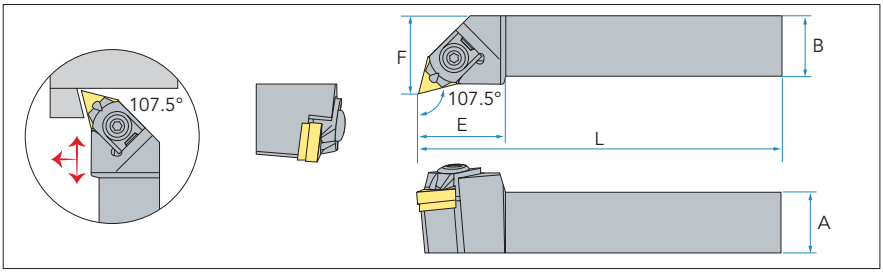
Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BTGNR/L1616H16	16	16	100	30	20,5	TN**1604	MT16-S	CTM5-S	BT16-N	BCS06	CR05	L2.5;L3.0
BTGNR/L2020K16	20	20	125	35	25				BT16	BCS08	CR07	L2.5 L4.0
BTGNR/L2525M16	25	25	150	35	32							
BTGNR/L3232P16	32	32	170	35	40							

BTJNR/L

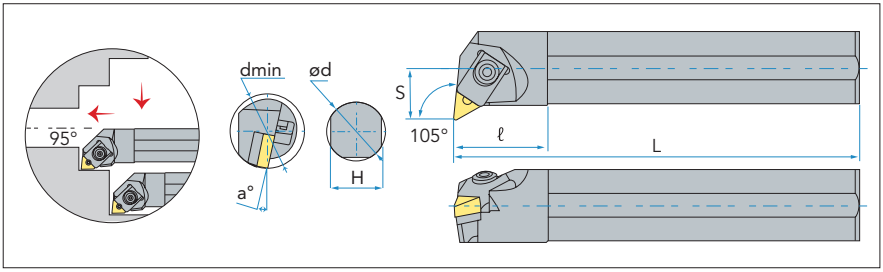


Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BTJNR/L1616K16	16	16	125	30	20	TN**1604	MT16-S	CTM5-S	BT16-N	BCS06	CR05	L2.5;L3.0
BTJNR/L2020K16	20	20	125	35	25				BT16	BCS08	CR07	L2.5 L4.0
BTJNR/L2525M16	25	25	150	35	32							
BTJNR/L3232P16	32	32	170	35	40							

BTQNR/L

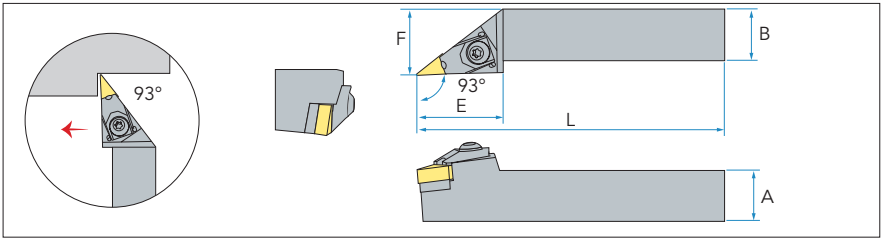


Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BTQNR/L2020K16	20	20	125	35	25	TN**1604	MT16-S	CTM5-S	BT16	BCS08	CR07	L2.5 L4.0
BTQNR/L2525M16	25	25	150	35	32							
BTQNR/L3232P16	32	32	170	35	40							

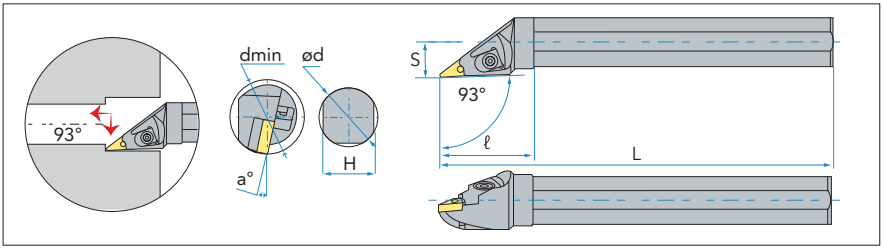


Part No.	Dimensions							Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	Ø D	Ø d	H	L	S	ℓ	a°							
S20R-BTQNR/L16	26	20	28	200	13	47	17°	TN**1604	X	CTM5-11	BT16	BCS06	CR05	L2.5 L3.0
S25R-BTQNR/L16	32	25	23	200	17	47	12°							
S32S-BTQNR/L16	40	32	30	250	22	50	17°		BT16	CTM5-S		BCS08	CR07	L2.5 L4.0
S40T-BTQNR/L16	50	40	38	300	27	50	15°							
S50U-BTQNR/L16	63	50	48	350	31	50	12°							

BVJNR/L

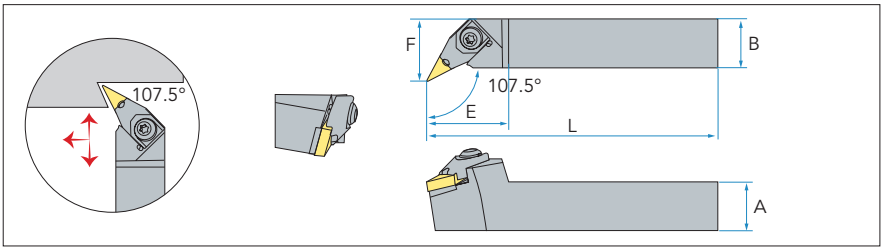


Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BVJNR/L2020K16	20	20	125	47	25	VN**1604	MV1603	CTM5-S	BV16	BCS06	CR05	L2.5 L3.0
BVJNR/L2525M16	25	25	150	47	32							
BVJNR/L3232P16	32	32	170	47	40							



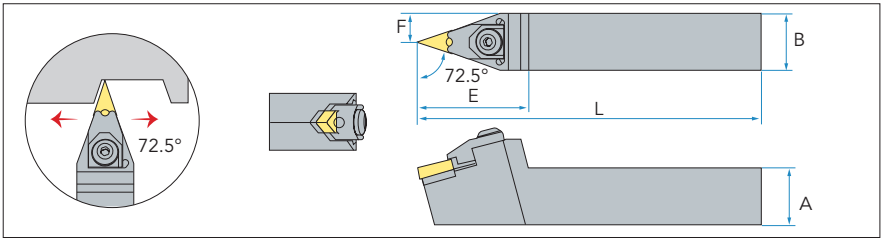
Part No.	Dimensions							Insert	Clamp	Pin	Screw	Shim Pin	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°						
S25R-BVJNR/L16	32	25	23	200	17	60	12°	VN**1604	BV16	CTM5-11	BCS06	CR05	L2.5 L3.0
S32S-BVJNR/L16	40	32	30	350	22	60	17°						
S40T-BVJNR/L16	50	40	48	300	27	60	15°						

BVQNR/L



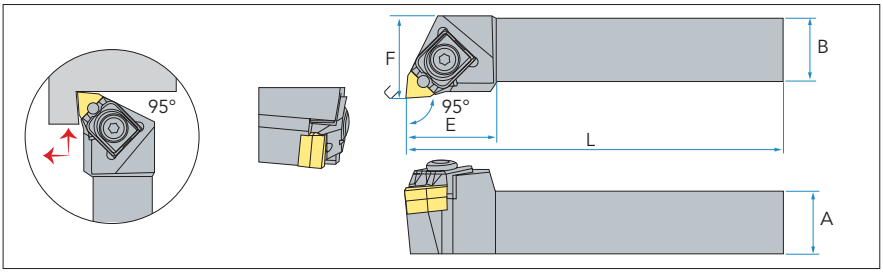
Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BVQNR/L2020K16	20	20	125	45	25	VN**1604	MV1603	CTM5-S	BV16	BCS06	CR05	L2.5 L3.0
BVQNR/L2525M16	25	25	150	45	32							
BVQNR/L3232P16	32	32	170	45	40							

BVVNN



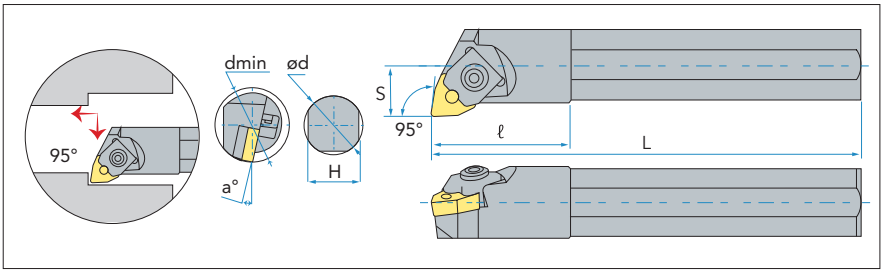
Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BVVNN2020K16	20	20	125	48	10	VN**1604	MV1603	CTM5-S	BV16	BCS06	CR05	L2.5 L3.0
BVVNN2525M16	25	25	150	48	12,5							
BVVNN3232P16	32	32	170	48	16							

BWLNR/L



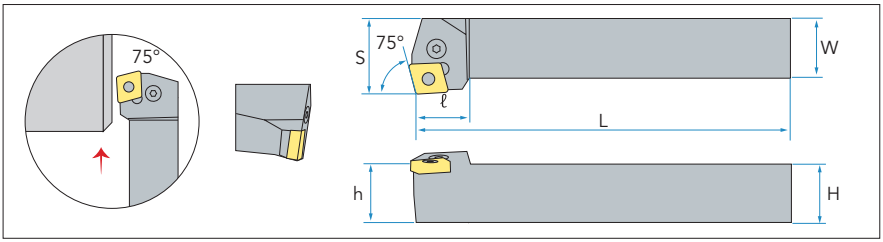
Part No.	Dimensions					Insert	Shim	Pin	Clamp	Screw	Slopper Ring	Wrench
	A	B	L	E	F							
BWLNR/L1616H06	16	16	100	28	20	WN**0604	MW0603	CTM5-S	BW06	BCS08	CR05	L2.5 L3.0
BWLNR/L2020K06	20	20	125	28	25							
BWLNR/L2525M06	25	25	150	28	32							
BWLNR/L3232P06	32	32	170	32	40							
BWLNR/L2020K08	20	20	125	32	26	WN**0804	MW0804	CTM6-S	BW08		CR07	L3.0 L4.0
BWLNR/L2525M08	25	25	150	32	32							
BWLNR/L3232P08	32	32	170	32	40							

BWLNR/L



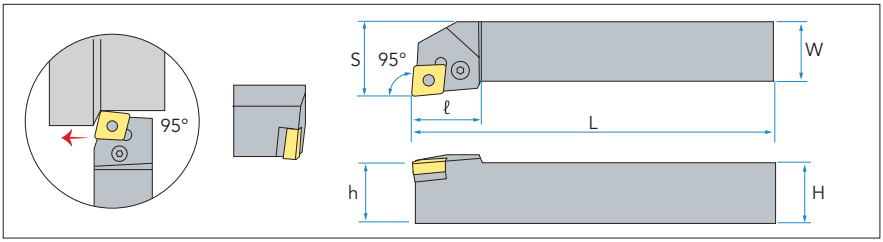
Part No.	Dimensions							Insert	Clamp	Pin	Shim	Screw	Shim Pin	Wrench
	ØD	Ø d	H	L	S	l	a°							
S20R-BWLNR/L06	25	20	23	200	13	48	15°	WN**0604	BW06	CTM5-11	X	BCS06	CR05	L2.5 L3.0
S25R-BWLNR/L06	32	25	18	200	17	48	13°							
S25R-BWLNR/L08	32	25	23	200	17	48	13°	WN**0804	BW08N	CTM6-N				L3.0
S25T-BWLNR/L08	32	25	23	300	17	48	13°							
S32S-BWLNR/L08	40	32	30	250	22	50	17°		BW08		WW08	BCS08	CR07	L3.0 L4.0
S32U-BWLNR/L08	40	32	30	350	22	50	17°							
S40T-BWLNR/L08	50	40	38	300	27	50	15°							
S40W-BWLNR/L08	50	40	38	450	27	50	15°							
S50U-BWLNR/L08	60	50	48	350	31	50	12°							
S50Y-BWLNR/L08	60	50	48	500	31	50	12°							
S60V-BWLNR/L08	72	60	58	400	36	50	12°							

PCKNR/L



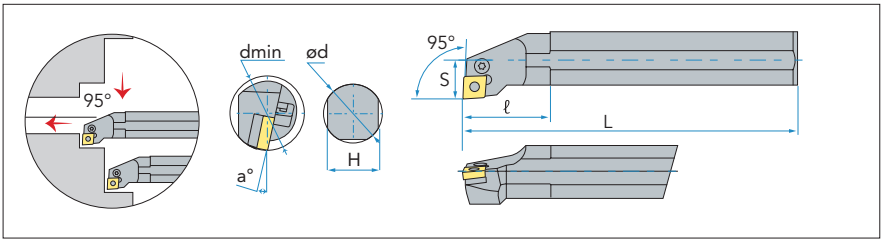
Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PCKNR/L1616H12	16	16	100	27	16	20	CN**1204	SC42	LV4	VHX0821	SP4	L3.0
PCKNR/L2020K12	20	20	125	27	20	25						
PCKNR/L2525M12	25	25	150	30	25	32						
PCKNR/L2525M16	25	25	150	33	25	32	CN**1606	SC53	LV5	VHX0825	SP5	
PCKNR/L3232P16	32	32	170	33	32	40						
PCKNR/L3232P19	32	32	170	38	32	32	CN**1906	SC63N	LV6N	VHX1027N	SP6N	L4.0

PCLNR/L



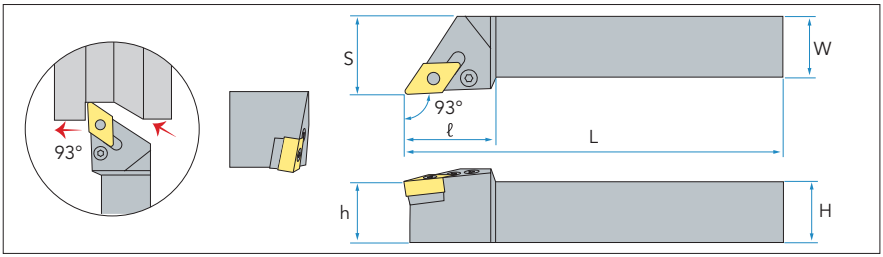
Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PCLNR/L1616H12	16	16	100	28	16	20	CN**1204	SC42	LV4	VHX0821	SP4	L3.0
PCLNR/L2020K12	20	20	125	28	20	25						
PCLNR/L2525M12	25	25	150	28	25	32						
PCLNR/L3232P12	32	32	170	30	32	40						
PCLNR/L2525M16	25	25	150	34	25	32	CN**1606	SC53	LV5	VHX0825	SP5	
PCLNR/L3232P16	32	32	170	34	32	40						
PCLNR/L3232P19	32	32	170	38	32	40	CN**1906	SC63N	LV6	VHX1027	SP6	L4.0
PCLNR/L4040R19	40	40	200	38	40	50						

PCLNR/L



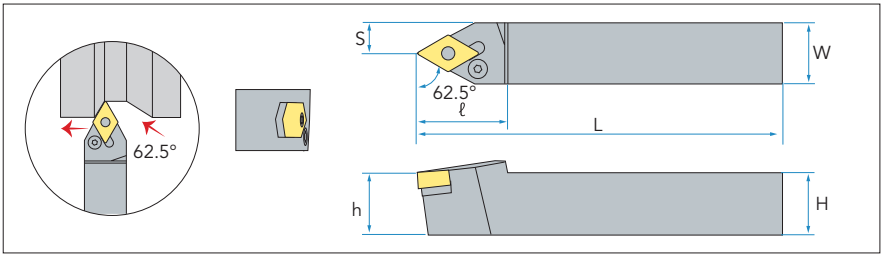
Part No.	Dimensions							Insert	Shim	Lever	Screw	Shim Pin	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°						
S16Q-PCLNR/L09	20	16	15	180	11	35	17°	CN**0903	X	LV3C	VHX0509B	X	L2.0
S20Q-PCLNR/L09	26	20	18	180	13	40	15°						
S25R-PCLNR/L09	32	25	23	200	17	45	12°						
S25R-PCLNR/L12	34	25	23	200	17	45	12°	CN**1204		LV4A	VHX0613A		L2.5
S32S-PCLNR/L12	44	32	30	250	22	50	13°		SC42	LV4	VHX0821	SP4	L3.0
S40T-PCLNR/L12	54	40	38	300	27	55	15°						
S50U-PCLNR/L12	62	50	48	350	35	60	12°						
S50U-PCLNR/L19	62	50	48	350	35	75	12°	CN**1906	SC63	LV6N	VHX1207	SP6	L4.0

PDJNR/L



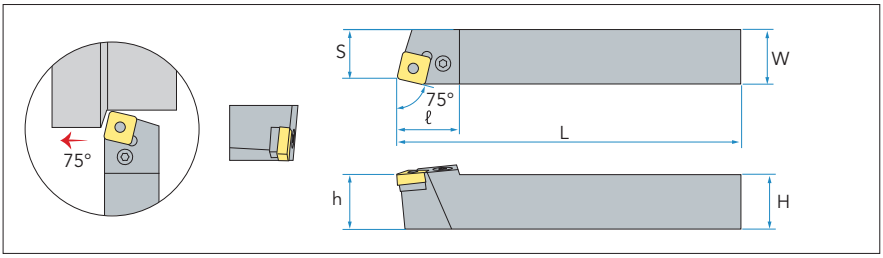
Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PDJNR/L1616H11	16	16	100	26	16	20	DN**1104	SD317	LV3	VHX0617	SP3	L2.5
PDJNR/L2020K11	20	20	125	26	20	25						
PDJNR/L2525M11	25	25	150	26	25	32						
PDJNR/L2020K1504	20	20	125	36	20	25	DN**1504	SD42	LV4	VHX0821	SP4	L3.0
PDJNR/L2525M1504	25	25	150	36	25	32						
PDJNR/L3232P1504	32	32	170	36	32	40						
PDJNR/L2020K1506	20	20	125	36	20	25	DN**1506		LV4B			
PDJNR/L2525M1506	25	25	150	36	25	32						
PDJNR/L3232P1506	32	32	170	36	32	40						

PDNNR/L



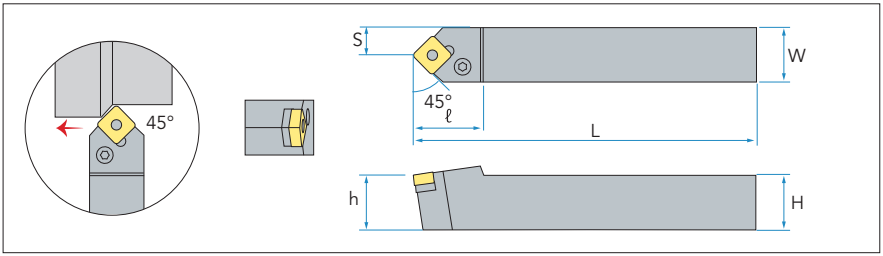
Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PDNNR/L2020K1506	20	20	125	37	20	10	DN**1506	SD42	LV4B	VHX0821	SP4	L3.0
PDNNR/L2525M1506	25	25	150	40	25	12,5						
PDNNR/L2020K1504	20	20	125	37	32	10	DN**1504		LV4			
PDNNR/L2525M1504	25	25	150	37	32	12,5						

PSBNR/L



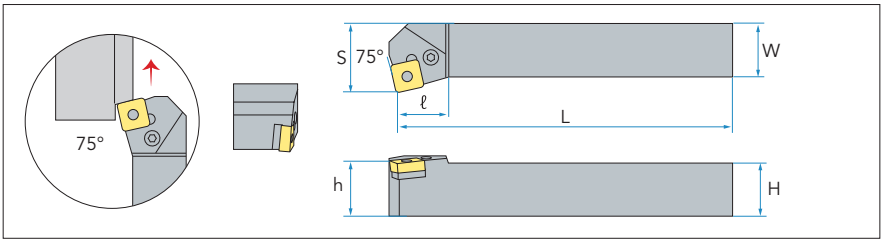
Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PSBNR/L2020K12	20	20	125	30	20	17	SN**1204	SS42	LV4	VHX0821	SP4	L3.0
PSBNR/L2525M12	25	25	150	30	25	22						
PSBNR/L3232P12	32	32	170	42	32	27						

PSDNN

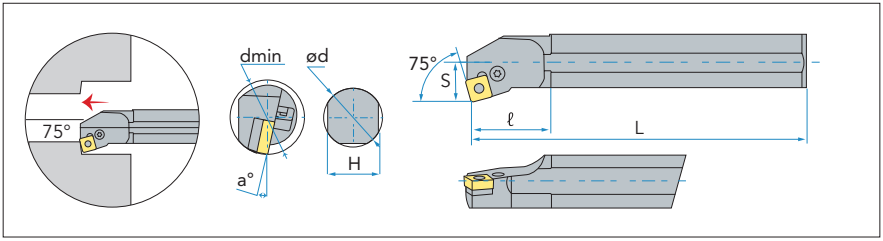


Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PSDNN2020K12	20	20	125	32	20	10	SN**1204	SS42	LV4	VHX0821	SP4	L3.0
PSDNN2525M12	25	25	150	32	25	12,5						
PSDNN3232P12	32	32	170	35	32	16						

PSKNR/L

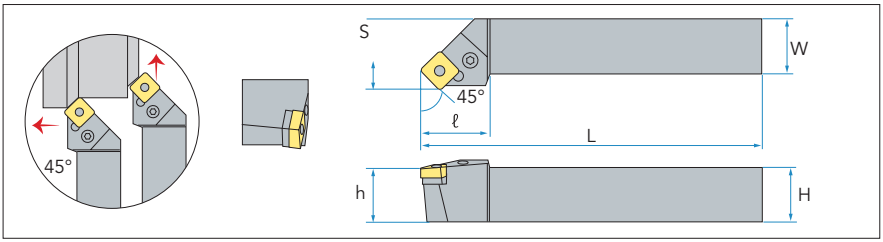


Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PSKNR/L2020K12	20	20	125	29	20	25	SN**1204	SS42	LV4	VHX0821	SP4	L3.0
PSKNR/L2525M12	25	25	150	29	25	32						
PSKNR/L3232P12	32	32	170	29	32	40						



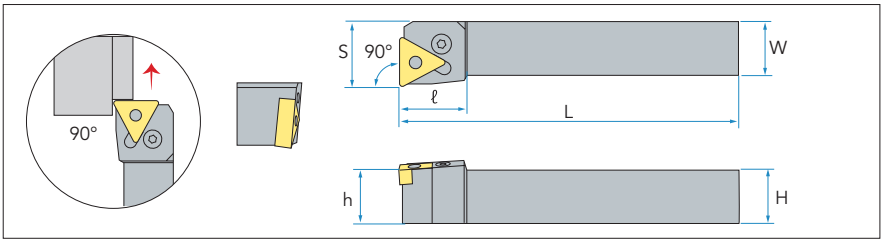
Part No.	Dimensions							Insert	Shim	Lever	Screw	Shim Pin	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°						
S25R-PSKNR/L12	32	25	23	200	17	45	12°	SN**1204	X	LV4A	VHX0613A	X	L2.5
S32S-PSKNR/L12	40	32	30	250	22	50	12°		SS42	LV4	VHX0821	SP4	L3.0
S40T-PSKNR/L12	50	40	37	300	27	55	12°						

PSSNR/L

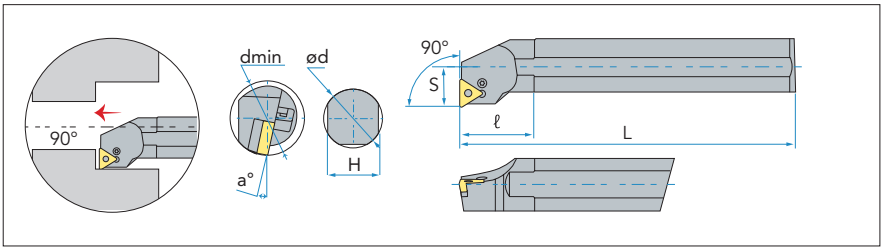


Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PSSNR/L2020K12	20	20	125	34	20	25	SN**1204	SS42	LV4	VHX0821	SP4	L3.0
PSSNR/L2525M12	25	25	150	34	25	32						
PSSNR/L3232P12	32	32	170	34	32	40						
PSSNR/L2525M15	25	25	150	36	25	32	SN**1506	SS53	LV5	VHX0825	SP5	
PSSNR/L3232P15	32	32	170	36	32	40						
PSSNR/L3232P19	32	32	170	43	32	40	SN**1906	SS63N	LV6N	VHX1027N	SP6N	L4.0

PTFNR/L

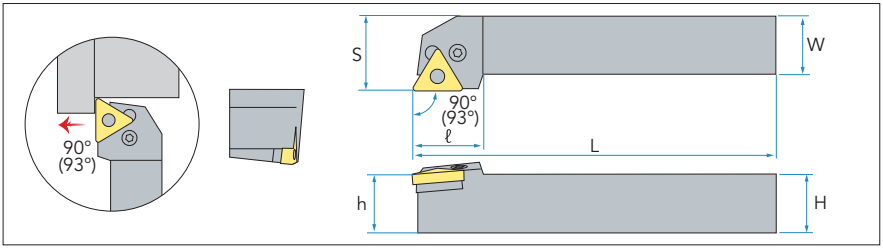


Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PTFNR/L1616H16	16	16	100	20	16	20	TN**1604	ST317	LV3	VHX0617	SP3	L2.5
PTFNR/L2020K16	20	20	125	26	20	25						
PTFNR/L2525M16	25	25	150	26	25	32						
PTFNR/L2525M22	25	25	150	25	25	32	TN**2204	ST42	LV4	VHX0821	SP4	L3.0
PTFNR/L3232P22	32	32	170	30	32	40						



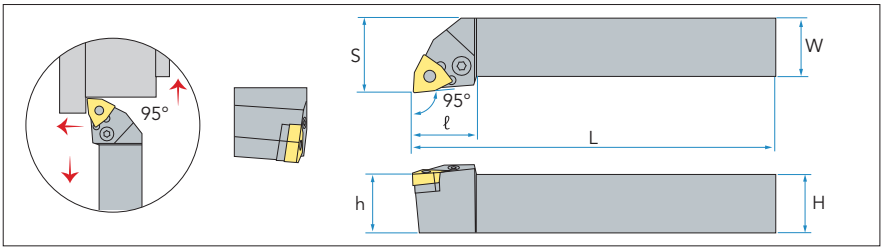
Part No.	Dimensions							Insert	Shim	Lever	Screw	Shim Pin	Wrench
	ØD	Ød	H	L	S	ℓ	α°						
S25R-PTFNR/L16	34	25	23	200	17	45	13°	TN**1604	X	LV3B	VHX0512B	X	L2.0
S32S-PTFNR/L16	44	32	30	250	22	45	13°		ST317	LV3	VHX0617	SP3	L2.5
S40T-PTFNR/L16	54	40	37	300	27	55	10°						

PTG(J)NR/L

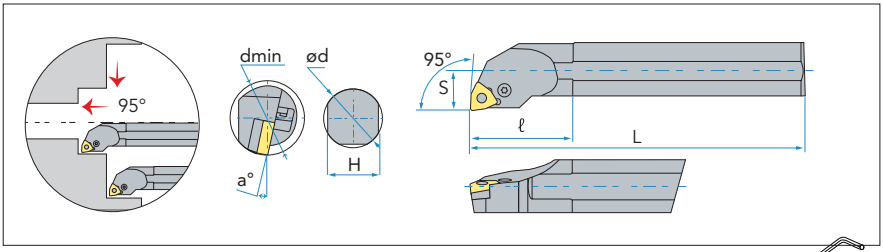


Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PTG(J)NR/L1616H16	16	16	100	26	16	20	TN**1604	ST317	LV3	VHX0617	SP3	L2.5
PTG(J)NR/L2020K16	20	20	125	26	20	25						
PTG(J)NR/L2525M16	25	25	150	26	25	32						
PTG(J)NR/L2525M22	25	25	150	28	25	32	TN**2204	ST42	LV4	VHX0821	SP4	L3.0
PTG(J)NR/L3232P22	32	32	170	30	32	40						

PWLNR/L

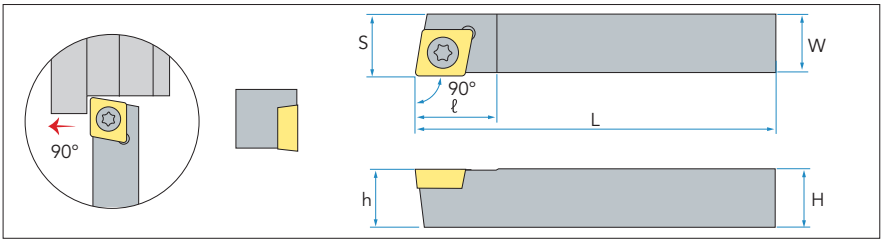


Part No.	Dimensions						Insert	Shim	Lever	Screw	Shim Pin	Wrench
	H	W	L	ℓ	h	s						
PWLNR/L1616H06	16	16	100	20	16	20	WN**0604	SW317	LV3	VHX0617	SP3	L2.5
PWLNR/L2020K06	20	20	125	26	20	25						
PWLNR/L1616H08	16	16	100	26	16	20	WN**0804	SW42	LV4	VHX0821	SP4	L3.0
PWLNR/L2020K08	20	20	125	28	20	25						
PWLNR/L2525M08	25	25	150	27	25	32						



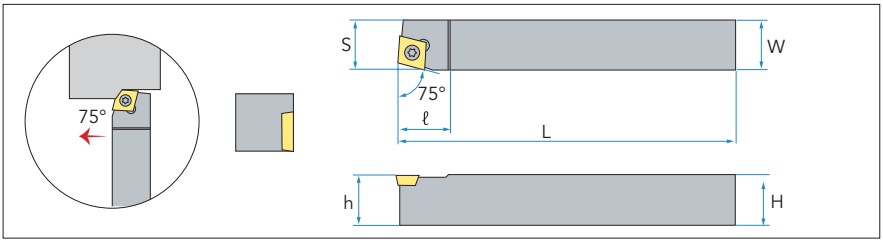
Part No.	Dimensions							Insert	Shim	Lever	Screw	Shim Pin	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°						
S20Q-PWLNR/L06	26	20	18	180	13	40	15°	WN**0604	LV3B	VHX0512B	X	X	L2.0
S25R-PWLNR/L06	34	25	23	200	17	45	12°						
S32S-PWLNR/L06	44	32	30	250	22	45	10°		LV3	VHX0613B	SW317	SP3	L2.5
S25R-PWLNR/L08	34	25	23	200	17	45	12°	WN**0804	LV4A	VHX0613A	X	X	
S32S-PWLNR/L08	44	32	30	250	22	50	13°		LV4	VHX0812	SW42	SP4	L3.0

SCACR/L



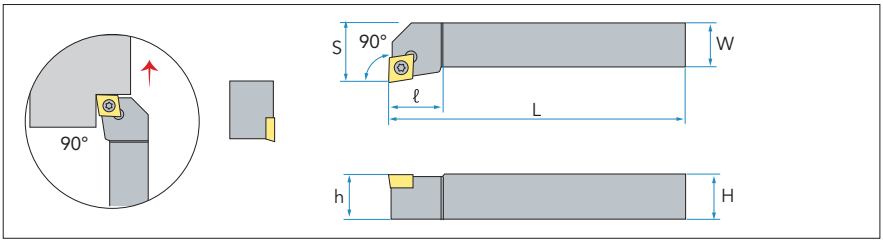
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCACR/L0808F06	8	8	80	10	8	8	CC**0602	M2.5*6	T8
SCACR/L1010H06	10	10	80	10	10	10			
SCACR/L1212H06	12	12	80	13	12	12			
SCACR/L1212H09	12	12	100	13	12	12	CC**09T3	M3.5*9	T15

SCBCR/L



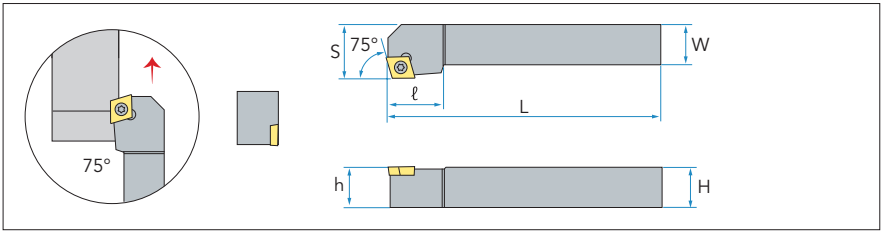
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCBCR/L1212F06	12	12	80	13	12	10	CC**0602	M2.5*6	T8
SCBCR/L1616H06	16	16	100	13	16	14			
SCBCR/L1212F09	12	12	80	13	12	10	CC**09T3	M3.5*9	T15
SCBCR/L1616H09	16	16	100	20	16	14			
SCBCR/L2020K09	20	20	125	20	20	17			
SCBCR/L2525M09	25	25	150	20	25	22			
SCBCR/L2020K12	20	20	125	20	20	17	CC**1204	M5*12	T20
SCBCR/L2525M12	25	25	150	20	25	22			

SCFCR/L

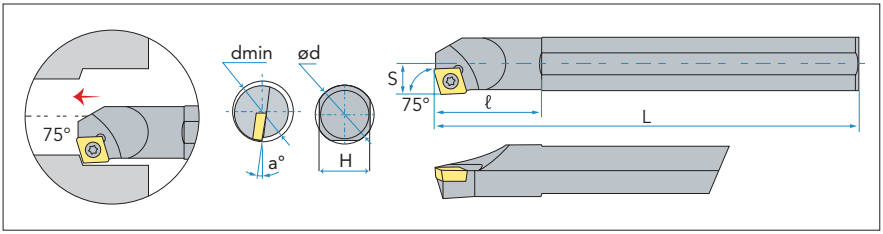


Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCFCR/L1010F06	10	10	80	14	10	12	CC**0602	M2.5*6	T8
SCFCR/L1212F06	12	12	80	14	12	16			
SCFCR/L1616H09	16	16	100	16	16	20	CC**09T3	M3.5*9	T15
SCFCR/L2020K09	20	20	125	16	20	25			
SCFCR/L2525M09	25	25	150	16	25	32			

SCKCR/L

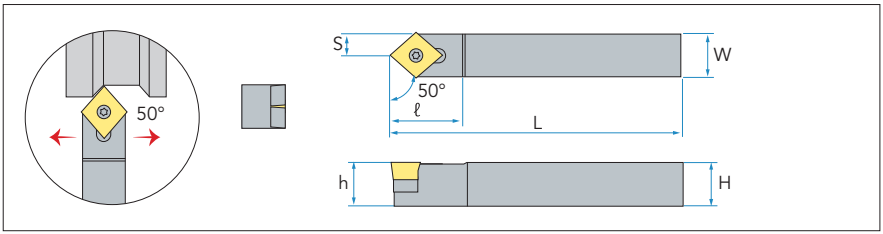


Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCKCR/L2020K09	20	20	125	23	20	25	CC**09T3	M3.5*9	T15
SCKCR/L2525M09	25	25	150	23	25	32			
SCKCR/L2020K12	20	20	125	28	20	25	CC**1204	M5*12	T20
SCKCR/L2525M12	25	25	150	28	25	32			



Part No.	Dimensions							Insert	Screw	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°			
S08K-SCKCR/L06B	Ø11	8	5,5	125	21	7	13°	CC**0602	M2.5*5	T8
S10K-SCKCR/L06B	Ø12	10	6	125	25	9	12°		M2.5*6	
S12M-SCKCR/L06B	Ø14	12	7	150	25	11	10°			
S12M-SCKCR/L09B	Ø16	12	8	150	30	11	12°	CC**09T3	M3.5*9	T15
S16Q-SCKCR/L09B	Ø18	16	9,5	180	36	15	10°			
S20Q-SCKCR/L09B	Ø23	20	11,5	180	38	18	8°			
S25R-SCKCR/L09B	Ø28	25	14	200	42	23	8°			
S25R-SCKCR/L12B	Ø30	25	15	200	42	23	6°	CC**1204	M5*12	T20
S32S-SCKCR/L12B	Ø34	32	18	250	45	30	6°			

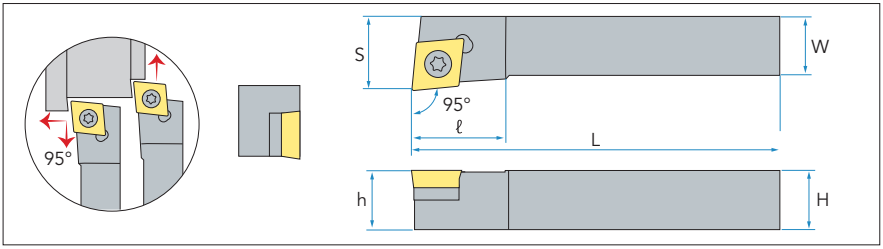
SCMCN



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCMCN1010F06-100	10	10	80	13	10	5	CC**0602	M2.5*6	T8
SCMCN1212F09-1 00	12	12	80	18	12	6	CC**09T3	M3.5*9	T15
SCMCN1616H09-100	16	16	100	18	16	8			
SCMCN2020K09-100	20	20	125	18	20	10			
SCMCN2525M09-100	25	25	150	18	25	12,5			
SCMCN2020K12-100	20	20	125	23	20	10	CC**1204	M5*12	T20
SCMCN2525M12-100	25	25	150	23	25	12,5			

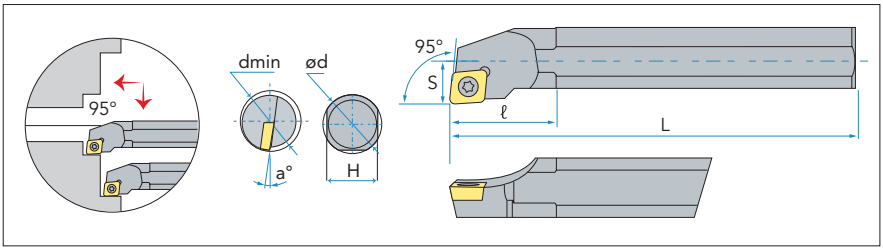
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCMCN1010F06	10	10	80	10	10	5	CC**0602	M2.5*6	T8
SCMCN1212F09	12	12	80	15	12	6	CC**09T3	M3.5*9	T15
SCMCN1616H09	16	16	100	15	16	8			
SCMCN2020K09	20	20	125	15	20	10			
SCMCN2525M09	25	25	150	15	25	12,5			
SCMCN2020K12	20	20	125	20	20	10	CC**1204	M5*12	T20
SCMCN2525M12	25	25	150	20	25	12,5			

SCLCR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCLCR/L0808F06	8	8	80	12	8	10	CC**0602	M2.5*6	T8
SCLCR/L1010F06	10	10	80	12	10	12			
SCLCR/L1212F09	12	12	80	16	12	16	CC**09T3	M3.5*9	T15
SCLCR/L1616H09	16	16	100	16	16	20			
SCLCR/L2020K09	20	20	125	16	20	25			
SCLCR/L2525M09	25	25	150	16	25	32			
SCLCR/L2020K12	20	20	125	20	20	25	CC**1204	M5*12	T20
SCLCR/L2525M12	25	25	150	20	25	32			
SCLCR/L3232P12	32	32	170	20	32	40			

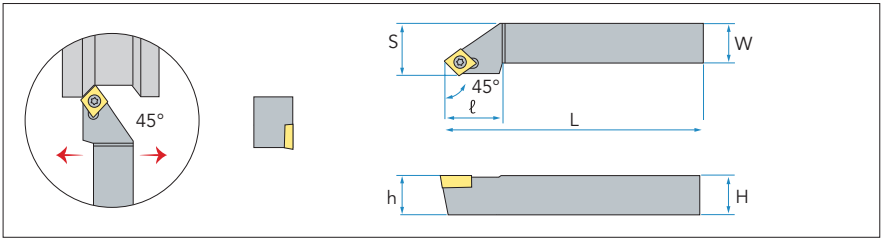
SCLCR/L



Part No.	Dimensions							Insert	Screw	Wrench
	Ø D	Ø d	H	L	S	ℓ	α°			
S07K-SCLCR/L06B	Ø9	8	4,2	125	18	7	15°	CC**0602	M2.5*5	T8
S08K-SCLCR/L06B	Ø10	8	5	125	18	7	13°			
S08K-SCLCR/L06-A16B	Ø10	16	5	125	24	15	13°			
S10K-SCLCR/L06B	Ø12	10	6	125	22	9	12°		M2.5*6	
S10K-SCLCR/L06-A16B	Ø12	16	6	125	30	15	12°			
S12M-SCLCR/L06B	Ø14	12	7	150	25	11	10°			
S12M-SCLCR/L09B	Ø15	12	8	150	30	11	12°	CC**09T3	M3.5*9	T15
S14M-SCLCR/L09B	Ø16	14	8	150	30	13	12°			
S16Q-SCLCR/L09B	Ø19	16	9,5	180	34	15	10°			
S20Q-SCLCR/L09B	Ø23	20	11,5	180	38	18	8°			
S25R-SCLCR/L09B	Ø28	25	14	200	45	23	6°			
S32S-SCLCR/L09B	Ø36	32	18	250	45	30	6°			
S20Q-SCLCR/L12B	Ø24	20	12	180	42	18	8°	CC**1204	M5*12	T20
S25R-SCLCR/L12B	Ø34	25	14,5	200	45	23	5°			
S32S-SCLCR/L12B	Ø36	32	18	250	45	30	6°			
S40T-SCLCR/L12B	Ø44	40	22	300	48	38	4°			

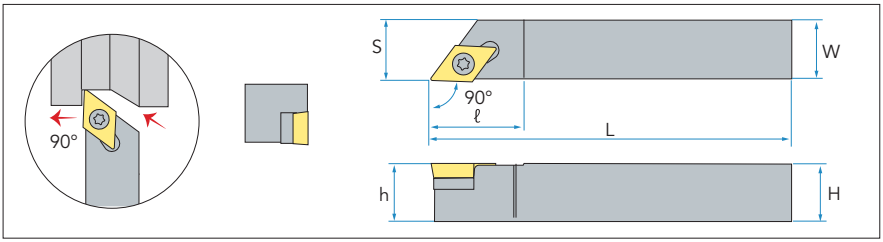
Part No.	Dimensions									Insert	Std corner-R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S08K-SCLCR/L06-AV	Ø10	8	7	125	18	20	19	5	12°	CC**0602	0,4	M2.5*5	T8
S10K-SCLCR/L06-AV	Ø12	10	9	125	20	25	21	6	12°			M2.5*6	
S12M-SCLCR/L06-AV	Ø14	12	11	150	27	30	28	7	10°				
S16Q-SCLCR/L09-AV	Ø18	16	15	180	30	34	31	9,5	10°	CC**09T3		M3.5*9	T15
S20R-SCLCR/L09-AV	Ø24	20	19	200	42	49	43	13	7°				
S25S-SCLCR/L09-AV	Ø27	25	24	250	46	55	46	13,5	6°				

SCSCR/L



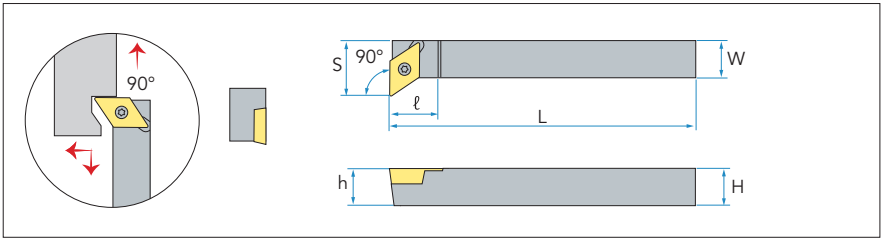
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SCSCR/L1212F06	12	12	80	18	12	16	CC**0602	M2.5*6	T8
SCSCR/L1616H06	16	16	100	18	16	20			

SDACR/L



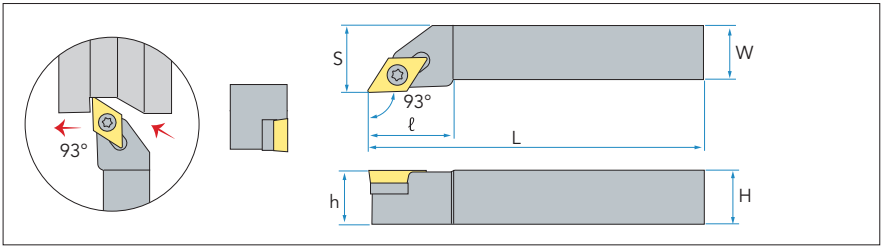
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SDACR/L0808F07	8	8	80	15	8	8	DC**0702	M2.5*6	T8
SDACR/L1010F07	10	10	80	15	10	10			
SDACR/L1212F07	12	12	80	15	12	12			
SDACR/L1212H11	12	12	100	22	12	12	DC**11T3	M3.5*9	T15
SDACR/L1616H11	16	16	100	22	16	16			
SDACR/L2020K11	20	20	125	22	20	20			
SDACR/L2525M11	25	25	150	22	25	25			

SDFCR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SDFCR/L1212H07	12	12	100	8	12	16	DC**0702	M2.5*6	T8
SDFCR/L1212H11	12	12	100	14	12	16	DC**11T3	M3.5*9	T15
SDFCR/L1616H11	16	16	100	14	16	20			

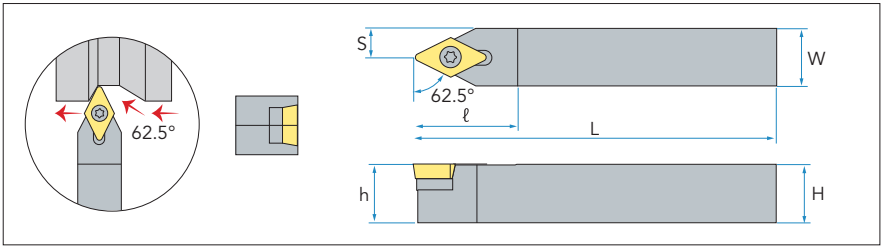
SDJCR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SDJCR/L1010F07	10	10	80	14	10	12	DC**0702	M2.5*6	T8
SDJCR/L1212F07	12	12	80	14	12	16			
SDJCR/L1616H07	16	16	100	14	16	20			
SDJCR/L1212F11	12	12	80	20	12	16	DC**11T3	M3.5*9	T15
SDJCR/L1616H11	16	16	100	20	16	20			
SDJCR/L2020K11	20	20	125	20	20	25			
SDJCR/L2525M11	25	25	150	22	25	32			
SDJCR/L3232P11	32	32	170	23	32	40			
SDJCR/L4040R11	40	40	200	25	40	50			

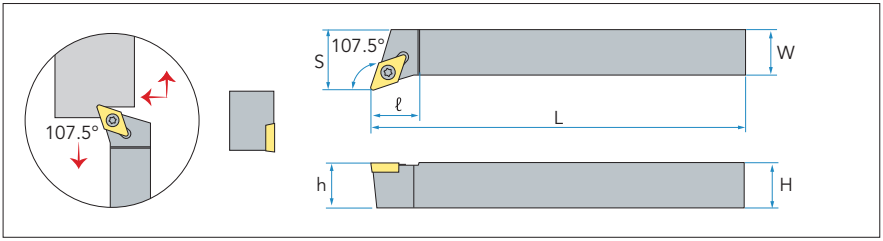
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SDJCR/L1212K11-F	12	12	125	12,5	12	12	DC**11T3	M3.5*9	T15
SDJCR/L1616K11-F	16	16	125	16,5	16	16			

SDNCN



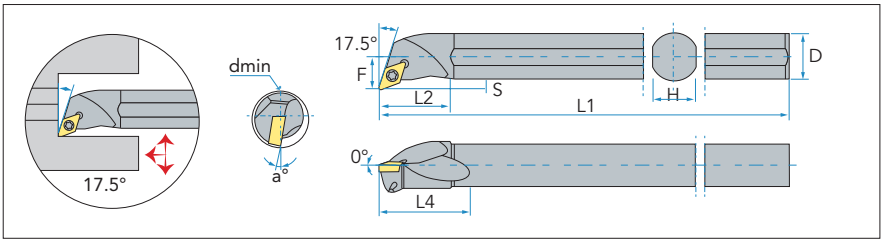
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SDNCN0808F07	8	8	80	14	8	4	DC**0702	M2.5*6	T8
SDNCN1010F07	10	10	80	14	10	5			
SDNCN1212F07	12	12	80	14	12	6			
SDNCN1212H11	12	12	100	21	12	6	DC**11T3	M3.5*9	T15
SDNCN1616H11	16	16	100	21	16	8			
SDNCN2020K11	20	20	125	21	20	10			
SDNCN2525M11	25	25	150	21	25	12,5			

SDQCR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SDQCR/L1010F07	10	10	80	5	10	12	DC**0702	M2.5*6	T8
SDQCR/L1212F07	12	12	80	13	12	16			
SDQCR/L1212F11	12	12	80	14	12	16	DC**11T3	M3.5*9	T15
SDQCR/L1616H11	16	16	100	14	16	20			
SDQCR/L2020K11	20	20	125	16	20	25			
SDQCR/L2525M11	25	25	150	22	25	32			

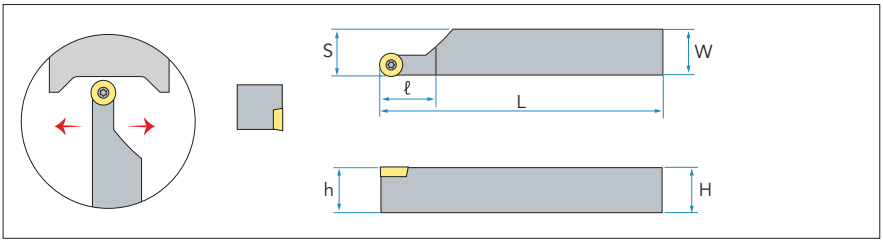
SDQCR/L



Part No.	Dimensions								Insert	Screw	Wrench
	dmin	ΦD	S	L	l	H	f	α°			
S08K-SDQCR/L07	Ø12	8	6	125	22	7	1,7	12°	DC**0702	M2.5*5	T8
S10K-SDQCR/L07	Ø13	10	7	125	24	9	1,7	10°		M2.5*6	
S12M-SDQCR/L07	Ø16	12	9	150	30	11	2,7	8°			
S16Q-SDQCR/L07	Ø20	16	11	180	30	15	2,7	6°			
S20Q-SDQCR/L07	Ø25	20	13	180	42	18	2,7	6°			
S16Q-SDQCR/L11	Ø20	16	11	180	32	15	3	8°	DC**11T3	M3.5*9	T15
S20Q-SDQCR/L11	Ø25	20	13	180	42	18	2,7	6°			
S25R-SDQCR/L11	Ø32	25	17	200	42,5	23	4	5°			
S32S-SDQCR/L11	Ø40	32	22	250	45	30	5,5	4°			

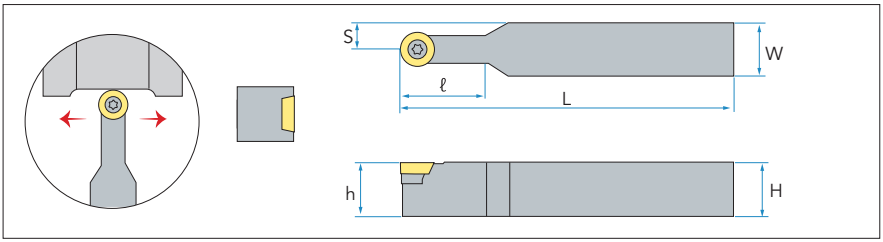
Part No.	Dimensions									Insert	Std corner-R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S10K-SDQCR/L07-AV	Ø13	10	9	125	24	2,1	20	7	10°	DC**0702	0,4	M2.5*6	T8
S12M-SDQCR/L07-AV	Ø16	12	11	150	27	2,6	24	9	8°				
S16Q-SDQCR/L11-AV	Ø20	16	15	180	34	2,6	30	11	8°	DC**11T3		M3.5*9	T15
S20R-SDQCR/L11-AV	Ø24	20	19	200	40	3,7	37	13	6°				
S25S-SDQCR/L11-AV	Ø30	25	23	250	45	3,7	46	16,9	4°				

SRACR/L



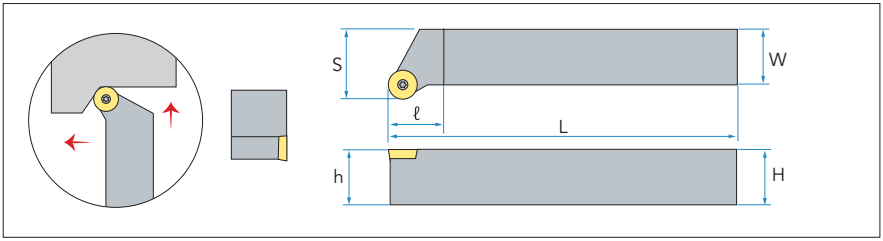
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SRACR/L1616H08	16	16	100	16	16	16,5	RC**0803	M3*8	T8
SRACR/L2020K08	20	20	125	16	20	20,5			
SRACR/L2525M08	25	25	150	16	25	25,5			
SRACR/L2020K10	20	20	125	20,3	20	20,5	RC**1003	M3.5*9	T15
SRACR/L2525M10	25	25	150	20,3	25	25,5			

SRDCN



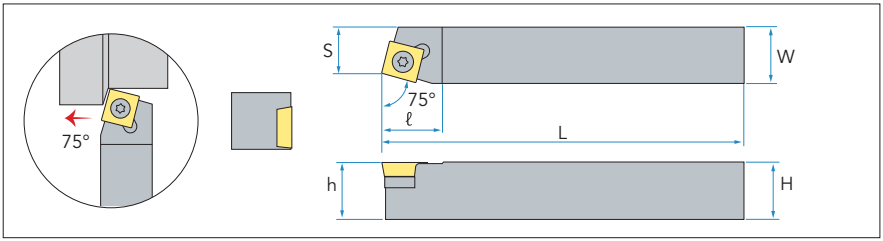
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SRDCN1616H08	16	16	100	16	16	8	RC**0803	M3*8	T8
SRDCN2020K08	20	20	125	16	20	10			
SRDCN2525M08	25	25	150	16	25	12,5			
SRDCN1616H10	16	16	100	20,3	16	8	RC**1003	M3.5*9	T15
SRDCN2020K10	20	20	125	20,3	20	10			
SRDCN2525M10	25	25	150	20,3	25	12,5			

SRGCR/L



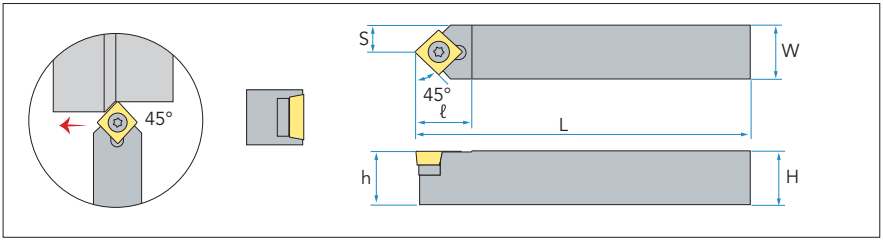
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SRGCR/L1616H08	16	16	100	20	16	20	RC**0803	M3*8	T8
SRGCR/L1616H10	16	16	100	20	16	20	RC**1003	M3.5*9	T15
SRGCR/L2020K10	20	20	125	20	20	25			
SRGCR/L2525M10	25	25	150	20	25	32			

SSBCR/L



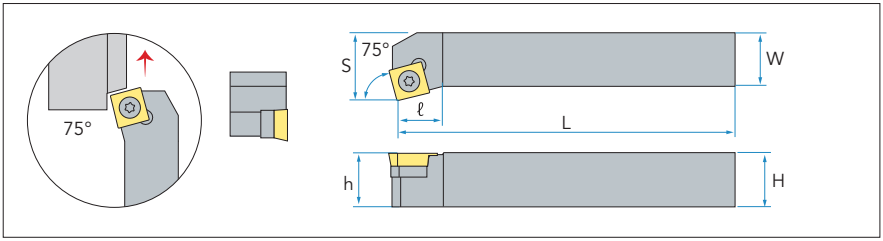
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SSBCR/L1212F09	12	12	80	18	12	9,5	SC**09T3	M3.5*9	T15
SSBCR/L1616H09	16	16	100	18	16	13			
SSBCR/L2020K09	20	20	125	18	20	17			
SSBCR/L2020K12	20	20	125	22	20	17	SC**1204	M5*12	T20
SSBCR/L2525M12	25	25	150	22	25	22			

SSDCN

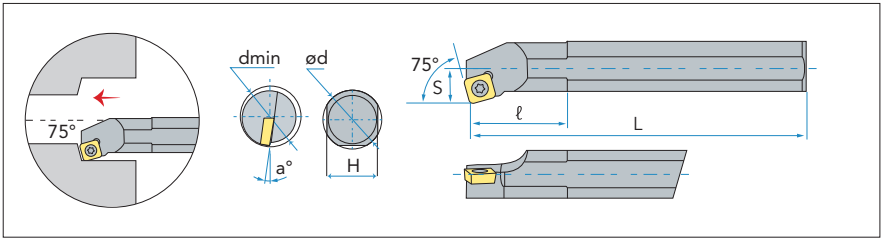


Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SSDCN1212F09	12	12	80	16	12	6	SC**09T3	M3.5*9	T15
SSDCN1616H09	16	16	100	16	16	8			
SSDCN2020K09	20	20	125	16	20	10			
SSDCN2525M09	25	25	150	16	25	12,5			

SSKCR/L

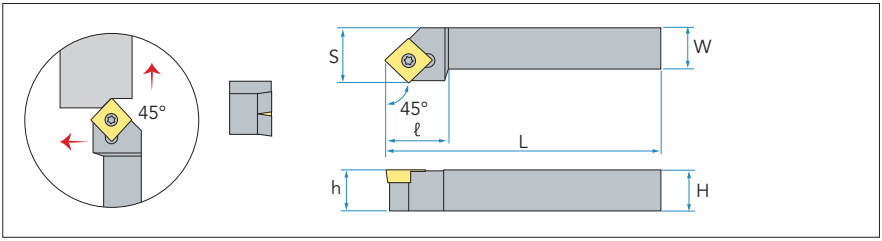


Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SSKCR/L1212F09	12	12	80	16	12	16	SC**09T3	M3.5*9	T15
SSKCR/L1616H09	16	16	100	16	16	20			
SSKCR/L2020K09	20	20	125	18	20	25			
SSKCR/L2525M09	25	25	150	25	25	32			
SSKCR/L2525M12	25	25	150	25	25	32	SC**1204	M5*12	T20

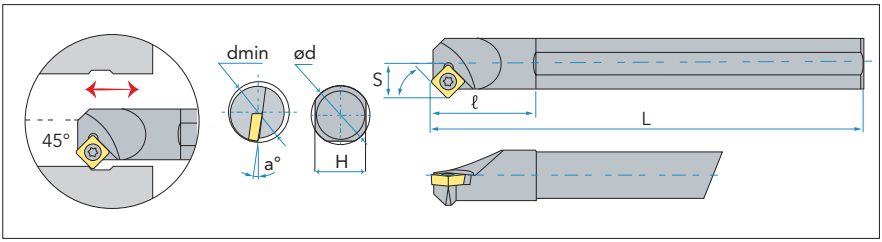


Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	l	H	α°			
S12M-SSKCR/L09	Ø15	12	8,5	150	30	11	12°	SC**09T3	M3.5*9	T15
S16Q-SSKCR/L09	Ø19	16	10,5	180	32,6	15	10°			
S20Q-SSKCR/L09	Ø25	20	13	180	40	18	8°			
S25R-SSKCR/L09	Ø28	25	15	200	40	23	6°			

SSSCR/L

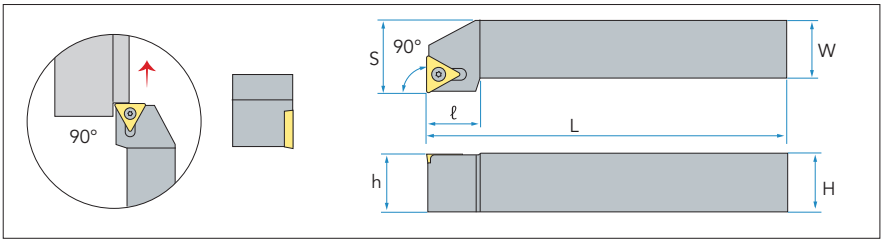


Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SSSCR/L1212F09	12	12	80	16	12	16	SC**09T3	M3.5*9	T15
SSSCR/L1616H09	16	16	100	16	16	20			
SSSCR/L2020K09	20	20	125	18	20	25			
SSSCR/L2525M09	25	25	150	25	25	32			
SSSCR/L2525M12	25	25	150	25	25	32	SC**1204	M5*12	T20



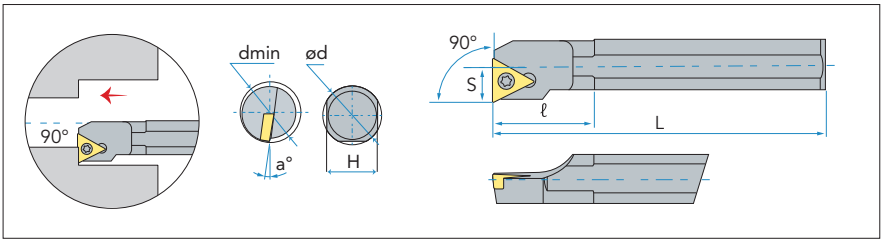
Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°			
S12M-SSSCR/L09	Ø16	12	9	150	32	11	12°	SC**09T3	M3.5*9	T15
S16Q-SSSCR/L09	Ø21	16	11,5	180	40	15	10°			
S20Q-SSSCR/L09	Ø25	20	13,5	180	40	18	8°			
S25R-SSSCR/L09	Ø30	25	16	200	40	23	6°			
S32S-SSSCR/L09	Ø40	32	22	250	46	30	6°			
S20Q-SSSCR/L12	Ø25	20	13,5	180	42	18	8°	SC**1204	M5*12	T20
S25R-SSSCR/L12	Ø32	25	17	200	40	23	6°			
S32S-SSSCR/L12	Ø40	32	22	250	46	30	4°			

STFCR/L



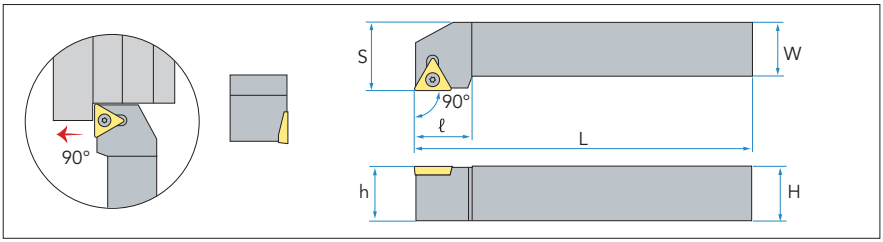
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
STFCR/L1212F09	12	12	80	14	12	16	TC**0902	M2.2*6	T8
STFCR/L1212F11	12	12	80	14	12	16	TC**1102	M2.5*6	
STFCR/L1616H11	16	16	100	14	16	20			
STFCR/L1616H16	16	16	100	22	16	20	TC**16T3	M3.5*9	T15
STFCR/L2020K16	20	20	125	22	20	25			
STFCR/L2525M16	25	25	150	22	25	32			
STFCR/L3232P16	32	32	170	22	32	40			

STFCR/L



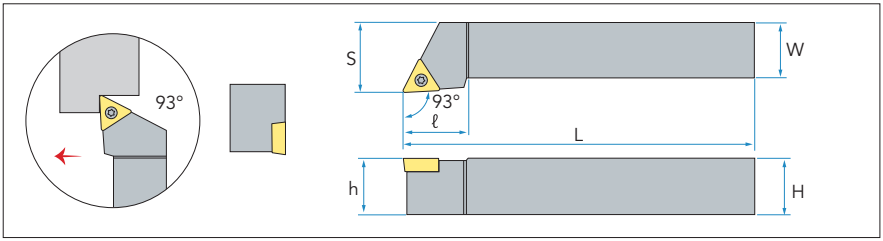
Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	$\alpha°$			
S08K-STFCR/L09B	Ø10	8	5,5	125	24	7	15°	TC**0902	M2.2*5	T6
S10K-STFCR/L09B	Ø12	10	6	125	28	9	13°			
S12M-STFCR/L09B	Ø14	12	7	150	27	11	10°			
S10K-STFCR/L11B	Ø12	10	6	125	24	9	12°	TC**1102	M2.5*6	T8
S12M-STFCR/L11B	Ø14	12	7	150	26	11	10°			
S16Q-STFCR/L11B	Ø18	16	9	180	32	15	8°			
S20Q-STFCR/L11B	Ø21	20	11	180	40	18	6°			
S16Q-STFCR/L16B	Ø18	16	9,5	180	32	15	10°	TC**16T3	M3.5*9	T15
S20Q-STFCR/L16B	Ø22	20	11,5	180	42	18	8°			
S25R-STFCR/L16B	Ø27	25	14	200	42	23	6°			
S32S-STFCR/L16B	Ø34	32	17,5	250	45	30	6°			
S40T-STFCR/L16B	Ø42	40	21,5	300	48	38	4°			
S50U-STFCR/L16B	Ø52	50	26,5	350	65	48	4°			

STGCR/L



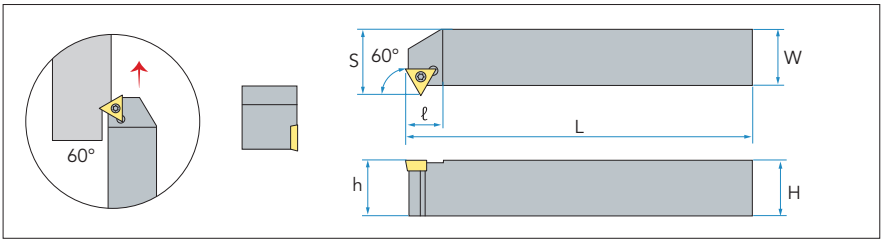
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
STGCR/L1616H11	16	16	100	14	16	20	TC**1102	M2.5*6	T8
STGCR/L1616H16	16	16	100	14	16	20	TC**16T3	M3.5*9	T15
STGCR/L2020K16	20	20	125	20	20	25			
STGCR/L2525M16	25	25	150	20	25	32			

STJCR/L



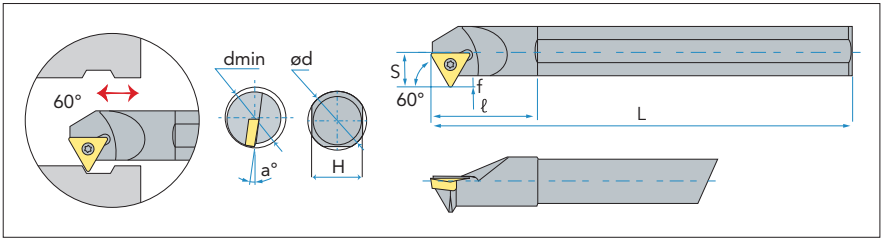
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
STJCR/L1212F11	12	12	80	18	12	16	TC**1102	M2.5*6	T8
STJCR/L1616H11	16	16	100	18	16	20			

STWCR/L



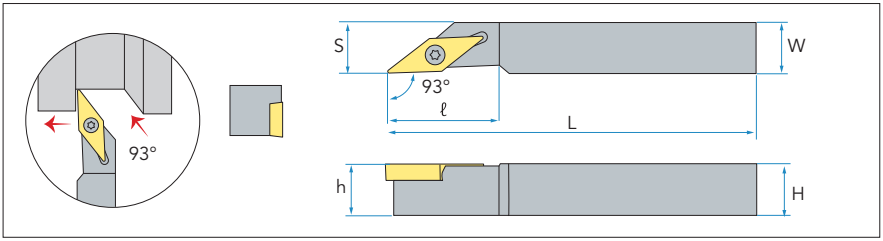
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
STWCR/L1616H11	16	16	100	8	16	19,5	TC**1102	M2.5*6	T8
STWCR/L2020K11	20	20	125	8	20	23,5			
STWCR/L2525M11	25	25	150	8	25	28,5			
STWCR/L1616H16	16	16	100	12	16	20	TC**16T3	M3.5*9	T15
STWCR/L2020K16	20	20	125	12	20	26			
STWCR/L2525M16	25	25	150	12	25	31			
STWCR/L3232P16	32	32	170	12	32	38			

STWCR/L



Part No.	Dimensions								Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	f	α°			
S08K-STWCR/L09	Ø12	8	6	125	25	7	1,5	13°	TC**0902	M2.2*5	T8
S10K-STWCR/L11	Ø14	10	8	125	20	9	2,7	10°	TC**1102	M2.5*6	
S12M-STWCR/L11	Ø16	12	9	150	30	11	2,7	8°			
S16Q-STWCR/L11	Ø20	16	11	180	35	15	2,7	6°			
S20Q-STWCR/L11	Ø24	20	13	180	42	18	2,7	4°			
S20Q-STWCR/L16	Ø28	20	14,5	180	40	18	4	8°	TC**16T3	M3.5*9	T15
S25R-STWCR/L16	Ø32	25	17	200	47	23	4	6°			
S32S-STWCR/L16	Ø36	32	20	250	40	30	5,5	4°			
S40T-STWCR/L16	Ø45	40	24	320	58	38	6,5	4°			
S50U-STWCR/L16	Ø56	50	31	350	60	48	5,5	4°			

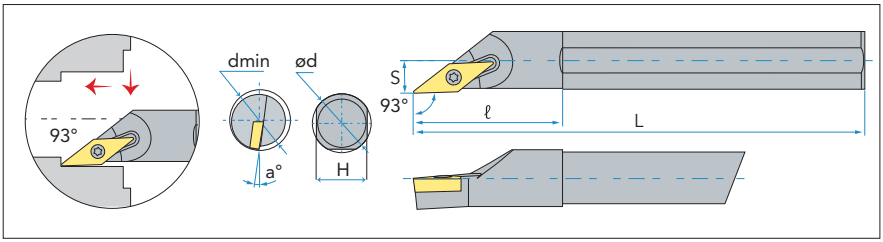
SVJBR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVJBR/L1212F11	12	12	80	22	12	16	VB**1103	M2.5*8	T8
SVJBR/L1616H11	16	16	100	25	16	20			
SVJBR/L2020K11	20	20	125	32	20	25			
SVJBR/L2525M11	25	25	150	38	25	32			
SVJBR/L1616H16	16	16	100	30	16	20	VB**1604	M3.5*9	T15
SVJBR/L2020K16	20	20	125	32	20	25			
SVJBR/L2525M16	25	25	150	40	25	32			
SVJBR/L3232P16	32	32	170	45	32	40			

Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVJBR/L1010H11F	10	10	100	10,5	10	10	VB**1103	M2.5*8	T8
SVJBR/L1212H11F	12	12	100	12,5	12	12			
SVJBR/L1616K11F	16	16	125	16,5	16	16			

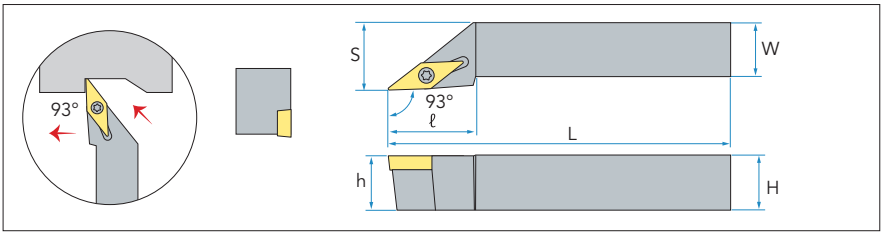
SVJBR/L



Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°			
S10K-SVJBR/L11B	Ø11	10	6	125	28	9	13°	VB**1103	M2.5*6	T8
S12M-SVJBR/L11B	Ø14	12	7	150	35	11	10°			
S16Q-SVJBR/L11B	Ø18	16	9,5	180	40	15	10°			
S20Q-SVJBR/L11B	Ø22	20	11,5	180	45	18	8°		M2.5*8	
S16Q-SVJBR/L16B	Ø22	16	11,5	180	45	15	14°	VB**1604	M3.5*9	T15
S20Q-SVJBR/L16B	Ø22	20	11,5	180	48	18	11°			
S25R-SVJBR/L16B	Ø27	25	14	200	54	23	9°			

Part No.	Dimensions									Insert	Std corner R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S12M-SVJBR/L08-AV	Ø16	12	11	150	26	33	21	2	5°	VB**0802	0,2	T6	M2*5
S20R-SVJBR/L11-AV	Ø25	20	19	200	37,5	48	30	2	8°	VB**1103	0,4	T8	M2.5*8
S25S-SVJBR/L11-AV	Ø30	25	23	250	45	58	33	3,5	5°				
S32S-SVJBR/L16-AV	Ø35	32	30	250	60	74	45	18	8°	VB**1604		T15	M3.5*9
S40S-SVJBR/L16-AV	Ø50	40	38	250	75	91	49	4,5	7°				

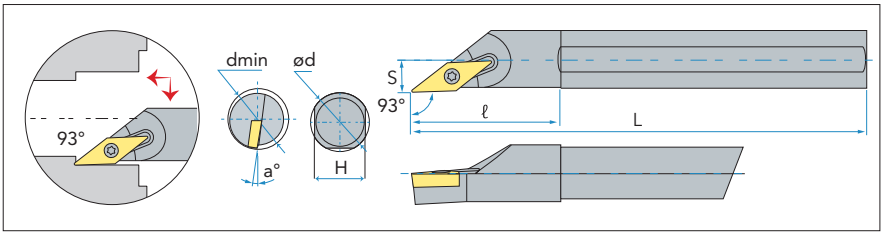
SVJCR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVJCR/L1212F11	12	12	80	22	12	16	VC**1103	M2.5*8	T8
SVJCR/L1616H11	16	16	100	25	16	20			
SVJCR/L2020K11	20	20	125	32	20	25			
SVJCR/L2525M11	25	25	150	38	25	32			
SVJCR/L1616H16	16	16	100	30	16	20	VC**1604	M3.5*9	T15
SVJCR/L2020K16	20	20	125	32	20	25			
SVJCR/L2525M16	25	25	150	40	25	32			
SVJCR/L3232P16	32	32	170	45	32	40			

Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVJCR/L1010H11F	10	10	100	10,5	10	10	VC**1103	M2.5*8	T8
SVJCR/L1212H11F	12	12	100	12,5	12	12			
SVJCR/L1616K11F	16	16	125	16,5	16	16			

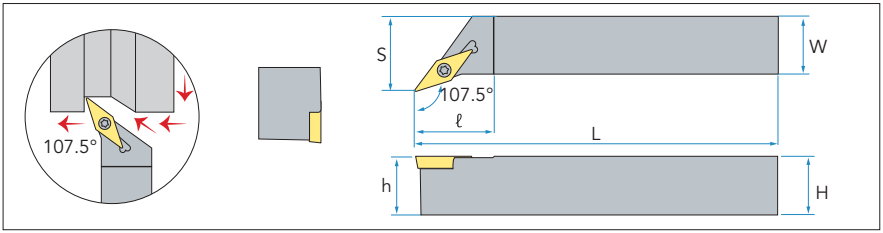
SVJCR/L



Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°			
S10K-SVJCR/L11	Ø12	10	6	125	28	9	13°	VC**1103	M2.5*6	T8
S12M-SVJCR/L11	Ø14	12	7	150	35	11	10°			
S16Q-SVJCR/L11	Ø18	16	9,5	180	40	15	10°			
S20Q-SVJCR/L11	Ø22	20	11,5	180	45	18	8°		M2.5*8	
S16Q-SVJCR/L16	Ø18	16	9,5	180	45	15	12°	VC**1604	M3.5*9	T15
S20Q-SVJCR/L16	Ø22	20	11,5	180	48	18	10°			
S25R-SVJCR/L16	Ø27	25	14	200	54	23	7°			

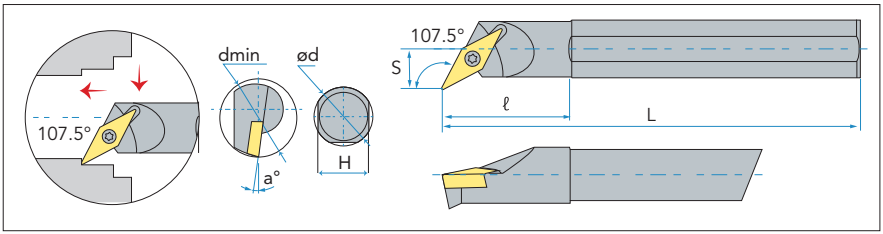
Part No.	Dimensions									Insert	Std corner R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S12M-SVJCR/L08B	Ø14	12	11	150	26	33	20	7	9°	VC**0802	0,4	T6	M2*5
S16Q-SVJCR/L08-AV	Ø18	16	15	180	36	43	22	9,5	10°				

SVQBR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVQBR/L1616H11	16	16	100	35	16	20	VB**1103	M2.5*8	T8
SVQBR/L2020K11	20	20	125	35	20	25			
SVQBR/L2525M11	25	25	150	35	25	32			
SVQBR/L1616H16	16	16	100	35	16	20	VB**1604	M3.5*9	T15
SVQBR/L2020K16	20	20	125	35	20	25			
SVQBR/L2525M16	25	25	150	35	25	32			
SVQBR/L3232P16	32	32	170	35	32	40			

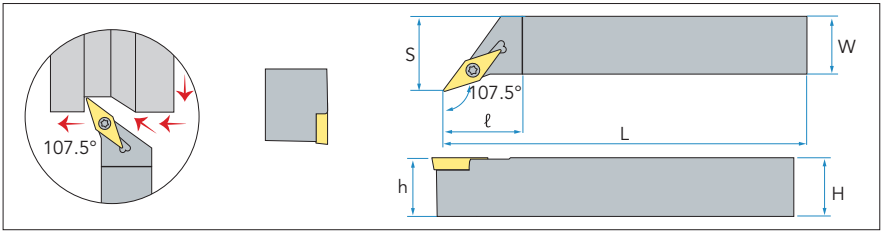
SVQBR/L



Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°			
S12M-SVQBR/L11	Ø18	12	10	150	30	11	11°	VB**1103	M2.5*6	T8
S16Q-SVQBR/L11	Ø20	16	11,5	180	36	15	10°			
S20Q-SVQBR/L11	Ø24	20	14	180	40	18	8°		M2.5*8	
S20Q-SVQBR/L16	Ø27	20	14	180	45	18	9°	VB**1604	M3.5*9	T15
S25R-SVQBR/L16	Ø32	25	17	200	50	23	8°			
S32S-SVQBR/L16	Ø40	32	22,5	250	55	30	6°			
S40T-SVQBR/L16	Ø50	40	27	300	55	38	6°			
S50U-SVQBR/L16	Ø57	50	32	350	65	48	4°			

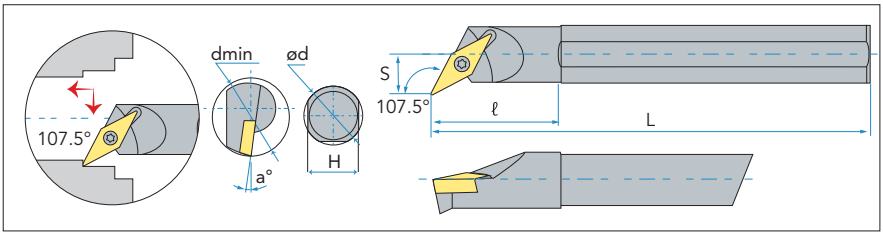
Part No.	Dimensions									Insert	Std corner R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S12M-SVQBR/L11-AV	Ø18	12	11	150	29	26	10	4,5	10°	VB**1103	0,4	M2.5*6	T8
S16Q-SVQBR/L11-AV	Ø22	16	15	180	35	33	11,5	5	10°				
S20R-SVQBR/L11-AV	Ø25	20	18	200	45	39	14	5	8°			M2.5*8	
S25S-SVQBR/L16-AV	Ø31	25	23	250	51	49	17	5	8°	VB**1604		M3.5*9	T15
S32S-SVQBR/L16-AV	Ø40	32	30	250	54	53	22,5	6,5	8°				

SVQCR/L



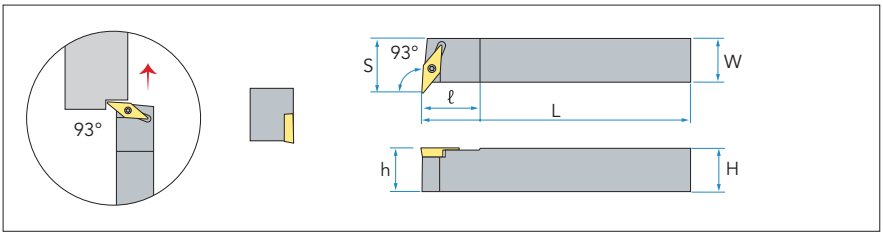
Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVQCR/L1616H11	16	16	100	35	16	20	VC**1103	M2.5*8	T8
SVQCR/L2020K11	20	20	125	35	20	25			
SVQCR/L2525M11	25	25	150	35	25	32			
SVQCR/L1616H16	16	16	100	35	16	20	VC**1604	M3.5*9	T15
SVQCR/L2020K16	20	20	125	35	20	25			
SVQCR/L2525M16	25	25	150	35	25	32			
SVQCR/L3232P16	32	32	170	35	32	40			

SVQCR/L



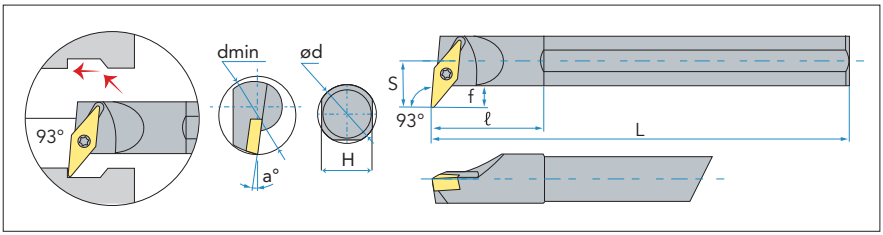
Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	α°			
S12M-SVQCR/L11	Ø16	12	10	150	30	11	10°	VC**1103	M2.5*6	T8
S16Q-SVQCR/L11	Ø20	16	11,5	180	35	15	10°			
S20Q-SVQCR/L11	Ø27	20	14	180	40	18	8°		M2.5*8	
S20Q-SVQCR/L16	Ø27	20	14	180	45	18	8°	VC**1604	M3.5*9	T15
S25R-SVQCR/L16	Ø32	25	17	200	50	23	6°			
S32S-SVQCR/L16	Ø42	32	22,5	250	55	30	6°			
S40T-SVQCR/L16	Ø50	40	27	300	55	38	6°			
S50U-SVQCR/L16	Ø57	50	32	350	65	48	4°			

SVUBR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVUBR/L1212H11	12	12	100	14	12	20	VB**1103	M2.5*8	T8
SVUBR/L1616H11	16	16	100	14	16	20			
SVUBR/L2020K16	20	20	125	18	20	30	VB**1604	M3.5*9	T15
SVUBR/L2525M16	25	25	150	18	25	35			

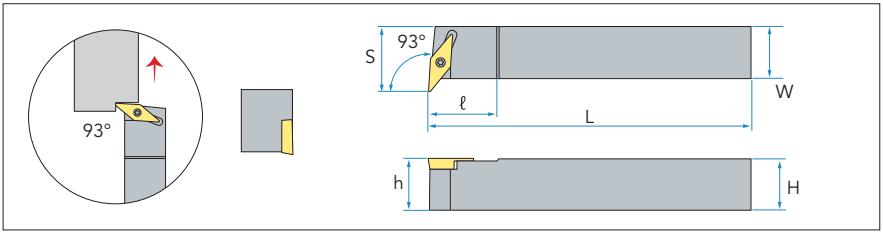
SVUBR/L



Part No.	Dimensions								Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	f	α°			
S16Q-SVUBR/L11	Ø22	16	12	180	40	15	3,2	10°	VB**1103	M2.5*6	T8
S20Q-SVUBR/L11	Ø27	20	14	180	42	18	3,7	8°		M2.5*8	
S20R-SVUBR/L16	Ø34	20	19	200	47	18	8,5	8°	VB**1604	M3.5*9	T15
S25R-SVUBR/L16	Ø36	25	20	200	47	23	7	6°			
S32S-SVUBR/L16	Ø40	32	22,5	200	42	30	6,5	6°			
S40T-SVUBR/L16	Ø50	40	27	300	55	38	6,5	6°			

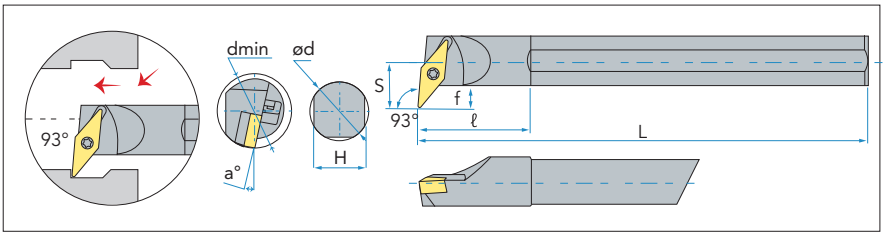
Part No.	Dimensions									Insert	Std corner R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S10K-SVQCR/L08-AV	Ø14	10	9	125	24	21	8,5	3	8°	VC**0802	0,4	M2*5	T6
S12M-SVUCR/L08-AV	Ø18	12	11	150	25,5	32	11,5	5,5	8°	VC**0802	0,4	M2*5	T6

SVUCR/L



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVUCR/L1212H11	12	12	100	14	12	20	VC**1103	M2.5*8	T8
SVUCR/L1616H11	16	16	100	14	16	20			
SVUCR/L2020K16	20	20	125	18	20	30	VC**1604	M3.5*9	T15
SVUCR/L2525M16	25	25	150	18	25	35			

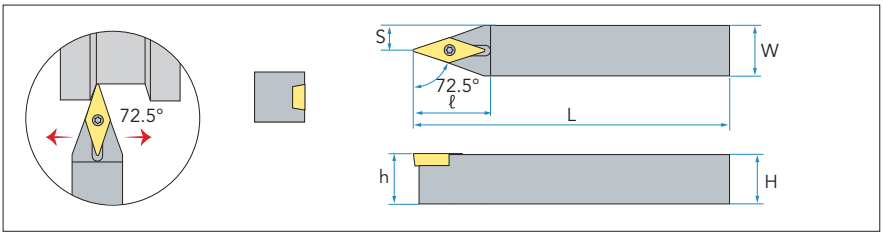
SVUCR/L



Part No.	Dimensions								Insert	Screw	Wrench
	dmin	Ø d	S	L	ℓ	H	f	α°			
S16Q-SVUCR/L11	Ø20	16	11,5	180	30	15	3,2	10°	VC**1103	M2.5*6	T8
S20Q-SVUCR/L11	Ø25	20	14	180	30	18	3,7	8°		M2.5*8	
S20R-SVUCR/L16	Ø29	20	19	200	45	18	8,5	8°	VC**1604	M3.5*9	T15
S25R-SVUCR/L16	Ø36	25	20	200	47	23	7	6°			
S32S-SVUCR/L16	Ø42	32	22,5	250	45	30	5,5	6°			
S40T-SVUCR/L16	Ø50	40	27	300	55	38	6,5	6°			

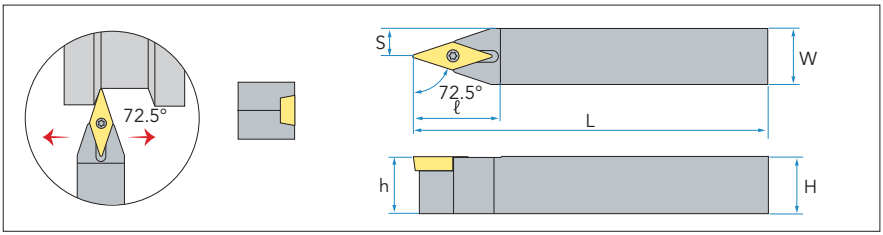
Part No.	Dimensions									Insert	Std corner R3(r)	Screw	Wrench
	dmin	ΦD	H	L1	L2	L3	L4	F	α°				
S16Q-SVUBR/L11-AV	Ø22	16	15	180	37	27	12	8	10°	VB**1103		M2.5*6	T8
S20R-SVUBR/L11-AV	Ø31	20	18	200	45	31	19	8	8°			M2.5*8	
S25S-SVUBR/L16-AV	Ø34	25	23	250	47	37	20,5	8,5	7°	VB**1604		M3.5*9	T15
S32S-SVUBR/L16-AV	Ø44	32	30	250	90	47	28	12	6°				

SVVBN



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVVBN1212F11	12	12	80	24	12	6	VB**1103	M2.5*8	T8
SVVBN1616H11	16	16	100	24	16	8			
SVVBN2020K11	20	20	125	24	20	10			
SVVBN2525M11	25	25	150	24	25	12,5			
SVVBN1616H16	16	16	100	34	16	8	VB**1604	M3.5*9	T15
SVVBN2020K16	20	20	125	34	20	10			
SVVBN2525M16	25	25	150	34	25	12,5			
SVVBN3232P16	32	32	170	34	32	16			

SVVCN



Part No.	Dimensions						Insert	Screw	Wrench
	H	W	L	ℓ	h	s			
SVVCN1212F11	12	12	80	24	12	6	VC**1103	M2.5*8	T8
SVVCN1616H11	16	16	100	24	16	8			
SVVCN2020K11	20	20	125	24	20	10			
SVVCN2525M11	25	25	150	24	25	12,5			
SVVCN1616H16	16	16	100	34	16	8	VC**1604	M3.5*9	T15
SVVCN2020K16	20	20	125	34	20	10			
SVVCN2525M16	25	25	150	34	25	12,5			
SVVCN3232P16	32	32	170	34	32	16			

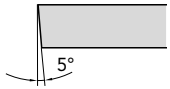
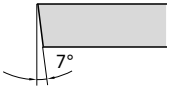
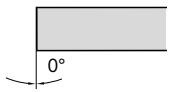
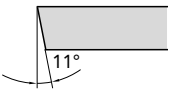
CODE KEY

1	2	3	4	5	6	7		8
C	N	M	G	09	03	04	–	PM

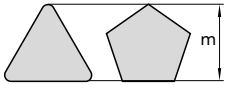
1 INSERT SHAPE

C		80°
D		55°
R		
S		90°
T		60°
V		35°
W		80°

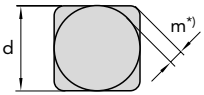
2 CLEARANCE ANGLE

B	
C	
N	
P	

3 TOLERANCE CLASSES



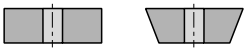
Indexable insert with unequal number of sides
Indexable insert with unequal number of sides



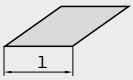
Indexable insert with equal number of sides

CODE	LC	m	S
G	0,025	±0,13	±0,025
M	±0,08 – ±0,20	±0,13	±0,05 – ±0,15

4 FASTENING FEATURES

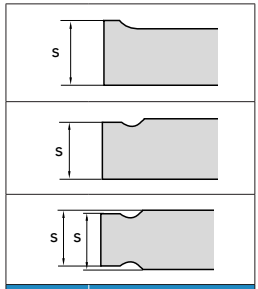
CODE	LC	S
A		Without chip breaker, with cylindrical fixation hole
G		Chip breaker at both sides, with cylindrical fixation hole
T		Chip breaker at one side, with conical fixation hole

5 LENGTH OF CUTTING EDGE

C	
D	
R	
S	
T	
V	
W	

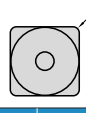
CODE	l
06	6,350
09	9,525c
11	11,000
12	12,700
15	15,880
16	16,500
19	19,050
22	22,000
25	25,400
27	27,500
33	33,000

6 INSERT THICKNESS



CODE	S
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	s5,56
06	s6,35
07	7,94
09	9,52
12	12,70

7 CORNER RADIUS



CODE	r
00	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
25	2,5

8 INSERT CHIPBREAKER

CHIP BREAKER	
PF	Finishing
PM	Medium Machining
PR	Roughing
MF	Finishing
MM	Medium Machining
MR	Roughing
KF	Finishing
KM	Medium Machining
KR	Roughing
AL	Non-Ferrous Metals

POSITIVE OR NEGATIVE

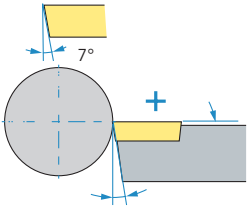
Negative inserts are at an angle of 90° (0° clearance angle. Positive inserts an angle of less than 90° (for example, 7° clearance angle). The illustration of the negative style insert, shows how the insert is assembled and tilted in the holder.

Positive turning insert

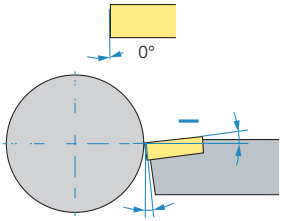
- Single sided
- Low cutting forces
- Side clearance
- Internal and external turning of slender parts

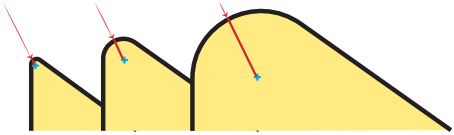
Negative turning insert

- Double or single sided
- High edge strength
- Zero clearance
- External turning
- Heavy cutting conditions



Clearance angle





INSERT NOSE RADIUS

Small nose radius

- Small cutting depths
- Reduces vibration
- Weak cutting edge
- Better chip breaking

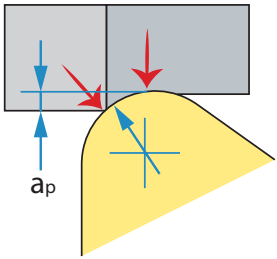
Large nose radius

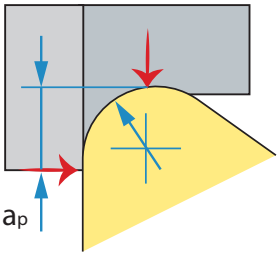
- High feed rates
- Large depths of cut
- Strong edge security
- Increased radial forces

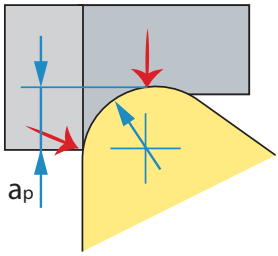
DEPTH OF CUT AND CUTTING FORCES

The relationship between nose radius and depth of cut affects vibration tendencies. The radial forces that push the insert away from the cutting surface become more axial as the depth of cut increases.

As a general rule of thumb, choose a nose radius that is equal or smaller than the depth of cut.







INSERT WEAR TROUBLESHOOTING

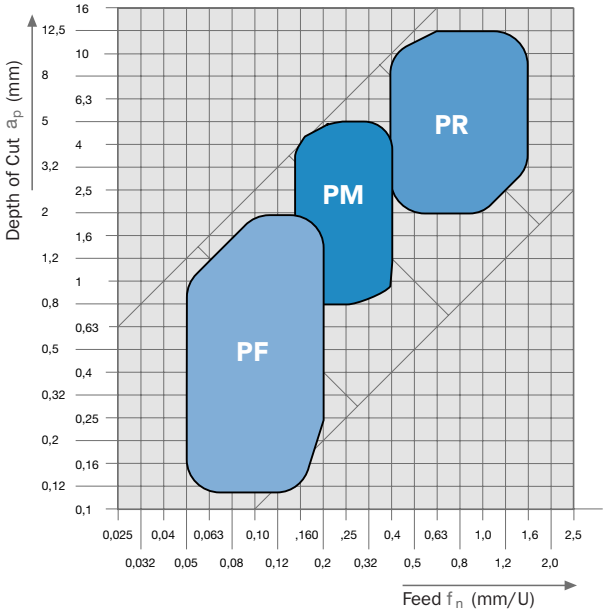
Always check the insert/cutting edge after machining for optimized cutting data, best possible component quality and tool life.Use the list below as a reference.

Problem	CAUSE	Solution
Flank wear	• Cutting speed too high • Too tough grade • Insufficient wear resistance • Hard inclusions in workpiece material	• Reduce cutting speed • Select a more suitable grade depending on toughness demand or wear resistance
Notch wear	• Sticky and/or work-hardening materials • Use a ~90° entering angle • (~0° lead angle) • Geometry is too negative	• Select a sharper edge • Decrease entering angle • Vary depth of cut
Crater wear	• Too high cutting speed and/or feed • Chip breaker too narrow • Chemical dissolution or abrasive wear • Wear resistance too low	• Reduce cutting speed or feed • Select a more wear resistant grade • Select a more open/positive geometry
Plastic deformation	• High heat load and pressure, cutting temperature too high • Grade too tough/soft • Lack of coolant supply	• Reduce heat and pressure load by reducing cutting speed and/or feed • If edge depression, reduce feed first • If flank depression, reduce speed first • Select a more wear/heat resistant grade • Select a more open/positive geometry • Improve coolant supply
Built-up edge (B.U.E)	• Too low cutting temperature • Sticky/smeary material • Geometry too negative • Coating too thick	• Increase cutting temp. by increasing speed • Select a PVD-coated grade • Select a more positive geometry
Flaking	• Smeary material • Cutting speed too low • Intermittent machining with coolant • Coating too thick	• Increase cutting speed • Turn off coolant • Select a grade with thinner coating and better edge line security (PVD)
Chipping on edge	• Unstable conditions • Grade too hard/brittle • Coating too thick	• Make the machine conditions more stable • Select a tougher grade • Select a stronger geometry • Select grade with thinner coating (PVD)
Thermal cracks	• Varying cutting edge temperatures • Intermittent cuts and coolant • Grade is sensitive to heat shock variations • Use of grade with thicker coating (CVD)	• Switch off coolant or apply coolant copiously to obtain an even temperature level • Decrease cutting speed • Select grade with thinner coating (PVD)
Breakage	• Excessive wear • Wrong choice of grade (too tough/hard) • Wrong cutting data	• Run shorter (time in cut) operations • Change cutting data • Select a more suitable insert grade/geometry
Chipping outside cutting zone	• Chip jamming because of facing towards shoulder • Chips are deflected against the cutting edge • Not optimized feed or feed direction	• Change operation path (to avoid facing towards shoulder) • Change feed • Select a PVD-coated grade • Select an insert geometry that alters chip flow

MAIN GEOMETRIES

Controlled chip forming over the whole range of application

PR	Roughing Geometry (ISO=P, R=Roughing)
PM	Universal Geometry (ISO=P, M=Medium)
PF	Finishing Geometry (ISO=P, F=Fine)

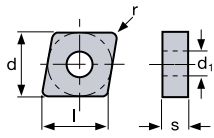


GRADES OVERVIEW

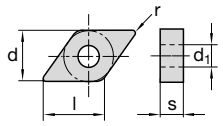
Grade	Work Piece	Machining Types	ISO	Coating	Recommended Vc(m/min)
NC3015	Steel	Continuous cutting	P05-P15	CVD	150-360
NC3025		Interrupted cutting	P20-P30	CVD	120-280
NC3130		Continuous to Light-interrupted cutting	P10-P25	CVD	80-300
NP9015	Stainless Steel	Continuous cutting	M05-M15	PVD	200-300
NP9025		Interrupted cutting	M20-M30	PVD	180-280
NP9120		Continuous to Light-interrupted cutting	M10-M25 P20-P30	PVD	60-200
NC6015	Cast Iron	Continuous cutting	K05-K15	CVD	200-400
NC6025		Light-interrupted Cutting	K20-K25	CVD	200-400
NC6030		Heavy-interrupted Cutting	K30-K35	CVD	150-300
NU8000	Non-ferrous	All types	N	-	800-1400

WORKPIECE MATERIAL

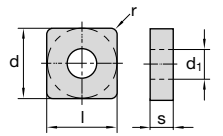
P M K N S H



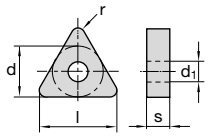
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
CCMT	CCMT060202	6.40	6.35	2.38	0.2	PF PM PR MF MM MR KF KM KR	•	•	•	•	•	•	•	•	•	
	CCMT060204	6.40	6.35	2.38	0.4		•	•	•	•	•	•	•	•	•	
	CCMT060208	6.40	6.35	2.38	0.8		•	•	•	•	•	•	•	•	•	
	CCMT09T302	9.70	9.52	3.97	0.2		•	•	•	•	•	•	•	•	•	
	CCMT09T304	9.70	9.52	3.97	0.4		•	•	•	•	•	•	•	•	•	
	CCMT09T308	9.70	9.52	3.97	0.8		•	•	•	•	•	•	•	•	•	
	CCMT120404	12.90	12.70	4.76	0.4		•	•	•	•	•	•	•	•	•	
	CCMT120408	12.90	12.70	4.76	0.8		•	•	•	•	•	•	•	•	•	
	CCMT120412	12.90	12.70	4.76	1.2		•	•	•	•	•	•	•	•	•	
CCGT	CCGT060202	6.40	6.35	2.38	0.2	AL										•
	CCGT060204	6.40	6.35	2.38	0.4											•
	CCGT060208	6.40	6.35	2.38	0.8											•
	CCGT09T302	9.70	9.52	3.97	0.2											•
	CCGT09T304	9.70	9.52	3.97	0.4											•
	CCGT09T308	9.70	9.52	3.97	0.8											•
	CCGT120404	12.90	12.70	4.76	0.4											•
	CCGT120408	12.90	12.70	4.76	0.8											•
	CCGT120412	12.90	12.70	4.76	1.2											•



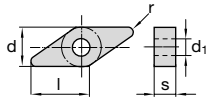
Insert	Part No	l	d	s	r	Chip Breaker	Grades								
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
DCMT	DCMT070202	7.70	6.35	2.38	0.2	PF PM PR MF MM MR KF KM KR	•	•	•	•	•	•	•	•	•	
	DCMT070204	7.70	6.35	2.38	0.4		•	•	•	•	•	•	•	•	•	
	DCMT070208	7.70	6.35	2.38	0.8		•	•	•	•	•	•	•	•	•	
	DCMT11T302	11.60	9.52	3.97	0.2		•	•	•	•	•	•	•	•	•	
	DCMT11T304	11.60	9.52	3.97	0.4		•	•	•	•	•	•	•	•	•	
	DCMT11T308	11.60	9.52	3.97	0.8		•	•	•	•	•	•	•	•	•	
DCGT	DCGT070202	7.70	6.35	2.38	0.2	AL										•
	DCGT070204	7.70	6.35	2.38	0.4											•
	DCGT070208	7.70	6.35	2.38	0.8											•
	DCGT11T302	11.60	9.52	3.97	0.2											•
	DCGT11T304	11.60	9.52	3.97	0.4											•
	DCGT11T308	11.60	9.52	3.97	0.8											•



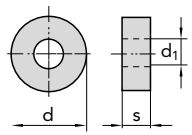
Insert	Part No	l	d	s	r	Chip Breaker	Grades								
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
SCMT	SCMT09T304	9.52	9.52	3.97	0.4	PF PM PR MF MM MR KF KM KR	•	•	•	•	•	•	•	•	•	
	SCMT09T308	9.52	9.52	3.97	0.8		•	•	•	•	•	•	•	•	•	
	SCMT120404	12.70	12.70	4.76	0.4		•	•	•	•	•	•	•	•	•	
	SCMT120408	12.70	12.70	4.76	0.8		•	•	•	•	•	•	•	•	•	
SCGT	SCGT09T304	9.52	9.52	3.97	0.4	AL										•
	SCGT09T308	9.52	9.52	3.97	0.8											•
	SCGT120404	12.70	12.70	4.76	0.4											•
	SCGT120408	12.70	12.70	4.76	0.8											•



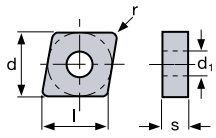
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
TCMT	TCMT090204	9,6	5,56	2,38	0.4	PF PM PR MF MM MR KF KM KR	•	•	•	•	•	•	•	•	•	
	TCMT110202	11.00	6.35	2.38	0.2		•	•	•	•	•	•	•	•	•	
	TCMT110204	11.00	6.35	2.38	0.4		•	•	•	•	•	•	•	•	•	
	TCMT110208	11.00	6.35	2.38	0.8		•	•	•	•	•	•	•	•	•	
	TCMT16T304	16.50	9.52	3.97	0.4		•	•	•	•	•	•	•	•	•	
	TCMT16T308	16.50	9.52	3.97	0.8		•	•	•	•	•	•	•	•	•	
	TCMT16T312	16.50	9.52	3.97	1.2		•	•	•	•	•	•	•	•	•	
TCGT	TCGT090204	9,6	5,56	2,38	0.4	AL										•
	TCGT110202	11.00	6.35	2.38	0.2											•
	TCGT110204	11.00	6.35	2.38	0.4											•
	TCGT110208	11.00	6.35	2.38	0.8											•
	TCGT16T304	16.50	9.52	3.97	0.4											•
	TCGT16T308	16.50	9.52	3.97	0.8											•
	TCGT16T312	16.50	9.52	3.97	1.2											•
TPGH	TPGH090202L	9,6	5,56	2,38	0,2	AL										•
	TPGH090204L	9,6	5,56	2,38	0,4											•
	TPGH110302L	11	6,35	3,18	0,2											•
	TPGH110304L	11	6,35	3,18	0,4											•



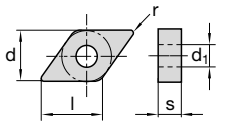
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
VBMT	VBMT110304	11.10	6.35	3.18	0.4	PF PM	•	•	•	•	•	•				
	VBMT110308	11.10	6.35	3.18	0.8	PR MF	•	•	•	•	•	•				
	VBMT160402	16.60	9.52	4.76	0.2	MM MR	•	•	•	•	•	•				
	VBMT160404	16.60	9.52	4.76	0.4	KF KM	•	•	•	•	•	•	•	•	•	
	VBMT160408	16.60	9.52	4.76	0.8	KR	•	•	•	•	•	•	•	•	•	
VBGT	VBGT110304	11.10	6.35	3.18	0.4											•
	VBGT110308	11.10	6.35	3.18	0.8											•
	VBGT160402	16.60	9.52	4.76	0.2	AL										•
	VBGT160404	16.60	9.52	4.76	0.4											•
	VBGT160408	16.60	9.52	4.76	0.8											•
VCMT	VCMT110304	11.10	6.35	3.18	0.4	PF PM	•	•	•	•	•	•	•	•	•	
	VCMT110308	11.10	6.35	3.18	0.8	PR MF	•	•	•	•	•	•	•	•	•	
	VCMT160404	16.60	9.52	4.76	0.4	MM MR	•	•	•	•	•	•	•	•	•	
	VCMT160408	16.60	9.52	4.76	0.8	KF KM KR	•	•	•	•	•	•	•	•	•	
VCGT	VCGT110304	11.10	6.35	3.18	0.4											•
	VCGT110308	11.10	6.35	3.18	0.8	AL										•
	VCGT160404	16.60	9.52	4.76	0.4											•
	VCGT160408	16.60	9.52	4.76	0.8											•



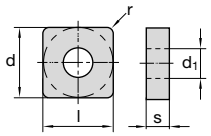
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
RCGT	RCGT0803	–	8.00	3.18	–	AL										•
	RCGT10T3	–	10.00	3.18	–											•



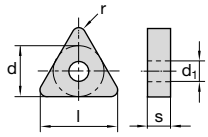
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
CNMG	CNMG090304	9.70	9.52	3.18	0.4	PF PM PR MF MM MR KF KM KR AL	•	•	•	•	•	•				
	CNMG090308	9.70	9.52	3.18	0.8		•	•	•	•	•	•				
	CNMG120404	12.90	12.70	4.76	0.4		•	•	•	•	•	•	•	•	•	•
	CNMG120408	12.90	12.70	4.76	0.8		•	•	•	•	•	•	•	•	•	•
	CNMG120412	12.90	12.70	4.76	1.2		•	•	•	•	•	•	•	•	•	•
	CNMG120416	12.90	12.70	4.76	1.6		•	•	•	•	•	•	•	•	•	
	CNMG160608	16.10	15.87	6.35	0.8		•	•	•	•	•	•	•	•	•	
	CNMG160612	16.10	15.87	6.35	1.2		•	•	•	•	•	•	•	•	•	
	CNMG160616	16.10	15.87	6.35	1.6		•	•	•	•	•	•	•	•	•	
CNMA	CNMA120404	12.90	12.70	4.76	0.4	-							•	•	•	
	CNMA120408	12.90	12.70	4.76	0.8								•	•	•	
	CNMA120412	12.90	12.70	4.76	1.2								•	•	•	
	CNMA120416	12.90	12.70	4.76	1.6								•	•	•	
	CNMA160612	16,10	15,875	6,35	1.2								•	•	•	
	CNMA160616	16,10	15,875	6,35	1.6								•	•	•	
	CNMA190612	19.30	19.05	6.35	1.2								•	•	•	
	CNMA190616	19.30	19.05	6.35	1.6								•	•	•	



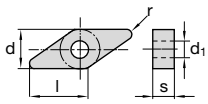
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
DNMG	DNMG110404	11.60	9.52	4.76	0.4	PF PM PR MF MM MR KF KM KR AL	•	•	•	•	•	•				
	DNMG110408	11.60	9.52	4.76	0.8		•	•	•	•	•	•				
	DNMG110412	11.60	9.52	4.76	1.2		•	•	•	•	•	•				
	DNMG150404	15.50	12.70	4.76	0.4		•	•	•	•	•	•	•	•	•	•
	DNMG150408	15.50	12.70	4.76	0.8		•	•	•	•	•	•	•	•	•	•
	DNMG150412	15.50	12.70	4.76	1.2		•	•	•	•	•	•	•	•	•	•
	DNMG150604	15.50	12.70	6.35	0.4		•	•	•	•	•	•	•	•	•	•
	DNMG150608	15.50	12.70	6.35	0.8		•	•	•	•	•	•	•	•	•	•
	DNMG150612	15.50	12.70	6.35	1.2		•	•	•	•	•	•	•	•	•	•
	DNMG150616	15.50	12.70	6.35	1.6		•	•	•	•	•	•	•	•	•	•
DNMA	DNMA150404	15.50	12.70	4.76	0.4	-							•	•	•	
	DNMA150408	15.50	12.70	4.76	0.8								•	•	•	
	DNMA150412	15.50	12.70	4.76	1.2								•	•	•	
	DNMA150608	15.50	12.70	6.35	0.8								•	•	•	
	DNMA150612	15.50	12.70	6.35	1.6								•	•	•	



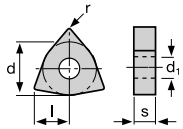
Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
SNMG	SNMG120404	12,70	12,70	4.76	0.4	FP PM PR MF MM MR KF KM KR AL	•	•	•	•	•	•	•	•	•	•
	SNMG120408	12,70	12,70	4.76	0.8		•	•	•	•	•	•	•	•	•	•
	SNMG120412	12,70	12,70	4.76	1.2		•	•	•	•	•	•	•	•	•	•
	SNMG120416	12,70	12,70	4.76	1.6		•	•	•	•	•	•	•	•	•	•
	SNMG150608	15.87	15.87	6.35	0.8		•	•	•	•	•	•	•	•	•	
	SNMG150612	15.87	15.87	6.35	1.2		•	•	•	•	•	•	•	•	•	
	SNMG150616	15.87	15.87	6.35	1.6		•	•	•	•	•	•	•	•	•	
	SNMG190608	19.05	19.05	6.35	0.8		•	•	•	•	•	•	•	•	•	
	SNMG190612	19.05	19.05	6.35	1.2		•	•	•	•	•	•	•	•	•	
	SNMG190616	19.05	19.05	6.35	1.6		•	•	•	•	•	•	•	•	•	
	SNMG190624	19.05	19.05	6.35	2.4		•	•	•	•	•	•	•	•	•	
SNMA	SNMA120408	12,70	12,70	4.76	0.8	-							•	•	•	
	SNMA120412	12,70	12,70	4.76	1.2								•	•	•	
	SNMA120416	12,70	12,70	4.76	1.6								•	•	•	
	SNMA190612	19.05	19.05	6.35	1.2								•	•	•	
	SNMA190616	19.05	19.05	6.35	1.6								•	•	•	



Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
TNMG	TNMG160404	16.50	9.52	3.97	0.4	PF PM PR MF MM MR KF KM KR AL	•	•	•	•	•	•	•	•	•	•
	TNMG160408	16.50	9.52	3.97	0.8		•	•	•	•	•	•	•	•	•	•
	TNMG160412	16.50	9.52	3.97	1.2		•	•	•	•	•	•	•	•	•	•
	TNMG160416	16.50	9.52	3.97	1.6		•	•	•	•	•	•	•	•	•	•
	TNMG220404	22.00	12.70	4.76	0.4		•	•	•	•	•	•	•	•	•	
	TNMG220408	22.00	12.70	4.76	0.8		•	•	•	•	•	•	•	•	•	
	TNMG220412	22.00	12.70	4.76	1.2		•	•	•	•	•	•	•	•	•	
	TNMG220416	22.00	12.70	4.76	1.6		•	•	•	•	•	•	•	•	•	
TNMA	TNMA160408	16.50	9.52	3.97	0.8	-							•	•	•	
	TNMA160412	16.50	9.52	3.97	1.2								•	•	•	
	TNMA160416	16.50	9.52	3.97	1.6								•	•	•	
	TNMA220408	22.00	12.70	4.76	0.8								•	•	•	
	TNMA220412	22.00	12.70	4.76	1.2								•	•	•	
	TNMA220416	22.00	12.70	4.76	1.6								•	•	•	



Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
VNMG	VNMG160404	16.60	9.52	4.76	0.4	PF PM PR MF MM MR KF KM KR AL	•	•	•	•	•	•	•	•	•	•
	VNMG160408	16.60	9.52	4.76	0.8		•	•	•	•	•	•	•	•	•	•
	VNMG160412	16.60	9.52	4.76	1.2		•	•	•	•	•	•	•	•	•	•
VNMA	VNMA160404	16,6	9,525	4,76	0,4	-										
	VNMA160408	16,6	9,525	4,76	0,8											
	VNMA160412	16,6	9,525	4,76	1,2											



Insert	Part No	l	d	s	r	Chip Breaker	Grades									
							NC3015	NC3025	NC3130	NP9015	NP9025	NP9120	NP9015	NP9025	NP9120	NU8000
WNMG	WNMG060404	6.50	9.52	4.76	0.4	PF PM PR MF MM MR KF KM KR AL	•	•	•	•	•	•	•	•	•	
	WNMG060408	6.50	9.52	4.76	0.8		•	•	•	•	•	•	•	•	•	
	WNMG060412	6.50	9.52	4.76	1.2		•	•	•	•	•	•	•	•	•	
	WNMG080404	8.60	12.70	4.76	0.4		•	•	•	•	•	•	•	•	•	•
	WNMG080408	8.60	12.70	4.76	0.8		•	•	•	•	•	•	•	•	•	•
	WNMG080412	8.60	12.70	4.76	1.2		•	•	•	•	•	•	•	•	•	•
	WNMG080416	8.60	12.70	4.76	1.6		•	•	•	•	•	•	•	•	•	•
WNMA	WNMA060404	6.50	9.52	4.76	0.4	-							•	•	•	
	WNMA060408	6.50	9.52	4.76	0.8								•	•	•	
	WNMA080404	8.60	12.70	4.76	0.4								•	•	•	
	WNMA080408	8.60	12.70	4.76	0.8								•	•	•	
	WNMA080412	8.60	12.70	4.76	1.2								•	•	•	

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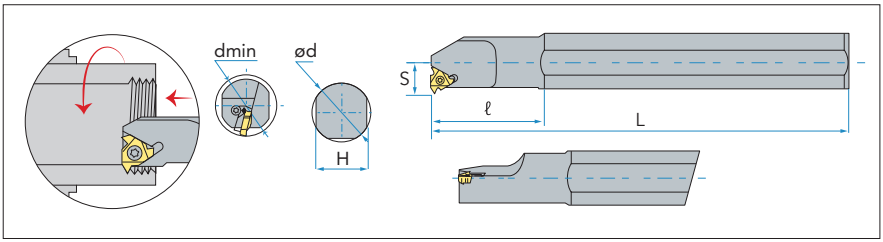
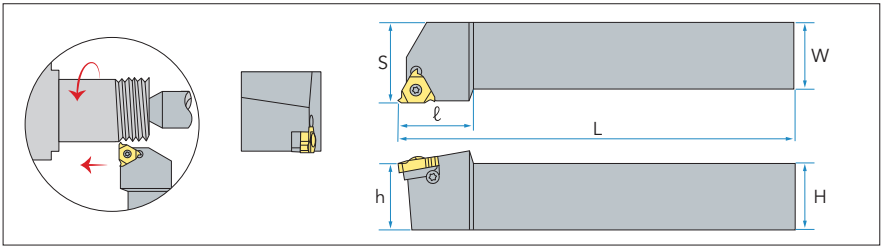


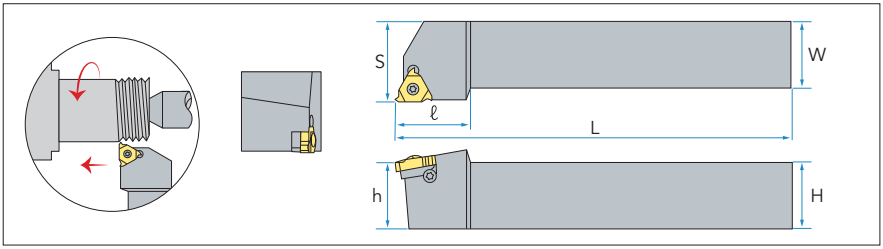
Part No.	Dimensions						Insert	Shim	Screw	Screw	Wrench
	dmin	ΦD	H	L	S	ℓ					
SNR/L0008K08	9,9	8	7	125	5,5	20	08IR/L**		M2.2*5		T6
SNR/L0010K11	13	10	9	125	7,3	25					
SNR/L0010K11-A16	13	16	15	125	6,5	30			M2.5*6		T8
SNR/L0012K11	15	12	11	125	8,2	28		X		X	
SNR/L0012K11-A16	15	16	15	125	7,4	36					
SNR/L0013M16	17	16	15	150	9,4	32			M3.5*9		
SNR/L0016Q16	20	16	15	180	11,7	40	11IR/L** 16IR/L**				
SNR/L0020Q16	24	20	18	180	13,7	40					T15
SNR/L0025R16	29	25	23	200	16,2	45					
SNR/L0032S16	36	32	30	250	19,7	50		STM16	M3.5*12	M3*6N	
SNR/L0040T16	44	40	38	300	23,1	55					
SNR/L0050U16	56	50	48	350	28,7	60					
SNR/L0020Q22	27	20	18	180	14,9	40		X	M4*12-S22	X	
SNR/L0025R22	32	25	23	200	18,1	45					
SNR/L0032S22	39	32	30	250	21,5	50	22IR/L**	STM22R/L	M4*16		T20
SNR/L0040T22	47	40	38	300	25,6	55				M4*6N	
SNR/L0050U22	57	50	48	350	30,6	70					
SNR/L0032S27	40	32	30	250	22,4	60					
SNR/L0040T27	48	40	38	300	26,4	60	27IR/L**	STM27	M5*20		
SNR/L0050U27	58	50	48	350	32,3	70					

SER/L



Part No.	Dimensions						Insert	Shim	Screw	Screw	Wrench
	H	W	L	S	h	ℓ					
SER/L1212F11	12	12	80	14	12	15	11ER/L**	X	M2.5*8	X	T8
SER/L1212F16	12	12	80	16	12	22	16ER/L**		M3.5*9		T15
SER/L1616H16	16	16	100	20	16	22		STM16	M3.5*12	M3*6N	
SER/L2020K16	20	20	125	25	20	27					
SER/L2525M16	25	25	150	32	25	30					
SER/L3232P16	32	32	170	40	32	32					
SER/L2525M22	25	25	150	32	25	31	22ER/L**	STM22R	M4*16	M4*6N	T20
SER/L3232P22	32	32	170	40	32	31		STM22L			
SER/L4040R22	40	40	200	50	40	31					
SER/L3232P27	32	32	170	40	32	33,5	27ER/L**	STM27	M5*20		
SER/L4040R27	40	40	200	50	40	33,5					

SER/L



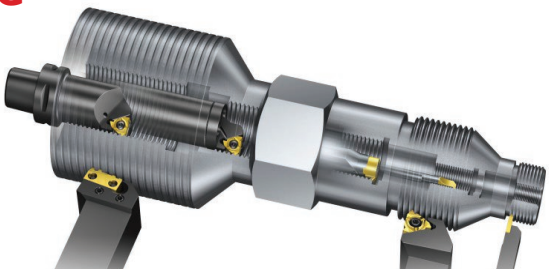
Part No.	Dimensions				Insert	Shim	Screw	Screw	Wrench
	H=(h)	H	L	S					
SER/L-V1616H16	16	16	100	16,2	16VER/L**	CS6R1	ML0622	M3.5*9	T15 L3.0
SER/L-V2020K16	20	20	125	20,2					
SER/L-V2525M16	25	25	150	25,2					

Part No.	Dimensions				Insert	Shim	Screw	Screw	Wrench
	H=(h)	H	L	S					
SER-U2525M22	25	25	150	14,5	4UE**	YE4U	M4*16	M4*6N	T20 L3.0
SER-U3232P22	32	32	170	21,5					

Part No.	Dimensions						Insert	Shim	Screw	Screw	Wrench
	H	W	L	S	h	ℓ					
B-SER/L1212H16	12	12	100	17,2	12	19	16ER/L**	X	M3.5*9	X	T15
B-SER/L1414H16	14	14	100	17,2	14	17,8					
B-SER/L1616H16	16	16	100	22,5	16	23		STM16	M3.5*12	M3*6N	
B-SER/L2020K16	20	20	125	26,3	20	23					

THREAD TURNING

Thread turning tools makes a number of passes to generate a thread on the workpiece. Avoid overloading the insert by dividing the full cutting depth of the thread into a series of small cuts.



CODE KEY

16 ER AG 60

INSERT SIZE

22	Inscribed Circle φ.500"
16	Inscribed Circle φ.375"
11	Inscribed Circle φ.250"

CUTTING TYPE

E	External
I	Internal
R	Right Hand
L	Left Hand

PITCH WIDTH

A	0.019-0.059	48-16
AG	0.019-0.118	48-8
G	0.069-0.118	14-8
N	0.138-0.197	7-5
Q	0.217-0.236	41/2-4

THREAD PROFILE

60	60° General Pitch Threads
55	55° General Pitch Threads
W	Whitworth Threads
ISO	ISO Metric Threads
NPT	American Standard Taper Pipe Threads
BSPT	British Standard Taper Pipe Threads
RD	API Round
UN	American Standard Unified Threads

NP5330
Special PVD coating provides better heat resistance and adhesion resistance.

WORKPIECE MATERIAL

P	M	K
☑	☑	☑

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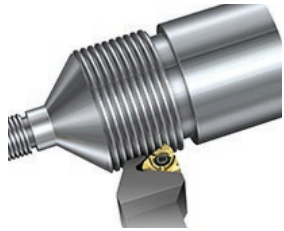
EXTERNAL THREAD TURNING

External thread turning is often easier and less demanding on the tool than internal thread turning and there are a number of different methods which can be used to achieve the desired results.

Considerations for external thread turning:

- Feed rate must be equal to the pitch of the thread
- Plan the number of passes and depth of cuts
- Chip formation (Avoid chips clogging around the tool or components
- Avoid vibration caused by long tool overhangs and slender components
- Tool alignment and centre height



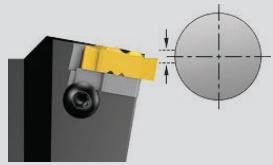
INTERNAL THREAD TURNING

Internal thread turning is more demanding than external thread turning, due to high need of efficient chip evacuation and that the tools often need to be longer and more slender.

Considerations for internal thread turning:

- Chip evacuation, especially in blind holes, is helped by using left-hand tools for right-hand threads and vice versa (pull-threading). However, this also creates higher risk of insert movement
- Use modified flank infeed to generate a spiral chip, which is easy to guide towards the entry of the bore
- Choose an adequate number of thread cutting passes and depth of cuts
- Avoid vibration caused by long tool overhangs
- Tool alignment and centre height
- If a long tool is needed for reach, use a carbide or dampened tool to minimize vibrations

Tool alignment and centre height is important for a good threading process



GET THE BEST THREADING RESULTS

Select thread machining method.

Calculate helical angle, select shim.

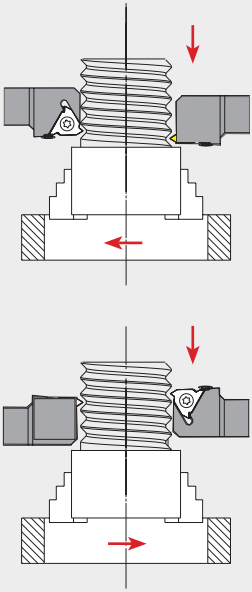
Choose insert and toolholder size.

Select cutting parameters.

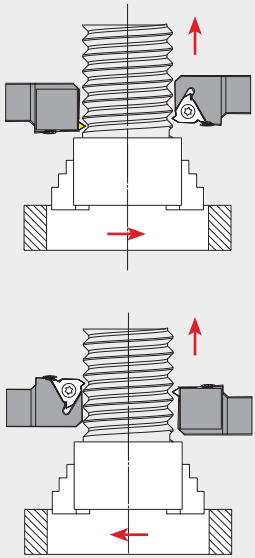
Select feed way.

EXTERNAL THREADING MACHINING

LEFT HAND THREAD

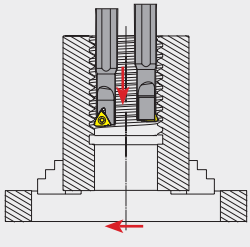


RIGHT HAND THREAD

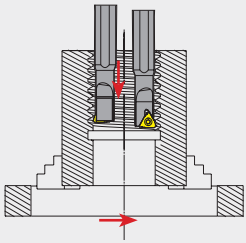


INTERNAL THREADING MACHINING

LEFT HAND THREAD

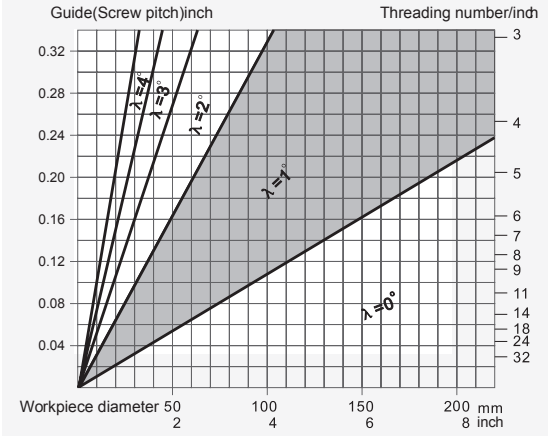


RIGHT HAND THREAD

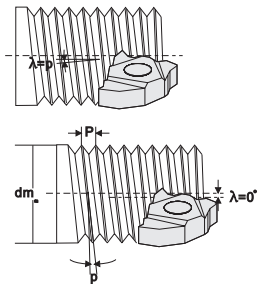


HELICAL ANGLE & SHIM

The cutting edge clearance angle affects the dissipation of heat, insert wear, thread pitch quality, and cuttting edge. The clearance angle of thread pitch on clearance face is determined by thread helical angle. These two angles are similar to each other. If the inclined angle of the insert is different from the helical angle, then clearance angle won't be the same.The pitch of the helical angle must be the same as the inclined angle of the insert in order to prevent premature wear on the clearance face.



SCREW PITCH RANGE	INSERT DIMENSIONS	INCLINED ANGLE	SHIM
0.5-3.0	16	0	MT16-00M
		1	MT16-01M
		2	MT16-02M
		3	MT16-03M
3.5-6.0	22	0	MT22-00M
		1	MT22-01M
		2	MT22-02M
		3	MT22-03M



CALCULATE A HELICAL ANGLE

$$\rho = \arctan \frac{p}{d_2 \times \pi}$$

P=Pitch
d_2=pitch diameter

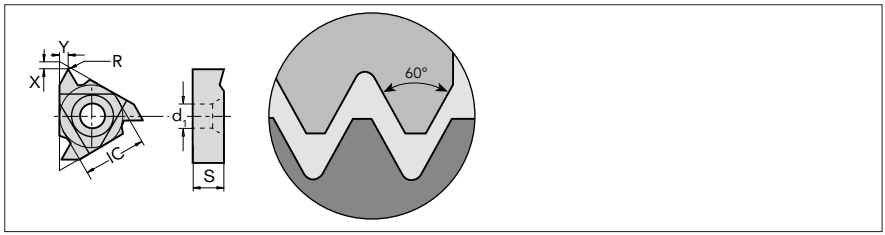
The common inclined angel is 1°, MT standard shim and its inclined angle is 1° too

CALCULATE THE CLEARANCE ANGLE

$$\beta = \alpha rc(\tan\theta \times \tan\alpha)$$

2Θ=Thread profile angle
α=The rake angle of external standard threading tools is 10°; The rake angle of internal standard threading tools is 15°
The shim has to be changed when helical angle of thread is ≤ clearance angle of the insert, which would cause interference with insert flank.Please change shim to adjust the difference between helical angle of thread and inclined angle of shim to be within 2°~0°.

PARTIAL 60°



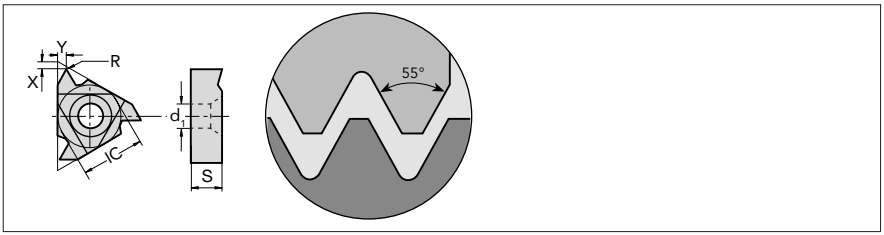
EXTERNAL

Part No.	PITCH (mm)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ERA60	0.5-1.5	0,8	0,9	0,08	9,525	3,47	4
16ERAG60	0.5-3.0	1,1	1,5	0,08	9,525	3,47	4
16ERG60	1.75-3.0	1,2	1,7	0,25	9,525	3,47	4
22ERN60	3.5-5.0	1,7	2,5	0,51	12,7	4,71	5

INTERNAL

Part No.	PITCH (mm)	Dimension (mm)					
		X	Y	R	IC	S	d1
08IRA60	0.5-1.5	0,6	0,7	0,08	5,00	2,25	2,68
11IRA60	0.5-1.5	0,8	0,9	0,08	6,35	3,00	3,2
16IRA60	0.5-1.5	0,8	0,9	0,08	9,525	3,47	4
16IRAG60	0.5-3.0	1,1	1,5	0,08	9,525	3,47	4
16IRG60	1.75-3.0	1,2	1,7	0,13	9,525	3,47	4
22IRN60	3.5-5.0	1,7	2,5	0,25	12,7	4,71	5

PARTIAL 55°



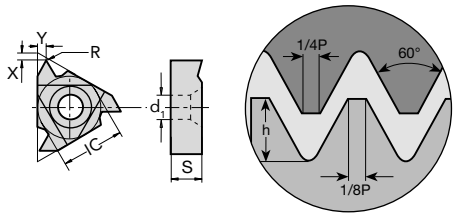
EXTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ERA55	48-16	0,8	0,9	0,08	9,525	3,47	4
16ERAG55	48-8	1,1	1,5	0,08	9,525	3,47	4
16ERG55	14-8	1,2	1,7	0,21	9,525	3,47	4
22ERN55	7-5	1,7	2,5	0,44	12,7	4,71	5

INTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
11IRA55	48-16	0,8	0,9	0,08	6,35	3	3,2
16IRA55	48-16	0,8	0,9	0,08	9,525	3,47	4
16IRAG55	48-8	1,1	1,5	0,08	9,525	3,47	4
16IRG55	14-8	1,2	1,7	0,21	9,525	3,47	4
22IRN55	7-5	1,7	2,5	0,44	12,7	4,71	5

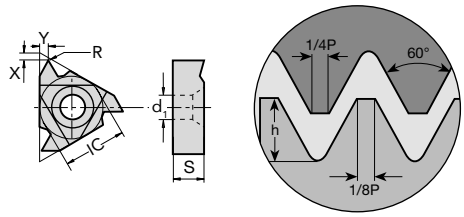
ISO METRIC



EXTERNAL

Part No.	PITCH (mm)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ER1.00ISO	1,00	0,8	0,7	0,14	9,525	3,47	4
16ER1.25ISO	1,25	0,8	0,9	0,18	9,525	3,47	4
16ER1.50ISO	1,50	0,8	1.0	0,22	9,525	3,47	4
16ER1.75ISO	1,75	1,2	1,2	0,25	9,525	3,47	4
16ER2.00ISO	2,00	1,2	1,3	0,29	9,525	3,47	4
16ER2.50ISO	2,50	1,2	1,5	0,36	9,525	3,47	4
16ER3.00ISO	3,00	1,2	1,5	0,43	9,525	3,47	4
22ER3.50ISO	3,50	1,6	2,3	0,45	12,7	4,71	5
22ER4.00ISO	4,00	1,6	2,3	0,52	12,7	4,71	5
22ER4.50ISO	4,50	1,7	2,4	0,58	12,7	4,71	5
22ER5.00ISO	5,00	1,7	2,5	0,63	12,7	4,71	5
22ER5.50ISO	5,50	1,9	2,7	0,72	12,7	4,71	5
22ER6.00ISO	6,00	1,9	2,7	0,78	12,7	4,71	5

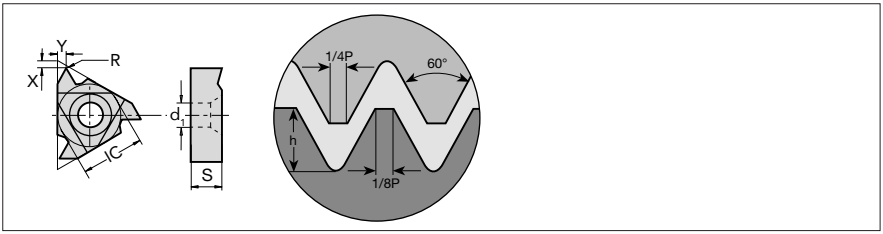
ISO METRIC



INTERNAL

Part No.	PITCH (mm)	Dimension (mm)					
		X	Y	R	IC	S	d1
11IR1.00ISO	1,00	0,8	0,7	0,07	6,35	3,00	3,2
11IR1.25ISO	1,25	0,8	0,9	0,09	6,35	3,00	3,2
11IR1.50ISO	1,50	0,8	1,0	0,11	6,35	3,00	3,2
11IR1.75ISO	1,75	0,9	1,1	0,13	6,35	3,00	3,2
11IR2.00ISO	2,00	0,9	1,1	0,15	6,35	3,00	3,2
16IR1.00ISO	1,00	0,8	0,7	0,07	9,525	3,47	4
16IR1.25ISO	1,25	0,8	0,9	0,09	9,525	3,47	4
16IR1.50ISO	1,50	0,8	1,0	0,11	9,525	3,47	4
16IR1.75ISO	1,75	1,2	1,2	0,13	9,525	3,47	4
16IR2.00ISO	2,00	1,2	1,3	0,15	9,525	3,47	4
16IR2.50ISO	2,50	1,2	1,5	0,18	9,525	3,47	4
16IR3.00ISO	3,00	1,2	1,5	0,22	9,525	3,47	4
22IR3.50ISO	3,50	1,6	2,3	0,22	12,7	4,71	5
22IR4.00ISO	4,00	1,6	2,3	0,25	12,7	4,71	5
22IR4.50ISO	4,50	1,6	2,4	0,28	12,7	4,71	5
22IR5.00ISO	5,00	1,6	2,3	0,32	12,7	4,71	5
22IR5.50ISO	5,50	1,6	2,3	0,36	12,7	4,71	5
22IR6.00ISO	6,00	1,6	2,4	0,39	12,7	4,71	5

AMERICAN UN60°



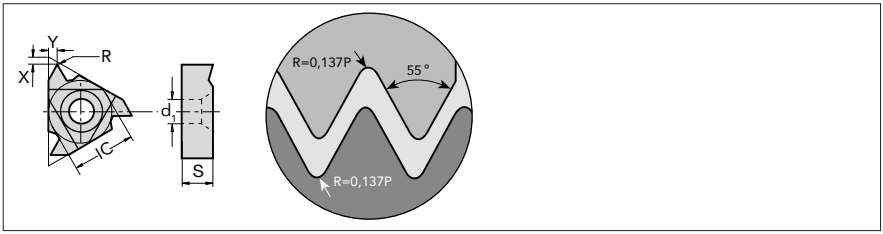
EXTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ER24UN	24	0,8	0,8	0,15	9,525	3,47	4
16ER20UN	20	0,8	0,9	0,18	9,525	3,47	4
16ER18UN	18	0,8	1,0	0,20	9,525	3,47	4
16ER16UN	16	0,9	1,1	0,23	9,525	3,47	4
16ER14UN	14	1,2	1,5	0,26	9,525	3,47	4
16ER12UN	12	1,2	1,5	0,31	9,525	3,47	4
16ER10UN	10	1,2	1,5	0,37	9,525	3,47	4
16ER8UN	8	1,3	1,7	0,46	9,525	3,47	4

INTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
11IR20UN	20	0,8	0,9	0,09	6,35	3,00	3,2
11IR18UN	18	0,8	1,0	0,10	6,35	3,00	3,2
16IR24UN	24	0,8	0,8	0,08	9,525	3,47	4
16IR20UN	20	0,8	0,9	0,09	9,525	3,47	4
16IR18UN	18	0,8	1,0	0,10	9,525	3,47	4
16IR16UN	16	0,9	1,1	0,12	9,525	3,47	4
16IR14UN	14	1,2	1,5	0,13	9,525	3,47	4
16IR12UN	12	1,2	1,5	0,16	9,525	3,47	4
16IR10UN	10	1,2	1,5	0,19	9,525	3,47	4
16IR8UN	8	1,3	1,7	0,23	9,525	3,47	4

WHITWORTH 55°



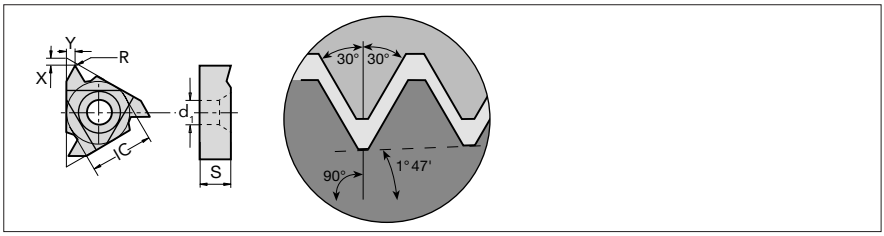
EXTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ER19W	19	0,8	1,0	0,17	9,525	3,47	4
16ER18W	18	0,8	1,0	0,18	9,525	3,47	4
16ER16W	16	0,9	1,1	0,20	9,525	3,47	4
16ER14W	14	1,2	1,5	0,24	9,525	3,47	4
16ER12W	12	1,2	1,5	0,28	9,525	3,47	4
16ER11W	11	1,2	1,5	0,30	9,525	3,47	4
16ER10W	10	1,1	1,5	0,34	9,525	3,47	4

INTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
11IR19W	19	0,9	1,1	0,19	6,35	3,00	3,2
11IR14W	14	0,9	1,1	0,27	6,35	3,00	3,2
16IR19W	19	0,8	1,0	0,17	9,525	3,47	4
16IR18W	18	0,8	1,0	0,18	9,525	3,47	4
16IR16W	16	0,9	1,1	0,20	9,525	3,47	4
16IR14W	14	1,2	1,5	0,24	9,525	3,47	4
16IR12W	12	1,2	1,5	0,28	9,525	3,47	4
16IR11W	11	1,2	1,5	0,30	9,525	3,47	4
16IR8W	8	1,2	1,5	0,41	9,525	3,47	4

NPT 60°



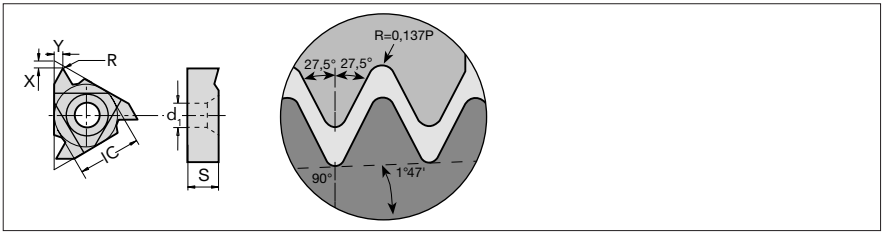
EXTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ER27NPT	27	0,7	0,8	0,13	9,525	3,47	4
16ER18NPT	18	0,8	1,0	0,20	9,525	3,47	4
16ER14NPT	14	1,2	1,5	0,22	9,525	3,47	4
16ER11.5NPT	11,5	1,2	1,5	0,25	9,525	3,47	4
16ER8NPT	8	1,3	1,8	0,30	9,525	3,47	4

INTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
11IR18NPT.	18	0,8	1,0	0,20	6,35	3,00	3,2
16IR27NPT	27	0,7	0,8	0,13	9,525	3,47	4
16IR18NPT	18	0,8	1,0	0,20	9,525	3,47	4
16IR14NPT	14	1,2	1,5	0,22	9,525	3,47	4
16IR11.5NPT	11,5	1,2	1,5	0,25	9,525	3,47	4
16IR8NPT	8	1,3	1,8	0,30	9,525	3,47	4

BSPT 55°



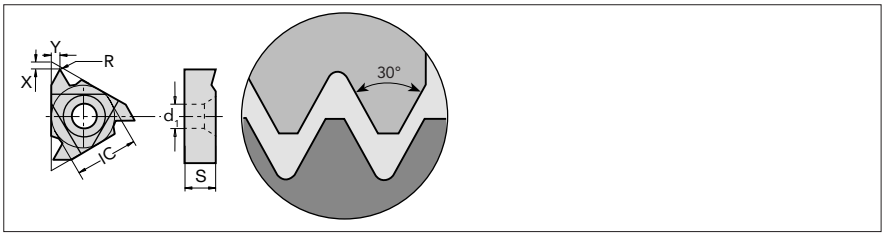
EXTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ER28BSPT	28	0,7	0,8	0,11	9,525	3,47	4
16ER19BSPT	19	0,8	1,0	0,17	9,525	3,47	4
16ER14BSPT	14	1,2	1,5	0,24	9,525	3,47	4
16ER11BSPT	11	1,2	1,5	0,30	9,525	3,47	4

INTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
11IR19BSPT	19	0,8	1,0	0,18	6,35	3,00	3,2
11IR14BSPT	14	0,9	1,1	0,24	6,35	3,00	3,2
16IR28BSPT	28	0,7	0,8	0,11	9,525	3,47	4
16IR19BSPT	19	0,8	1,0	0,17	9,525	3,47	4
16IR14BSPT	14	1,2	1,5	0,24	9,525	3,47	4
16IR11BSPT	11	1,2	1,5	0,30	9,525	3,47	4

API RD 30°



EXTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16ER10RD	10	1,1	1,2	0,60	9,525	3,47	4
16ER8RD	8	1,4	1,3	0,75	9,525	3,47	4
16ER6RD	6	1,4	1,5	1,00	9,525	3,47	4
22ER4RD	4	2,2	2,3	1,51	12,7	4,71	5

INTERNAL

Part No.	PITCH (TPI)	Dimension (mm)					
		X	Y	R	IC	S	d1
16IR10RD	10	1,1	1,2	0,55	9,525	3,47	4
16IR8RD	8	1,4	1,3	0,70	9,525	3,47	4
16IR6RD	6	1,4	1,5	0,936	9,525	3,47	4
22IR4RD	4	2,2	2,3	1,40	12,7	4,71	5

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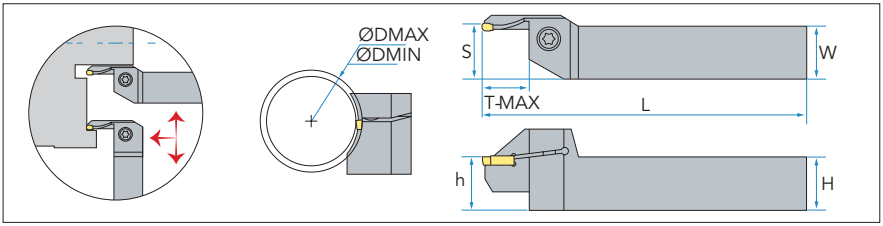
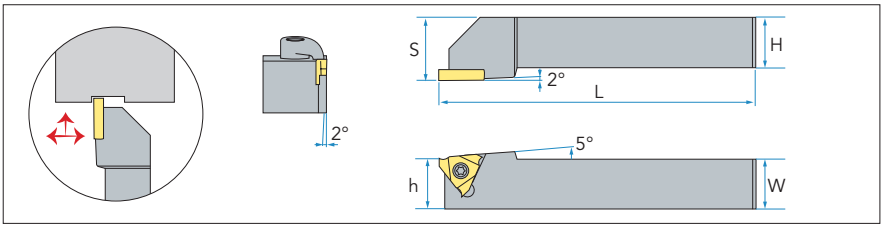
FGHH

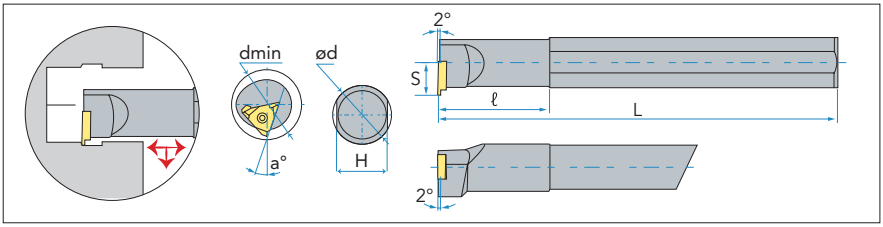


Part No.	Dimensions							Insert	Screw	Wrench
	H	W	L	S	Tmax	ØDmin	ØDmax			
FGHH320R-25/30	20	20	125	20,7	12,5	25	30	FMM300R-03	M6*20N	L5.0
FGHH320R-30/35	20	20	125	20,7	12,5	30	35			
FGHH320R-35/48	20	20	125	20,7	12,5	35	48			
FGHH320R-48/60	20	20	125	20,7	22	48	60	FGD300R-03 FGM300R-03		
FGHH320R-60/75	20	20	125	20,7	22	60	75			
FGHH320R-75/100	20	20	125	20,7	22	75	100			
FGHH320R-100/140	20	20	125	20,7	22	100	140			
FGHH325R-25/30	25	25	150	25,7	12,5	25	30	FMM300R-03		
FGHH325R-30/35	25	25	150	25,7	12,5	30	35			
FGHH325R-35/48	25	25	150	25,7	12,5	35	48			
FGHH325R-48/60	25	25	150	25,7	22	48	60	FGD300R-03 FGM300R-03		
FGHH325R-60/75	25	25	150	25,7	22	60	75			
FGHH325R-75/100	25	25	150	25,7	22	75	100			
FGHH325R-100/140	25	25	150	25,7	22	100	140			
FGHH420R-25/30	20	20	125	21,8	12,5	25	30	FMM400R-04		
FGHH420R-30/35	20	20	125	21,8	12,5	30	35			
FGHH420R-35/48	20	20	125	21,8	12,5	35	48			
FGHH420R-48/60	20	20	125	21,8	22	48	60	FGD400R-04 FGM400R-04		
FGHH420R-60/75	20	20	125	21,8	22	60	75			
FGHH420R-75/100	20	20	125	21,8	22	75	100			
FGHH420R-100/140	20	20	125	21,8	22	100	140			
FGHH425R-25/30	25	25	150	26,8	12,5	25	30	FMM400R-04		
FGHH425R-30/35	25	25	150	26,8	12,5	30	35			
FGHH425R-35/48	25	25	150	26,8	12,5	35	48			
FGHH425R-48/60	25	25	150	26,8	22	48	60	FGD400R-04 FGM400R-04		
FGHH425R-60/75	25	25	150	26,8	22	60	75			
FGHH425R-75/100	25	25	150	26,8	22	75	100			
FGHH425R-100/140	25	25	150	26,8	22	100	140			

JSTGR/L

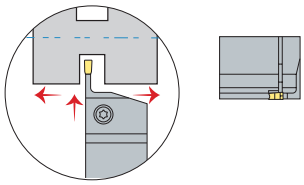


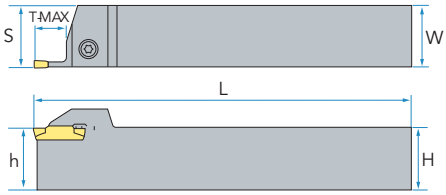
Part No.	Dimensions					Insert	Screw	Wrench
	W	H	S	L	h			
JSTGR/L1212H16C	12	12	16	100	12	TGF32R/L	M3.5*9	T15
JSTGR/L1616H16C	16	16	20	100	16			
JSTGR/L2020K16C	20	20	25	125	20			
JSTGR/L2525M16C	25	25	30	150	25			
JSTGR/L2020K22C	20	20	25	125	20	JTGR/L4 TGF43R/L	M5*12	T20
JSTGR/L2525M22C	25	25	30	150	25			



Part No.	Dimensions						Insert	Screw	Wrench
	dmin	Ød	S	L	ℓ	H			
S20Q-JSTGR/L16	28	20	13	180	45	18	TGF32L/R	M3.5*9	T15
S25R-JSTGR/L16	31	25	15,5	200	45	23			
S32S-JSTGR/L16	38	32	19	250	45	30	JTGL3/R		

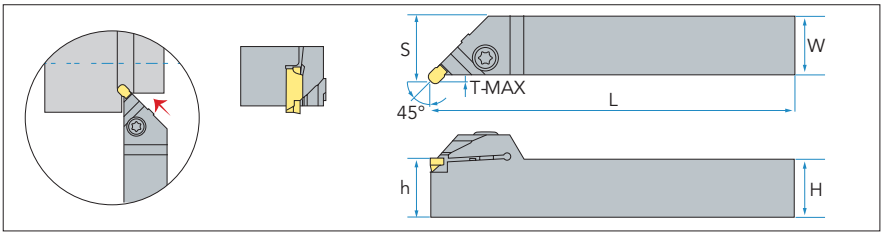
MGEHR/L





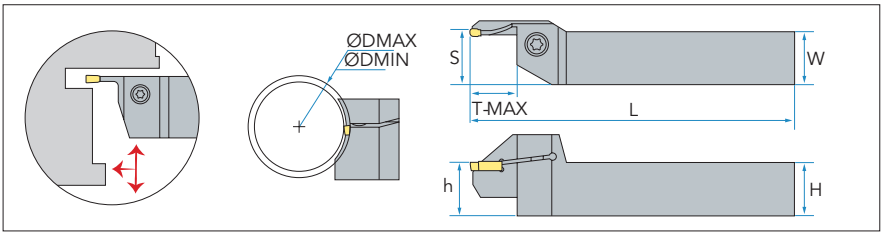
Part No.	Dimensions					Insert	Screw	Wrench
	H=h	W	L	S	T-Max			
MGEHR/L1616-1.5	16	16	100	16,25	15	MGMN150-M	M5*16N	L4.0
MGEHR/L2020-1.5	20	20	125	20,25	15			
MGEHR/L1616-2	16	16	100	16,25	15	MGMN200-G MGMN200-M MGMN200		
MGEHR/L2020-2	20	20	125	20,25	15			
MGEHR/L2525-2	25	25	150	25,25	15			
MGEHR/L1616-2.5	16	16	100	16,35	17	MGMN250-G MGMN250-M		
MGEHR/L2020-2.5	20	20	125	20,35	17			
MGEHR/L2525-2.5	25	25	150	25,35	17			
MGEHR/L1616-3	16	16	100	16,4	19	MGMN300-M/T MGMN300-**-M MRMN300-M MGMR300 MGMR300-**-L/R	M6*20N	L5.0
MGEHR/L2020-3	20	20	125	20,4	19			
MGEHR/L2020-3-T10	20	20	125	20,4	10			
MGEHR/L2525-3	25	25	150	25,4	19			
MGEHR/L2525-3-T10	25	25	150	25,4	10			
MGEHR/L3232-3	32	32	170	32,4	19			
MGEHR/L2020-4	20	20	125	20,5	19	MGMN400-M/T MGMN400-**-M MRMN400-M MGMR400 MGMR400-**-L/R		
MGEHR/L2020-4-T10	20	20	125	20,5	10,5			
MGEHR/L2525-4	25	25	150	25,5	19			
MGEHR/L2525-4-T10	25	25	150	25,5	10,5			
MGEHR/L3232-4	32	32	170	32,5	19			
MGEHR/L2525-5	25	25	150	25,6	24	MGMN500-M/T MGMN500-**-M MRMN500-M MGMR500 MGMR500-**-L/R		
MGEHR/L2525-5-T15	25	25	150	25,6	16			
MGEHR/L3232-5	32	32	170	32,6	24			
MGEHR/L2020-6	20	20	125	20,6	23	MGMN600-M/T MGMN600-**-M MRMN600-M		
MGEHR/L2020-6-T15	20	20	125	20,6	15			
MGEHR/L2525-6	25	25	150	25,6	23			
MGEHR/L2525-6-T15	25	25	150	25,6	16			
MGEHR/L3232-6	32	32	170	32,6	23			

MGEUR/L



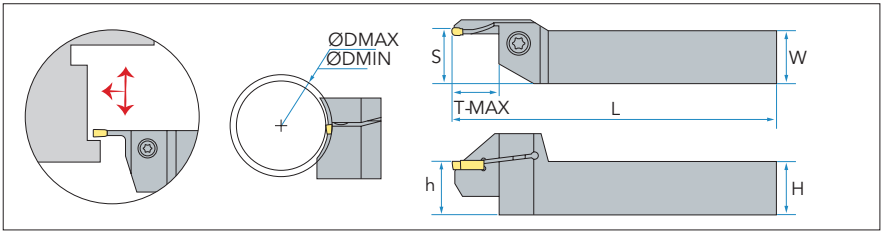
Part No.	Dimensions					Insert	Screw	Wrench
	H=h	W	L	S	T-Max			
MGEUR/L2020-3	20	20	125	23	3	MRMN300-M	M6*20N	L5.0
MGEUR/L2525-3	25	25	150	28	3			
MGEUR/L3232-3	32	32	170	35	3			
MGEUR/L2020-4	20	20	125	23	3	MRMN400-M		
MGEUR/L2525-4	25	25	150	28	3			
MGEUR/L3232-4	32	32	170	35	3			

MGFHR/L



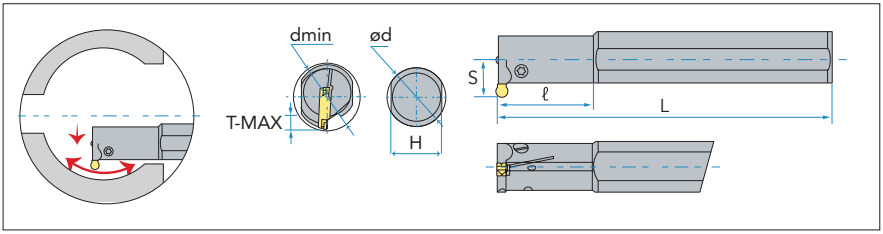
Part No.	Dimensions							Insert	Screw	Wrench
	H	W	L	S	Tmax	ØDmin	ØDmax			
MGFHR320-44/62-T15	20	20	125	20,6	15,5	44	62	MGGN300 MGMN300	M6*20N	L5.0
MGFHR320-62/120-T15	20	20	125	20,6	15,5	62	120			
MGFHR320-112/200-T15	20	20	125	20,6	15,5	112	200			
MGFHR325-44/62-T15	25	25	150	25,6	15,5	44	62			
MGFHR325-62/120-T15	25	25	150	25,6	15,5	62	120			
MGFHR325-112/200-T15	25	25	150	25,6	15,5	112	200			
MGFHR420-44/62-T15	20	20	125	20,6	15,5	44	62	MGGN400 MGMN400		
MGFHR420-62/120-T15	20	20	125	20,6	15,5	62	120			
MGFHR420-112/200-T15	20	20	125	20,6	15,5	112	200			
MGFHR425-44/62-T15	25	25	150	25,6	15,5	44	62			
MGFHR425-62/120-T15	25	25	150	25,6	15,5	62	120			
MGFHR425-112/200-T15	25	25	150	25,6	15,5	112	200			

MGFVR/L



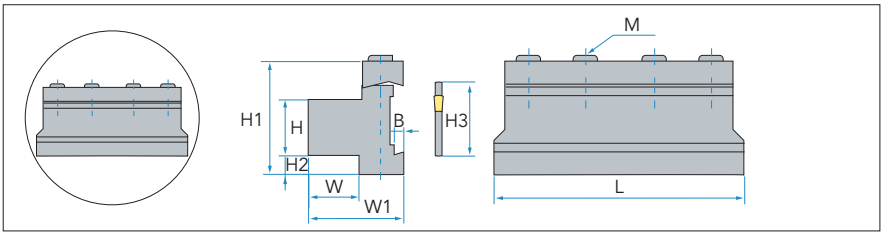
Part No.	Dimensions							Insert	Screw	Wrench
	H	W	L	S	Tmax	ØDmin	ØDmax			
MGFVR320-44/62-T15	20	20	125	31	15	44	62	MGGN300 MGMN300	M6*20N	L5.0
MGFVR320-62/120-T15	20	20	125	31	15	62	120			
MGFVR320-112/200-T15	20	20	125	31	15	112	200			
MGFVR325-44/62-T15	25	25	150	36	15	44	62			
MGFVR325-62/120-T15	25	25	150	36	15	62	120			
MGFVR325-112/200-T15	25	25	150	36	15	112	200			
MGFVR420-44/62-T15	20	20	125	36	15	44	62	MGGN400 MGMN400		
MGFVR420-62/120-T15	20	20	125	36	15	62	120			
MGFVR420-112/200-T15	20	20	125	36	15	112	200			
MGFVR425-44/62-T15	25	25	150	41	15	44	62			
MGFVR425-62/120-T15	25	25	150	41	15	62	120			
MGFVR425-112/200-T15	25	25	150	41	15	112	200			

MGIVR/L



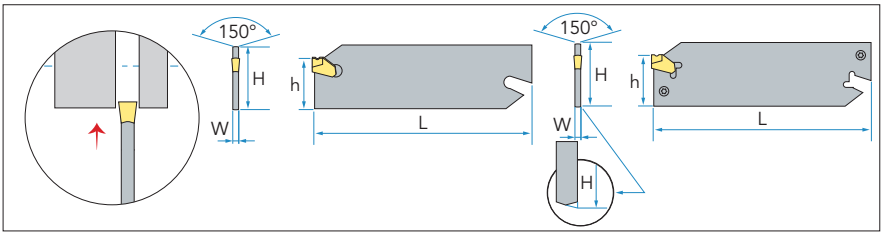
Part No.	Dimensions							Insert	Screw	Wrench
	dmin	Ød	L	ℓ	T-Max	H	S			
MGIVR/L2016-1.5	20	16	180	35	4	15	11,3	MGMN150-G	M4*10N	L3.0
MGIVR/L2520-1.5	25	20	180	45	4	18	13,1		M4*12N	
MGIVR/L2925-1.5	29	25	200	45	4	23	16,2			
MGIVR/L2016-2	20	16	180	35	5	15	12,4	MGMN200-G MGMN200-M MRMN200-M	M4*10N	
MGIVR/L2520-2	25	20	180	45	5	18	14,0		M4*12N	
MGIVR/L2925-2	29	25	200	45	5	23	17,2		M5*12N	L4.0
MGIVR/L2016-2.5	20	16	180	35	6	15	12,5	MGMN250-G MGMN250-M	M4*10N	L3.0
MGIVR/L2520-2.5	25	20	180	45	6	18	15,1		M4*12N	
MGIVR/L2925-2.5	29	25	200	45	6	23	18,2			
MGIVR/L2520-3	25	20	180	45	6	18	15,6	MGMN300-M/G/T MGGN300-**-M MRMN300-M MRMN300-**-L/R	M4*12N	
MGIVR/L3125-3	31	25	200	45	6	23	18,9		M5*16N	L4.0
MGIVR/L3732-3	37	32	250	65	6	30	21,5		M5*12N	
MGIVR/L2520-4	25	20	180	45	6	18	15,6	MGMN400-M/G/T MGGN40-**-M MRMN400-M MRMN400-**-L/R	M4*12N	L3.0
MGIVR/L3125-4	31	25	200	45	6	23	18,9		M5*12N	L4.0
MGIVR/L3732-4	37	32	250	65	6	30	21,5			
MGIVR/L3125-5	31	25	220	45	8	23	19,4	MGMN500		
MGIVR/L3732-5	37	32	250	65	8	30	21,5			

SMBB



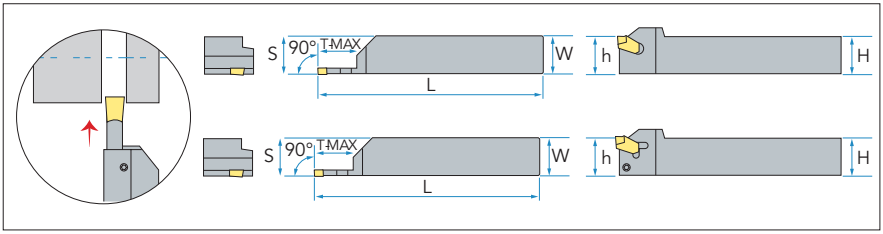
Part No.	Dimensions									Insert	Wrench
	H	W	H3	L	H1	H2	W1	B	M		
SMBB1626	16	13	26	86	43	13	32	5,3	3-M6	SPB***(S)	L5.0
SMBB2026	20	19	26	86	43	9	38	5,3			
SMBB2032	20	19	32	100	50	13	38	5,3	4-M6		
SMBB2526	25	23	26	86	43	4	42	5,3	3-M6		
SMBB2532	25	23	32	110	50	8	42	5,3	4-M6		
SMBB3232	32	30	32	110	54	5	48	5,3			

SPB



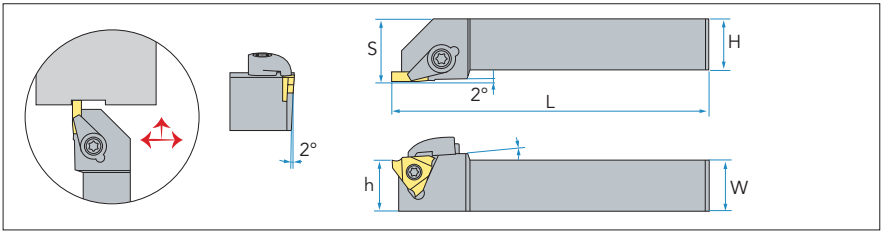
Part No.	Dimensions				Insert	Wrench
	H	W	L	h		
SPB226-S	26	1,6	110	21	SP200;200R/L	SW80-S
SPB326-S	26	2,4	110	21	SP300;300R/L	
SPB426-S	26	3,2	110	21	SP400;400R/L	
SPB526-S	26	4,0	110	21	SP500;500R/L	
SPB626-S	26	5,2	110	21	SP600;600R/L	
SPB232-S	32	1,6	150	25	SP200;200R/L	
SPB332-S	32	2,4	150	25	SP300;300R/L	
SPB432-S	32	3,2	150	25	SP400;400R/L	
SPB532-S	32	4,0	150	25	SP500;500R/L	
SPB632-S	32	5,2	150	25	SP600;600R/L	

SPH



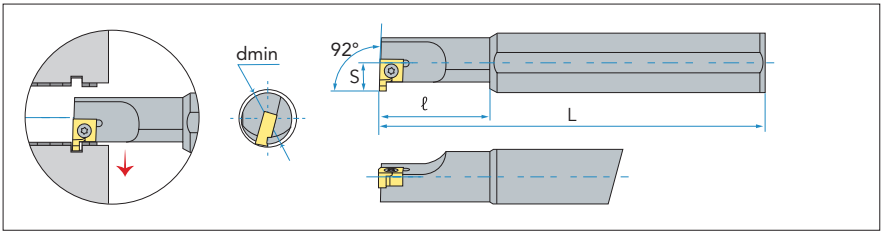
Part No.	Dimensions					Insert	Wrench
	H=h	W	L	S	T-Max		
SPH316R/L	16	16	100	16,3	16	SP300;300R/L SP300;300R/L SP400;400R/L	SW80-S
SPH320R/L	20	20	120	20,3	20		
SPH420R/L	20	20	120	20,4	25		
SPH520R/L	20	20	120	20,5	30	SP500;500R/L SP300;300R/L SP400;400R/L SP500;500R/L	
SPH325R/L	25	25	150	25,3	25		
SPH425R/L	25	25	150	25,4	30		
SPH525R/L	25	25	150	25,5	35		
SPH316R/L-S	16	16	100	16,3	16,5	SP300;300R/L SP300;300R/L SP400;400R/L SP500;500R/L	
SPH320R/L-S	20	20	120	20,3	20		
SPH420R/L-S	20	20	120	20,4	25		
SPH520R/L-S	20	20	120	20,5	30		
SPH325R/L-S	25	25	150	25,3	25	SP300;300R/L SP400;400R/L SP500;500R/	
SPH425R/L-S	25	25	150	25,4	30		
SPH525R/L-S	25	25	150	25,5	35		

SGBAR/L



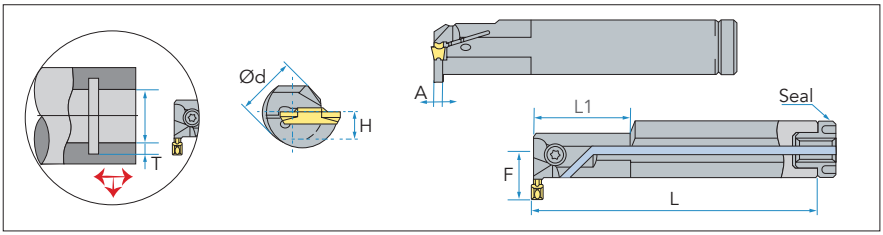
Part No.	Dimensions					Insert	Clamp	Screw	Screw	Wrench
	W	H	S	L	h					
SGBAR/L1616H16C	16	16	20	100	16	GBA32R/L	CS6R1	ML0622	M3.5*9	T15;L3.0
SGBAR/L2020K16C	20	20	25	125	20					
SGBAR/L2525M16C	25	25	32	150	25					
SGBAR/L2020K22C	20	20	25	125	20	GBA43R/L			M5*12	T20;L3.0
SGBAR/L2525M22C	25	25	32	150	25					
SGBAR/L3232M22C	32	32	40	170	32					

SNGR/L



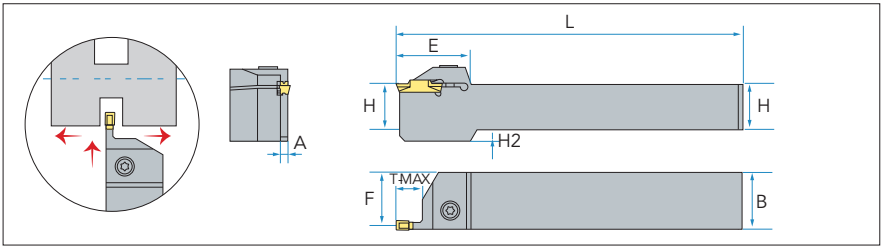
Part No.			Dimensions				Insert	Screw	Wrench
	dmin	Ød	S	L	ℓ	H			
SNGR/L08H07	10	8	5,8	100	29	7	7GR	M2.2*6	T6
SNGR/L10K07	12	10	6,8	125	29	9			
SNGR/L10K08	12	10	7,6	125	18	9	8GR		
SNGR/L12M08	16	12	8,6	150	20	11			
SNGR/L16Q09	20	16	11,6	180	25	15	9GR	M2.5*8	T8
SNGR/L20R09	24	20	13,6	200	25	18			

TTIR/L



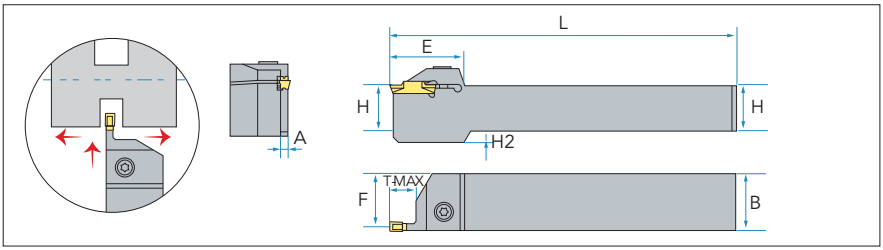
Part No.	Dimensions								Insert	Screw	Wrench
	Ød	L	L1	F	H	A	T	dmin			
TTIR/L16-2C	16	125	35	16,5	7,5	1,7	8,5	25	TD**2	M5*10N	L4.0
TTIR/L20-2C	20	160	40	15,8	9,0	1,6	6,0	25		M5*12N	
TTIR/L25-2C	25	200	40	17,5	11,5	1,6	5,0	25		M5*16N	
TTIR/L20-3C	20	160	40	15,8	9,0	2,1	6,0	25	TD**3	M5*12N	
TTIR/L25-3C	25	200	40	17,5	11,5	2,1	5,1	25		M5*16N	
TTIR/L32-3C	32	250	60	19,8	14,0	2,1	4,7	31		M5*16N	
TTIR/L20-4C	20	160	40	15,8	9,0	2,9	6,0	25	TD**4	M5*12N	
TTIR/L25-4C	25	200	40	17,5	11,5	2,9	5,2	25		M5*16N	
TTIR/L32-4C	32	250	60	20,8	14,0	2,9	4,7	31		M5*16N	
TTIR/L25-5C	25	200	40	17,3	11,5	3,9	5,2	31	TD**5	M6*16N	L5.0
TTIR/L32-5C	32	250	60	20,8	14,0	3,9	4,7	31		M6*16N	
TTIR/L32-6C	32	250	60	20,8	14,0	4,9	4,7	31	TD**6	M6*16N	
TTIR/L32-8C	32	250	60	21,3	14,5	5,9	5,5	37	TD**8	M6*16N	
TTIR/L40-8C	40	300	65	25,8	19,0	5,9	5,8	42		M6*16N	

TTER/L



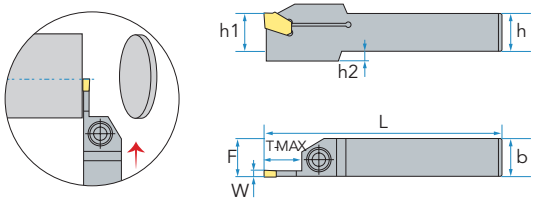
Part No.	Dimensions								Insert	Screw	Wrench
	H	B	L	F	E	A	H2	T-Max			
TTER/L1616-2T08	16	16	100	15,1	33	1,8	4	8,0	TD**2	M5*16N	L-W4
TTER/L2020-2T08	20	20	125	19,1							
TTER/L2525-2T08	25	25	150	24,1							
TTER/L1616-2	16	16	100	15,1	35		4	12,0			
TTER/L2020-2	20	20	125	19,1							
TTER/L2525-2	25	25	150	24,1							
TTER/L1616-2T17	16	16	100	15,1	40		4	17,0			
TTER/L2020-2T17	20	20	125	19,1							
TTER/L2525-2T17	25	25	150	24,1							
TTER/L1616-3T09	16	16	100	14,8	41	2,4	4	9,0	TD**3		
TTER/L2020-3T09	20	20	125	18,8							
TTER/L2525-3T09	25	25	150	23,8							
TTER/L1616-3	16	16	100	14,8			4	12,0			
TTER/L2020-3	20	20	125	18,8							
TTER/L2525-3	25	25	150	23,8							
TTER/L1616-3T20	16	16	100	14,8	40			20,0			
TTER/L2020-3T20	20	20	125	18,8							
TTER/L2525-3T20	25	25	150	23,8							
TTER/L2525-3T25	25	25	150	23,8	44,5			25,0			

TTER/L



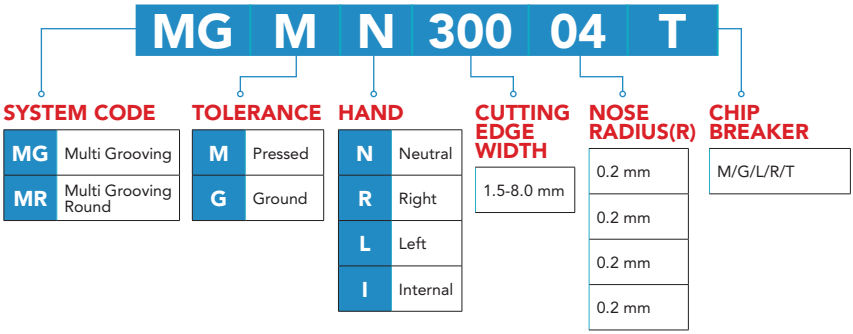
Part No.	Dimensions								Insert	Screw	Wrench
	H	B	L	F	E	A	H2	T-Max			
TTER/L1616-4T10	16	16	100	14,4	32	3,0	44	10,0	TD**4	M6*16N	L-W5
TTER/L2020-4T10	20	20	125	18,4							
TTER/L2525-4T10	25	25	150	23,4							
TTER/L1616-4	16	16	100	14,4	38			15,0			
TTER/L2020-4	20	20	125	18,4							
TTER/L2525-4	25	25	150	23,4							
TTER/L1616-4T25	16	16	100	14,4	45			25,0			
TTER/L2020-4T25	20	20	125	18,4							
TTER/L2525-4T25	25	25	150	23,4							
TTER/L2020-5T12	20	20	125	18	41	4,0		12,0	TD**5		
TTER/L2525-5T12	25	25	150	23							
TTER/L2020-5	20	20	125	18				20,0			
TTER/L2525-5	25	25	150	23							
TTER/L2525-5T32	25	25	150	23	56			32,0			

ZQ



Part No.	Dimensions					Insert	Screw	Wrench
	h=b	H1	L	F	T-MAX			
ZQ1616R/L02	16	16	100	16,15	16	SP200;200R/L	M4*16N	L3.0
ZQ2020R/L02	20	20	125	20,15	16			
ZQ1616R/L03	16	16	100	16,3	16	SP300;300R/L	M5*20N	L4.0
ZQ2020R/L03	20	20	125	20,3	20			
ZQ2020R/L03-25	20	20	125	20,3	25			
ZQ2525R/L03	25	25	150	25,3	20			
ZQ2525R/L03-25	25	25	150	25,3	25			
ZQ3232R/L03	32	32	170	32,4	20			
ZQ1616R/L04	16	16	100	16,3	16	SP400;400R/L		
ZQ2020R/L04	20	20	125	20,3	20			
ZQ2020R/L04-25	20	20	125	20,3	25			
ZQ2525R/L04	25	25	150	25,45	20			
ZQ2525R/L04-25	25	25	150	25,45	25			
ZQ3232R/L04	32	32	170	32,45	20			

CODE KEY



HOW TO CHOOSE A GROOVING INSERT

THE GROOVE/SURFACE	THE COMPONENT	THE MACHINE
Consider the following quality demands of the groove or surface to be machined: • Type of application (e.g. parting off or internal grooving) • Cutting depth • Cutting width • Corner radius • Quality demand (tolerance, surface finish etc.). Do we need a Wiper design insert to reach acceptable surface finish? A Wiper insert will offer better surface finish at maintained cutting data	**After considering the quality demands, look at the component:** • Cutting depth • Cutting width • Corner radius • Quality demand (tolerance, surface finish etc.). Do we need a Wiper design insert to reach acceptable surface finish? A Wiper insert will offer better surface finish at maintained cutting data	**Machine considerations include:** • Stability, power and torque, especially for larger components • Cutting fluid and coolant supply • Is high pressure coolant for chip-breaking in long chipping materials necessary? • Tool changing times/ number of tools in turret • Limitations in rpm, especially for bar feed magazine and small diameters • Sub-spindle, or tail stock available?

CHIP BREAKER GEOMETRY

MGM(G)N-M

- Specially designed chip breaker allows a smoother chip flow versus conventional flat-top geometries through the use of 2 central chip breaker
- Specially placed convex dots assists with chip control in external machining, for a smoother chip flow
- Chip breaker designed for turning & grooving applications

MGMN-L

- Sharp cutting edge
- Low cutting resistance
- For auto CNC machine
- For small Dia. processing

MGMN-G

- Specially designed chip breaker allows narrower chips to promote better chip flow
- Specifically designed for grooving applications

MGMN-R

- Strong cutting edge
- For high Feed rate processing

MRMN-M

- Full radius geometry for applications that require profiling
- Available for relief machining

MGMN-T

- For turning & grooving
- Reduced chip width & smooth chip control by dot designed on the top comer

NICHE CVD NC (CVD COATING)

GRADE	ISO	FEATURES
NC3215	**P10~P15**	• Continuous machining of general steel and forged steel at high speed • Substrate with excellent thermal crack/plastic deformation resistance, coating with improved chipping resistance for continuous machining • MT-TiCN + Al2O3 + TiN
NC3225	**P15~P25**	• Universal grade for general steel and forged steel • 1st Recommended grade for general machining with the use of high toughness substrate and coating layer with improved welding/chipping resistance • MT-TiCN + Al2O3 + TiN
NC3120	**P20~P25**	• Medium to roughing for steel • Combining excellent fracture resistance substrate with chipping resistance and heat resistance Al2O3 increased stability • MT-TiCN + TiC + Al2O3
NC3030	**P25~P35**	• Medium to low speed machining of steel and interrupted roughing • Harmony between substrate with excellent wear/fracture resistance and Al2O3 film with excellent thermal/chipping resistance • Increased stability in wide ranges of cutting conditions • MT-TiCN + TiC + Al2O3 + TiN
NC5330	**P30~P35** **M25~M35** **K15~K25** **S15~S25**	• Stainless Steel – General cutting for mild steel & forging steel • Excellent cutting performance in hard to cut materials which are vulnerable to built up edge, due to the high tough substrate with improved fracture resistance and the coated layers • MT-TiCN + Al2O3 + TiN
NC9125	**M20~M30**	• General cutting of stainless steel and heat resistant alloys • MT-TiCN + Al2O3 + TiN
NC6315	**K10~K15**	• Universal grade for ductile and gray cast Iron • Excellent performance thanks to the alumina (Al2O3) coating's improved grip on the tough substrat • MT-TiCN + Al2O3

WORKPIECE MATERIAL

P M K N S H

NICHE PVD NP (PVD COATING)

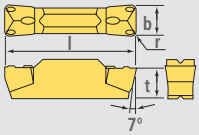
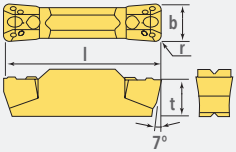
GRADE	ISO	FEATURES
NP8105	M05~M15 S01~S10 H01~H05	• For high speed and continuous finising of hard-to-cut materials • Excellent cutting performance with high wear resistance and oxidation resistance • Ultra fine substrate and the new TiAlN coating layer
NP8110	M10~M20 S05~S15 H01~H10	• For high speed and continuous medium cutting of hard-to-cut materials and STS • Excellent tool life with high wear/plastic deformation resistance at high temperature • New TiAlN coating layer and substrate with excellent thermal resistance
NP8115	M15~M25 S10~S20 H05~H15	• For medium to low speed and medium to rough cutting of hard-to-cut materials and STS • Excellent tool life with high wear resistance and chipping resistance • Ultra fine substrate and the new TiAlN coating layer
NP5300	P30~P40 M20~M30 K20~K25 S15~S25	• Universal grade for stainless,HRSA,steel and interrupted cast iron machining • High chipping and welding resistance for longer tool life • New TiAlN coating and ultra fine grain substrate adopted
NP9030	M25~M35	• Medium,roughing and heavy interrupted cutting for stainless steel • TiAlN coating and ultra fine grain substrate adopted • High chipping and welding resistance for stable machining
NP5400	P35~P45 M30~M40 K30~K35 S25~S35	• For medium cutting for hard-to-cut materials, stainless steel, steel, and cast iron at medium or low speed • Stable machinability with chipping resistance, fracture resistance and welding resistance • Ultra fine substrate with high toughness and new AlCiN layer

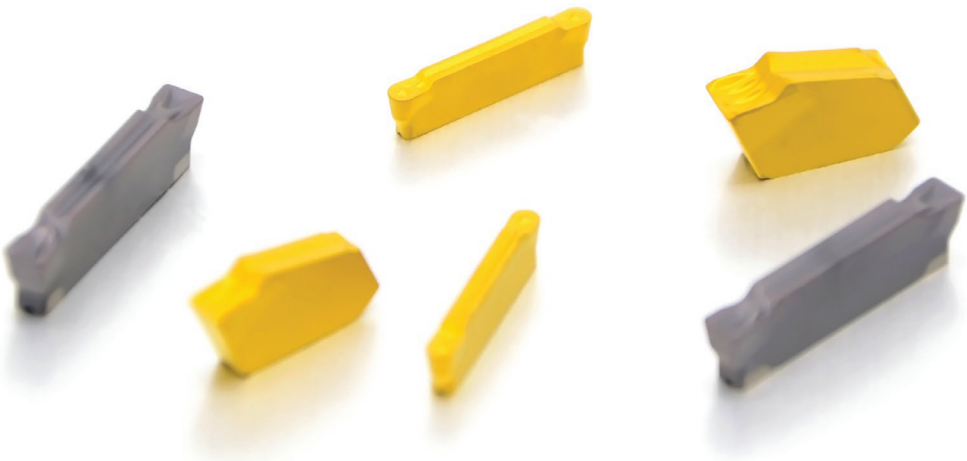
NICHE UNCOATED NU (NO COATING)

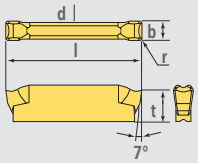
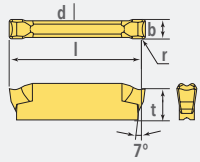
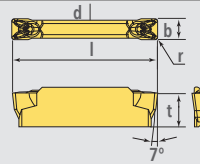
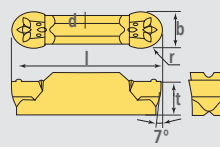
GRADE	ISO	FEATURES
NU810	N	For aluminium alloy

WORKPIECE MATERIAL

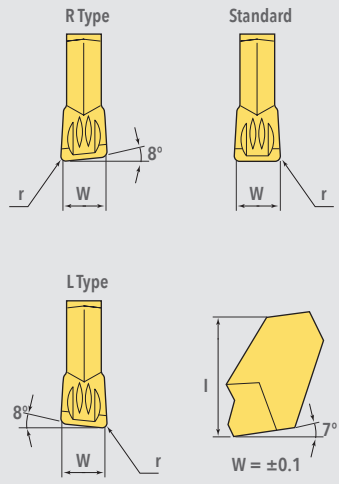
P M K N S H

SPECIFICATION	DIMENSION					CONFIGURATION	APPLICATION
	b	r	l	d	t		
MGMN150-G	1,5	0,15	16,0	1,2	3,5		GROOVING
MGMN200-G	2,0	0,2	16,0	1,6	3,5		
MGMN250-G	2,5	0,2	18,5	2,0	3,85		
MGMN300-G	3,0	0,3	21,0	2,35	4,8		
MGMN400-G	4,0	0,3	21,0	3,3	4,8		
MGMN500-G	5,0	0,5	26,0	4,1	5,8		
MGMN600-G	6,0	0,8	26,0	5,0	5,8		
MGMN200-M	2,0	0,2	16,0	1,6	3,5		GROOVING TURNING
MGMN250-M	2,5	0,2	18,5	2,0	3,85		
MGMN300-02-M	3,0	0,2	21,0	2,35	4,8		
MGMN300-M	3,0	0,4	21,0	2,35	4,8		
MGMN350-03-M	3,5	0,3	21,0	2,9	4,8		
MGMN400-02-M	4,0	0,2	21,0	3,3	4,8		
MGMN400-M	4,0	0,4	21,0	3,3	4,8		
MGNMN500-04-M	5,0	0,4	26,0	4,1	5,8		
MGMN500-M	5,0	0,8	26,0	4,1	5,8		
MGMN600-M	6,0	0,8	26,0	5,0	5,8		
MGMN800-M	8,0	0,8	31,0	6,0	6,5		

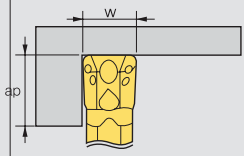
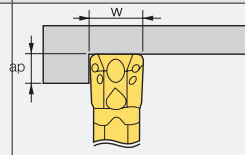


SPECIFICATION	DIMENSION					CONFIGURATION	APPLICATION
	b	r	l	d	t		
MGMN200-02-L	2,0	0,2	16,0	1,6	3,5		GROOVING
MGMN300-02-L	3,0	0,2	21,0	2,35	4,8		
MGMN400-02-L	4,0	0,2	21,0	3,3	4,8		
MGMN200-04-L	2,0	0,4	20,0	1,7	3,5		
MGMN300-04-L	3,0	0,4	20,0	2,3	4,0		
MGMN400-04-L	4,0	0,4	20,0	3,3	4,0		
MGMN500-04-L	5,0	0,4	26,0	4,1	5,8		
MGMN200-02-R	2,0	0,2	16,0	1,6	3,5		GROOVING PARTING OFF
MGMN300-02-R	3,0	0,2	21,0	2,35	4,8		
MGMN400-02-R	4,0	0,2	21,0	3,3	4,8		
MGMN200-04-R	2,0	0,4	20,0	1,7	3,5		
MGMN300-04-R	3,0	0,4	20,0	2,3	4,0		
MGMN400-04-R	4,0	0,4	20,0	3,3	4,0		
MGMN500-04-R	5,0	0,4	26,0	4,1	5,8		
MGMN200-T	2,0	0,2	16,0	1,6	3,5		GROOVING TURNING
MGMN300-T	3,0	0,4	21,0	2,35	4,8		
MGMN400-T	4,0	0,4	21,0	3,3	4,8		
MGMN500-T	5,0	0,8	26,0	4,1	5,8		
MRMN200-M	2,0	1,0	16,0	1,5	3,5		RELIEFING PROFILING
MRMN300-M	3,0	1,5	21,0	2,35	4,8		
MRMN400-M	4,0	2,0	21,0	3,3	4,8		
MRMN500-M	5,0	2,5	26,0	4,1	5,8		
MRMN600-M	6,0	3,0	26,0	5,0	5,8		
MRMN800-M	8,0	4,0	31,0	6,0	6,5		

GROOVING INSERTS

SPECIFICATION	DIMENSION			CONFIGURATION	APPLICATION
	W	l	r		
SP160	1,6	7,8	0,16		PARTING OFF
SP180	1,8	9,3	0,16		
SP200	2,2	9,3	0,20		
SP200R	2,2	9,3	0,20		
SP200L	2,2	11,3	0,20		
SP300	3,1	11,3	0,20		
SP300R	3,1	11,3	0,20		
SP300L	3,1	11,3	0,20		
SP400	4,1	11,3	0,25		
SP400R	4,1	11,3	0,25		
SP400L	4,1	11,3	0,25		
SP500	5,1	11,4	0,30		
SP500R	5,1	11,4	0,30		
SP500L	5,1	11,4	0,30		
SP600	6,4	11,4	0,35		
SP600R	6,4	11,4	0,35		
SP600L	6,4	11,4	0,35		

SELECTION OF INSERT

Feed Rate	• Decide maximum feed rate after concidering t he insert's characteristics and machine capabilities (Fmax = W x 0.075) • Max feed rate should not be larger than the corner radius of the insert • In grooving applications, chip evacuation problems can be remedied by using step feed methods at small intervals	
Depth of Cut	• The minimum depth of cut should be bigger than corner radius of insert • When deciding on the max depth of cut, concider the machine's cutting load • Depending on the shape of the insert, deflection of work piece and clearance angle can be changed	

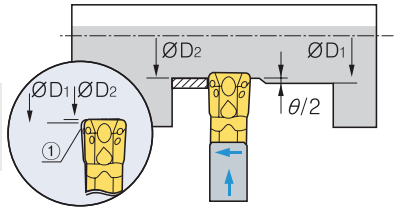
NOTICE FOR FINISHING (OFFSET NEED FINAL QUALITY)

- After desired diameter is grooved, continuous turning operation might cause some deflection of the workpiece. In these cases follow the given formula, offsetting these factors enables the desired diameter that you want
- To eliminate the difference in the machined diameter by utilizing the clearance angle (which is commonly generated during the final turning operation) follow the directions above when machining

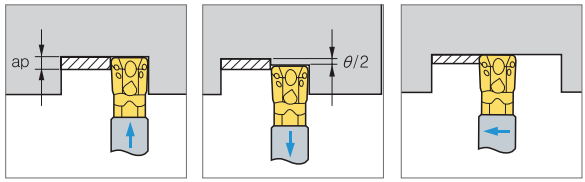
Follow these steps:

1. Groove to the desired diameter
2). Pull the tool backs a total distance of /2
3. Continue the external turning operation to desired diameter

$$\frac{\theta}{2} = \frac{ØD_1 - ØD_2}{2}$$



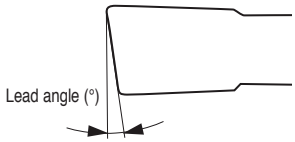
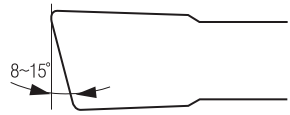
INCORRECT USAGE



INSERT SELECTION CONSIDERATIONS

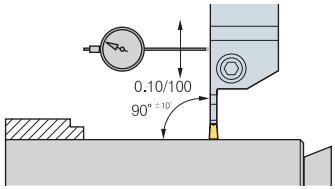
To properly match the insert and cutting condition, the following factors should be considered • Width of insert • Chip breaker • Grade and nose	The relationship between the cutting width and cutting depth • Neutral type, inserts with a 0-degree lead angle are best when used an applications maximum depth of cut • In general alloy steel, the maximum depth of cut = W x 0.8	Insert with lead angle • To reduce burrs, we recommend using an insert with a lead angle. Inserts that have larger lead angles reduce burrs but will also decreases tool life • In the case where burrs are acceptable, we recommend using a neutral type insert

INSERT

LEAD ANGLE APPLICATIONS	LEAD ANGLE 0° (NEUTRAL)
	
• 4°- Pipe (Tubing and hollow bar) • 6°- Pipe and solid bar • 8°- Solid bar • 15°- Small diameter Solid bar	• Parting off on solid bar type • Occurring the center stub when parting off • Prevent to be deflected workpiece by cutting direction during parting off • Available for use deep parting depth
LEAD ANGLE 4°~ 8°	**LEAD ANGLE 8°~15°**
	
• Reduce the center stub when parting off on solid bar type • Reduce the burr when parting off on tubing or hollow bar type	• Parting off on small diameter and hollow bar type • Reduce the burr and center stub when parting off on small diameter solid bar type

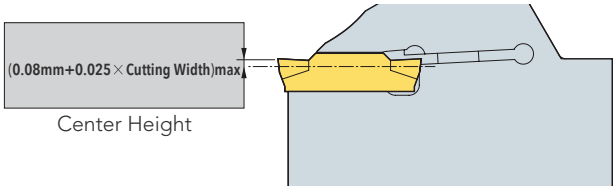
SETTING OF HOLDERS

- The cutting position should be exactly mounted on machined axis in order to create a perpendicular direction or 90 to minimize vibration



SETTING OF PARTING OFF

- The edge height of an insert should be set within ±0.1mm based on the center line
- Parting off should be done as close to the chuck as possible to minimize vibration



NOTICE

- Keep a consistent cutting speed and feed
- Use proper amounts of coolant for better performance
- Properly clean the insert pocket before mounting insert

USAGE

- If insert is worn, immediately replace with a new insert. This is to prevent the damage on the workpiece
- If the holder seat is worn or damaged replace with a new one immediately for stable clamping
- Do not grind or regrind the holder seat

TROUBLESHOOTING

Problem/Issue	Solution
Rough surface	• Use a short and stable tool • Use geometry with good chip control • Check speed / feed guidelines • Use wiper geometry • Check tool set-up
Roug surface on aluminium	• Select the sharpest geometry • Use geometry with good chip control • Select a special soluble oil for the material
Poor chip breakage	• Change geometry • Select a higher feed • Use dwelling (pecking) • Increase coolant
Vibration	• Use a stable set-up • Check speed/feed guidelines • Use shorter overhang • Change geometry • Check tool condition • Check tool set-up
Poor tool life	• Check centre height • Check angle between tool and component • Check condition of the blade. If the blade is old, the insert could be unstable in the tip-seat

INSERT WEAR (EDGE)

Problem/Issue	Cause	Solution
Built-up edge (B.U.E) When parting to centre and on stainless material, it is almost impossible to avoid BUE. It is important to minimize this by following the solutions.	• Cutting edge temperature too low	• Increase cutting speed and/or feed
	• Unsuitable geometry or grade	• Choose a geometry with a sharper edge preferably a PVD-coated grade
Chipping/breakage	• Too hard grade	• Choose a softer grade
	• Too weak geometry	• Choose a geometry for higher feed area
	• Unstable conditions	• Reduce overhang. Check centre height
	• Too high cutting data	• Reduce cutting data
Plastic deformation (PD)	• Excessive temperature in cutting zone	• Reduce cutting speed and/or feed
	• Unsuitable grade	• Choose more wear resistant grade
	• Lack of coolant supply	• Increase coolant supply
Flank wear	• Cutting speed too high	• Decrease cutting speed
	• Too soft grade	• Choose a more wear resistant grade
	• Lack of coolant supply	• Increase coolant supply
Crater wear	• Cutting speed too high	• Decrease cutting speed
	• Too soft grade	• Choose more wear resistant grade
	• Feed too high	• Decrease feed
	• Lack of coolant supply	• Increase coolant supply
Notch wear	• Oxidation at the cutting depth • Cutting edge temperature too high	• Use varying cutting depths (ramping) • Reduce cutting speed

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ADDRESS

ROOM 1601, NO. 399 MINHE ROAD, ZHENHAI,
NINGBO CHINA, 315202

GET IN TOUCH

PHONE: **+86 574 8659 2189** FAX: **+86 574 8659 3892**

NTOOLS2017@GMAIL.COM **WWW.NICHE-TOOL.COM**