

MEGA  **TEC**



THREAD TURNING TOOLS

MEGATEC grades for thread turning

CPM9010
(ISO M15, S15, N15)

- Submicron grade with multilayer PVD coating
- For super alloy, titanium alloy and hardened material

CPM9030
(ISO P30, K25)

- Submicron grade with PVD (TiAlN) coating
- For steel, stainless steel and cast iron at medium to high cutting speeds

CPM9240
(ISO P40, K40)

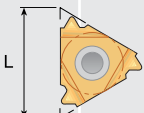
- PVD (TiN) coated grade for low cutting speed
- For steel, cast iron and most types of stainless steels

Cutting speed Vc, m/min

ISO Group	Workpiece material	CPM9010	CPM9030	CPM9240
P	Low carbon steel and structural steel	110-210	120-180	70-150
	Low alloyed steel (alloying elements < 5%)	90-140	80-130	60-90
	High alloyed steel and tool steel	70-90	60-80	50-60
M	Ferritic and martensitic stainless steel	110-160	90-130	50-80
K	Cast iron	120-150	100-130	65-85
	Spheroidal graphite cast iron	110-140	100-130	65-85
N	Wrought aluminum alloy	700-1000	450-850	450-600
	Cast aluminum alloy (Si ≤ 12%)	280-750	150-500	150-350
	Cast aluminum alloy (Si > 12%)	280-750	150-500	150-350
	Copper alloy	190-350	110-250	110-180
	Non-metallic materials (plastics)			150-210
S	Super alloy (Ni- and Cr-based)	30-65	25-60	
	Titanium Alloy	40-50	35-45	
H	Hardened steel (45-62 HRC)	35-45		
	Chilled cast iron	25-35		

Legend

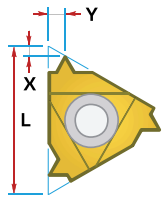
Threading insert

3		E	R		2.0	ISO	CPM9030
		<p>E external</p> <p>N internal</p>	<p>R right hand</p> <p>L left hand</p>	<p>B with chipbreaker</p>	<p>Pitch in mm Pitch TPI Or pitch range: A = 0.5-1.5 G = 1.75 – 3.0 AG = 0.5-3.0 N = 3.5-5.0 Q = 5.5-6.0 U = 5.5-8.0</p>	<p>Full profile: ISO UN WHIT NPT NPTF BSPT ACME ST.ACME TRAPEZ ROUND UNJ MJ PG AM.BUTT SAGE API VAM</p> <p>Partial profile: 60° 55°</p>	<p>Grade CPM9010 CPM9030 CPM9240</p>
<p>Nº</p> <p>0</p> <p>1</p> <p>1U</p> <p>2</p> <p>3</p> <p>4</p> <p>4U</p> <p>5</p> <p>5U</p> <p>6U</p>	<p>L, mm</p> <p>6</p> <p>8</p> <p>08U</p> <p>11</p> <p>16</p> <p>22</p> <p>22U</p> <p>27</p> <p>27U</p> <p>33U</p>						

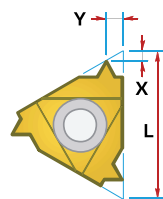
External metric ISO thread, full profile (60°)



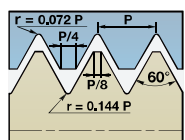
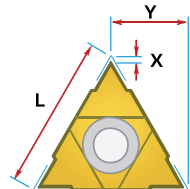
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



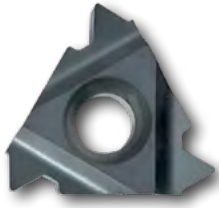
“U” type



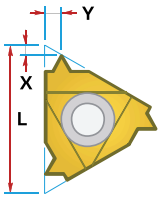
Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
	Right (RH)	Left (LH)	RH	LH						
0.35	2 ER 0.35 ISO	2 EL 0.35 ISO	-	-	11	0.8	0.4		•	
0.4	2 ER 0.4 ISO		-	-	11	0.7	0.4		•	
0.45	2 ER 0.45 ISO	2 EL 0.45 ISO	-	-	11	0.7	0.4		•	
0.5	2 ER 0.5 ISO	2 EL 0.5 ISO	-	-	11	0.6	0.6		•	
0.6	2 ER 0.6 ISO	2 EL 0.6 ISO	-	-	11	0.6	0.6		•	
0.7	2 ER 0.7 ISO		-	-	11	0.6	0.6		•	
0.75	2 ER 0.75 ISO	2 EL 0.75 ISO	-	-	11	0.6	0.6		•	
0.8	2 ER 0.8 ISO		-	-	11	0.6	0.6		•	
1.0	2 ER 1.0 ISO	2 EL 1.0 ISO	-	-	11	0.7	0.7		•	
1.25	2 ER 1.25 ISO	2 EL 1.25 ISO	-	-	11	0.8	0.9		•	
1.5	2 ER 1.5 ISO	2 EL 1.5 ISO	-	-	11	0.8	1.0		•	
1.75	2 ER 1.75 ISO	2 EL 1.75 ISO	-	-	11	0.8	1.1		•	
0.35	3 ER 0.35 ISO	3 EL 0.35 ISO	-	-	16	0.8	0.4	○	•	
0.4	3 ER 0.4 ISO	3 EL 0.4 ISO	-	-	16	0.7	0.4	○	•	
0.45	3 ER 0.45 ISO	3 EL 0.45 ISO	-	-	16	0.7	0.4	○	•	
0.5	3 ER 0.5 ISO	3 EL 0.5 ISO	-	-	16	0.6	0.6	○	•	
0.6	3 ER 0.6 ISO	3 EL 0.6 ISO	-	-	16	0.6	0.6	○	•	
0.7	3 ER 0.7 ISO	3 EL 0.7 ISO	-	-	16	0.6	0.6	○	•	
0.75	3 ER 0.75 ISO	3 EL 0.75 ISO	-	-	16	0.6	0.6	○	•	
0.8	3 ER B 0.8 ISO	3 EL 0.8 ISO	+	-	16	0.6	0.6	○	•	
1.0	3 ER B 1.0 ISO	3 EL 1.0 ISO	+	-	16	0.7	0.7	○	•	
1.25	3 ER B 1.25 ISO	3 EL 1.25 ISO	+	-	16	0.8	0.9	○	•	
1.5	3 ER B 1.5 ISO	3 EL 1.5 ISO	+	-	16	0.8	1.0	○	•	
1.75	3 ER B 1.75 ISO	3 EL 1.75 ISO	+	-	16	0.9	1.2	○	•	
2.0	3 ER B 2.0 ISO	3 EL 2.0 ISO	+	-	16	1.0	1.3	○	•	
2.5	3 ER B 2.5 ISO	3 EL 2.5 ISO	+	-	16	1.1	1.5	○	•	
3.0	3 ER B 3.0 ISO	3 EL 3.0 ISO	+	-	16	1.2	1.6	○	•	
3.5	3 ER 3.5 ISO	3 EL 3.5 ISO	-	-	16	1.2	1.7	○	•	
3.5	4ER 3.5 ISO	4EL 3.5 ISO	-	-	22	1.6	2.3		•	○
4.0	4ER 4.0 ISO	4EL 4.0 ISO	-	-	22	1.6	2.3		•	
4.5	4ER 4.5 ISO	4EL 4.5 ISO	-	-	22	1.7	2.4		•	○
5.0	4ER 5.0 ISO	4EL 5.0 ISO	-	-	22	1.7	2.5		•	○
5.5	4ER 5.5 ISO	4EL 5.5 ISO	-	-	22	1.7	2.6		•	
6.0	4ER 6.0 ISO	4EL 6.0 ISO	-	-	22	1.9	2.7		•	
5.5	4U ER/L 5.5 ISO		-	-	22	2.3	11.0		•	
6.0	4U ER/L 6.0 ISO		-	-	22	2.6	11.0		•	
5.5	5ER 5.5 ISO	5EL 5.5 ISO	-	-	27	1.9	2.7		•	
6.0	5ER 6.0 ISO	5EL 6.0 ISO	-	-	27	2.0	2.9		•	
8.0	5U ER/L 8.0 ISO		-	-	27	2.4	13.7		•	
12.0	6U ER/L 12.0 ISO		-	-	33	2.5	16.5		•	

Order example: 2 ER 0.35 ISO CPM9030

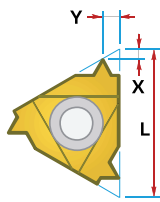
Internal metric ISO thread, full profile (60°)



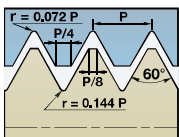
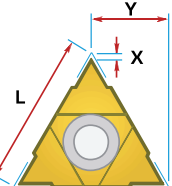
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



“U” type



	Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
		Right (RH)	Left (LH)	RH	LH						
0	0.5	0 NR 0.5 ISO	0 NL 0.5 ISO	-	-	6	0.9	0.5			●
	0.75	0 NR 0.75 ISO		-	-	6	0.8	0.5		○	●
	1.0	0 NR 1.0 ISO	0 NL 1.0 ISO	-	-	6	0.7	0.6		●	●
	1.25	0 NR 1.25 ISO		-	-	6	0.6	0.6		●	●
1	0.5	1 NR 0.5 ISO	1 NL 0.5 ISO	-	-	8	0.6	0.5			●
	0.75	1 NR 0.75 ISO	1 NL 0.75 ISO	-	-	8	0.6	0.5		○	●
	1.0	1 NR 1.0 ISO	1 NL 1.0 ISO	-	-	8	0.6	0.6		●	●
	1.25	1 NR 1.25 ISO	1 NL 1.25 ISO	-	-	8	0.6	0.7		○	●
	1.5	1 NR 1.5 ISO	1 NL 1.5 ISO	-	-	8	0.6	0.7		●	●
1U	1.75	1 NR 1.75 ISO	1 NL 1.75 ISO	-	-	8	0.6	0.8		○	●
	2.0	1U NR/L 2.0 ISO		-	-	8	0.9	4.0		●	●
	0.35	2 NR 0.35 ISO	2 NL 0.35 ISO	-	-	11	0.8	0.3		●	○
	0.4	2 NR 0.4 ISO		-	-	11	0.8	0.4		●	○
	0.45	2 NR 0.45 ISO	2 NL 0.45 ISO	-	-	11	0.8	0.4		●	○
	0.5	2 NR B 0.5 ISO	2 NL 0.5 ISO	+	-	11	0.6	0.6		●	○
	0.6	2 NR 0.6 ISO		-	-	11	0.6	0.6		●	○
	0.7	2 NR 0.7 ISO		-	-	11	0.6	0.6		●	○
	0.75	2 NR B 0.75 ISO	2 NL 0.75 ISO	+	-	11	0.6	0.6		●	○
	0.8	2 NR B 0.8 ISO	2 NL 0.8 ISO	+	-	11	0.6	0.6		●	○
	1.0	2 NR B 1.0 ISO	2 NL 1.0 ISO	+	-	11	0.6	0.7		●	○
	1.25	2 NR B 1.25 ISO	2 NL 1.25 ISO	+	-	11	0.8	0.8		●	○
	1.5	2 NR B 1.5 ISO	2 NL 1.5 ISO	+	-	11	0.8	1.0		●	○
1.75	2 NR B 1.75 ISO	2 NL 1.75 ISO	+	-	11	0.8	1.1		●	○	
2.0	2 NR B 2.0 ISO	2 NL 2.0 ISO	+	-	11	0.8	0.9		●	○	
2.5	2 NR 2.5 ISO	2 NL 2.5 ISO	-	-	11	0.8	1.2		●	○	
2	0.35	3 NR 0.35 ISO	3 NL 0.35 ISO	-	-	16	0.8	0.3	○	●	○
	0.4	3 NR 0.4 ISO	3 NL 0.4 ISO	-	-	16	0.8	0.4	○	●	○
	0.45	3 NR 0.45 ISO	3 NL 0.45 ISO	-	-	16	0.8	0.4	○	●	○
	0.5	3 NR 0.5 ISO	3 NL 0.5 ISO	-	-	16	0.6	0.6	●	●	○
	0.6	3 NR 0.6 ISO	3 NL 0.6 ISO	-	-	16	0.6	0.6	●	●	○
	0.7	3 NR 0.7 ISO	3 NL 0.7 ISO	-	-	16	0.6	0.6	●	●	○
	0.75	3 NR 0.75 ISO	3 NL 0.75 ISO	-	-	16	0.6	0.6	●	●	○
	0.8	3 NR 0.8 ISO	3 NL 0.8 ISO	-	-	16	0.6	0.6	●	●	
	1.0	3 NR B 1.0 ISO	3 NL 1.0 ISO	+	-	16	0.6	0.7	○	●	
	1.25	3 NR B 1.25 ISO	3 NL 1.25 ISO	+	-	16	0.8	0.9	○	●	
	1.5	3 NR B 1.5 ISO	3 NL 1.5 ISO	+	-	16	0.8	1.0	○	●	
	1.75	3 NR B 1.75 ISO	3 NL 1.75 ISO	+	-	16	0.9	1.2	○	●	
	2.0	3 NR B 2.0 ISO	3 NL 2.0 ISO	+	-	16	1.0	1.3	○	●	
2.5	3 NR B 2.5 ISO	3 NL 2.5 ISO	+	-	16	1.1	1.5	○	●		
3.0	3 NR B 3.0 ISO	3 NL 3.0 ISO	+	-	16	1.1	1.5	○	●		
3.5	3 NR 3.5 ISO	3 NL 3.5 ISO	-	-	16	1.2	1.7	●	●		
3	3.5	4NR 3.5 ISO	4NL 3.5 ISO	-	-	22	1.6	2.3		●	○
	4.0	4NR 4.0 ISO	4NL 4.0 ISO	-	-	22	1.6	2.3		●	○
	4.5	4NR 4.5 ISO	4NL 4.5 ISO	-	-	22	1.6	2.4		●	○
	5.0	4NR 5.0 ISO	4NL 5.0 ISO	-	-	22	1.6	2.3		●	○
	5.5	4NR 5.5 ISO	4NL 5.5 ISO	-	-	22	1.6	2.3		●	○
	6.0	4NR 6.0 ISO	4NL 6.0 ISO	-	-	22	1.6	2.4		●	○
4	5.5	4U NR/L 5.5 ISO		-	-	22	2.4	11.0		●	
	6.0	4U NR/L 6.0 ISO		-	-	22	2.1	11.0		●	
5	5.5	5NR 5.5 ISO	5NL 5.5 ISO	-	-	27	1.6	2.3		●	○
	6.0	5NR 6.0 ISO	5NL 6.0 ISO	-	-	27	1.8	2.5		●	○
5U	8.0	5U NR/L 8.0 ISO		-	-	27	2.4	13.7		●	
6U	12.0	6U NR/L 12.0 ISO		-	-	33	3.5	16.9		●	

Order example: 0 NR 0.5 ISO CPM9240

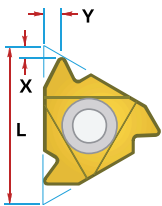
External metric ISO thread, partial profile



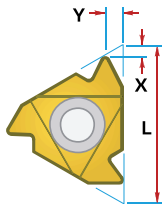
	Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
		Right (RH)	Left (LH)	RH	LH						
2	0.5-1.5	2 ER A60	2 EL A60	-	-	11	0.8	0.9		•	
	0.5-1.5	3 ER B A60	3 EL A60	+	-	16	0.8	0.9	◦	•	
3	1.75-3.0	3 ER B G60	3 EL G60	+	-	16	1.2	1.7	◦	•	
	0.5-3.0	3 ER B AG60	3 EL AG60	+	-	16	1.2	1.7	◦	•	
4	3.5-5.0	4 ER N60	4 EL N60	-	-	22	1.7	2.5		•	
4U	5.5-8.0	4U E/N/R/L U60				22	0.6	11.0		•	
5	5.5-6.0	5 ER Q60	5 EL Q60	-	-	27	2.1	3.1		•	
5U	6.5-9.0	5U E/N/R/L U60				27	1.0	13.7		•	

Order example: 2 ER A60 CPM9030

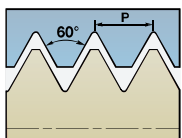
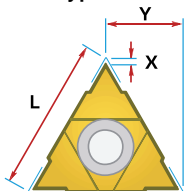
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



“U” type

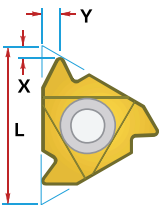


Internal metric ISO thread, partial profile

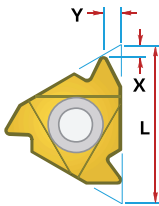


	Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
		Right (RH)	Left (LH)	RH	LH						
0	0.5-1.25	0 NR A60	0 NL A60	-	-	6	0.6	0.6		•	•
1	0.5-1.5	1 NR A60	1 NL A60	-	-	8	0.6	0.7		•	•
1U	1.75-2.0	1U NR/L U60				8	0.8	4.0		•	•
2	0.5-1.5	2 NR A60	2 NL A60	-	-	11	0.8	0.9		•	•
3	0.5-1.5	3 NR B A60	3 NL A60	+	-	16	0.8	0.9	•	•	
	1.75-3.0	3 NR B G60	3 NL G60	+	-	16	1.2	1.7	◦	•	
	0.5-3.0	3 NR B AG60	3 NL AG60	+	-	16	1.2	1.7	•	•	
4	3.5-5.0	4 NR N60	4 NL N60	-	-	22	1.7	2.5		•	•
4U	5.5-8.0	4U E/N/R/L U60				22	0.6	11.0		•	•
5	5.5-6.0	5 NR Q60	5 NL Q60	-	-	27	2.1	3.1		•	•
5U	6.5-9.0	5U E/N/R/L U60				27	1.0	13.7		•	•

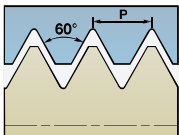
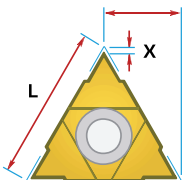
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand

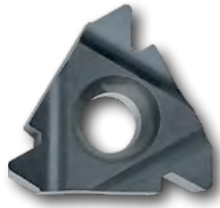


“U” type

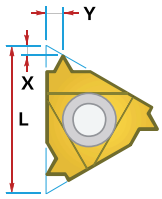


Order example: 0 NR A60 CPM9030

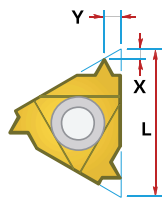
External Whitworth pipe thread, full profile (55°)



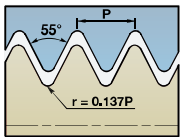
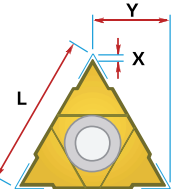
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



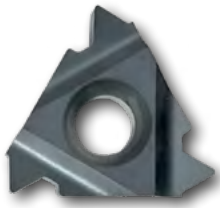
“U” type



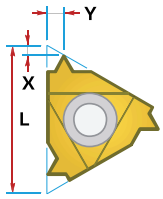
Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
	Right (RH)	Left (LH)	RH	LH						
2	19	2 ER 19 W	2 EL 19 W	-	-	11	0.8	1.0	○	
	16	2 ER 16 W		-	-	11	0.9	1.1	○	
	14	2 ER 14 W	2 EL 14 W	-	-	11	0.9	1.1	○	
3	72	3 ER 72 W		-	-	16	0.7	0.4	○	
	56	3 ER 56 W		-	-	16	0.7	0.4	○	
	48	3 ER 48 W		-	-	16	0.6	0.6	○	
	40	3 ER 40 W		-	-	16	0.6	0.6	○	○
	36	3 ER 36 W		-	-	16	0.6	0.6	○	○
	32	3 ER 32 W	3 EL 32 W	-	-	16	0.6	0.6	●	●
	28	3 ER 28 W	3 EL 28 W	-	-	16	0.6	0.7	○	●
	26	3 ER 26 W	3 EL 26 W	-	-	16	0.7	0.7	●	●
	24	3 ER 24 W	3 EL 24 W	-	-	16	0.7	0.8	●	●
	22	3 ER 22 W	3 EL 22 W	-	-	16	0.8	0.9	●	●
	20	3 ER 20 W	3 EL 20 W	-	-	16	0.8	0.9	●	●
	4	19	3 ER B 19 W	3 EL 19 W	+	-	16	0.8	1.0	●
18		3 ER 18 W	3 EL 18 W	-	-	16	0.8	1.0	●	●
16		3 ER B 16 W	3 EL 16 W	+	-	16	0.9	1.1	●	●
14		3 ER B 14 W	3 EL 14 W	+	-	16	1.0	1.2	●	●
12		3 ER 12 W	3 EL 12 W	-	-	16	1.1	1.4	●	●
11		3 ER B 11 W	3 EL 11 W	+	-	16	1.1	1.5	●	●
10		3 ER B 10 W	3 EL 10 W	+	-	16	1.1	1.5	●	●
9		3 ER 9 W	3 EL 9 W	-	-	16	1.2	1.7	●	●
8		3 ER 8 W	3 EL 8 W	-	-	16	1.2	1.5	●	●
7		4ER 7 W	4EL 7 W	-	-	22	1.6	2.3		●
4U	6	4ER 6 W	4EL 6 W	-	-	22	1.6	2.3		●
	5	4ER 5 W	4EL 5 W	-	-	22	1.7	2.4		●
5	4.5	4U E/N/R/L 4.5 W				22	2.3	11.0		●
	4	4U E/N/R/L 4 W				22	1.8	11.0		●
5U	4.5	5ER 4.5 W	5EL 4.5 W	-	-	27	1.8	2.6		●
	4	5ER 4 W		-	-	27	2.0	2.9	○	
5U	3.5	5U E/N/R/L 3.5 W				27	2.1	13.7		●
	3.25	5U E/N/R/L 3.25 W				27	2.0	13.7		●
	3	5U E/N/R/L 3 W				27	2.3	13.7		●
	2.75	5U E/N/R/L 2.75 W				27	2.4	13.7		●

Order example: 3 ER 32 W CPM9010

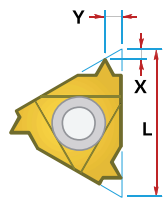
Internal Whitworth pipe thread, full profile (55°)



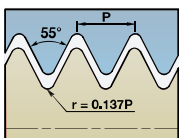
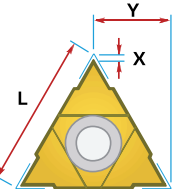
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



“U” type



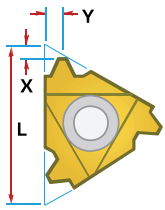
Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
	Right (RH)	Left (LH)	RH	LH						
2	19	2 NR B 19 W	2 NL 19 W	+	-	11	0.8	1.0	●	
	18	2 NR B 18 W	2 NL 18 W	+	-	11	0.8	1.0	●	
	16	2 NR B 16 W	2 NL 16 W	+	-	11	0.9	1.1	○	
	14	2 NR B 14 W	2 NL 14 W	+	-	11	0.9	1.1	●	
	12	2 NR 12 W	2 NL 12 W	-	-	11	1.0	1.1	○	
	11	2 NR 11 W	2 NL 11 W	-	-	11	0.9	1.2	●	
3	40	3 NR 40 W		-	-	16	0.6	0.6	○	
	36	3 NR 36 W		-	-	16	0.6	0.6	○	
	32	3 NR 32 W		-	-	16	0.6	0.6	○	○
	28	3 NR 28 W	3 NL 28 W	-	-	16	0.6	0.7	○	●
	26	3 NR 26 W		-	-	16	0.7	0.7	○	○
	24	3 NR 24 W	3 NL 24 W	-	-	16	0.7	0.8	●	●
	22	3 NR 22 W	3 NL 22 W	-	-	16	0.8	0.9	○	○
	20	3 NR 20 W	3 NL 20 W	-	-	16	0.8	0.9	●	○
	19	3 NR B 19 W	3 NL 19 W	+	-	16	0.8	1.0	○	●
	18	3 NR 18 W	3 NL 18 W	-	-	16	0.8	1.0	●	●
4	16	3 NR B 16 W	3 NL 16 W	+	-	16	0.9	1.1	●	●
	14	3 NR B 14 W	3 NL 14 W	+	-	16	1.0	1.2	●	●
	12	3 NR 12 W	3 NL 12 W	-	-	16	1.1	1.4	●	●
	11	3 NR B 11 W	3 NL 11 W	+	-	16	1.1	1.5	●	●
	10	3 NR B 10 W	3 NL 10 W	+	-	16	1.1	1.5	●	●
	9	3 NR 9 W	3 NL 9 W	-	-	16	1.2	1.7	●	●
	8	3 NR 8 W	3 NL 8 W	-	-	16	1.2	1.5	●	●
	7	4NR 7 W	4NL 7 W	-	-	22	1.6	2.3		●
	6	4NR 6 W	4NL 6 W	-	-	22	1.6	2.3		○
	5	4NR 5 W	4NL 5 W	-	-	22	1.7	2.4		●
4U	4.5	4U E/N/R/L 4.5 W				22	2.3	11.0		●
	4	4U E/N/R/L 4 W				22	1.8	11.0		●
5	4.5	5NR 4.5 W	5NL 4.5 W	-	-	27	1.8	2.6		○
	4	5NR 4 W	5NL 4 W	-	-	27	2.0	2.9		○
5U	3.5	5U E/N/R/L 3.5 W				27	2.1	13.7		●
	3.25	5U E/N/R/L 3.25 W				27	2.0	13.7		●
	3	5U E/N/R/L 3 W				27	2.3	13.7		●
	2.75	5U E/N/R/L 2.75 W				27	2.4	13.7		●

Order example: 2 NR B 19 W CPM9030

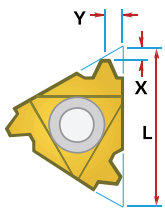
External trapezoidal thread – DIN 103



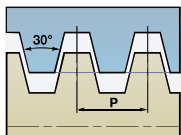
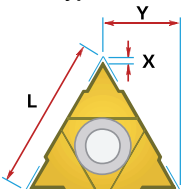
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



“U” type

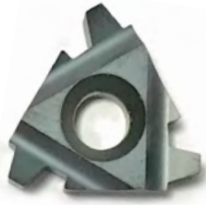


Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
	Right (RH)	Left (LH)	RH	LH						
3	1.5	3 ER 1.5 TR	3 EL 1.5 TR	-	-	16	1.0	1.1	•	•
	2.0	3 ER 2.0 TR	3 EL 2.0 TR	-	-	16	1.0	1.3	•	•
	3.0	3 ER 3.0 TR	3 EL 3.0 TR	-	-	16	1.3	1.5	•	•
	4.0	3 ER 4.0 TR	3 EL 4.0 TR	-	-	16	1.3	0.6		•
4	4.0	4 ER 4.0 TR	4 EL 4.0 TR	-	-	22	1.8	1.9		•
	5.0	4 ER 5.0 TR	4 EL 5.0 TR	-	-	22	2.0	2.4		•
	6.0	4 ER 6.0 TR	4 EL 6.0 TR	-	-	22	2.0	2.4		•
4U	6.0	4U ER/L 6.0 TR				22	2.0	11.0		•
	7.0	4U ER/L 7.0 TR				22	2.3	11.0		•
	8.0	4U ER/L 8.0 TR				22	2.5	11.0		•
5	6.0	5 ER 6.0 TR	5 EL 6.0 TR	-	-	27	2.3	2.7		•
	7.0	5 ER 7.0 TR	5 EL 7.0 TR	-	-	27	2.2	2.6		•
5U	8.0	5U ER/L 8 TR				27	2.5	13.7		•
	9.0	5U ER/L 9 TR				27	3.0	13.7		•
6U	10.0	5U ER/L 10 TR*				27	3.2	13.7		•
	12.0	6U ER/L 12 TR				33	3.9	16.9		•

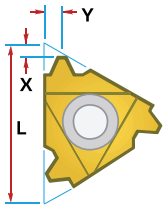
* Single cutting edge

Order example: 3 ER 1.5 TR CPM9030

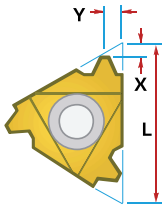
Internal trapezoidal thread – DIN 103



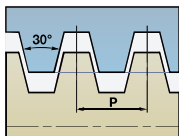
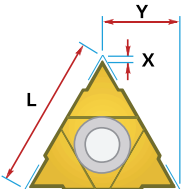
ER – external right hand
NL – internal left hand



NR – internal right hand
EL – external left hand



“U” type



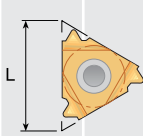
	Pitch, mm	Insert		Chipbreaker		Edge length L, mm	X, mm	Y, mm	CPM9010	CPM9030	CPM9240
		Right (RH)	Left (LH)	RH	LH						
1	1.5	1 NR 1.5 TR	1 NL 1.5 TR	-	-	8	0.6	0.6		○	●
1U	2.0	1U NR/L 2 TR				8	0.9	4.0		●	●
3	2.0	3 NR 2.0 TR	3 NL 2.0 TR	-	-	16	1.0	1.3	●	●	
	3.0	3 NR 3.0 TR	3 NL 3.0 TR	-	-	16	1.3	1.5	●	●	
4	4.0	3 NR 4.0 TR	3 NL 4.0 TR	-	-	16	1.3	0.6		●	
	4.0	4 NR 4.0 TR	4 NL 4.0 TR	-	-	22	1.8	1.9		●	
4U	5.0	4 NR 5.0 TR	4 NL 5.0 TR	-	-	22	2.0	2.4		●	
	6.0	4 NR 6.0 TR	4 NL 6.0 TR	-	-	22	2.0	2.4		●	
	6.0	4U NR/L 6.0 TR				22	2.0	11.0		●	
5	7.0	4U NR/L 7.0 TR				22	2.3	11.0		●	
	8.0	4U NR/L 8.0 TR				22	2.5	11.0		●	
5U	6.0	5 NR 6.0 TR	5 NL 6.0 TR	-	-	27	2.3	2.7		●	
	7.0	5 NR 7.0 TR	5 NL 7.0 TR	-	-	27	2.2	2.6		●	
6U	8.0	5U NR/L 8 TR				27	2.5	13.7		●	
	9.0	5U NR/L 9 TR				27	3.0	13.7		●	
6U	10.0	5U NR/L 10 TR*				27	3.0	13.7		●	
	12.0	6U NR/L 12 TR				33	3.9	16.9		●	

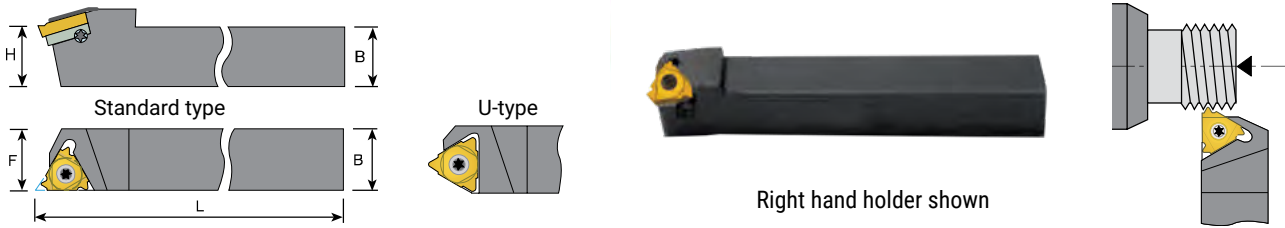
* Single cutting edge

Order example: 1 NR 1.5 TR CPM9240

Legend

Threading toolholder

S	E	R	2525	K	3																					
<p>Clamping type</p> <p>S – by screw</p>	<p>E external</p> <p>N internal</p>	<p>R right hand</p> <p>L left hand</p>	<p>Toolholder section size</p> <p>Square 2525 = 25 x 25 mm</p> <p>Round 0025 = Ø 25 mm</p>	<p>Toolholder length, mm</p> <p>F - 80 H - 100 K - 125 L - 140 M - 150 P - 170 R - 200 S - 250 T - 300 U - 350 V - 400</p>	 <table border="1"> <thead> <tr> <th>Nº</th> <th>L, mm</th> </tr> </thead> <tbody> <tr><td>0</td><td>6</td></tr> <tr><td>1U</td><td>8</td></tr> <tr><td>2</td><td>08U</td></tr> <tr><td>3</td><td>11</td></tr> <tr><td>4</td><td>16</td></tr> <tr><td>4U</td><td>22</td></tr> <tr><td>5</td><td>22U</td></tr> <tr><td>5U</td><td>27</td></tr> <tr><td>6U</td><td>27U</td></tr> </tbody> </table>	Nº	L, mm	0	6	1U	8	2	08U	3	11	4	16	4U	22	5	22U	5U	27	6U	27U	<p>B through coolant</p> <p>C carbide shank</p> <p>U U-type</p>
Nº	L, mm																									
0	6																									
1U	8																									
2	08U																									
3	11																									
4	16																									
4U	22																									
5	22U																									
5U	27																									
6U	27U																									

External thread turning toolholders


Toolholder	Dimensions				Insert screw	Shim screw	Key	Right hand shim	Left hand shim
	Insert	B=H	L, mm	F, mm					
SER 08 08 H2*	11	8	100	11	S2	-	K2	-	-
SER 10 10 H2*	11	10	100	11	S2	-	K2	-	-
SER 12 12 F3	16	12	80	16	S3	A3	K3	AE3	AN3
SER 16 16 H3	16	16	100	16	S3	A3	K3	AE3	AN3
SER 20 20 K3	16	20	125	20	S3	A3	K3	AE3	AN3
SER 25 25 M3	16	25	150	25	S3	A3	K3	AE3	AN3
SER 32 32 P3	16	32	170	32	S3	A3	K3	AE3	AN3
SER 25 25 M4	22	25	150	25	S4	A4	K4	AE4	AN4
SER 32 32 P4	22	32	170	32	S4	A4	K4	AE4	AN4
SER 40 40 R4	22	40	200	40	S4	A4	K4	AE4	AN4
SER 25 25 M4U	22U	25	150	28	S4	A4	K4	AE4U	AN4U
SER 32 32 P4U	22U	32	170	32	S4	A4	K4	AE4U	AN4U
SER 40 40 R4U	22U	40	200	40	S4	A4	K4	AE4U	AN4U
SER 25 25 M5	27	25	150	32	S5	A5	K5	AE5	AN5
SER 32 32 P5	27	32	170	32	S5	A5	K5	AE5	AN5
SER 40 40 R5	27	40	200	40	S5	A5	K5	AE5	AN5
SER 25 25 M5U	27U	25	150	32	S5	A5	K5	AE5U	AN5U
SER 32 32 P5U	27U	32	170	32	S5	A5	K5	AE5U	AN5U
SER 40 40 R5U	27U	40	200	40	S5	A5	K5	AE5U	AN5U
SER 25 25 M6U*	33U	25	150	32	S6	-	K6	-	-
SER 32 32 P6U*	33U	32	170	32	S6	-	K6	-	-

* No shim toolholder

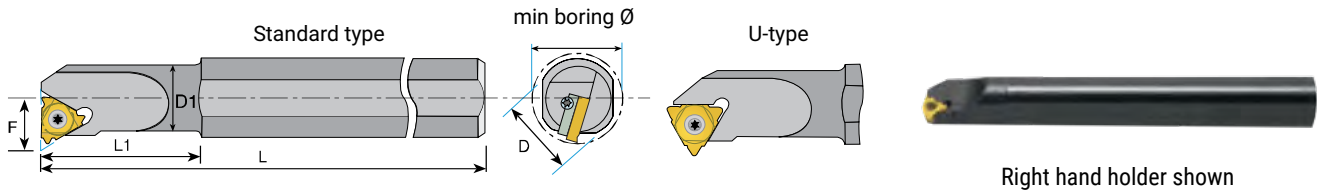
PLEASE NOTE: replace "SER" to "SEL" in case you order left hand toolholder

Order example:

Right hand SER 08 08 H2

Left hand SEL 08 08 H2

Internal thread turning toolholders

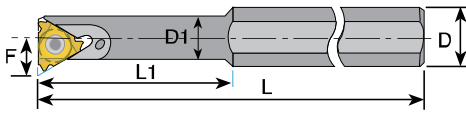


Toolholder	Dimensions							Insert screw	Shim screw	Key	Right hand shim	Left hand shim
	Insert	D	D1	min boring Ø	L, mm	L1, mm	F, mm					
SNR 0005 H0*	6	12	5.1	6.0	100	12	4.3	S0	-	K0	-	-
SNR 0007 K1*	8	16	6.6	7.8	125	18	5.3	S1	-	K1	-	-
SNR 0008 K1U*	8U	16	7.3	9.0	125	21	6.6	S1	-	K1	-	-
SNR 0010 H2*	11	10	10	12	100	-	7.4	S2	-	K2	-	-
SNR 0010 K2*	11	16	10	12	125	25	7.4	S2	-	K2	-	-
SNR 0013 L2*	11	16	13	15	140	32	8.9	S2	-	K2	-	-
SNR 0013 M3*	16	16	13	16	150	32	10.2	S3S	-	K3	-	-
SNR 0016 P3*	16	20	16	19	170	40	11.7	S3S	-	K3	-	-
SNR 0020 P3	16	20	20	24	170	-	13.7	S3	A3	K3	AN3	AE3
SNR 0025 R3	16	25	25	29	200	-	16.2	S3	A3	K3	AN3	AE3
SNR 0032 S3	16	32	32	36	250	-	19.7	S3	A3	K3	AN3	AE3
SNR 0040 T3	16	40	40	44	300	-	23.7	S3	A3	K3	AN3	AE3
SNR 0020 P4*	22	20	20	24	170	-	15.6	S4S	-	K4	-	-
SNR 0025 R4	22	25	25	29	200	-	18.1	S4	A4	K4	AN4	AE4
SNR 0032 S4	22	32	32	38	250	-	21.6	S4	A4	K4	AN4	AE4
SNR 0040 T4	22	40	40	46	300	-	25.6	S4	A4	K4	AN4	AE4
SNR 0032 S4U	22U	32	32	38	250	-	24.4	S4	A4	K4	AN4U	AE4U
SNR 0040 T4U	22U	40	40	46	300	-	28.1	S4	A4	K4	AN4U	AE4U
SNR 0032 S5	27	32	32	40	250	-	22.6	S5	A5	K5	AN5	AE5
SNR 0040 T5	27	40	40	48	300	-	26.6	S5	A5	K5	AN5	AE5
SNR 0050 U5	27	50	50	58	350	-	31.6	S5	A5	K5	AN5	AE5
SNR 0060 V5	27	60	60	68	400	-	36.6	S5	A5	K5	AN5	AE5
SNR 0032 S5U	27U	32	32	40	250	-	25.8	S5	A5	K5	AN5U	AE5U
SNR 0040 T5U	27U	40	40	48	300	-	29.4	S5	A5	K5	AN5U	AE5U
SNR 0050 U5U	27U	50	50	58	350	-	34.4	S5	A5	K5	AN5U	AE5U
SNR 0060 V5U	27U	60	60	68	400	-	39.7	S5	A5	K5	AN5U	AE5U
SNR 0050 U6U*	33U	50	50	62	350	-	37.5	S6	-	K6	-	-

* No shim toolholder

PLEASE NOTE: replace "SER" to "SEL" in case you odder left hand toolholder

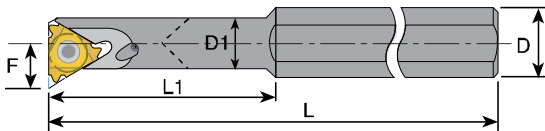
Order example:
Right hand SNR 0005 H0
Left hand SNL 0005 H0

Internal thread turning toolholders with through coolant


Right hand holder shown

Toolholder	Dimensions							Insert screw	Shim screw	Key	Right hand shim	Left hand shim
	Insert	D	D1	min boring Ø	L, mm	L1, mm	F, mm					
SNR 0010 K2B*	11	16	10	12	125	25	7.4	S2	-	K2	-	-
SNR 0013 M3B*	16	16	13	16	150	32	10.2	S3S	-	K3	-	-
SNR 0016 P3B*	16	20	16	19	170	40	11.7	S3S	-	K3	-	-
SNR 0020 P3B	16	20	20	24	170	-	13.7	S3	A3	K3	AN3	AE3
SNR 0025 R3B	16	25	25	29	200	-	16.2	S3	A3	K3	AN3	AE3
SNR 0025 R4B	22	25	25	29	200	-	18.1	S4	A4	K4	AN4	AE4

* No shim toolholder

PLEASE NOTE: replace "SER" to "SEL" in case you order left hand toolholder
Internal thread turning carbide toolholders with through coolant


Right hand holder shown

Toolholder	Параметры							Insert screw	Shim screw	Key	Right hand shim	Left hand shim
	Insert	D	D1	min boring Ø	L, mm	L1, mm	F, mm					
SNR 0005 H0CB	6	6	5.1	6.0	100	26	4.3	S0	-	K0	-	-
SNR 0007 K1CB	8	8	6.6	7.8	125	31	5.3	S1	-	K1	-	-
SNR 0008 K1UCB	8U	8	7.3	9.0	125	35	6.6	S1	-	K1	-	-
SNR 0010 M2CB	11	10	10	12	150	-	7.4	S2	-	K2	-	-
SNR 0012 P2CB	11	12	12	15	170	-	8.4	S2	-	K2	-	-
SNR 0016 R3CB	16	16	16	19	200	-	11.7	S3S	-	K3	-	-
SNR 0020 S3CB*	16	20	20	24	250	-	13.7	S3	A3	K3	AN3	AE3
SNR 0025 S3CB*	16	25	25	29	250	-	16.2	S3	A3	K3	AN3	AE3
SNR 0020 S4CB	22	20	20	24.5	250	-	15.6	S4	-	K4	-	-

* Solid carbide toolholder with shim

PLEASE NOTE: replace "SER" to "SEL" in case you order left hand toolholder

Order example:

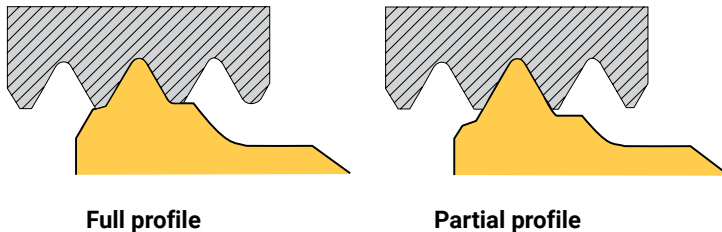
Right hand SNR 0010 K2B

Left hand SNL 0010 K2B

Technical data

Thread turning insert types

Two thread turning insert types are exist



Full profile insert features:

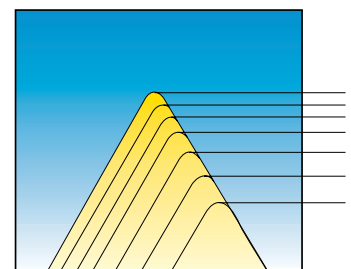
- Exact workpiece diameter is not required – it can be slightly large (for external thread) or slightly less (for internal thread)
- The insert has special edge for burr trimming
- Each insert for one (self) pitch only
- Optimal number of passes.

Partial profile insert features:

- One insert for wide pitches range (less insert types are required)
- Exact workpiece diameter is required (no edge for burr trimming)
- Thread root radius is only correct for the finest pitch from the insert pitches range
- Increased number of passes for coarse pitches from the insert pitches range.

Number of passes and depth of passes

The total cutting depth should be divided into several passes. Each pass should have the same cutting force (equal chip areas). Therefore, on the first pass the maximum cutting depth should be set, and the minimum on the last pass. See fig.



Recommended number of passes and depth of passes

The data are valid for steel with hardness < 300 HB

External metric ISO threads																
Pitch (mm)	6,0	5,5	5,0	4,5	4,0	3,5	3,0	2,5	2,0	1,75	1,5	1,25	1,0	0,80	0,75	0,50
Total cutting depth (mm)	3,82	3,52	3,19	2,87	2,53	2,23	1,92	1,60	1,25	1,13	0,93	0,81	0,65	0,52	0,48	0,33
Pass 1 (mm)	0,46	0,43	0,41	0,37	0,34	0,34	0,28	0,27	0,24	0,22	0,22	0,21	0,18	0,17	0,16	0,11
2	0,43	0,40	0,39	0,34	0,32	0,31	0,26	0,24	0,22	0,20	0,20	0,17	0,16	0,15	0,14	0,09
3	0,35	0,32	0,32	0,28	0,25	0,25	0,21	0,20	0,18	0,17	0,17	0,14	0,12	0,12	0,11	0,07
4	0,30	0,28	0,27	0,24	0,22	0,21	0,18	0,17	0,16	0,14	0,14	0,11	0,11	0,08	0,07	0,06
5	0,29	0,26	0,24	0,22	0,20	0,18	0,16	0,15	0,14	0,12	0,12	0,10	0,08	-	-	-
6	0,26	0,24	0,24	0,22	0,18	0,18	0,15	0,15	0,12	0,10	0,08	0,08	-	-	-	-
7	0,24	0,21	0,22	0,20	0,17	0,16	0,14	0,12	0,11	0,10	-	-	-	-	-	-
8	0,23	0,20	0,20	0,18	0,15	0,15	0,13	0,11	0,08	0,08	-	-	-	-	-	-
9	0,22	0,19	0,19	0,17	0,14	0,14	0,12	0,11	-	-	-	-	-	-	-	-
10	0,19	0,18	0,18	0,16	0,13	0,12	0,11	0,08	-	-	-	-	-	-	-	-
11	0,18	0,17	0,16	0,14	0,12	0,11	0,10	-	-	-	-	-	-	-	-	-
12	0,16	0,15	0,15	0,13	0,12	0,08	0,08	-	-	-	-	-	-	-	-	-
13	0,15	0,14	0,12	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-
14	0,13	0,13	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-	-	-
15	0,13	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Internal metric ISO threads																
Pitch (mm)	6,0	5,5	5,0	4,5	4,0	3,5	3,0	2,5	2,0	1,75	1,5	1,25	1,0	0,80	0,75	0,50
Total cutting depth (mm)	3,54	3,25	2,96	2,65	2,33	2,05	1,78	1,48	1,17	1,05	0,85	0,75	0,60	0,49	0,46	0,31
Pass 1 (mm)	0,46	0,43	0,42	0,37	0,34	0,32	0,28	0,26	0,23	0,22	0,20	0,17	0,17	0,17	0,16	0,10
2	0,43	0,40	0,40	0,34	0,31	0,30	0,26	0,25	0,21	0,20	0,18	0,17	0,15	0,14	0,13	0,08
3	0,35	0,33	0,32	0,28	0,24	0,24	0,21	0,18	0,17	0,15	0,15	0,14	0,11	0,11	0,10	0,07
4	0,30	0,26	0,26	0,23	0,21	0,19	0,16	0,15	0,15	0,13	0,13	0,10	0,09	0,07	0,07	0,06
5	0,26	0,22	0,22	0,21	0,18	0,17	0,14	0,13	0,12	0,10	0,11	0,09	0,08	-	-	-
6	0,22	0,20	0,20	0,19	0,15	0,15	0,13	0,12	0,11	0,09	0,08	0,08	-	-	-	-
7	0,20	0,18	0,17	0,16	0,14	0,14	0,12	0,11	0,10	0,08	-	-	-	-	-	-
8	0,19	0,17	0,16	0,15	0,13	0,13	0,11	0,10	0,08	0,08	-	-	-	-	-	-
9	0,18	0,16	0,16	0,14	0,12	0,12	0,10	0,10	-	-	-	-	-	-	-	-
10	0,16	0,15	0,15	0,13	0,12	0,11	0,10	0,08	-	-	-	-	-	-	-	-
11	0,15	0,14	0,14	0,12	0,11	0,10	0,09	-	-	-	-	-	-	-	-	-
12	0,15	0,14	0,14	0,12	0,10	0,08	0,08	-	-	-	-	-	-	-	-	-
13	0,14	0,13	0,12	0,11	0,10	-	-	-	-	-	-	-	-	-	-	-
14	0,13	0,12	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

External and Internal Whitworth pipe threads																		
Pitch (mm)	4,0	4,5	5	6	7	8	9	10	11	12	14	16	18	19	20	26	28	
Total cutting depth (mm)	4,29	3,82	3,44	2,90	2,50	2,17	1,93	1,76	1,58	1,45	1,20	1,13	1,01	0,96	0,92	0,72	0,69	
Pass 1 (mm)	0,49	0,46	0,45	0,38	0,37	0,32	0,30	0,29	0,28	0,28	0,24	0,24	0,23	0,22	0,21	0,19	0,18	
2	0,46	0,43	0,43	0,36	0,35	0,30	0,28	0,27	0,26	0,26	0,22	0,22	0,22	0,22	0,21	0,18	0,17	
3	0,38	0,38	0,38	0,30	0,29	0,24	0,23	0,22	0,22	0,22	0,18	0,19	0,19	0,18	0,17	0,15	0,14	
4	0,36	0,33	0,32	0,26	0,25	0,21	0,20	0,19	0,19	0,18	0,15	0,16	0,16	0,14	0,14	0,12	0,12	
5	0,34	0,29	0,28	0,22	0,22	0,19	0,18	0,17	0,16	0,16	0,13	0,13	0,13	0,12	0,11	0,08	0,08	
6	0,31	0,25	0,25	0,21	0,19	0,17	0,15	0,15	0,14	0,14	0,11	0,11	0,08	0,08	0,08	-	-	
7	0,29	0,24	0,22	0,19	0,18	0,15	0,14	0,14	0,13	0,13	0,09	0,08	-	-	-	-	-	
8	0,27	0,22	0,20	0,17	0,16	0,14	0,13	0,13	0,12	0,08	0,08	-	-	-	-	-	-	
9	0,24	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,08	-	-	-	-	-	-	-	-	
10	0,22	0,18	0,18	0,15	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-	
11	0,20	0,17	0,17	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-	-	
12	0,19	0,16	0,15	0,14	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-	
13	0,17	0,15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

External trapezoidal thread (TR)

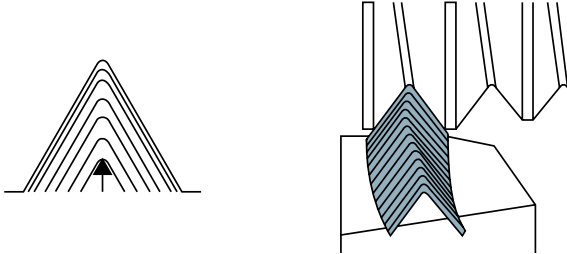
Pitch (mm)	14,0	12,0	10,0	9,0	8,0	7,0	6,0	5,0	4,0	3,0	2,0	1,5
Total cutting depth (mm)	8,2	6,72	5,7	5,16	4,68	4,17	3,66	2,89	2,38	1,83	1,33	0,97
1	0,40	0,38	0,38	0,38	0,37	0,37	0,37	0,34	0,31	0,27	0,25	0,23
2	0,37	0,36	0,36	0,35	0,35	0,34	0,35	0,33	0,28	0,25	0,24	0,22
3	0,36	0,34	0,34	0,34	0,34	0,33	0,32	0,27	0,24	0,21	0,20	0,18
4	0,36	0,34	0,34	0,33	0,33	0,31	0,29	0,25	0,20	0,17	0,17	0,14
5	0,35	0,32	0,32	0,31	0,31	0,29	0,27	0,23	0,19	0,15	0,14	0,12
6	0,35	0,32	0,32	0,30	0,29	0,26	0,25	0,21	0,18	0,13	0,13	0,08
7	0,34	0,30	0,31	0,29	0,28	0,26	0,23	0,20	0,16	0,13	0,11	-
8	0,34	0,30	0,29	0,28	0,27	0,26	0,22	0,20	0,15	0,12	0,09	-
9	0,34	0,30	0,28	0,26	0,25	0,24	0,22	0,18	0,15	0,12	-	-
10	0,33	0,29	0,27	0,25	0,24	0,23	0,20	0,16	0,15	0,10	-	-
11	0,33	0,29	0,25	0,24	0,23	0,22	0,18	0,15	0,14	0,10	-	-
12	0,32	0,29	0,24	0,23	0,21	0,22	0,17	0,14	0,13	0,08	-	-
13	0,32	0,28	0,23	0,22	0,20	0,20	0,17	0,13	0,10	-	-	-
14	0,31	0,27	0,22	0,21	0,19	0,19	0,16	0,10	-	-	-	-
15	0,31	0,25	0,22	0,21	0,19	0,17	0,14	-	-	-	-	-
16	0,30	0,25	0,20	0,19	0,18	0,16	0,12	-	-	-	-	-
17	0,30	0,24	0,19	0,18	0,17	0,12	-	-	-	-	-	-
18	0,29	0,22	0,18	0,16	0,15	-	-	-	-	-	-	-
19	0,28	0,20	0,17	0,15	0,13	-	-	-	-	-	-	-
20	0,27	0,20	0,16	0,15	-	-	-	-	-	-	-	-
21	0,23	0,19	0,15	0,13	-	-	-	-	-	-	-	-
22	0,23	0,18	0,15	-	-	-	-	-	-	-	-	-
23	0,21	0,17	0,13	-	-	-	-	-	-	-	-	-
24	0,19	0,16	-	-	-	-	-	-	-	-	-	-
25	0,17	0,15	-	-	-	-	-	-	-	-	-	-
26	0,16	0,13	-	-	-	-	-	-	-	-	-	-
27	0,16	-	-	-	-	-	-	-	-	-	-	-
28	0,15	-	-	-	-	-	-	-	-	-	-	-
29	0,13	-	-	-	-	-	-	-	-	-	-	-

Internal trapezoidal thread (TR)

Pitch (mm)	14,0	12,0	10,0	9,0	8,0	7,0	6,0	5,0	4,0	3,0	2,0	1,5
Total cutting depth (mm)	8,47	6,71	5,7	5,19	4,68	4,17	3,65	2,89	2,38	1,85	1,34	0,98
1	0,40	0,38	0,38	0,38	0,37	0,37	0,37	0,34	0,31	0,27	0,25	0,23
2	0,37	0,36	0,36	0,35	0,35	0,34	0,34	0,33	0,28	0,25	0,24	0,22
3	0,36	0,34	0,34	0,34	0,34	0,33	0,32	0,27	0,24	0,22	0,21	0,19
4	0,36	0,34	0,34	0,33	0,33	0,31	0,29	0,25	0,20	0,17	0,17	0,14
5	0,35	0,32	0,32	0,31	0,31	0,29	0,27	0,23	0,19	0,15	0,14	0,12
6	0,35	0,32	0,32	0,31	0,29	0,26	0,25	0,21	0,18	0,14	0,13	0,08
7	0,34	0,30	0,31	0,29	0,28	0,26	0,23	0,20	0,16	0,13	0,11	-
8	0,34	0,30	0,29	0,29	0,27	0,26	0,22	0,20	0,15	0,12	0,09	-
9	0,34	0,30	0,28	0,26	0,25	0,24	0,22	0,18	0,15	0,12	-	-
10	0,33	0,29	0,27	0,25	0,24	0,23	0,20	0,16	0,15	0,10	-	-
11	0,33	0,29	0,25	0,24	0,23	0,22	0,18	0,15	0,14	0,10	-	-
12	0,32	0,28	0,24	0,23	0,21	0,22	0,17	0,14	0,13	0,08	-	-
13	0,32	0,28	0,23	0,22	0,20	0,20	0,17	0,13	0,10	-	-	-
14	0,31	0,27	0,22	0,21	0,19	0,19	0,16	0,10	-	-	-	-
15	0,31	0,25	0,22	0,21	0,19	0,17	0,14	-	-	-	-	-
16	0,30	0,25	0,20	0,20	0,18	0,16	0,12	-	-	-	-	-
17	0,30	0,24	0,19	0,18	0,17	0,12	-	-	-	-	-	-
18	0,29	0,22	0,18	0,16	0,15	-	-	-	-	-	-	-
19	0,28	0,20	0,17	0,15	0,13	-	-	-	-	-	-	-
20	0,27	0,20	0,16	0,15	-	-	-	-	-	-	-	-
21	0,27	0,19	0,15	0,13	-	-	-	-	-	-	-	-
22	0,23	0,18	0,15	-	-	-	-	-	-	-	-	-
23	0,23	0,17	0,13	-	-	-	-	-	-	-	-	-
24	0,21	0,16	-	-	-	-	-	-	-	-	-	-
25	0,19	0,15	-	-	-	-	-	-	-	-	-	-
26	0,17	0,13	-	-	-	-	-	-	-	-	-	-
27	0,16	-	-	-	-	-	-	-	-	-	-	-
28	0,16	-	-	-	-	-	-	-	-	-	-	-
29	0,15	-	-	-	-	-	-	-	-	-	-	-
30	0,13	-	-	-	-	-	-	-	-	-	-	-

Thread turning methods

Radial infeed, infeed angle 0° (suitable for conventional lathes)



Advantages:

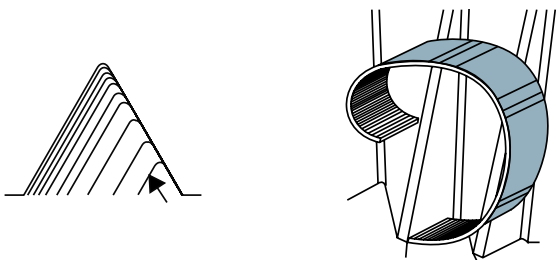
- Easiest to use (standard threading program)
- The cutting edge is protect from chipping at both sides
- Wide application (cutting conditions easy to change).

Disadvantages:

- Difficult chip control
- Heavy load on the corner radius
- Ineffective for coarse pitch threading.

Flank infeed

Infeed angle is ½ of thread angle
(e.g. 30° for metric ISO thread)



Advantages:

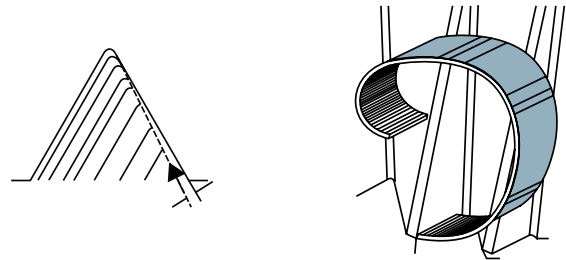
- Improved chip control compared to Radial infeed method
- Reduced cutting force
- Suitable for coarse pitch threads.

Disadvantages:

- One of two insert cutting edges does not cutting
This can result to the thread surface damage;
vibration and chipping are also possible
- Poor thread quality is possible.

Modified flank infeed (first choice for CNC lathes)

Infeed angle should be 2,5-5% less thread angle
(min 29° for metric ISO thread)



Advantages:

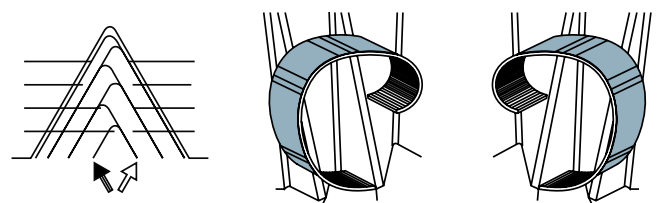
- Optimal chip control (especially important for internal threads)
- Reduced cutting force
- Suitable for coarse pitch threads
- High surface quality
- High insert lifetime.

Disadvantages:

- Complex machining programming.

PLEASE NOTE: the last pass with radial infeed
(infeed angle 0°)

Incremental infeed (first choice for coarse threads)



Advantages:

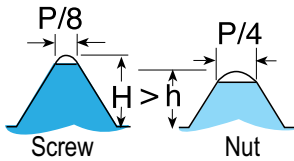
- Equal flank wear of the right and left cutting edges
- High insert lifetime
- Reduced cutting force
- Suitable for coarse pitch threads.

Disadvantages:

- Complex machining programming
- Chip control problem is possible.

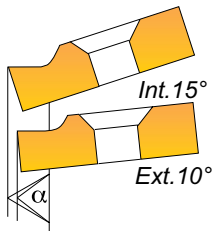
PLEASE NOTE: the last pass with radial infeed
(infeed angle 0°)

Thread turning inserts features



External and Internal tools are not interchangeable.

External and internal threads have different depth radii at most cases.



External and internal inserts provide correct appropriate thread geometry with only respectively external or internal toolholder.

Cutting conditions formulae

Rotation frequency

$$n = \frac{1000 \cdot v_c}{\pi \cdot D_c} \quad (\text{rev/min})$$

D_c – Part diameter, mm

Cutting speed

$$v_c = \frac{\pi \cdot D_c \cdot n}{1000} \quad (\text{m/min})$$

D_2 – Thread diameter (Medium thread diameter), mm

n – Rotation frequency, rev/min

Support speed (Feed rate)

$$v_f = \frac{n \cdot P_h}{1000} \quad \text{m/min}$$

P – Pitch, mm

P_h – Thread lead, mm (Multi-start thread)

Thread lead

$$P_h = P \cdot \text{Multi-start number (mm)}$$

v_f – Support speed (Feed rate), m/min

Lead angle

$$\lambda = \arctan \frac{P_h}{D_2 \cdot \pi} \quad (^\circ)$$

TPI – Thread per inch

v_c – Cutting speed, m/min

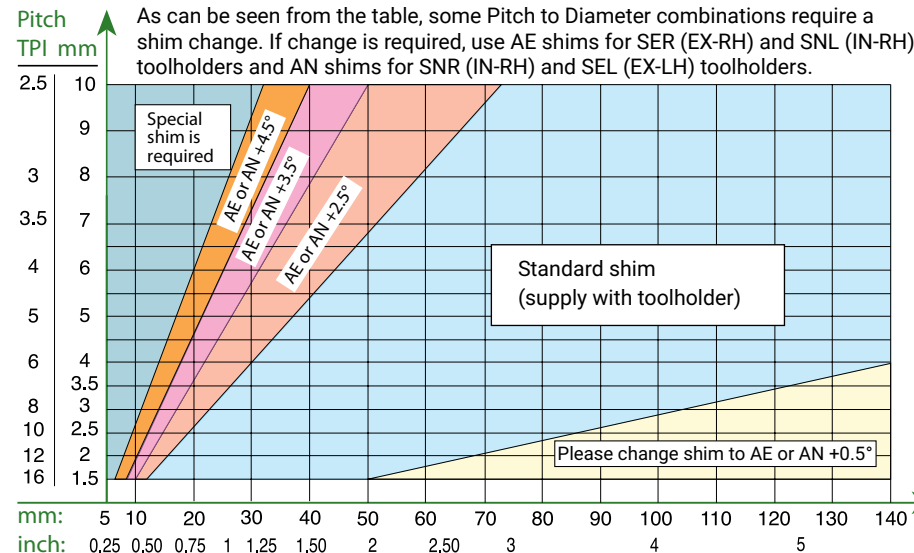
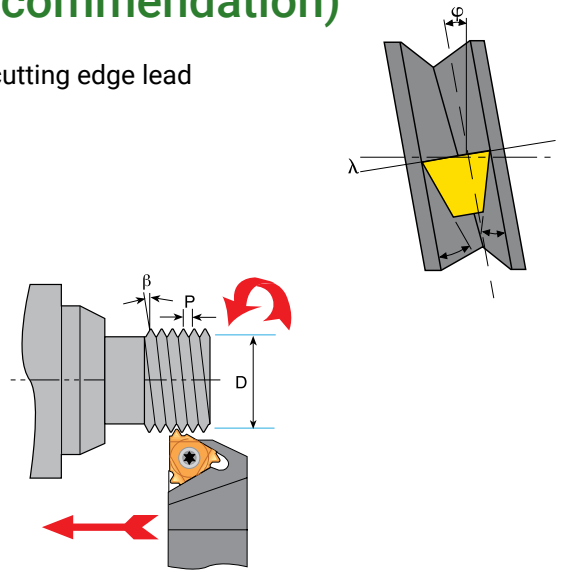
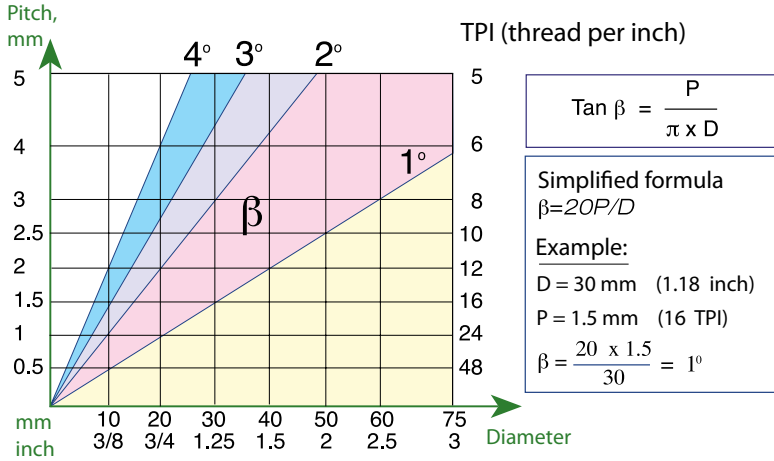
Mm to TPI conversion

$$\text{TPI} = \frac{25,4}{P}$$

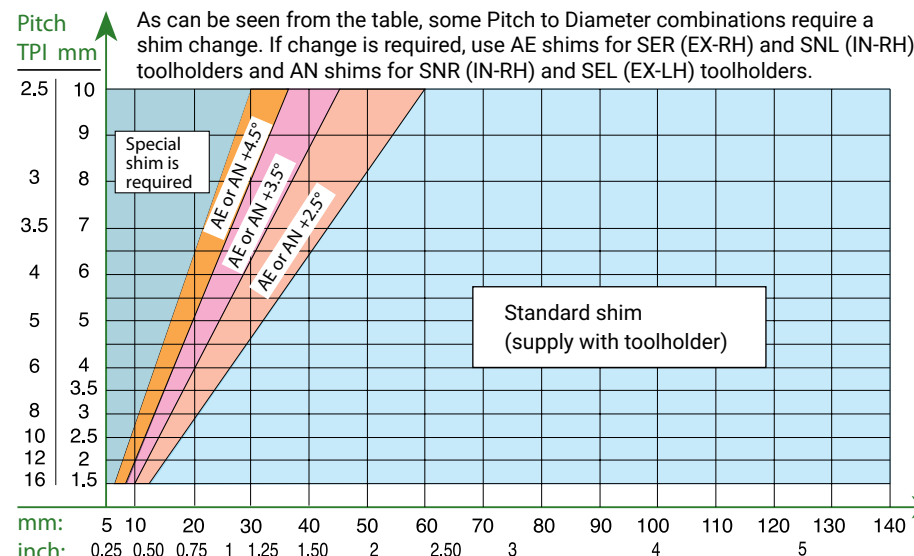
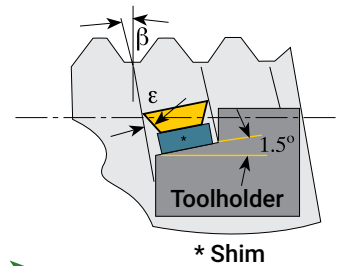
λ – Lead angle ($^\circ$)

Thread lead angle (shim change recommendation)

For correct thread profile machining and for uniform insert wear the cutting edge lead angle and the machining thread lead angle should be equal.



ACME
STUB ACME
TRAPEZOIDAL (DIN 103)
ROUND (DIN 405)



Partial profile 60°
Partial profile 55°
ISO
UN
NPT
BSPT
Whitworth

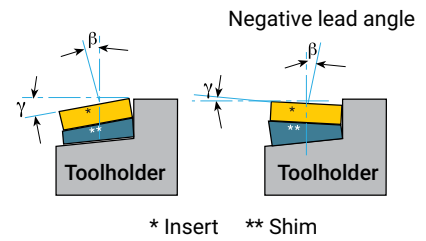
PLEASE NOTE: a shim should be changed in accordance to thread lead (not with thread pitch) in case of Multi-start thread.

Shim types

MEGATEC toolholders have standard lead angle 1.5°.

The shim should be changed to another one with correct lead angle if a lead angle compensation is required.

In case of machining RH thread with LH toolholder or LH thread with RH toolholder the negative lead angle is needed.



Shim angle (lead angle compensation)

Insert size	Shim and toolholder	4.5°	3.5°	2.5°	1.5° (Standard shim)"	0.5°	-0.5°	-1.5°
3	EX-RH or IN-LH	AE3+4.5	AE3+3.5	AE3+2.5	AE3	AE3+0.5	AE3-0.5	AE3-1.5
3	EX-LH or IN-RH	AN 3+4.5	AN 3+3.5	AN 3+2.5	AN 3	AN 3+0.5	AN 3-0.5	AN 3-1.5
4	EX-RH or IN-LH	AE4+4.5	AE4+3.5	AE4+2.5	AE4	AE4+0.5	AE4-0.5	AE4-1.5
4	EX-LH or IN-RH	AN 4+4.5	AN 4+3.5	AN 4+2.5	AN 4	AN 4+0.5	AN 4-0.5	AN 4-1.5
4U	EX-RH or IN-LH	AE4U+4.5	AE4U+3.5	AE4U+2.5	AE4U	AE4U+0.5	AE4U-0.5	AE4U-1.5
4U	EX-LH or IN-RH	AN 4U+4.5	AN 4U+3.5	AN 4U+2.5	AN 4U	AN 4U+0.5	AN 4U-0.5	AN 4U-1.5
5	EX-RH or IN-LH	AE5+4.5	AE5+3.5	AE5+2.5	AE5	AE5+0.5	AE5-0.5	AE5-1.5
5	EX-LH or IN-RH	AN 5+4.5	AN 5+3.5	AN 5+2.5	AN 5	AN 5+0.5	AN 5-0.5	AN 5-1.5
5U	EX-RH or IN-LH	AE5U+4.5	AE5U+3.5	AE5U+2.5	AE5U	AE5U+0.5	AE5U-0.5	AE5U-1.5
5U	EX-LH or IN-RH	AN 5U+4.5	AN 5U+3.5	AN 5U+2.5	AN 5U	AN 5U+0.5	AN 5U-0.5	AN 5U-1.5

* Example: AE3 shim is suitable for external right hand toolholder and for internal left hand toolholder

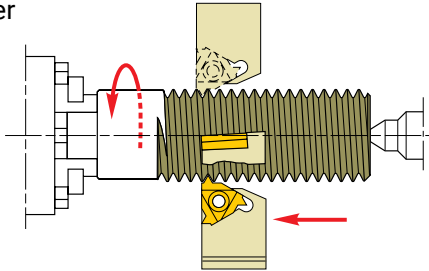
EX – external, **IN** – internal, **RH** – right hand, **LH** – left hand

Thread turning methods

External threads cutting methods

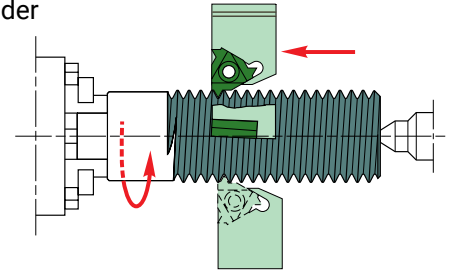
External right hand thread

- Counter clockwise rotation
- Feed towards spindle
- Right hand toolholder
- Right hand insert



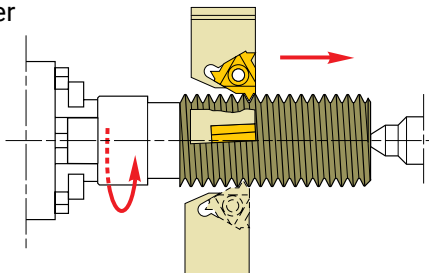
External left hand thread

- Clockwise rotation
- Feed towards spindle
- Left hand toolholder
- Left hand insert



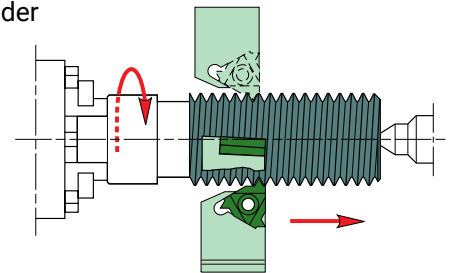
External right hand thread

- Clockwise rotation
- Feed towards tailstock
- Right hand toolholder
- Right hand insert



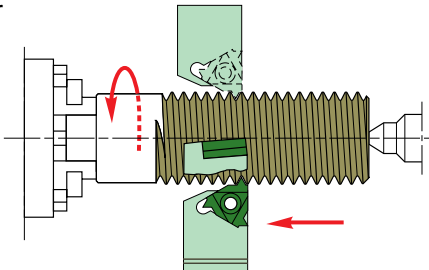
External left hand thread

- Counter clockwise rotation
- Feed towards tailstock
- Left hand toolholder
- Left hand insert



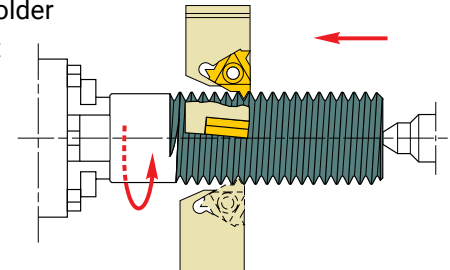
External right hand thread

- Counter clockwise rotation
- Feed towards spindle
- Left hand toolholder
- Left hand insert



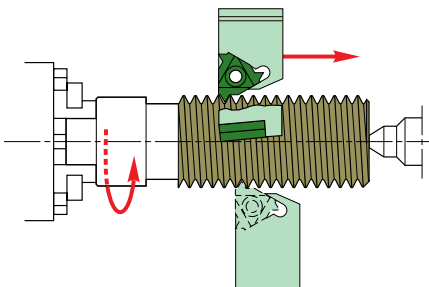
External left hand thread

- Clockwise rotation
- Feed towards spindle
- Right hand toolholder
- Right hand insert



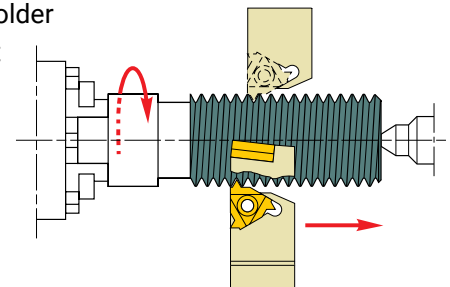
External right hand thread

- Clockwise rotation
- Feed towards tailstock
- Left hand toolholder
- Left hand insert



External left hand thread

- Counter clockwise rotation
- Feed towards tailstock
- Right hand toolholder
- Right hand insert

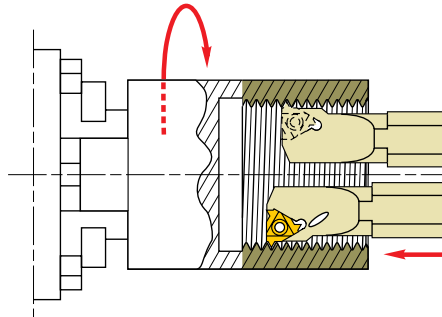


Internal threads cutting methods

Internal right hand thread:

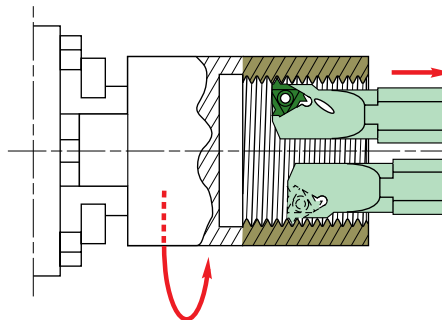
1-st method:

- Counter clockwise rotation
- Feed towards spindle
- Right hand toolholder
- Right hand insert



2-st method:

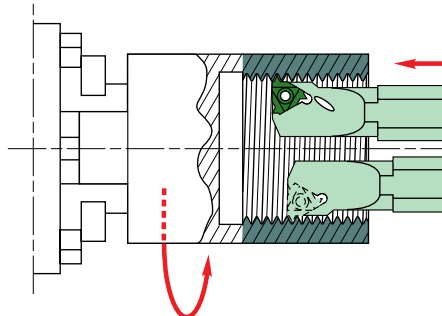
- Clockwise rotation
- Feed towards tailstock
- Left hand toolholder
- Left hand insert



Internal left hand thread:

1-st method:

- Counter clockwise rotation
- Feed towards spindle
- Left hand toolholder
- Left hand insert



2-st method:

- Clockwise rotation
- Feed towards tailstock
- Right hand toolholder
- Right hand insert

