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Tooling application table (External thread)

Thread types		Metric	Unified	Parallel pipe	Whitworth	Tapered pipe	American national tapered pipe	30° trapezoidal
		M	UN, UNC UNF, UNEF	G(PF)	W	R(PT) (BSPT)	NPT	Tr
Thread shape								
Toolholder shape	Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm
 KTN ⚙ J22 (KTN-JCT) ⚙ J23	Full profile	0.5~5.0 (0.5~3.0) ⚙ J6	24~8 (24~8) ⚙ J8	19~11 (19~11) ⚙ J10	16~11 (16~11) ⚙ J10	28~11 (28~11) ⚙ J12	18~11.5 (18~11.5) ⚙ J14	-
	Partial profile	0.5~5.0 (0.5~3.0) ⚙ J16	48~5 (48~8) ⚙ J16	28~11 (28~11) ⚙ J18	40~5 (40~8) ⚙ J18	28~11 (28~11) ⚙ J18	-	2.0~5.0 (2.0~3.0) ⚙ J20
 KTNs ⚙ J24	Full profile	0.5~3.0 ⚙ J6	24~8 ⚙ J8	19~11 ⚙ J10	16~11 ⚙ J10	28~11 ⚙ J12	18~11.5 ⚙ J14	-
	Partial profile	0.5~3.0 ⚙ J16	48~8 ⚙ J16	28~11 ⚙ J18	40~8 ⚙ J18	28~11 ⚙ J18	-	2.0~3.0 ⚙ J20
 Sleeve holder S-KTN ⚙ J25	Full profile	1.0~2.0 ⚙ J36	-	-	-	-	-	-
	Partial profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
 KTT ⚙ J37	Full profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
	Partial profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
 KTTX ⚙ J35	Full profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
	Partial profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
 S-KTTX ⚙ J35	Full profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
	Partial profile	0.5~3.5 ⚙ J36	56~8 ⚙ J36	28~11 ⚙ J36	24~7 ⚙ J36	28~11 ⚙ J36	-	-
 KTKF ⚙ J29	Full profile	0.2~1.5 ⚙ J29	64~18 ⚙ J29	28~19 ⚙ J29	40~16 ⚙ J29	28~19 ⚙ J29	-	-
	Partial profile	0.2~1.5 ⚙ J29	64~18 ⚙ J29	28~19 ⚙ J29	40~16 ⚙ J29	28~19 ⚙ J29	-	-
 KTKF / KTKF-Y ⚙ J30, J31 (Goose-neck holder / Y-axis holder)	Full profile	0.2~1.5 ⚙ J29	64~18 ⚙ J29	28~19 ⚙ J29	40~16 ⚙ J29	28~19 ⚙ J29	-	-
	Partial profile	0.2~1.5 ⚙ J29	64~18 ⚙ J29	28~19 ⚙ J29	40~16 ⚙ J29	28~19 ⚙ J29	-	-

Pitch inside () indicates KTN-JCT.

Tooling application table (Internal thread)

Thread types	Metric	Unified	Parallel pipe	Whitworth	Tapered pipe	American national tapered pipe	30° trapezoidal	
	M	UN, UNC UNF, UNEF	G(PF) Rp(PS)	W	Rc(PT) (BSPT)	NPT	Tr	
Thread shape								
Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm	
Toolholder shape								
 EZT J40	Partial profile	0.5~1.75 J40	36~16 J40	28~19 J40	24~18 J40	28~19 J40	18~14 J40	-
 VNT J44	Partial profile	0.75~1.5 J44	28~18 J44	-	-	-	-	-
 SIN J26	Full profile	0.5~5.0 J7	24~8 J9	19~11 J11	16~11 J11	28~11 J13	18~11.5 J15	-
 SIN J26	Partial profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	-	2.0~5.0 J21
 CIN J27	Full profile	1.0~5.0 J7	24~8 J9	19~11 J11	16~11 J11	14~11 J13	18~11.5 J15	-
 CIN J27	Partial profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	-	2.0~5.0 J21
 KITG J39	Partial profile	0.5~3.0 J38	48~8 J38	28~11 J38	24~8 J38	28~11 J38	-	-
 STWP J47	Partial profile	0.75~3.5 J46	28~8 J46	-	-	-	-	-

For parallel pipe and tapered pipe, the average values are only to be used if specifically recommendation.

Threading insert with molded chipbreaker

TQ chipbreaker

Increase productivity with improved chip control

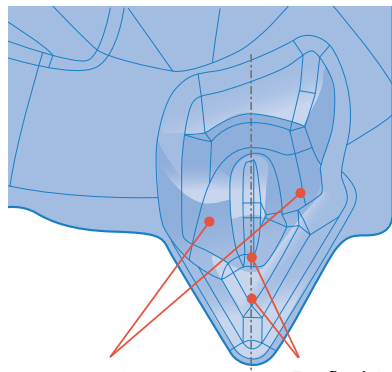
Improved tool life with new insert grades

1 Stable chip control

Stable chip control with asymmetric chipbreaker design

Chipbreaker geometry

Stable chip control regardless of cutting direction

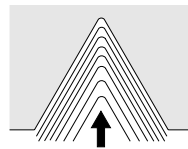


For radial infeed
Asymmetric dot design
controls chip-flow
direction

For flank infeed /
Modified flank infeed
Breaks chips easily with
shallow breaker depth

Chip control performance (Internal evaluation)

Radial infeed

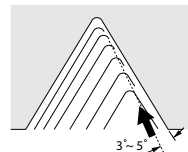


TQ chipbreaker



Competitor A

Modified Flank infeed



TQ chipbreaker



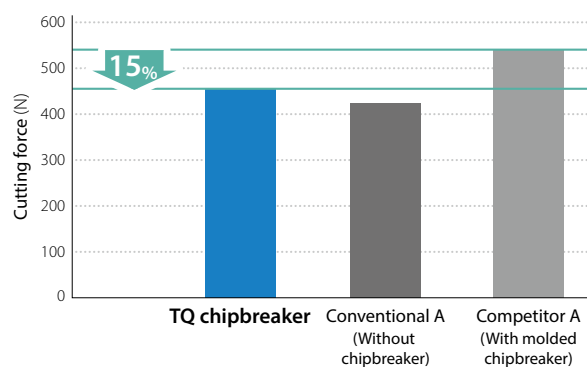
Competitor A

Cutting conditions: $V_c = 150$ m/min, $a_p = 0.12$ mm (4th pass), $L = 25$ mm, wet, 16ER150 ISO type
M45×1.5 workpiece material: SCM415

2 Low cutting force and suppressed vibration

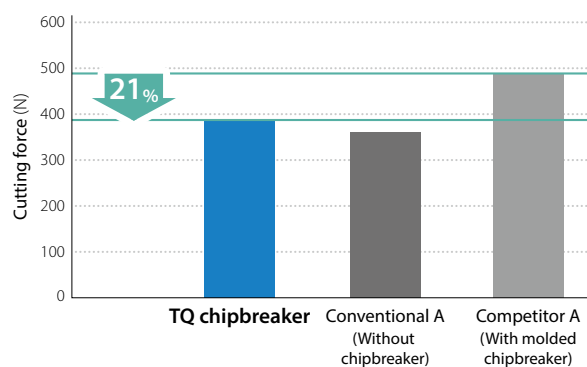
Strong edge and low cutting force

Comparison of cutting force radial infeed (Internal evaluation)



Cutting conditions: $V_c = 150$ m/min, wet, 16ER150 ISO type
Cutting force shows the average of 6 passes, M35×1.5 workpiece material : SCM415

Cutting force comparison modified flank infeed (Internal evaluation)



Cutting conditions: $V_c = 150$ m/min, adjusted angle: 5 degrees, wet, 16ER150 ISO type
Cutting force shows the average of 6 passes, M35×1.5 workpiece material : SCM415

3 Improved tool life with new insert grades

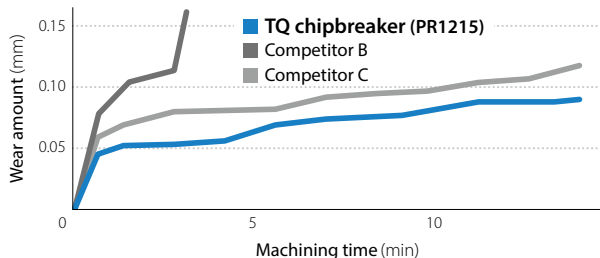
For steel machining

PR1215

For Stainless steel machining PR1515 (First recommendation) PR1535 (Stability focused)

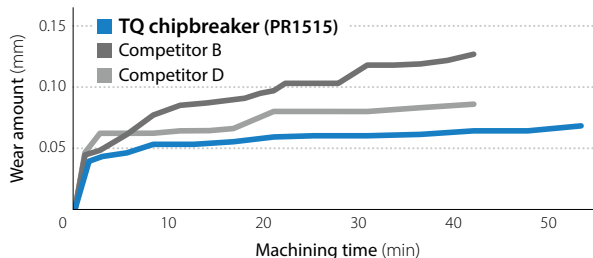
Wear resistance comparison (Internal evaluation)

Workpiece material : SCM435



Cutting conditions: Vc = 150 m/min, TP = 1.5 mm, number of passes = 6, wet, 16ER150 ISO type Radial infeed

Workpiece material : SUS304



Cutting conditions: Vc = 100 m/min, TP = 1.5 mm, number of passes = 8, wet, 16ER150 ISO type Radial infeed

KTKF J29~J31

“Threading” is added to small parts machining special tool series

For threading

TKFT



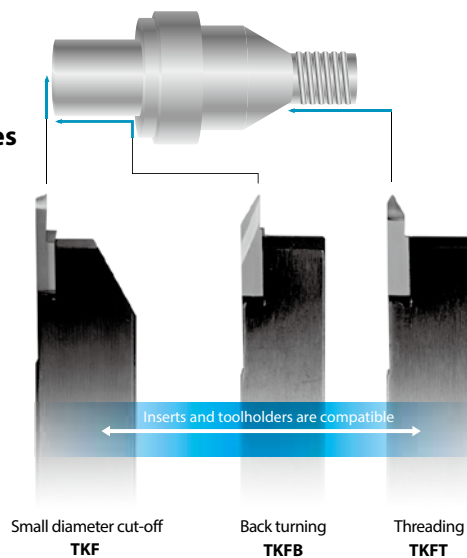
Applicable for various type of threading

Metric (M)

Parallel pipe [G(PF)]

Unified (UN)

Tapered pipe [R(PT) (BSPT)]



Threading insert features

Full profile and partial profile

	Insert shape	Function	Features
Full profile			(1) Burr-free thread surface; high quality (Smooth feeling) (2) Leave the workpiece diameter slightly oversized for full topping (3) Every pitch size requires a specific insert
Partial profile			(1) Thread's corner tends to be sharp edged (2) Thread's O.D. or I.D. need to be finished to the size before threading (3) One insert can machine various pitch sizes

Thread precision

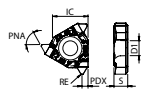
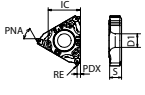
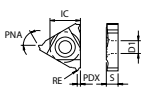
Thread types		Thread precision		
		Strict		loose
Metric	External	4h (1st class)	6g (2nd class)	8g (3rd class)
	Internal	5H (1st class)	6H (2nd class)	7H (3rd class)
Unified	External	3A	2A	1A
	Internal	3B	2B	1B
Applicable precision with		*⊘	✓	✓

* Not recommended if strict thread precision is required.



Threading

External threading (Metric)

			Carbon steel / Alloy steel															P									
			Stainless steel															M									
			Cast iron															K									
			Non-ferrous metals															N									
Insert		Description	Thread type	Symbol thread type	Pitch (mm)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide					Cement	Applicable toolholder ➡ J22~J25								
								IC	S	D1	RE	PDX	PVD			-	-										
													PR115	PR125	PR1515					PR1535	GW15	TC60M					
		16ER 100ISO-TF 125ISO-TF 150ISO-TF 175ISO-TF 200ISO-TF 250ISO-TF 300ISO-TF	Metric	M	1 1.25 1.5 1.75 2 2.5 3	Full profile	60	9.525	3.68	4	0.12	0.8	●	●	●	●											
											0.15	0.9	●	●	●	●											
											0.19	1	●	●	●	●											
											0.22	1.6	●	●	●	●											
											0.25	1.5	●	●	●	●											
											0.33	1.6	●	●	●	●											
											0.41	1.6	●	●	●	●											
	 Molded Chipbreaker	16ER 100ISO-TQ 125ISO-TQ 150ISO-TQ 175ISO-TQ 200ISO-TQ 250ISO-TQ 300ISO-TQ	Metric	M	1 1.25 1.5 1.75 2 2.5 3	Full profile	60	9.525	3.68	4	0.12	0.8	●	●	●	●											
											0.15	0.9	●	●	●	●											
											0.19	1	●	●	●	●											
											0.22	1.6	●	●	●	●											
											0.25	1.5	●	●	●	●											
											0.33	1.6	●	●	●	●											
											0.41	1.6	●	●	●	●											
		16ER 050ISO 075ISO 100ISO 125ISO 150ISO 175ISO 200ISO 250ISO	Metric	M	0.5 0.75 1 1.25 1.5 1.75 2 2.5	Full profile	60	9.525	3.68	4	0.06	0.4	●				●	●									
											0.09	0.53	●				●	●									
											0.12	0.8	●				●	●									
											0.15	0.9	●				●	●									
											0.19	1	●				●	●									
											0.22	1.5	●				●	●									
											0.25	1.5	●				●	●									
											0.32	1.6	●				●	●									
											16EL 050ISO 075ISO 100ISO 125ISO 150ISO 200ISO	Metric	M	0.5 0.75 1 1.25 1.5 2	Full profile	60	9.525	3.68	4	0.06	0.4	●					
		0.09	0.53	●																							
		0.12	0.8	●																							
		0.15	0.9	●																							
		0.19	1	●																							
		0.25	1.5	●																							
		22ER 300ISO 350ISO 400ISO 450ISO 500ISO	Metric	M	3 3.5 4 4.5 5	Full profile	60	12.7	4.9	4.85										0.41	2.1	●				●	
																				0.48	2.1	●				●	
																				0.55	2.8	●				●	
											0.62	2.8	●				●										
0.7	2.8										●				●												

Internal threading (Metric)

			Carbon steel / Alloy steel										●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
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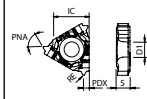
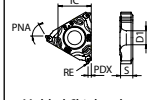
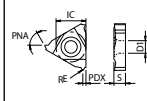
Right-hand shown

Recommended cutting conditions J48
Depth of Cut & Number of Passes J49

● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

External threading (Unified)

		Carbon steel / Alloy steel										☐	☒	☐	☐	☐	☐	☐	☐	P								
		Stainless steel																		M								
		Cast iron																		K								
		Non-ferrous metals																		N								
Insert		Description		Thread type	Symbol thread type	Pitch (TPI)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide				Cermet	Applicable toolholder J22~J25									
									IC	S	D1	RE	PDX	PVD														
														PR1115	PR1215	PR1515	PR1535											
																				-	TC60M							
		16ER	08UN-TF	Unified	UN UNF UNEF	Full profile	60	9.525	3.68	4	0.43	1.75	●	●	●	●												
			10UN-TF								0.34	1.5	●	●	●	●												
			12UN-TF								0.27	1.5	●	●	●	●												
			13UN-TF								0.25	1.5	●	●	●	●												
			14UN-TF								0.23	1.5	●	●	●	●												
			16UN-TF								0.2	1.1	●	●	●	●												
			18UN-TF								0.18	1	●	●	●	●												
			20UN-TF								0.15	1	●	●	●	●												
			24UN-TF								0.12	0.8	●	●	●	●												
											 Molded Chipbreaker	16ER	08UN-TQ	Unified	UN UNF UNEF	Full profile			60	9.525	3.68	4	0.43	1.75	●	●	●	●
10UN-TQ	0.34	1.5		●	●	●	●																					
12UN-TQ	0.27	1.5		●	●	●	●																					
13UN-TQ	0.25	1.5		●	●	●	●																					
14UN-TQ	0.23	1.5		●	●	●	●																					
16UN-TQ	0.2	1.1		●	●	●	●																					
18UN-TQ	0.18	1		●	●	●	●																					
20UN-TQ	0.15	1		●	●	●	●																					
24UN-TQ	0.12	0.8		●	●	●	●																					
		16ER		12UN	Unified	UN UNF UNEF	Full profile	60	9.525	3.68			4				0.27	1.5					●	●	●	●		
			14UN	0.23							1.5	●		●	●	●												
			16UN	0.2							1.1	●		●	●	●												
			18UN	0.18							1	●		●	●	●												
			20UN	0.16							1	●		●	●	●												
			24UN	0.13							0.8	●		●	●	●												
			22ER	08UN							8						12.7	4.9	4.85	0.43	2.1	●	●	●	●	KTNR...-22		

Right-hand shown

Recommended cutting conditions J48
Depth of Cut & Number of Passes J49

● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

Internal threading (Unified)

		Carbon steel / Alloy steel										☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ </
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Right-hand shown

Recommended cutting conditions J48
Depth of Cut & Number of Passes J49

● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

Threading

		Carbon steel / Alloy steel														P		
		Stainless steel														M		
		Cast iron														K		
		Non-ferrous metals														N		
Insert		Description	Thread type	Symbol thread type	Pitch (TPI)		Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide			Cement	Applicable toolholder J22~J25
					G(PF)	W			IC	S	D1	RE	PDX	PVD			-	
														PR115	PR1215	PR1515		
		16ER 11W-TF 14W-TF 16W-TF 19W-TF	Parallel pipe Whitworth	G(PF) W	11 14 - 19	11 14 16 -	Full profile	55	9.525	3.68	4	0.3 0.23 0.19 0.16	1.5 1.5 1.1 1	● ● ● ●	● ● ● ●	● ● ● ●		
	 Molded Chipbreaker	16ER 11W-TQ 14W-TQ 16W-TQ 19W-TQ	Parallel pipe Whitworth	G(PF) W	11 14 - 19	11 14 16 -	Full profile	55	9.525	3.68	4	0.3 0.23 0.19 0.16	1.5 1.5 1.1 1	● ● ● ●	● ● ● ●	● ● ● ●		KTNR...-16 KTNR...-16F KTNR...-16JCT KTN SR...-16 S...-KTNL16
		16ER 11W 14W 19W	Parallel pipe Whitworth	G(PF) W	11 14 19	11 14 -	Full profile	55	9.525	3.68	4	0.3 0.23 0.16	1.5 1.5 1	● ● ●	● ● ●	● ● ●		

Right-hand shown

Threading

TC60M (Threading inserts) are sold in 10 piece boxes

Internal threading (Parallel pipe G(PF), Whitworth W)

		Carbon steel / Alloy steel																																																																																																																																																																																																																																																																																																																																																																																												
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No wiper effect is expected when threading the internal whitworth screw using 16IR●●W insert.
Right-hand shown

Recommended cutting conditions J48
Depth of Cut & Number of Passes J50

● : Standard item

Threading inserts are
sold in 5 piece boxes

TC60M (Threading inserts) are
sold in 10 piece boxes

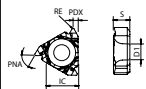
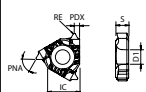
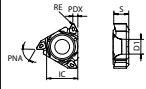
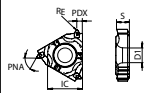
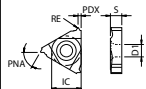
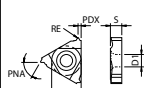


Threading

									Carbon steel / Alloy steel										P	
									Stainless steel										M	
									Cast iron										K	
									Non-ferrous metals										N	
Insert		Description		Thread type	Symbol thread type	Pitch (TPI)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide				Cement	Applicable toolholder J22~J25	
									IC	S	D1	RE	PDX	PVD			-			-
														PR1115	PR1215	PR1315				
		16ER	11BSPT-TF 14BSPT-TF 19BSPT-TF 28BSPT-TF	Tapered pipe	R _i (PT) (BSPT)	11 14 19 28	Full profile	55	9.525	3.68	4	0.29 0.22 0.16 0.1	1.6 1.6 1 0.8	● ● ● ●	● ● ● ●	● ● ● ●				
	 Molded Chipbreaker	16ER	11BSPT-TQ 14BSPT-TQ 19BSPT-TQ 28BSPT-TQ	Tapered pipe	R _i (PT) (BSPT)	11 14 19 28	Full profile	55	9.525	3.68	4	0.29 0.22 0.16 0.1	1.6 1.6 1 0.8	● ● ● ●	● ● ● ●	● ● ● ●			KTNR...-16 KTNR...-16F KTNR...-16JCT KTSNR...-16 S...-KTNL16	
		16ER	11BSPT 14BSPT 19BSPT 28BSPT	Tapered pipe	R _i (PT) (BSPT)	11 14 19 28	Full profile	55	9.525	3.68	4	0.29 0.22 0.16 0.1	1.6 1.6 1 0.8	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●			

Recommended cutting conditions ➡ J48
Depth of Cut & Number of Passes ➡ J50

Internal threading (Tapered pipe Rc(PT)(BSPT))

				Carbon steel / Alloy steel									○	●					P	
				Stainless steel												●				M
				Cast iron													●			K
				Non-ferrous metals													●			N
Insert		Description		Thread type	Symbol thread type	Pitch (TPI)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide			Cermet	Applicable toolholder ➡ J26, J27		
									IC	S	D1	RE	PDX	PVD					-	-
														PR1115	PR1215	PR1515				
		11IR	14BSPT-TF 19BSPT-TF 28BSPT-TF	Tapered pipe	Rc,(PT) (BSPT)	14 19 28	Full profile	55	6.35	3.18	3	0.22 0.16 0.1	0.97 0.78 0.6	● ● ●	● ● ●	● ● ●			SINR...-11E SINR...-11	
		16IR	11BSPT-TF 14BSPT-TF	Tapered pipe	Rc,(PT) (BSPT)	11 14	Full profile	55	9.525	3.68	4	0.29 0.22	1.5 0.97	● ●	● ●	● ●			SINR...-16 CINR...-16	
	 Molded Chipbreaker	11IR	14BSPT-TQ 19BSPT-TQ 28BSPT-TQ	Tapered pipe	Rc,(PT) (BSPT)	14 19 28	Full profile	55	6.35	3.18	3	0.22 0.16 0.1	0.97 0.78 0.6	● ● ●	● ● ●	● ● ●			SINR...-11E SINR...-11	
	 Molded Chipbreaker	16IR	11BSPT-TQ 14BSPT-TQ	Tapered pipe	Rc,(PT) (BSPT)	11 14	Full profile	55	9.525	3.68	4	0.29 0.22	1.5 0.97	● ●	● ●	● ●			SINR...-16 CINR...-16	
		11IR	14BSPT 19BSPT 28BSPT	Tapered pipe	Rc,(PT) (BSPT)	14 19 28	Full profile	55	6.35	3.18	3	0.22 0.16 0.1	0.97 0.78 0.6	● ● ●	● ● ●	● ● ●			SINR...-11E SINR...-11	
		16IR	11BSPT 14BSPT	Tapered pipe	Rc,(PT) (BSPT)	11 14	Full profile	55	9.525	3.68	4	0.29 0.22	1.5 0.97	● ●	● ●	● ●			SINR...-16 CINR...-16	

Right-hand shown

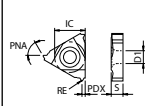
Recommended cutting conditions J48
Depth of Cut & Number of Passes J50

● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

Threading

External threading (American national tapered pipe NPT)

			Carbon steel / Alloy steel										●			P	
			Stainless steel										●			M	
			Cast iron											●		K	
			Non-ferrous metals											●		N	
Insert		Description		Thread type	Symbol thread type	Pitch (TPI)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbi- de	Cemet	Applicable toolholder ➡ J22~J25	
									IC	S	D1	RE	PDX	PVD	-		-
														PR1115	GW15		TC60M
		16ER	11.5NPT 14NPT 18NPT	American national tapered pipe	NPT	11.5 14 18	Full profile	60	9.525	3.68	4	0.06 0.05 0.04	1.5 1.5 0.9	● ● ●	● ● ●		● ● ●

Right-hand shown

Recommended cutting conditions ➡ J48
Depth of Cut & Number of Passes ➡ J50

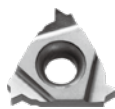
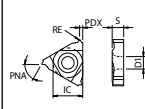
J

Threading

● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

Internal threading (American national tapered pipe NPT)

		Carbon steel / Alloy steel							●								P
		Stainless steel							●								M
		Cast iron								●							K
		Non-ferrous metals									●						N
Insert	Description	Thread type	Symbol thread type	Pitch (TPI)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbi- de		Cerm- et		Applicable toolholder ➡ J26, J27	
							IC	S	D1	RE	PDX	PVD	-	-			
												PR1115	GW15	TC60M			
		16IR	11.5NPT 14NPT 18NPT	American national tapered pipe	NPT	11.5 14 18	Full profile	60	9.525	3.68	4	0.06 0.05 0.04	1.5 1.5 0.9	● ● ●	● ● ●	SINR...-16 CINR...-16	

Right-hand shown

 Recommended cutting conditions ➡ **J48**
 Depth of Cut & Number of Passes ➡ **J50**

● : Standard item

 Threading inserts are
 sold in 5 piece boxes

 TC60M (Threading inserts) are
 sold in 10 piece boxes


Threading

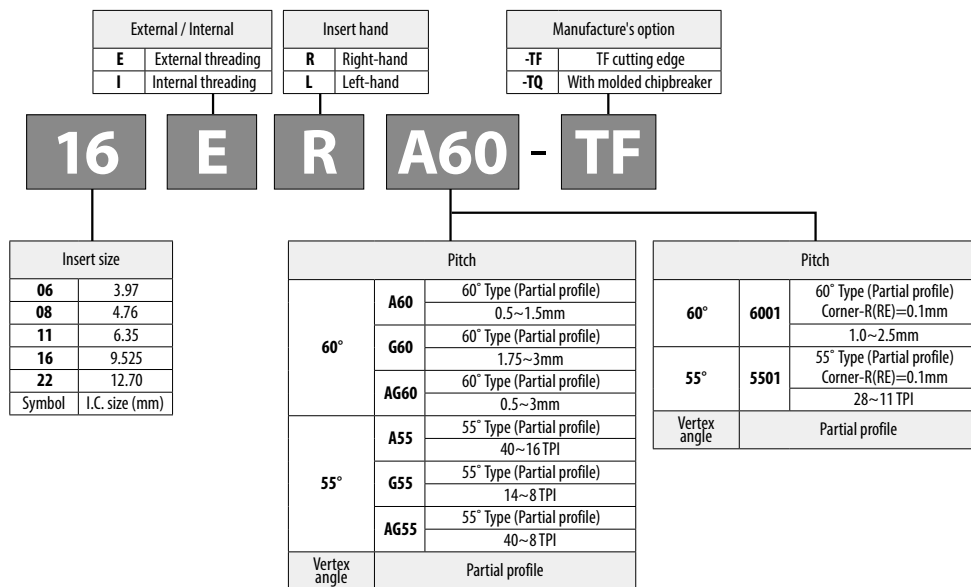
External threading (60° Partial profile / Metric, Unified)

		Carbon steel / Alloy steel													●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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Right-hand shown

Recommended cutting conditions J48
Depth of Cut & Number of Passes J50, J51, J54

Threading inserts identification system (Partial profile)



Note) Pitch and threads per inch of an insert without wiper depend on the size of insert.

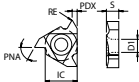
Example of shape of A, G and AG

	Description	Dimension(mm)		
		RE	PDX	HC
	16ER A60-TF	0.06	1.00	1.5
	16ER G60-TF	0.22	1.60	2.6
	16ER AG60-TF	0.06	1.60	2.7

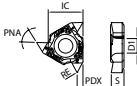
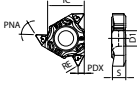
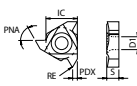
● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

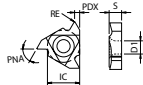
Internal threading (60° Partial profile / Metric, Unified)

				Carbon steel / Alloy steel												P				
				Stainless steel												M				
				Cast iron												K				
				Non-ferrous metals												N				
Insert		Description		Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)	Dimension (mm)					Carbi- de	Cermet	Applicable toolholder ➡ J26, J27	
						Metric (mm)		Unified (TPI)				IC	S	D1	RE	PDX	PVD	-		-
						min.	max.	min.	max.								PR1115	GW15		TC60M
		06IR 60005	Metric	M	UN/UNF	0.75	1.25	28	20	Partial profile	60	3.97	1.91	2.3	0.05	0.6	●		SINR...06E	
		08IR 60007				1	1.75	20	16			4.76	2.38	2.3	0.07	0.8	●		SINR...08E	
		11IR 60005 A60				0.75 0.5	1.5 1.5	32 48	16 16			6.35	3.18	3	0.05 0.02	1	●	●	●	SINR...11E SINR...-11
		16IR 6001 60015 A60 AG60 G60				1.5 2.5 0.5 0.5 1.75	2.5 2.5 1.5 3 3	16 11 48 48 14	10 10 16 8 8			9.525	3.68	4	0.1 0.15 0.02 0.02 0.11	1.5 1.5 1 1.7 1.7	● ● ● ● ●	● ● ● ● ●	SINR...-16 CINR...-16	
22IR N60																●	●	SINR...-22 CINR...-22		

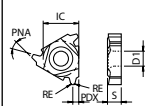
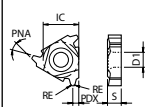
External threading (55° Partial profile / G, R, W)

		Carbon steel / Alloy steel										○	●							P			
		Stainless steel														●				M			
		Cast iron																●		K			
		Non-ferrous metals																●		N			
Insert		Description	Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide				Cermat	Applicable toolholder J22~J25		
					G(PF), R(PT) (TPI)		W (TPI)				IC	S	D1	RE	PDX	PVD							
					min.	max.	min.	max.								PR115	PR1215	PR1515	PR1535			GW15	TC60M
		16ER A55-TF AG55-TF G55-TF	Parallel / Tapered pipe Whitworth	G(PF) R(PT) W	28 28 14	19 11 11	40 40 14	16 8 8	Partial profile	55	9.525	3.68	4	0.06 0.06 0.22	1 1.6 1.6	● ● ●	● ● ●	● ● ●	● ● ●				
	 Molded Chipbreaker	16ER A55-TQ AG55-TQ G55-TQ	Parallel / Tapered pipe Whitworth	G(PF) R(PT) W	28 28 14	19 11 11	40 40 14	16 8 8	Partial profile	55	9.525	3.68	4	0.06 0.06 0.22	1 1.6 1.6	● ● ●	● ● ●	● ● ●	● ● ●				KTNR....-16 KTNR....-16F KTNR....-16JCT KTNSR....-16 S...-KTNL16
		16ER 5501 5502 A55 AG55 G55	Parallel / Tapered pipe Whitworth	G(PF) R(PT) W	28 14 28 28 14	11 11 19 11 11	24 16 40 40 14	10 9 16 8 8	Partial profile	55	9.525	3.68	4	0.1 0.2 0.06 0.06 0.22	1.5 1.5 1 1.65 1.7	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●				
		22ER N55			- - 7 5	55	12.7	4.9						4.85	0.47	2.5	● ● ● ● ●	● ● ● ● ●			KTNR....-22		

Internal threading (55° Partial profile / G, Rc, W)

				Carbon steel / Alloy steel												●				P	
				Stainless steel												●				M	
				Cast iron												●				K	
				Non-ferrous metals												●				N	
Insert		Description		Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)	Dimension (mm)					Carbi-de		Cerm-et	Applicable toolholder ➡ J26, J27	
						G(PF), Rc(PT) (TPI)		W (TPI)				IC	S	D1	RE	PDX	PVD	- GW15			- TC60M
						min.	max.	min.	max.												
		06IR	5501	Parallel / Tapered pipe Whitworth	G(PF) Rc(PT) W	28		24		Partial profile	55	3.97	1.91	2.3	0.1	0.6	●		SINR...06E		
		08IR	5501			28	19	24	20		55	4.76	2.38	2.3	0.1	0.8	●		SINR...08E		
		11IR	55005 A55			28	14	24	14		55	6.35	3.18	3	0.05 0.06	1.1	●	●	●	SINR...11E SINR...11	
		16IR	5501 5502 A55 AG55 G55			28	11	24	11		55	9.525	3.68	4	0.1 0.2 0.06 0.06 0.22	1.5 1.5 1 1.7 1.7	● ● ● ● ●	●	SINR...16 CINR...16		
		14	11			24	11	1.7 1.7	● ●												
		28	19			40	16	0.06 0.06 0.22	● ● ● ●												
		28	11			40	8	1.7 1.7	● ●												
		14	11			14	8														
		22IR	N55			-	-	7	5		55	12.7	4.9	4.85	0.47	2.5	●	●			SINR...22 CINR...22

External threading (30° Trapezoidal Tr)

		Carbon steel / Alloy steel										●	P		
		Stainless steel										●	M		
		Cast iron											K		
		Non-ferrous metals											N		
Insert		Description	Thread type	Symbol thread type	Pitch (mm)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide	Cermet	Applicable toolholder ➡ J22~J25
								IC	S	D1	RE	PDX	PVD PR1115	- TC60M	
	 16ER 200TR 300TR	30° type (Trapezoidal)	Tr	2 3	Partial profile	30	9.525	3.68	4	0.2	1.6	● ● ●	● ● ●	KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16	
	 22ER 400TR 500TR	30° type (Trapezoidal)	Tr	4 5	Partial profile	30	12.7	4.9	4.85	0.2	2.5	● ● ●	● ● ●	KTNR...-22	

Right-hand shown

Recommended cutting conditions ● J48
Depth of Cut & Number of Passes ● J53

J

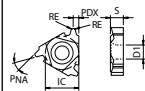
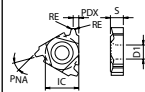


Threading

● : Standard item

Threading inserts are
sold in 5 piece boxesTC60M (Threading inserts) are
sold in 10 piece boxes

Internal threading (30° Trapezoidal Tr)

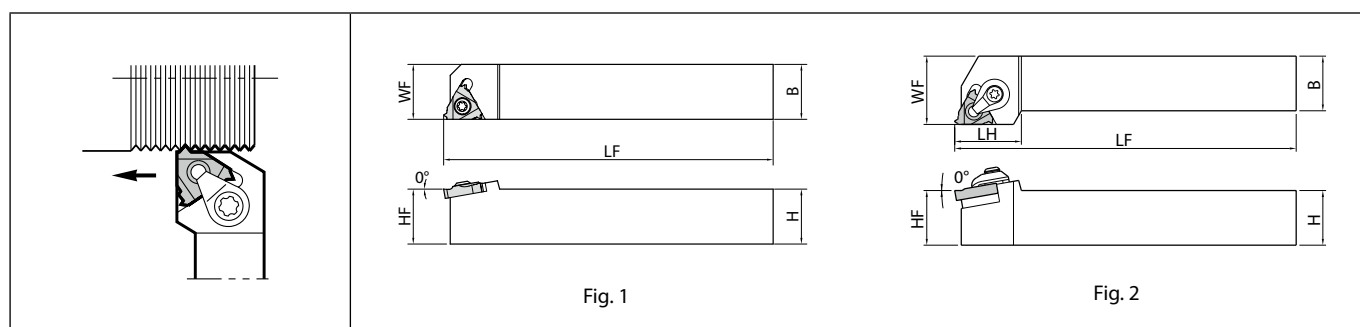
		Carbon steel / Alloy steel										●	P		
		Stainless steel										●	M		
		Cast iron											K		
		Non-ferrous metals											N		
Insert	Description	Thread type	Symbol thread type	Pitch (mm)	Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide	Applicable toolholder ● J26, J27		
							IC	S	D1	RE	PDX				
		16IR	200TR 300TR	30° type (Trapezoidal)	Tr	2 3	Partial profile	30	9.525	3.68	4	0.2	1.6	● ●	SINR..-16 CINR..-16
		22IR	400TR 500TR	30° type (Trapezoidal)	Tr	4 5	Partial profile	30	12.7	4.9	4.85	0.2	2.5	● ●	SINR..-22 CINR..-22

Right-hand shown

 Recommended cutting conditions ● J48
 Depth of Cut & Number of Passes ● J53

● : Standard item

 Threading inserts are
 sold in 5 piece boxes

KTN (External threading)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

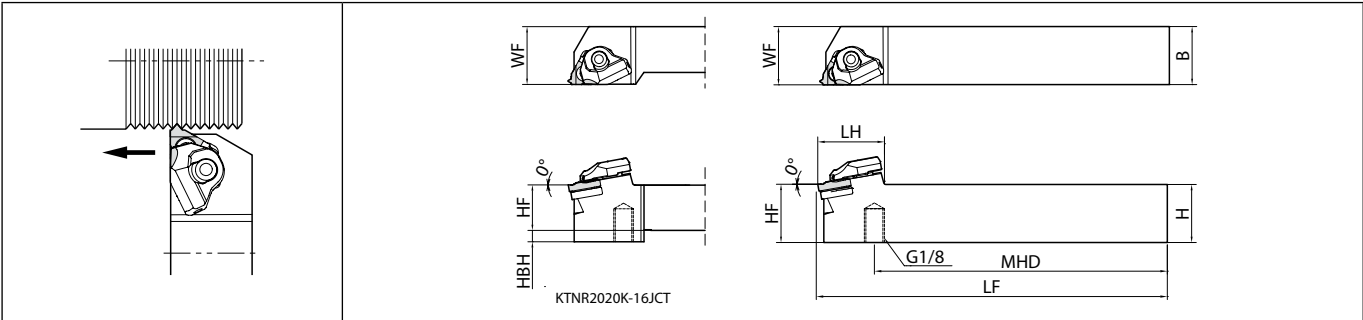
Toolholder dimensions

Description		Availability		Dimension (mm)							Fig.	Applicable inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
		R	L	H	B	LH	HF	LF	WF			
KTN ⁹ /L	1216JX-16F	●	●	12	16	-	12	120	16	1	16E ⁹ /L...	
	1616H-16	●	●	25		100	20	2				
	1616JX-16F	●	●	-	120	16	1					
	2020H-16	●		25	100	25	2					
	2020JX-16F	●	●	20	20	-	20	120	20	1		
	2020K-16	●	●			125	25	2				
	2525M-16	●	●	25	25	25	150		30			
KTNR	2525M-22	●		25	25	29	25	150	32	2	22ER...	
	3225P-22	●		32		34	32	170				

Description	Spare parts							
	Clamp set	Clamp set	Screw	Shim screw	Shim	Wrench	Wrench	Wrench
KTN ⁹ /L								
	-	-	SB-3.5TR	-	-	-	-	LTW-15S
	CPS-5S	-	-	SP3X8	TN-32	-	FT-15	-
	-	-	SB-3.5TR	-	-	-	-	LTW-15S
	CPS-5S	-	-	SP3X8	TN-32	-	FT-15	-
	-	-	SB-3.5TR	-	-	-	-	LTW-15S
	CPS-5S	-	-	SP3X8	TN-32	-	FT-15	-
KTN	-	CPS-6S	-	SP3X8	TN-43	LW-3	-	-

● : Standard item

KTN-JCT (External threading, Coolant-through holders)



Right-hand shown | Right-hand Insert for Right-hand Toolholder. | Pressure Resistance : ~15MPa

Toolholder dimensions

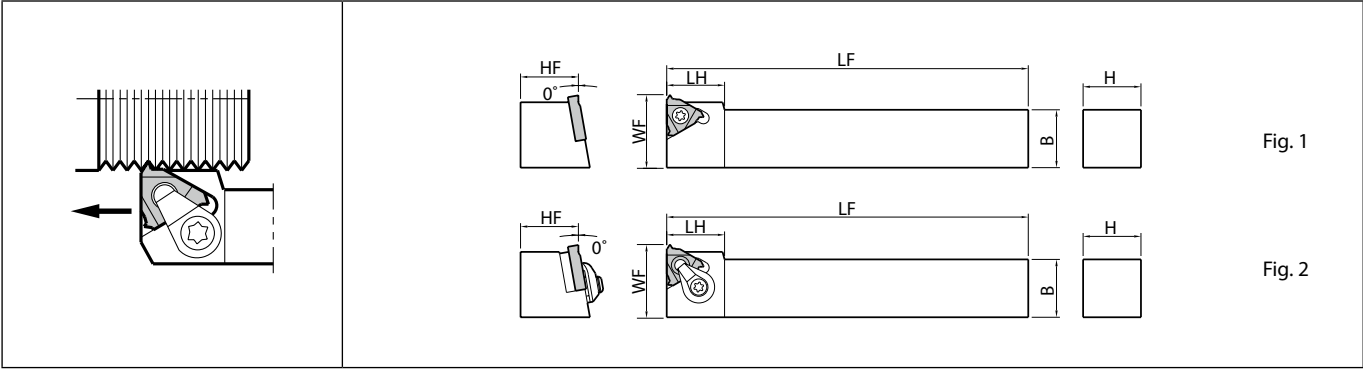
Description		Availability	Dimension (mm)								Coolant hole	Spare parts					Applicable inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
												Clamp set	Pipe connection	Shim screw	Shim	Wrench	
			R	H	B	LH	MHD	HF	HBH	LF		WF					
KTNR	2020K-16JCT	●	20	20	33.3	100.7	20	5	125	25	Yes	CPS-5S-R-JCT	FP-12	SP3X8	TN-32	FT-15	16ER...
	2525M-16JCT	●	25	25	-	125.7	25	-	150								

Please see page D12 for piping parts of coolant-through holders.
Only the O-ring (SS-035) included with the pipe connection can be ordered.

● : Standard item



KTNS (External threading)



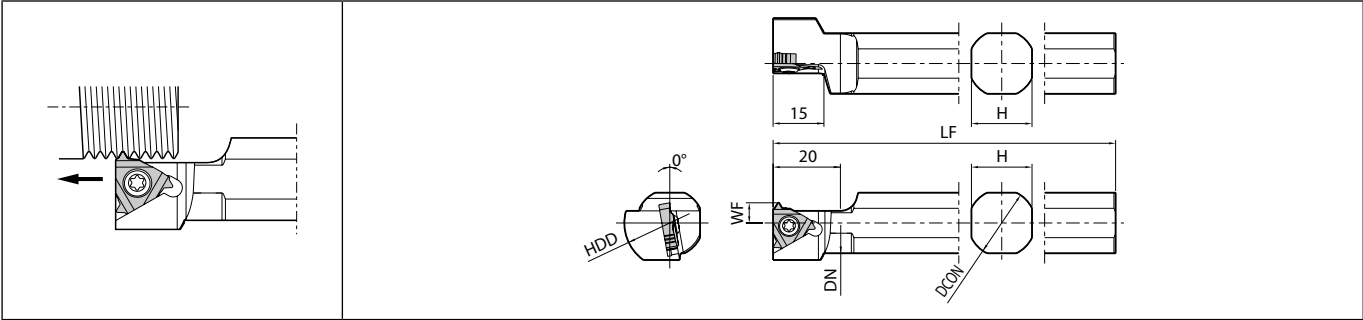
Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder dimensions

Description		Availability	Dimension (mm)							Fig.	Spare parts					Applicable inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
											Clamp set	Screw	Shim screw	Shim	Wrench	
			R	H	B	LH	HF	LF	WF							
KTNSR	1010H-16	●	10	10	16	10	100	16		1	-	SB-3.5TR	-	-		16ER...
	1212K-16	●	12	12		12		18								
	1616K-16	●	16	16	18	16	125	22		2	CP5-5S	-	SP3X8	TN-32	FT-15	
	2020K-16	●	20	20	20	20		27.4								

● : Standard item

S-KTN (External threading)



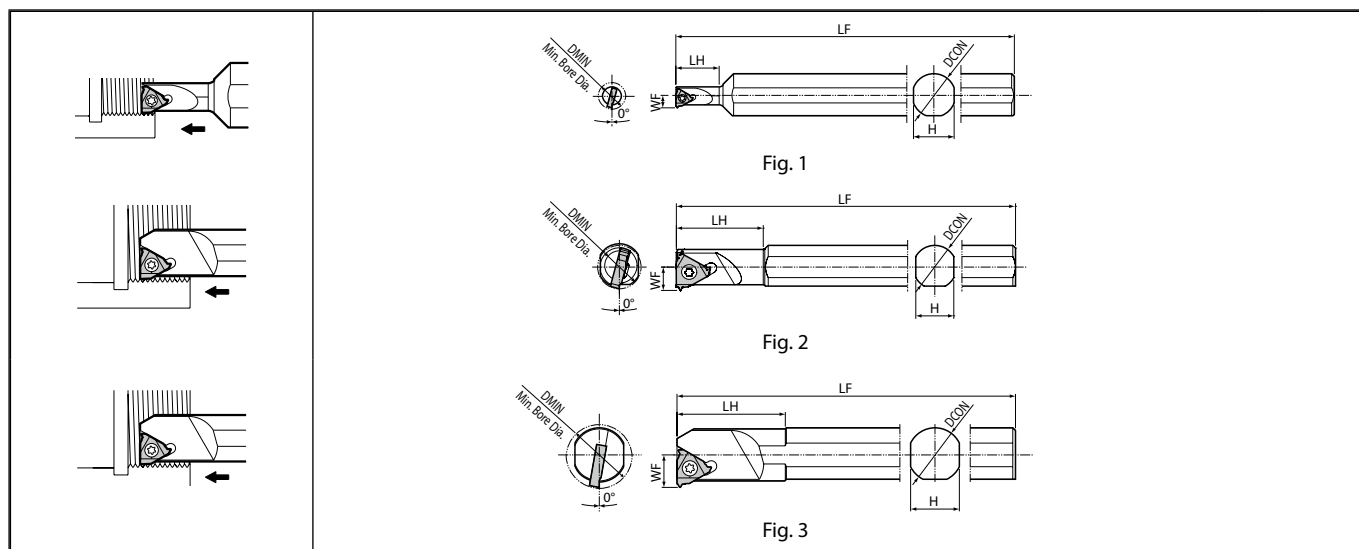
Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability	Dimension (mm)							Spare parts		Applicable inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
									Screw	Wrench	
		L	DCON	H	DN	HDD	LF	WF			
S16F- KTNL16	●	16	15	15		85			SB-3.5TR	LTW-15S	16ER...
S19K- KTNL16	●	19.05	17	18		27		6			
S20K- KTNL16	●	20	18	19			120				
S22K- KTNL16	●	22	20	21							
S25.0H- KTNL16	●	25					100	10			
S25K- KTNL16	●	25.4	23	24	32		120				

● : Standard item

SIN (Internal threading)

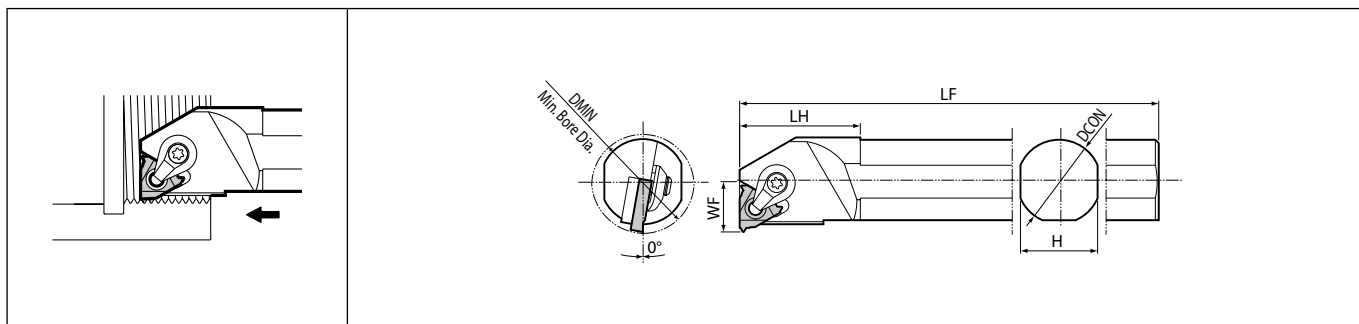


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)							Fig.	Spare parts			Applicable inserts ➡ J7, J9, J11 J13, J15, J17 J19, J21
											Screw	Wrench	Wrench	
	R	L	DMIN	DCON	H	LH	LF	WF						
SINR	0612S-06E	●		6.4	12	11	10	100	3.8	1	SB-2040TR	-	FT-6	061R...
SINR	0816S-08E	●		7.8	16	15	16	125	4	1	SB-2050TR	-	FT-6	081R...
SIN ^{R/L}	1216S-11E	●	●	12	16	14	25	6.3	1		SB-2TR	-	FT-8	111 ^{R/L} ...
	1516S-11	●	●	15			30	7.5						
SIN ^{R/L}	1616S-16	●	●	16	16	14	32	8.6	2		SB-3.5TR	FT-15	-	161 ^{R/L} ...
	2016S-16	●	●	20			37	10						
	2420S-16	●	●	24			20	18						
SINR	2420S-22	●		24	20	18	40	180	13.5	3	SB-4085TR	FT-15	-	221R...

● : Standard item

CIN (Internal threading)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)							Spare parts						Applicable inserts ➡ J7, J9, J11 J13, J15, J17 J19, J21
										Clamp set	Clamp set	Shim screw	Shim	Wrench	Wrench	
	R	L	DMIN	DCON	H	LH	LF	WF								
CIN [®] / 3025S-16	●	●	30	25	23	36	200	15			-	SP3X8	TN-32	-	FT-15	16I [®] /...
3732S-16	●		37	32	30	45	250	18.5								
CINR 3025S-22	●		30	25	23	40	200	16.5		-		SP3X8	TN-43	LW-3	-	22IR...
3732S-22	●		37	32	30	45	250	20								

Guide for internal threading

For internal threading, pay extra attention to “stabilizing bore dia.” and “chip evacuation”.

1. “Stabilizing bore dia.”

Because small pitch Internal threading has small corner-R (RE), there is variation in the bore dia. which may greatly influence the tool life of an insert. In order to eliminate the variation in the bore dia., “0” Cutting (zero cutting) should be performed as the zero pass, before the first pass in threading. The bore dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2. “Chip evacuation”

If machining process is continued when chips are tangled with a toolholder and other parts of the machine, it may cause damages to the insert. Therefore, please ensure that there are no tangled chips in the machine by the following method.

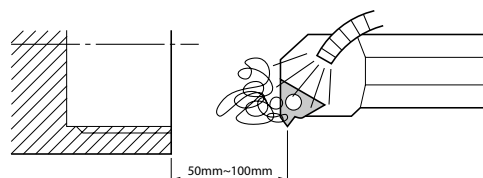
<When processing the first workpiece>

Set the program with the “single block”

Keep the threading starting point 50 mm~100 mm away from the side of workpiece, and confirm that coolant is flushing down the chips for each pass.

<When processing the second workpiece and later>

Ensure that chips are not tangled; then, start the continuous run.



TKFT (External threading)

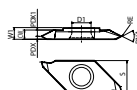
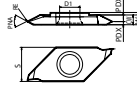
		Carbon steel / Alloy steel										●●●●		P	
		Stainless steel										●●●●		M	
		Cast iron										●●●●		K	
		Non-ferrous metals										●●●●		N	
Insert	Description	Thread type	Symbol thread type	Dimension (mm)								Carbide		Applicable toolholder ● J29~J31	
				CW	S	D1	RE	W1	PDX	PDX1	PVD		-		
											PR1725	PR1535			PR1725
	 Right-hand shown	TKFT12 RA6000	Metric Unified	M UN	2.5	8.7	5.2	Max. 0.05 Flat	3	0.4	2.1	●	●	●	KTKFR...12(-Y)
		TKFT12 RB6000								2.1	0.4	●	●	●	
		TKFT12 RA6000S			2.5	8.7	5.2	0.05	3	0.8	1.7	●	●	●	
		TKFT12 RB6000S										●	●	●	
		TKFT12 RN6001	Parallel/Tapered pipe Whitworth	G, R, W	2.5	8.7	5.2	0.1	3	1.25	1.25	●	●	●	
	TKFT12 RA5500S										●	●	●		
	TKFT12 RB5500S										●	●	●		
											●	●	●		
	 Left-hand shown	TKFT12 LA6000	Metric Unified	M UN	2.5	8.7	5.2	Max. 0.05 Flat	3	2.1	0.4	●	●	●	KTKFL...12
		TKFT12 LB6000								0.4	2.1	●	●	●	
		TKFT12 LA6000S			2.5	8.7	5.2	0.05	3	1.7	0.8	●	●	●	
		TKFT12 LB6000S										●	●	●	
		TKFT12 LN6001	Parallel/Tapered pipe Whitworth	G, R, W	2.5	8.7	5.2	0.1	3	1.25	1.25	●	●	●	
TKFT12 LA5500S											●	●	●		
TKFT12 LB5500S										0.8	1.7	●	●	●	

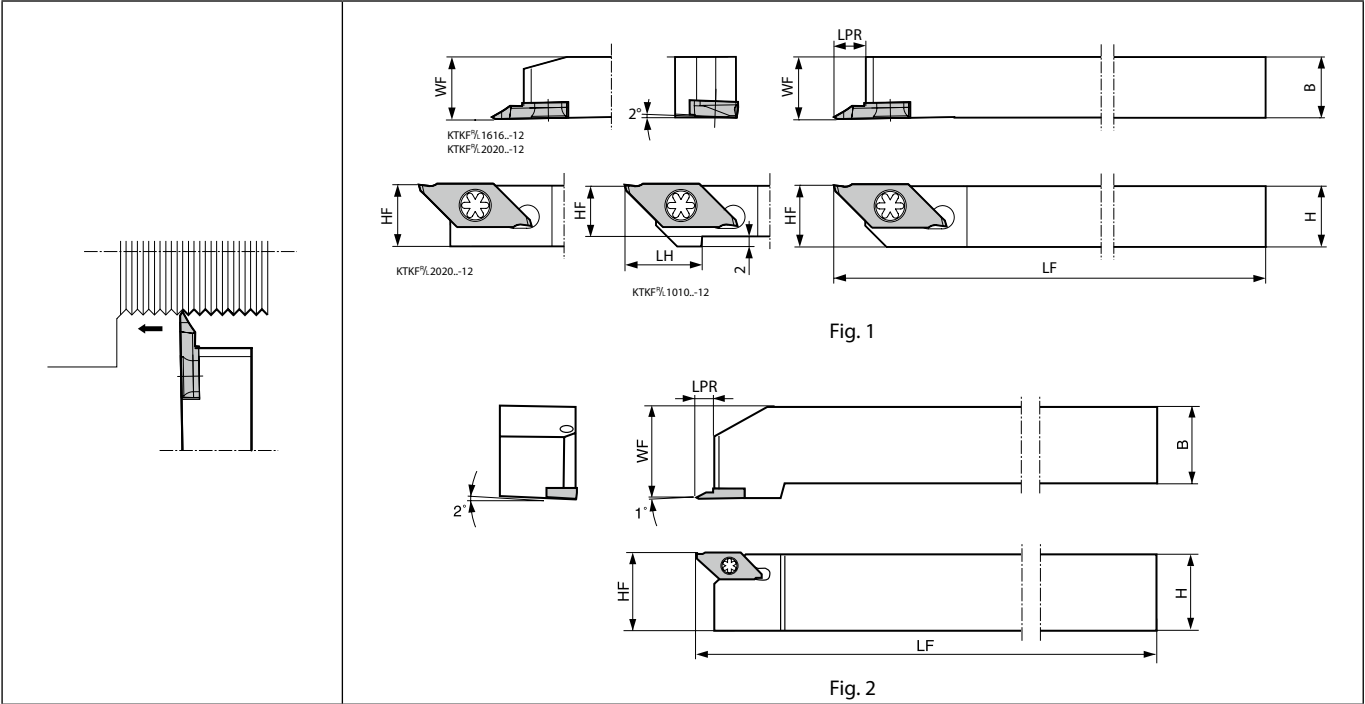
Photo shows Right-hand

Recommended cutting conditions J33
Depth of Cut & Number of Passes J33

Description		Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)
				M (mm)		UN, G, R, W (TPI)			
				min.	max.	min.	max.		
TKFT12	RA6000	Metric Unified	M UN	0.2	0.6	64	48	Partial profile	60
TKFT12	RB6000								
TKFT12	RA6000S								
TKFT12	RB6000S			0.5	1.25	48	24		60
TKFT12	RN6001			1	1.5	24	18		60
TKFT12	RA5500S	Parallel/ Tapered pipe Whitworth	G, R, W	-	-	40	16		55
TKFT12	RB5500S								
TKFT12	LA6000	Metric Unified	M UN	0.2	0.6	64	48	Partial profile	60
TKFT12	LB6000								
TKFT12	LA6000S								
TKFT12	LB6000S			0.5	1.25	48	24		60
TKFT12	LN6001			1	1.5	24	18		60
TKFT12	LA5500S	Parallel/ Tapered pipe Whitworth	G, R, W	-	-	40	16		55
TKFT12	LB5500S								

● : Standard item

TKTF (External threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Fig.	Spare parts		Applicable inserts ➡ J28
												Screw	Wrench	
	R	L	H	B	LH	LPR	HF	LF	WF					
TKTF ⁹ /L	●	●	10	10	15	6	10	120	10	1	SB-4590TRWN	FT-10	TKFT12 ⁹ /...	
	●	●					12	85	12					
	●	●	12	12										
	●	●	16	16	-		16	120	16					
	●	●	20	20			20		20					
	●		25	25			25	150	30				2	TKFT12R...

LPR shows the distance from the toolholder to the cutting edge.
See Page H15 for internal coolant type (coolant-through holders)

Threading inserts identification system (Ref. to Table 1)

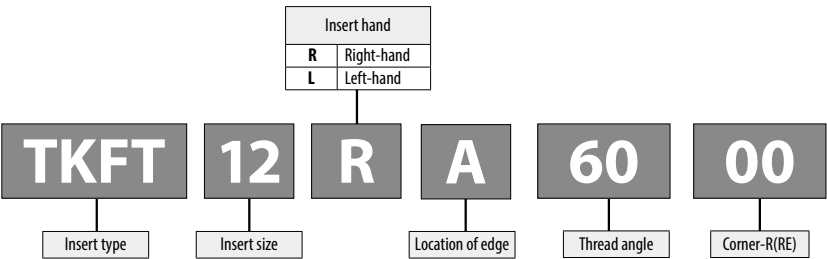
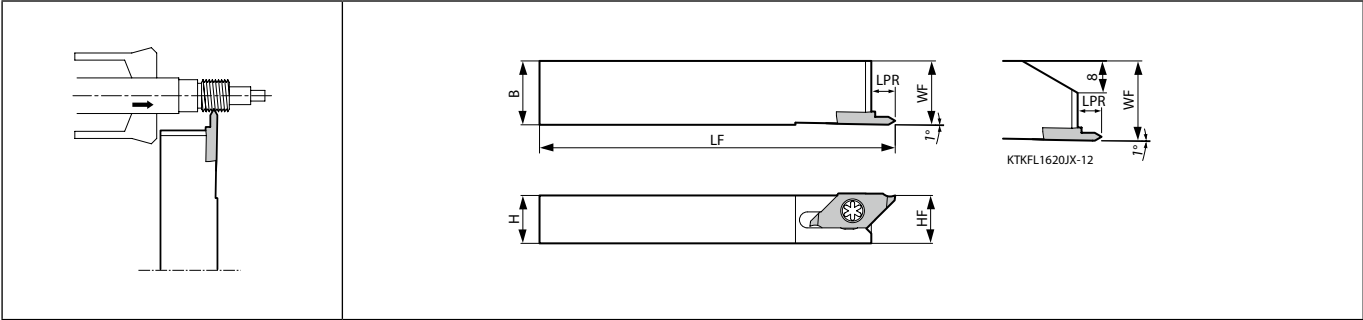


Table 1 Right-hand insert		
A type TKFT12RA..	B type TKFT12RB..	N type TKFT12RN..
Left-hand insert		
A type TKFT12LA..	B type TKFT12LB..	N type TKFT12LN..

● : Standard item

KTKF (External threading, Goose-neck holder)



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

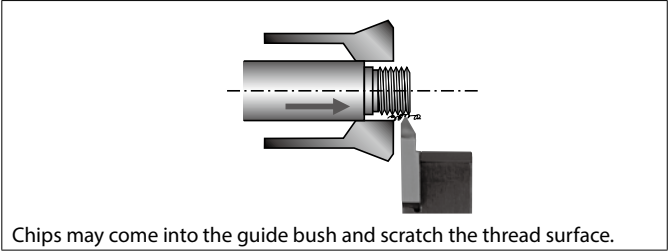
Description	Availability	Dimension (mm)							Spare parts		Applicable inserts J28
									Screw	Wrench	
		L	H	B	LPR	HF	LF	WF			
KTKFL 1216JX-12 1620JX-12	●	12	16			12	120	16	SB-4590TRWN	FT-10	TKFT12L...
	●	16	20	6		16		20			

LPR shows the distance from the toolholder to the cutting edge.

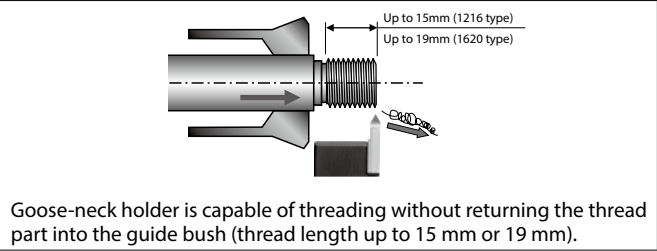
Swiss tool automatic lathe (Guide bush system)

Goose-neck holder is applicable to automatic lathes whose toolholder does not move to longitudinal direction (Z-axis direction).

Conventional tool

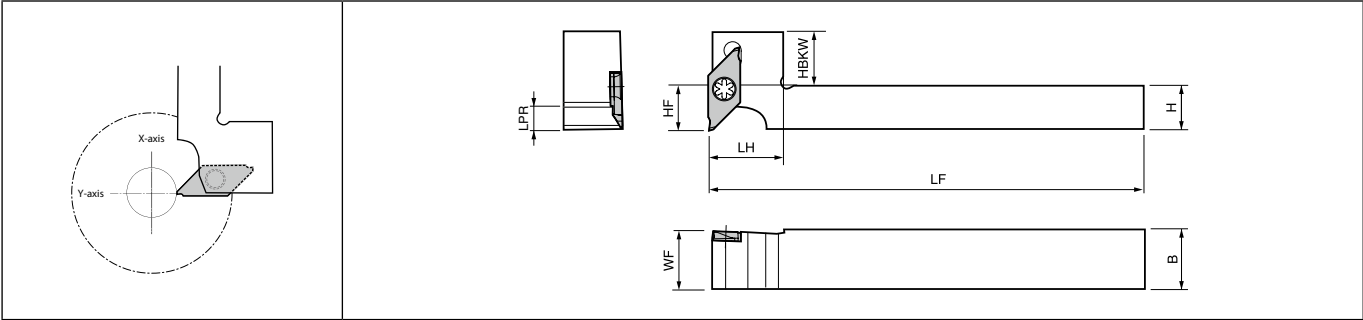


Goose-neck holder



● : Standard item

KTKF-Y (External threading, Y-axis toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

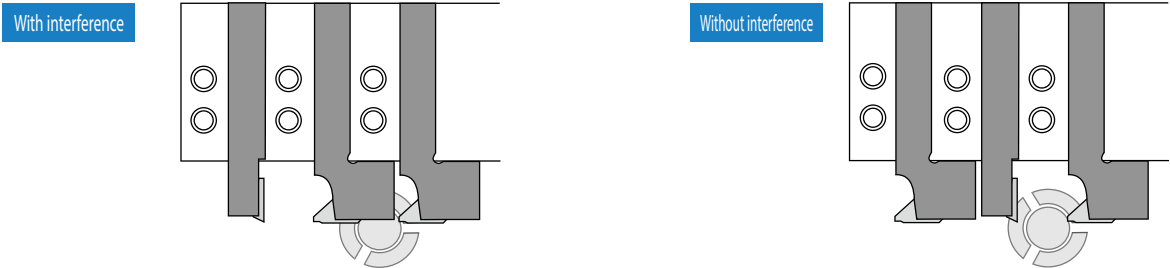
Toolholder dimensions

Description		Availability	Dimension (mm)								Spare parts		Applicable inserts ➡ J28
											Screw	Wrench	
			R	H	B	LH	HF	LPR	HBKW	LF	WF		
KTKFR	1216JX-12-Y	●	12	16	20	12	6	15	120	16	SB-4590TRWN	FT-10	TKFT12R...
	1616JX-12-Y	●	16		25	16		11					

LPR shows the distance from the toolholder to the cutting edge.

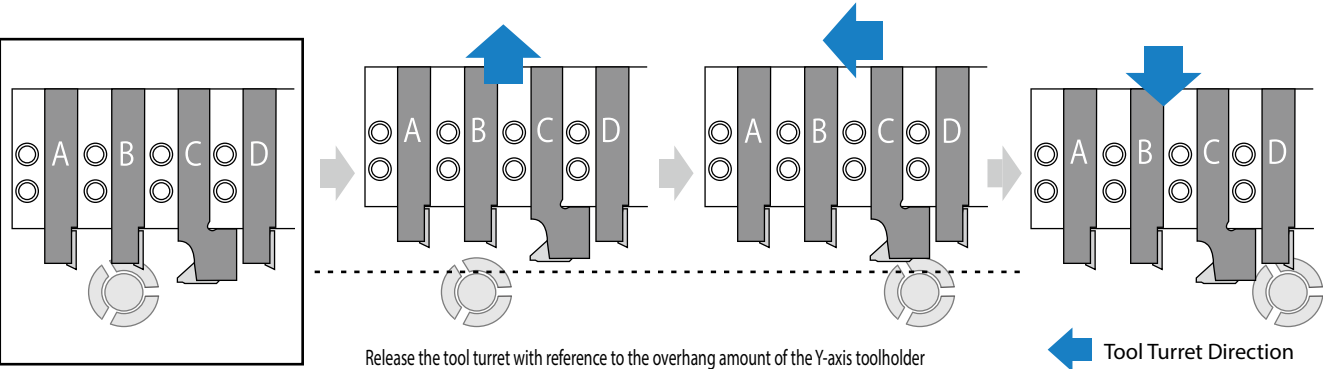
Precautions for using Y-axis toolholder

Do not use Y-axis toolholders side by side to prevent interference. (Only two Y-axis holder can be used at the same time)



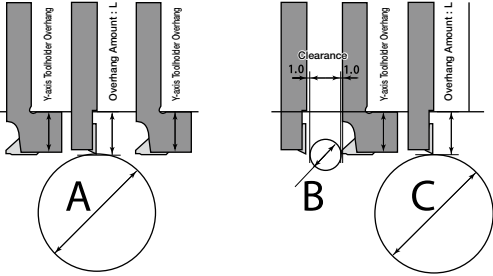
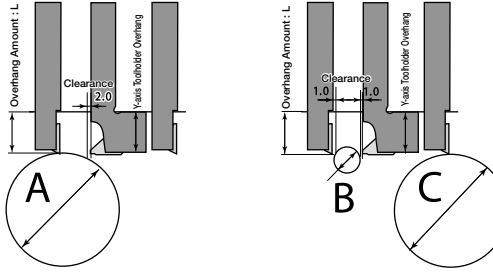
Standard toolholders may be mounted between two Y-axis toolholders

When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder. (When exchanging from tool B to D)



Note that using other toolholders together will result in dierent outside diameters

(Unit : mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount L			
		Available Outside Cutting Diameter(ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

Recommended cutting conditions

Workpiece material	Recommended insert grades			
	MEGACOAT NANO PLUS	MEGACOAT NANO	MEGACOAT	Carbide
	PR1725	PR1535	PR1225	KW10
Carbon steel	Vc = 70 ~170 m/mim			-
	First ap (Radial): 0.2mm and under			
Alloy steel	Vc = 70 ~170 m/mim			-
	First ap (Radial): 0.2 mm and under			
Stainless steel	Vc = 60~100 m/mim			-
	First ap (Radial): 0.15 mm and under			
Cast iron	-			Vc = 100 m/mim
				First ap (Radial): 0.2 mm and under
Aluminum alloys	-			Vc = 150~400 m/mim
				First ap (Radial): 0.2 mm and under
Brass	-			Vc = 150~300 m/mim
				First ap (Radial): 0.15 mm and under

· Coolant is recommended.

· In case of threading stainless steel, please set two to three passes more than <ap - passes> listed below.

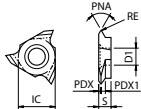
Depth of cut & number of passes

TKFT 60° / 55° Partial profile

(ap shows the value of radial ap)

Type		Pitch (mm/TPI)	Description	Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11		
Metric	External thread	0.20 mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02									
		0.25 mm			0.19	4	0.07	0.06	0.04	0.02									
		0.30 mm			0.23	4	0.08	0.07	0.06	0.02									
		0.35 mm			0.27	5	0.08	0.07	0.06	0.04	0.02								
		0.40 mm			0.30	5	0.10	0.08	0.06	0.04	0.02								
		0.45 mm			0.34	6	0.10	0.08	0.06	0.04	0.04	0.02							
		0.50 mm	TKFT 12R/L A/B6000	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02								
			12R/L A/B60005	0.33	5	0.10	0.10	0.07	0.04	0.02									
		0.60 mm	TKFT 12R/L A/B6000	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02							
			12R/L A/B60005	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02								
		0.70 mm	TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02							
		0.75 mm		0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02						
		0.80 mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02						
		1.00 mm	TKFT 12R/L A/B60005 12R/L N6001	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02					
				0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02						
		1.25 mm		0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02				
				0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02					
		1.50 mm	TKFT 12R/L N6001	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.05	0.02		
Parallel pipe	External thread	28 TPI	TKFT 12R/L A/B55005	0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02						
		19 TPI		0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02				
Whitworth	External thread	24 TPI	TKFT 12R/L A/B55005	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02					
		20 TPI		0.05	0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02				
		18 TPI		0.05	1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02	0.02		
		16 TPI		0.05	1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02		

TTX (External threading)

		Carbon steel / Alloy steel																	P		
		Stainless steel																	M		
		Cast iron																	K		
		Non-ferrous metals																	N		
Insert	Description	Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)	Dimension (mm)						Carbide			Cermat	Applicable toolholder ➡ J35	
				M (mm) G, R (TPI)		UN, W (TPI)				IC	S	D1	RE	PDX	PDX1	PVD	-	-			
				min.	max.	min.	max.									PR115	PR930	KW10			TC60M
 	TTX32R 6000	Metric Unified	M UN	0.5	1	56	32	Partial profile	60	9.525	3.18	4.4	0	0.6	1.12				●		
	TTX32R 6000S			0.5	1	48	32		60	9.525	3.18	4.4	0.05	0.6	1.12	●	●	●	●		
	TTX32R 6001			1	2	28	14		60	9.525	3.18	4.4	0.1	1.1	1.62	●	●	●	●		
	TTX32R 6000S			0.5		56	48		60	9.525	3.18	4.4	0	0.3	1.12	●	●	●	●		
	TTX32R 6000SS			0.5			48		60	9.525	3.18	4.4	0.05	0.3	1.12	●	●	●	●		
	TTX32R 5501	Parallel/ Tapered pipe Whitworth	G R W	28	19	24	20		55	9.525	3.18	4.4	0.1	0.75	1.01	●	●	●	●		
	TTX32R 5501S			19	11	20	11		55	9.525	3.18	4.4	0.15	1.2	1.46				●	●	
																				KTTXR...-16 S...KTTXL16	

Right-hand shown

Recommended cutting conditions J48

Depth of Cut & Number of Passes J56

TT and TTX

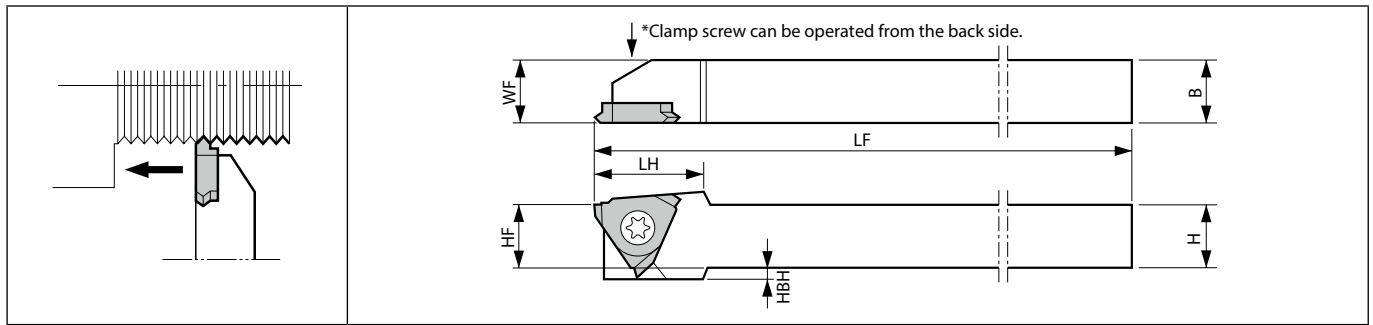
Type	Shape	Features		
		Rake Angle after Installation	Condition	Dead Space
TT		6° 	One insert can machine various pitch sizes	
TTX		15° 	- The Least Cutting Force - Thread to shoulder (Less dead space) - One Insert can machine various pitch sizes (less than TT)	

● : Standard item

PR930 / PR1115 (Threading inserts) are sold in 5 piece boxes

KW10 / TC60M (Threading inserts) are sold in 10 piece boxes

KTTX (External threading)

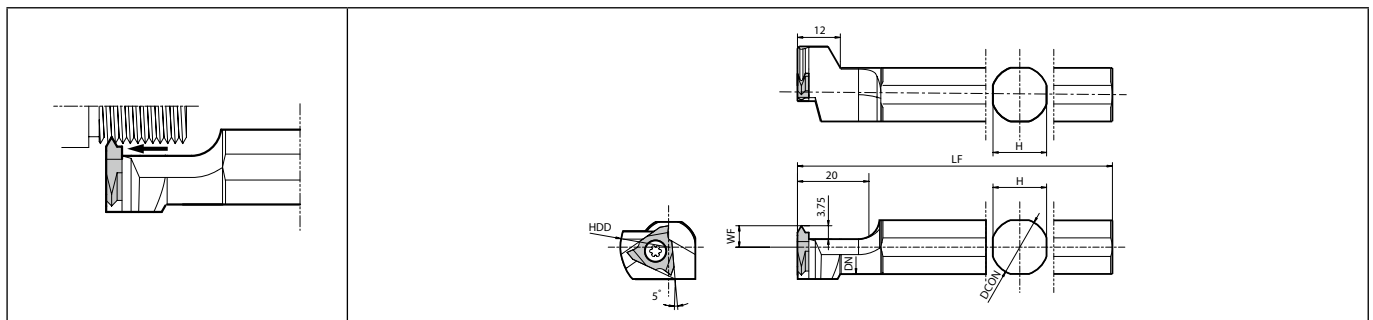


Thread to shoulder | Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder dimensions

Description		Availability	Dimension (mm)							Spare parts		Applicable inserts ➡ J34
										Screw	Wrench	
			R	H	B	LH	HF	HBH	LF	WF		
KTTXR	1010JX-16F	●	10	10	17.6	10	2	120	10	SB-4070TRW	FT-8	TTX32R...
	1212F-16F	●	12			12		85	12			
	1212JX-16F	●						120	16			
	1616JX-16F	●	16	16								
	2020K-16F	●	20	20				125	20			

S-KTTX (External threading)



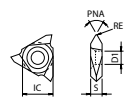
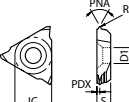
Thread to shoulder | Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability	Dimension (mm)						Spare parts		Applicable inserts ➡ J34	
								Screw	Wrench		
		L	D _{CON}	H	DN	HDD	LF	WF			
S12F- KTTXL16	●	12	11	11		80		SB-4070TRW	FT-8	TTX32R...	
S14H- KTTXL16	●	14	13	13		100					
S15F- KTTXL16	●	15.875	15	14.6	27	85	6				
S16F- KTTXL16	●	16									
S19G- KTTXL16	●	19.05	17	17.6							90
S19K- KTTXL16	●										
S20G- KTTXL16	●	20	18	18.6							90
S20K- KTTXL16	●										
S25.0H- KTTXL16	●	25	23	23.6	32	100	10				
S25K- KTTXL16	●	25.4									120

● : Standard item

TT (External threading)

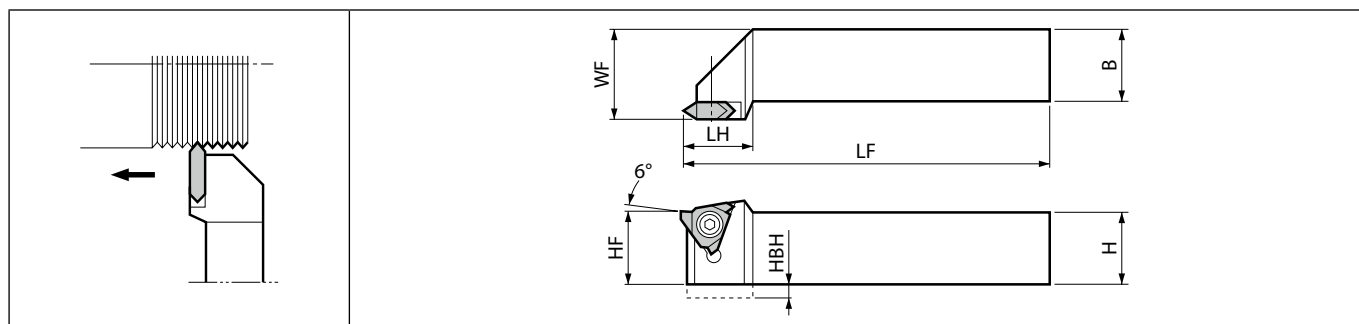
		Carbon steel / Alloy steel										●		●		●		P																
		Stainless steel										●		●		●		M																
		Cast iron														●		K																
		Non-ferrous metals														●		N																
Insert		Description		Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)	Dimension (mm)					Carbide			Cermet	Applicable toolholder J37													
						M(mm) G, PT (TPI)		UN, W (TPI)				IC	S	D1	RE	PDX	PR115	P930	KW10			TC6M												
						min.	max.	min.	max.																									
		TT32R	6000	Metric Unified	M UN	0.5	1	2.5	56	24	10	Partial profile	60	9.525	3.18	4.4	0	0.1	0.2	0.3	●	●	●	KTTR...-16										
			6001																															
			6002																															
			6003																															
		TT32L	6000	0.5	1	2.5	56	24	10	55	0.1														0.2	●	●	●	KTTL...-16					
			6001																															
			6002																															
			6003																															
		TT32R	5501	Parallel/ Tapered pipe	G PT W	28	14	11	14				10	10	0.1	0.2	●	●	●	●	KTTR...-16													
			5502																															
		TT32L	5501	Whitworth	28	14	11	14	10				10	0.1	0.2	●	●	●	●	KTTL...-16														
			5502																															
		TT43R	6001	Metric Unified	M UN	1	1.5	2.5	3	24	16		11	8	60	12.7	4.76	5.5	0.1	0.2	0.3	0.4	●	●	●	KTTR...-22								
			6002																															
			6003																															
			6004																															
TT43L	6001	1	1.5	2.5	3	24	16	11	8	8	55	12.7	4.76	5.5													0.1	0.2	0.3	0.4	●	●	●	KTTL...-22
	6002																																	
	6003																																	
	6004																																	
TT43R	5501	Parallel/ Tapered pipe	G PT W	28	14	11	11	10	8	7					55	12.7	4.76	5.5	0.1	0.2	0.3	0.4	●	●	●	KTTR...-22								
	5502																																	
	5503																																	
	5504																																	
TT43L	5501	Whitworth	28	14	11	11	16	7	7	0.1	0.2	●	●	●													●	KTTL...-22						
	5502																																	
	5504																																	
		TT43ER	100M	Metric	M	1	1.25	1.5	2	-	Full profile	60	12.7	4.76	5.5	0.12	0.15	0.19	0.25	0.8	0.9	1	1.7	●	●	●	●	●	●	KTTR...-22				
			125M																															
			150M																															
			200M																															

Right-hand shown

Recommended cutting conditions J48
Depth of Cut & Number of Passes J55, J56

● : Standard item

PR930 / PR1115 (Threading inserts) are
sold in 5 piece boxesKW10 / TC60M (Threading inserts) are
sold in 10 piece boxes

KTT (External threading)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description		Availability		Dimension (mm)								Spare parts					Applicable inserts ➡ J36	
												Screw	Screw	Wrench	Wrench	Wrench		
		R	L	H	B	LH	HF	HBH	LF	WF								
KTT% 1010F-16 1212H-16 1616H-16 2020K-16 2525M-16	●	●	10	10	18	10	4	80	12	SB-4070TRS	-	-	-	FT-10	TT32% ...			
	●	●	12	12		12	2	100	16							20		
	●	●	16	16		16	-	125	25	SB-4TR			FT-15	-				
	●	●	20	20		20		-	125							25		
	●	●	25	25		25		-	150							30		
KTT% 2020K-22 2525M-22	●	●	20	20	25	20	-	125	25	-	GS-50	LW-3	-	-	TT43% ... TT43ER...M			
	●	●	25	25		25	-	150	30									

TT (Internal threading)

		Carbon steel / Alloy steel																P	
		Stainless steel																M	
		Cast iron																K	
		Non-ferrous metals																N	
Insert		Description	Thread type	Symbol thread type	Pitch				Profile type	Thread angle PNA (°)	Dimension (mm)				Carbide			Cermet	Applicable toolholder J39
					M(mm) G, PT (TPI)		UN, W (TPI)				IC	S	D1	RE	PVD	-	-		
					min.	max.	min.	max.							PR115	PR930	KW10		
	 	TT32R 6000 6001	Metric Unified	M UN	0.5 1.5	2.5	48 16	10	Partial profile	60	9.525	3.18	4.4	0 0.1				KITGL...-16	
		TT32L 6000 6001			0.5 1.5	2.5	48 16	10						0 0.1				KITGR...-16	
		TT32R 5501 5502	Parallel/ Tapered pipe	G PT W	28 -	11 -	24 16	10 18	55	55	12.7	4.76	5.5	0.1 0.2				KITGL...-16	
		TT32L 5501 5502			Whitworth	28 -	11 -	24 16						10 18	0.1 0.2				KITGR...-16
		TT43R 6001 6002	Metric Unified	M UN	1.5 3	3	16 8	10 8	60	60	12.7	4.76	5.5	0.1 0.2				KITGL...-22	
		TT43L 6001 6002			1.5 3	3	16 8	10 8						0.1 0.2				KITGR...-22	
		TT43R 5501 5502 5503 5504	Parallel/ Tapered pipe	G PT W	28 14 11 -	11 11 11 -	24 16 11 8	8	55	55	12.7	4.76	5.5	0.1 0.2 0.3 0.4				KITGL...-22	
		TT43L 5501 5502 5504			Whitworth	28 14 11 -	11 11 11 -	24 16 11 8						8	0.1 0.2 0.3 0.4				KITGR...-22

Right-hand shown

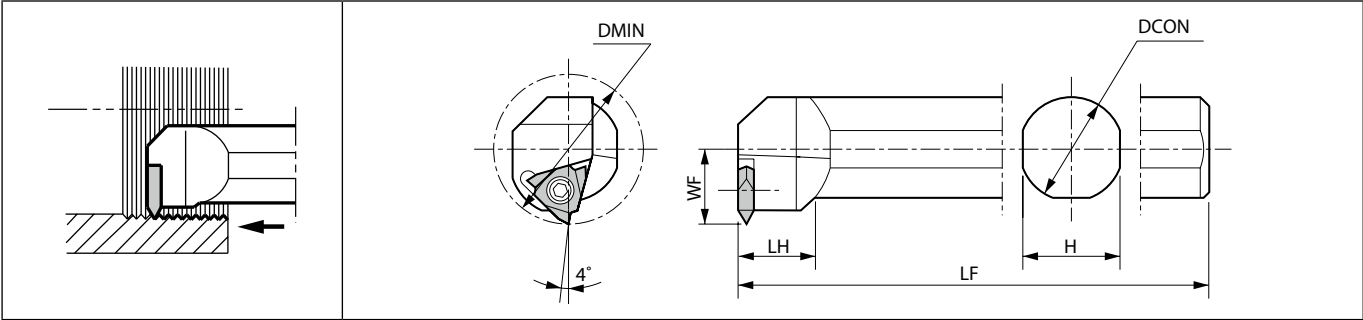
Recommended cutting conditions J48
Depth of Cut & Number of Passes J55, J56

● : Standard item

PR930 / PR1115 (Threading inserts) are sold in 5 piece boxes

KW10 / TC60M (Threading inserts) are sold in 10 piece boxes

KITG (Internal threading)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

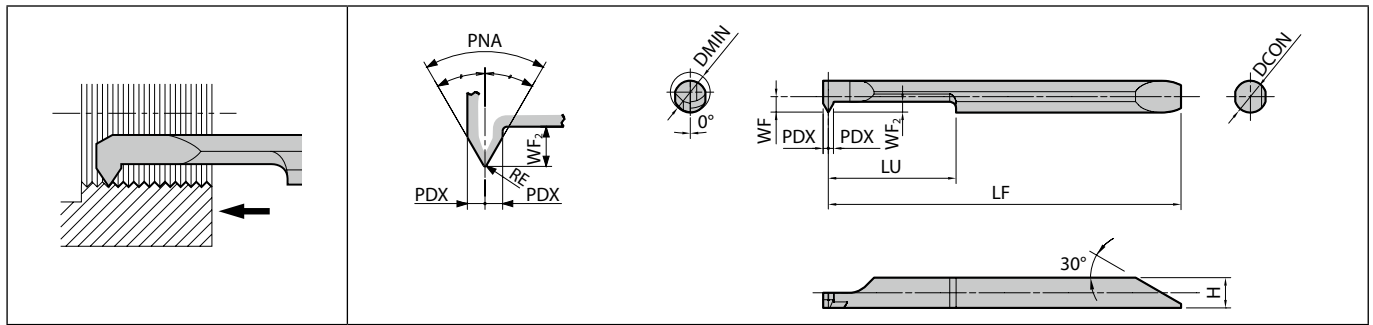
Description		Availabi- lity		Dimension (mm)					Spare parts				Applicable inserts ➡ J38
									Screw	Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF				
KITG%L 3525T-16	●	●	35	25	23	18	220	17.5	SB-4TR	-	-	FT-15	TT32%/r...
KITG%L 4532T-22	●	●	45	32	30	20	250	22.5	-	GS-50	LW-3	-	TT43%/r...

Max. available Pitch : KITG%L 3525T-16...TP 2.5mm or 10TPI, KITG%L 4532T-22...TP 3.0mm or 8TPI.

● : Standard item



EZT (Internal threading)



Right-hand shown

Dimensions

Description	No. of edges	Dimension (mm)									Thread angle PNA (°)	Tolerance (mm)		Carbide		Applicable Thread						
		DMIN	DCON	H	LF	LU	WF	WF ₂	PDX	RE		RE min.	RE max.	PVD PR1225	- GW05	Metric		Unified		American National Tapered Pipe		
																Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	Nominal Thread	Pitch (TPI)	
EZTR 030025-60-002	1	3	2.5	2.3	34.5	6	1.19	1	0.5	0.02	60°	0.01	0.01	●	●	M4 and over (Fine Thread : M3.5 and over)	0.35~0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-	
035030-60-002		3.5	3	2.8	38.4	8.4	1.44		1.2					0.6	●	●	M4.5 and over (Fine Thread : M4.5 and over)	0.5~1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-
040035-60-004		4	3.5	3.3	41.4	10.4	1.69							●	●	M5 and over (Fine Thread : M6 and over)	0.75~1.25	No.12-24UNC No.12-28UNF and over	28~20	-	-	
050040-60-004		5	4	3.8	44.35	15.35	1.94	1.3	0.65					●	●	M7 and over (Fine Thread : M6 and over)	0.75~1.5	1/4-20UNC 1/4-28UNF and over	28~18	-	-	
060050-60-004		6	5	4.8	52.4	19.2	2.44	1.6	0.8					●	●	M8 and over (Fine Thread : M7 and over)	0.75~1.5	5/16-18UNC 5/16-24UNF and over	24~16	1/4NPT 3/8NPT	18	
070060-60-004		7	6	5.8	60.2	24	2.94	2	1					●	●	M9 and over (Fine Thread : M8 and over)	0.75~1.75	3/8-16UNC 3/8-24UNF and over	24~16	1/4NPT and over	18,14	
																Whitworth		Parallel Pipe / Tapered Pipe				
																Nominal Thread	Pitch (TPI)	Nominal Thread	Pitch (TPI)			
EZTR 060050-55-008	1	6	5	4.8	52.4	19.2	2.44	1.6	0.8	0.085	55°	0.015	0.015	●	●	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-	
080070-55-008		8	7	6.8	63.2	24	3.44	2	1					●	●	W11 TPI20 and over	20~18	G1/8 and over R1/8 and over	28,19	-	-	

For American National Tapered Pipe (NPT), use EZTR...-60-004. ➡ J43

Applicable sleeves ➡ J41

Recommended cutting conditions ➡ J42

Depth of Cut & Number of Passes ➡ J42, J43

● : Standard item

Applicable sleeves

Sleeve description				Applicable inserts		Applicable machine manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) 🌀 F38, F39	EZH-HP (Adjustable overhang length) 🌀 F40, F41	EZH-ST 🌀 F42, F43	Sleeve shank dia.	EZT	Shank dia.	
			DCON (mm)		DCON (mm)	
-	-	EZH 02512ST-80 03012ST-80 03512ST-80 04012ST-80 05012ST-80 06012ST-80 07012ST-80	12	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	(General purpose)
-	EZH 02516HP-100 03016HP-100 03516HP-100 04016HP-100 05016HP-100 06016HP-100 07016HP-100	EZH 02516ST-100 03016ST-100 03516ST-100 04016ST-100 05016ST-100 06016ST-100 07016ST-100	16	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	(General purpose)
EZH 02519CT-120 03019CT-120 03519CT-120 04019CT-120 05019CT-120 06019CT-120 07019CT-120	EZH 02519HP-120 03019HP-120 03519HP-120 04019HP-120 05019HP-120 06019HP-120 07019HP-120	EZH 02519ST-120 03019ST-120 03519ST-120 04019ST-120 05019ST-120 06019ST-120 07019ST-120	19.05	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	Citizen machinery
EZH 02520CT-120 03020CT-120 03520CT-120 04020CT-120 05020CT-120 06020CT-120 07020CT-120	EZH 02520HP-120 03020HP-120 03520HP-120 04020HP-120 05020HP-120 06020HP-120 07020HP-120	EZH 02520ST-120 03020ST-120 03520ST-120 04020ST-120 05020ST-120 06020ST-120 07020ST-120	20	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	Eguro Tsugami Citizen machinery (General purpose)
EZH 02522CT-135 03022CT-135 03522CT-135 04022CT-135 05022CT-135 06022CT-135 07022CT-135	EZH 02522HP-135 03022HP-135 03522HP-135 04022HP-135 05022HP-135 06022HP-135 07022HP-135	EZH 02522ST-135 03022ST-135 03522ST-135 04022ST-135 05022ST-135 06022ST-135 07022ST-135	22	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	Star micronics Nomura DS Tsugami
EZH 02525.0CT-135 03025.0CT-135 03525.0CT-135 04025.0CT-135 05025.0CT-135 06025.0CT-135 07025.0CT-135	EZH 02525.0HP-135 03025.0HP-135 03525.0HP-135 04025.0HP-135 05025.0HP-135 06025.0HP-135 07025.0HP-135	EZH 02525.0ST-135 03025.0ST-135 03525.0ST-135 04025.0ST-135 05025.0ST-135 06025.0ST-135 07025.0ST-135	25	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	Eguro Tsugami Citizen machinery (General purpose)
EZH 02525.4CT-120 03025.4CT-120 03525.4CT-120 04025.4CT-120 05025.4CT-120 06025.4CT-120 07025.4CT-120	EZH 02525.4HP-120 03025.4HP-120 03525.4HP-120 04025.4HP-120 05025.4HP-120 06025.4HP-120 07025.4HP-120	EZH 02525.4ST-120 03025.4ST-120 03525.4ST-120 04025.4ST-120 05025.4ST-120 06025.4ST-120 07025.4ST-120	25.4	EZTR030025-... EZTR035030-... EZTR040035-... EZTR050040-... EZTR060050-... EZTR070060-... EZTR080070-...	2.5 3 3.5 4 5 6 7	Citizen machinery

Choose sleeves (DCB) to meet with DCON dimension of bar.

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

Machine manufacturers in random order.



Threading

Recommended cutting conditions

Workpiece material	Recommended insert grades (Vc: m/min)	
	MEGACOAT	Carbide
	PR1225	GW15
Carbon steel / Alloy steel	★ 30~50	-
Stainless steel	★ 30~50	-
Non-ferrous metals	-	★ 30~50

★: 1st Recommendation

<Note>

- 1) The standard cutting speed is Vc=30~50m/min.
The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
- 2) Coolant is recommended.

Depth of cut & number of passes (Metric: M)

Pitch (mm)	Total ap (mm)	No. of passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass	19Pass	20Pass
0.5	0.3	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.7	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.8	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03			
1.75	1.1	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	

Depth of cut & number of passes (Whitworth)

TPI	Total ap (mm)	No. of passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass
24	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03				
20	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03		
18	0.91	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03

Depth of cut & number of passes (Unified: UN, UNC, UNF, UNEF)

TPI	Total ap (mm)	No. of passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass
36	0.44	10	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.02								
32	0.5	11	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
28	0.55	12	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03						
24	0.65	12	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03						
20	0.78	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03				
18	0.88	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	
16	0.99	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03

Parallel pipe: G(PF), Rp(PS)

Nominal thread Symbol (Previous symbol)	TPI	Internal thread (G, Rp)		Same root's radius
		Insert	Bore dia.	
G $\frac{1}{16}$ (-)	28	EZTR 060050-55-008	6.56	0.12
G $\frac{1}{8}$ (PF $\frac{1}{8}$)		080070-55-008	8.57	
G $\frac{1}{4}$ (PF $\frac{1}{4}$)	19	EZTR 080070-55-008	11.45	0.18
G $\frac{3}{8}$ (PF $\frac{3}{8}$)			14.95	

Tapered pipe: R, Rc(PT)(BSPT)

Nominal thread Symbol (Previous symbol)	TPI	Internal thread (Rc)		Same root's radius
		Insert	Bore dia.	
R $\frac{1}{16}$, Rc $\frac{1}{16}$ (-)	28	EZTR 060050-55-008	-	0.12
R $\frac{1}{8}$, Rc $\frac{1}{8}$ (PT $\frac{1}{8}$)		080070-55-008	-	
R $\frac{1}{4}$, Rc $\frac{1}{4}$ (PT $\frac{1}{4}$)	19	EZTR 080070-55-008	-	0.18
R $\frac{3}{8}$, Rc $\frac{3}{8}$ (PT $\frac{3}{8}$)			-	

• When using "EZT type" for Parallel pipe / Tapered pipe threading, thread's corners become sharp edged due to its Partial profile, and the shape will not be the same as the standard shape for Parallel pipe / tapered pipe.

Depth of cut & number of passes (Parallel pipe / Tapered pipe)

TPI	Total ap (mm)	No. of passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03						
19	0.95	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03

Application of American national tapered pipe thread (NPT)

Nominal thread	TPI	Internal thread		
		Toolholder	Insert	
			Partial profile	Full profile
$\frac{1}{16}$ NPT $\frac{1}{8}$ NPT	27	No tools available		
$\frac{1}{4}$ NPT $\frac{3}{8}$ NPT	18	EZH Sleeves	EZTR060050-60-004 EZTR070060-60-004	-
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	EZH Sleeves	EZTR070060-60-004	-
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	SINR1616S-16 SINR2016S-16	-	16IR14NPT

• Application of NPTF thread

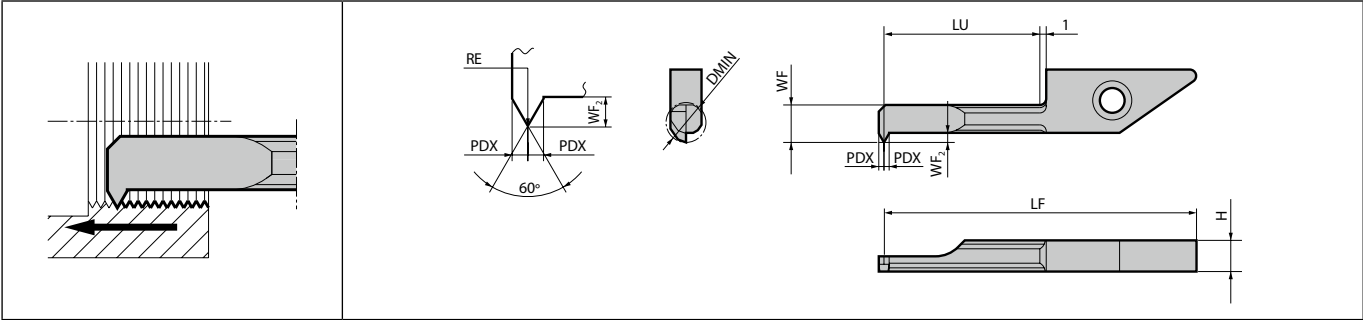
NPTF is the thread for sealing pipes without using any sealing material.

Thread symbol is similar to NPT but the tolerance is different from that of NPT, therefore the above inserts are not available for NPTF.

Depth of cut & number of passes (American national tapered pipe)

TPI	Total ap (mm)	No. of passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
18	1.23	16	0.18	0.14	0.12	0.12	0.10	0.09	0.08	0.08	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.02			
14	1.56	19	0.18	0.16	0.14	0.14	0.12	0.10	0.09	0.09	0.08	0.07	0.07	0.06	0.05	0.05	0.04	0.04	0.03	0.03	0.02

VNT (Internal threading)



Right-hand shown

Dimensions

Description	No. of edges	Dimension (mm)								Tolerance (mm)		Carbide			Applicable Thread				Applicable toolholder 🔧 F48~F51
		DMIN	H	LF	LU	WF	WF ₂	PDX	RE	RE min.	RE max.	PVD		Metric		Unified			
												PR1225	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	
VNTR 045-11	1	4.5	3.9	30.2	10.4	3.6	1.3	0.6	0.05	0.02	0	●	●	●	M6 and over	0.75~1.25	1/4-20UNC, 1/4-28UNF and over	28~20	SVNR...-12N SVNSR-12-11N
060-11		6		30	10.2	4.6	1.6	0.8				●	●	●	M8 and over	0.75~1.50	5/16-18UNC, 5/16-24UNF and over	24~18	S...-SVNR12N S...-SVNR12SN

Recommended cutting conditions J45
Depth of Cut & Number of Passes J45

● : Standard item

System tip-bars are sold in 5 piece boxes

Recommended cutting condition

Workpiece material	Recommended insert grades (Vc: m/min)		
	MEGACOAT	PVD coated carbide	Carbide
	PR1225	PR930	KW10
Carbon steel	★ 30~50	☆ 30~50	-
Stainless steel	★ 30~50	☆ 30~50	-
Non-ferrous metals	-	-	★ 30~50

<Note>

- 1) The standard cutting speed is Vc=30~50m/min. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
 2) Coolant is recommended.

★: 1st Recommendation ☆: 2nd Recommendation

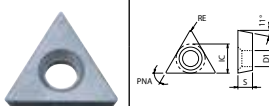
Depth of cut and number of passes (Metric: M)

Pitch (mm)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
1.25	0.76	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
1.50	0.92	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03



Threading

TPGB (Internal threading)

			Carbon steel / Alloy steel										●	●	○			P				
			Stainless steel																M			
			Cast iron										●						K			
			Non-ferrous metals										●						N			
Insert	Description	No. of edges	Dimension (mm)				Angle (°)		Pitch				Profile type	Thread type	Symbol thread type	Carbide	Cermet				Applicable toolholder 🔩 J47	
			IC	S	D1	RE	AN	PNA	M (mm)		UN (TPI)						-	PVD		-		
									min.	max.	min.	max.						KW10	PV720 PV730			TN60 TN620
	TPGB 1102005 110201	3	6.35	2.38	3.7	0.05 0.1	11	60	0.75 1.5	1.5	28 16	16	Partial profile	Metric Unified	M UN	●	●	●	●	...STWP ^R /L11-12(E)		
Without Chipbreaker	TPGB 1103005 110301 110302	3	6.35	3.18	3.3	0.05 0.1 0.2	11	60	0.75 1.5 3	3.5	28 16 8	11 8 8				●	●	●	●	●	●	...STWP ^R /L11-16(E) ...STWP ^R /L11-20(E) ...STWP ^R /L11-25(E)

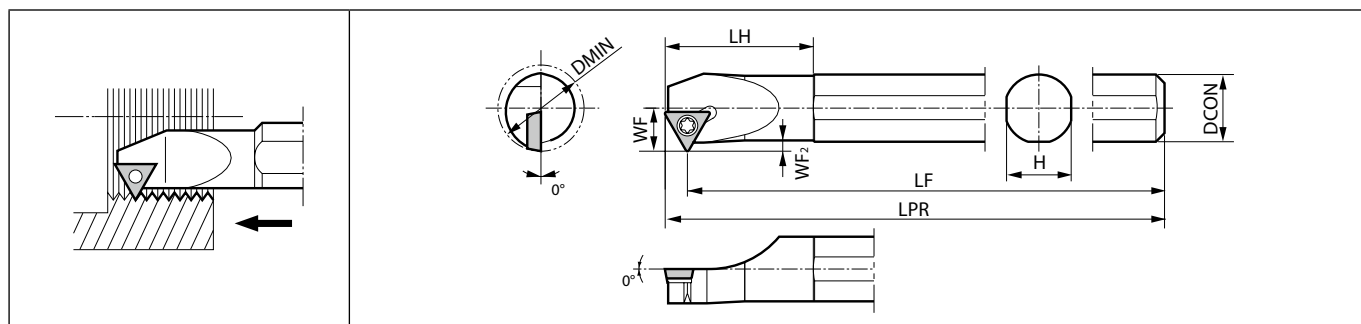
Recommended cutting conditions ➡ J48

Depth of Cut & Number of Passes ➡ J57

J

Threading

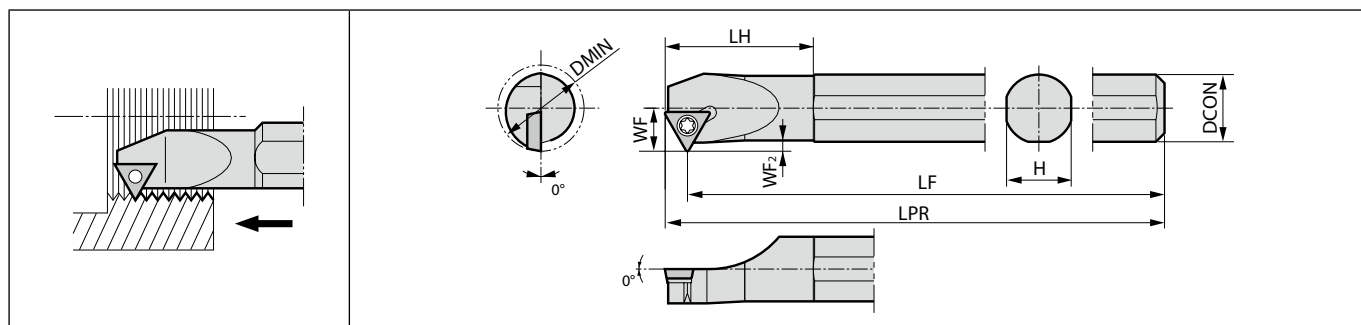
● : Standard item

S-STWP Steel shank bar (Internal threading)

This toolholder can also be used as a boring bar. | Right-hand shown

Toolholder dimensions

Description	Availability	Dimension (mm)										GAMO (°)	Coolant hole	Pitch max (mm)	Spare parts		Applicable inserts ➡ J46
		R	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂							
S10M- STWPR11-12	●	12	10	9.2	23	150	144.5	6	1	0	No	1.5	SB-3STR	FT-10	TPGB1102..		
S12M- STWPR11-16	●	16	12	11	30			8	1.5			2			TPGB1103..		
S16Q- STWPR11-20	●	20	16	15	35	180	174.5	10	2			3					
S20R- STWPR11-25	●	25	20	19	40	200	194.5	12.5	2.5			3.5					

WF₂ : shows the Max. available ap.**S-STWP-E** Excellent bar (Internal threading)

This toolholder can also be used as a boring bar. | Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)									GAMO (°)	Coolant hole	Pitch max (mm)	Spare parts		Applicable inserts ➡ J46	
															Screw	Wrench		
	R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂								
S10M- STWP% 11-12E	●	●	12	10	9.2	23	150	144.5	6	1	0	No	1.5	SB-3STR	FT-10	TPGB1102..		
S12M- STWP% 11-16E	●	●	16	12	11	30			8	1.5			2					
S16R- STWP% 11-20E	●	●	20	16	15	35	200	194.5	10	2			3					
S20X- STWP% 11-25E	●	●	25	20	19	40	220	214.5	12.5	2.5			3.5					

WF₂ : shows the Max. available ap.

● : Standard item



Threading

KTN / KTNS / SIN / CIN / S-KTN

Workpiece material	Recommended insert grades (Vc: m/min)					
	Cermet	MEGACOAT	MEGACOAT NANO		PVD coated carbide	Carbide
	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
Carbon steel	☆ 100~150	★ 100~150	-	-	☆ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under			0.3 mm and under	
Alloy steel	☆ 100~150	★ 100~150	-	-	☆ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under			0.3 mm and under	
Stainless steel	☆ 60~80	-	☆ 60~100	★ 40~80	☆ 60~80	-
First ap (Radial)	0.25 mm and under		0.25 mm and under	0.25 mm and under	0.25 mm and under	
Cast iron	-	-	-	-	-	★ 100
First ap (Radial)						0.3 mm and under
Aluminum alloys	-	-	-	-	-	★ 150~400
First ap (Radial)						0.3 mm and under
Brass	-	-	-	-	-	★ 150~300
First ap (Radial)						0.3 mm and under

For 061R / 081R, please lower it to a figure under 40% of above condition list

KTT

Workpiece material	Recommended insert grades (Vc: m/min)			
	Cermet	PVD coated carbide		Carbide
	TC60M	PR930	PR1115	KW10
Carbon steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under	0.3 mm and under	
Alloy steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under	0.3 mm and under	
Stainless steel	☆ 60~80	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25 mm and under	0.25 mm and under	0.25 mm and under	
Cast iron	-	-	-	★ 100
First ap (Radial)				0.3 mm and under
Aluminum alloys	-	-	-	★ 150~400
First ap (Radial)				0.3 mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.3 mm and under

S-STWP(-E)

Workpiece material	Recommended insert grades (Vc: m/min)			
	Cermet		PVD coated cermet	Carbide
	TN620	TN60	PV720	KW10
Carbon steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.25 mm and under	0.25 mm and under	0.25 mm and under	
Alloy steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.25 mm and under	0.25 mm and under	0.25 mm and under	
Stainless steel	-	-	-	-
First ap (Radial)				
Cast iron	-	-	-	★ 100
First ap (Radial)				0.25 mm and under
Aluminum alloys	-	-	-	★ 150~400
First ap (Radial)				0.25 mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.25 mm and under

KTTX / S-KTTX

Workpiece material	Recommended insert grades (Vc: m/min)			
	Cermet	PVD coated carbide		Carbide
	TC60M	PR930	PR1115	KW10
Carbon steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under	0.3 mm and under	
Alloy steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under	0.3 mm and under	
Stainless steel	☆ 60~80	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25 mm and under	0.25 mm and under	0.25 mm and under	
Cast iron	-	-	-	★ 100
First ap (Radial)				0.3 mm and under
Aluminum alloys	-	-	-	★ 150~400
First ap (Radial)				0.3 mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.3 mm and under

KITG

Workpiece material	Recommended insert grades (Vc: m/min)			
	Cermet	PVD coated carbide		Carbide
	TC60M	PR930	PR1115	KW10
Carbon steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under	0.3 mm and under	
Alloy steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3 mm and under	0.3 mm and under	0.3 mm and under	
Stainless steel	☆ 60~80	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25 mm and under	0.25 mm and under	0.25 mm and under	
Cast iron	-	-	-	★ 100
First ap (Radial)				0.3 mm and under
Aluminum alloys	-	-	-	★ 150~400
First ap (Radial)				0.3 mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.3 mm and under

★: 1st Recommendation ☆: 2nd Recommendation

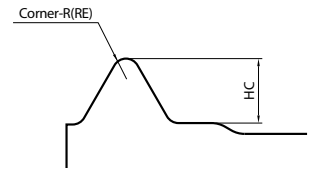
● Coolant is recommended.

● In case of using cermet insert, honing the edge with hand lapper enables higher stability.

● In case of threading Stainless steel, please set two to three passes more than previous description of <Depth of cut & number of passes>.

Cautions for usage of Full profile insert.

- 1) Max. ap is based on the value of 0.05~0.08 mm
- 2) Finishing ap should be 0.02~0.05mm.
- 3) Prepare chamfering for C0.3~C0.5 to the workpiece to prevent the insert cracking during the 1st pass.
- 4) Coolant is recommended.



11/16/22 (Full profile) type

(ap shows the value of radial ap)

Type		Pitch / TPI	Description		HC (mm)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
		mm / TPI																									
Metric	External thread	1.00 mm	16ER	100ISO-TF/TQ	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05															
		1.25 mm		125ISO-TF/TQ	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05														
		1.50 mm		150ISO-TF/TQ	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05														
		1.75 mm		175ISO-TF/TQ	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10	0.08	0.05												
		2.00 mm		200ISO-TF/TQ	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05										
		2.50 mm		250ISO-TF/TQ	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.06	0.05								
		3.00 mm		300ISO-TF/TQ	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
		0.50 mm	16E ^{9/16}	050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04																
		0.75 mm		075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04															
		1.00 mm		100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05															
		1.25 mm		125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05														
		1.50 mm		150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05														
		2.00 mm		200ISO	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05										
		2.50 mm		250ISO	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05								
		3.00 mm	22ER	300ISO	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
		3.50 mm		350ISO	2.18	2.26	15	0.28	0.25	0.22	0.20	0.20	0.18	0.16	0.15	0.15	0.12	0.10	0.10	0.08	0.05	0.02					
		4.00 mm		400ISO	2.48	2.56	17	0.28	0.25	0.24	0.22	0.20	0.18	0.16	0.15	0.15	0.14	0.12	0.10	0.10	0.08	0.05	0.02				
		4.50 mm		450ISO	2.79	2.87	18	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.10	0.07	0.05	0.02		
		5.00 mm		500ISO	3.10	3.18	19	0.30	0.28	0.27	0.26	0.23	0.20	0.18	0.18	0.17	0.16	0.16	0.15	0.15	0.13	0.12	0.10	0.07	0.05	0.02	
		Internal thread	1.00 mm	111R	100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
			1.25 mm		125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
			1.50 mm		150ISO-TF/TQ	0.88	0.96	8	0.24	0.18	0.14	0.10	0.08	0.08	0.07	0.05											
			1.75 mm		175ISO-TF/TQ	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05										
			0.50 mm	111 ^{9/16}	050ISO	0.31	0.36	4	0.14	0.10	0.08	0.04															
	0.75 mm			075ISO	0.45	0.50	5	0.15	0.14	0.10	0.07	0.04															
	1.00 mm			100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04															
	1.25 mm			125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04													
	1.50 mm			150ISO	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05												
	1.75 mm			175ISO	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05											
	2.00 mm			200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05										
	1.00 mm		161R	100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04															
	1.25 mm			125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04													
	1.50 mm			150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05												
	2.00 mm			200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05										
	2.50 mm			250ISO	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.05	0.05							
	3.00 mm			300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02					
	3.00 mm		221R	300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02						
	3.50 mm			350ISO	2.05	2.13	15	0.26	0.24	0.22	0.20	0.17	0.17	0.14	0.14	0.12	0.10	0.10	0.08	0.05	0.02						
	4.00 mm			400ISO	2.34	2.42	17	0.26	0.24	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.05	0.02				
	4.50 mm			450ISO	2.63	2.71	18	0.26	0.25	0.24	0.22	0.20	0.20	0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.05	0.02			
	5.00 mm			500ISO	2.92	3.00	19	0.28	0.26	0.24	0.22	0.20	0.20	0.18	0.18	0.16	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.05	0.02	
	Unified		External thread	24 TPI	16ER	24UN-TF/TQ	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05													
				20 TPI		20UN-TF/TQ	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05												
		18 TPI			18UN-TF/TQ	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05													
		16 TPI			16UN-TF/TQ	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05												
		14 TPI			14UN-TF/TQ	1.15	1.23	8	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.05											
		13 TPI			13UN-TF/TQ	1.24	1.32	9	0.26	0.22	0.18	0.16	0.14	0.12	0.11	0.08	0.05										
		12 TPI			12UN-TF/TQ	1.34	1.42	11	0.26	0.22	0.18	0.16	0.13	0.12	0.10	0.08	0.07	0.05	0.05								
10 TPI				10UN-TF/TQ	1.59	1.67	12	0.26	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.07	0.05	0.05	0.05							
8 TPI				08UN-TF/TQ	1.98	2.06	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.12	0.10	0.08	0.05	0.05					
24 TPI		16ER		24UN	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05															
20 TPI				20UN	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05														
18 TPI				18UN	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05														
16 TPI			16UN	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05														
14 TPI			14UN	1.15	1.23	8	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.05													
12 TPI			12UN	1.34	1.42	11	0.26	0.22	0.18	0.16	0.13	0.12	0.10	0.08	0.07	0.05	0.05										
8 TPI		22ER	08UN	1.98	2.06	15	0.30	0.26	0.22	0.20	0.16	0.15	0.14	0.13	0.10	0.10	0.10	0.07	0.06	0.05	0.02						
Internal thread		24 TPI	161R	24UN-TF/TQ	0.62	0.70	5	0.22	0.19	0.15	0.10	0.04															
		20 TPI		20UN-TF/TQ	0.75	0.83	6	0.22	0.20	0.16	0.12	0.08	0.05														
		18 TPI		18UN-TF/TQ	0.83	0.91	6	0.24	0.20	0.18	0.14	0.10	0.05														
		16 TPI		16UN-TF/TQ	0.94	1.02	7	0.24	0.20	0.18	0.14	0.11	0.10	0.05													
		14 TPI		14UN-TF/TQ	1.07	1.15	8	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.05												
		13 TPI		13UN-TF/TQ	1.15	1.23	9	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.08	0.05											
		12 TPI		12UN-TF/TQ	1.24	1.32	11	0.24	0.22	0.16	0.15	0.12	0.10	0.10	0.07	0.07	0.05	0.04									
		10 TPI		10UN-TF/TQ	1.48	1.56	12	0.24	0.22	0.20	0.16	0.15	0.12	0.12	0.10	0.09	0.07	0.05	0.04	0.04							
	8 TPI		08UN-TF/TQ	1.86	1.94	14	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.07	0.05	0.04							
	24 TPI	161R	24UN	0.62	0.70	5	0.22	0.19	0.15	0.10	0.04																
	20 TPI		20UN	0.75	0.83	6	0.22	0.20	0.16	0.12	0.08	0.05															
	18 TPI		18UN	0.83	0.91	6	0.24	0.21	0.17	0.14	0.10	0.05															
16 TPI																											

(ap shows the value of radial ap)

Type		Pitch / TPI	Description		HC (mm)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		mm / TPI																								
Parallel pipe	External thread	19 TPI	16ER	19W-TF/TQ	0.89	0.97	6	0.27	0.22	0.18	0.15	0.10	0.05													
		14 TPI		14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10													
		11 TPI		11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.10	0.12	0.10	0.10	0.07	0.07	0.05						
	Internal thread	19 TPI	16IR	19W-TF/TQ	0.88	0.96	6	0.25	0.21	0.20	0.15	0.10	0.05													
		14 TPI		14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10													
		11 TPI		11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.10	0.12	0.10	0.10	0.07	0.07	0.05						
Whitworth	External thread	16 TPI	16ER	16W-TF/TQ	1.05	1.13	8	0.25	0.21	0.18	0.16	0.12	0.08	0.08	0.05											
		14 TPI		14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI		11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.10	0.12	0.10	0.10	0.07	0.07	0.05						
	Internal thread	16 TPI	16IR	16W-TF/TQ	1.05	1.13	8	0.25	0.21	0.18	0.16	0.12	0.08	0.08	0.05											
		14 TPI		14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI		11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.10	0.10	0.08	0.05	0.07	0.07	0.05						
Tapered pipe	External thread	28 TPI	16ER	28BSPT-TF/TQ	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04														
		19 TPI		19BSPT-TF/TQ	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10														
		14 TPI		14BSPT-TF/TQ	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI		11BSPT-TF/TQ	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
		28 TPI	16ER	28BSPT	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04														
		19 TPI		19BSPT	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05													
		14 TPI		14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI		11BSPT	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
	Internal thread	28 TPI	11IR	28BSPT-TF/TQ	0.58	0.63	5	0.20	0.16	0.13	0.10	0.04														
		19 TPI		19BSPT-TF/TQ	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04												
		14 TPI		14BSPT-TF/TQ	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		28 TPI	11IR	28BSPT	0.58	0.63	5	0.20	0.16	0.13	0.10	0.04														
		19 TPI		19BSPT	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04												
		14 TPI		14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		14 TPI	16IR	14BSPT-TF/TQ	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI		11BSPT-TF/TQ	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
American national tapered pipe	External thread	18 TPI	16ER	18NPT	1.14	1.22	13	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02						
		14 TPI		14NPT	1.46	1.54	15	0.20	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02				
	Internal thread	11.5 TPI		11.5NPT	1.77	1.85	16	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02		
		18 TPI	16IR	18NPT	1.14	1.22	13	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02						
	14 TPI		14NPT	1.46	1.54	15	0.20	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02					
	11.5 TPI		11.5NPT	1.77	1.85	16	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02			

(ap shows the value of radial ap)

Type		Pitch / TPI	Description		Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	ap shows the value of radius	
		mm / TPI																										
Metric	External thread	0.5 mm	16ER	A60-TF/TQ	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03																
				AG60-TF/TQ	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03																
		0.75 mm	16ER	A60-TF/TQ	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04															
				AG60-TF/TQ	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04															
		1.00 mm	16ER	A60-TF/TQ	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04														
				AG60-TF/TQ	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04														
		1.25 mm	16ER	A60-TF/TQ	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05													
				AG60-TF/TQ	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05													
		1.50 mm	16ER	A60-TF/TQ	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05		0.05										
				AG60-TF/TQ	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05		0.05										
		1.75 mm	16ER	G60-TF/TQ	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04	0.04												
				AG60-TF/TQ	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.08	0.07	0.07	0.06	0.04								
		2.00 mm	16ER	G60-TF/TQ	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04											
				AG60-TF/TQ	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04										
		2.50 mm	16ER	G60-TF/TQ	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04									
				AG60-TF/TQ	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.09	0.07	0.05								
		3.00 mm	16ER	G60-TF/TQ	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05							
				AG60-TF/TQ	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05					
		0.5 mm	16ER	A60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03																
				AG60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03																
		0.75 mm	16ER	A60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04															
				AG60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04															
		1.00 mm	16ER	A60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04														
				AG60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04														
1.25 mm	16ER	A60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05															
		AG60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05															
1.50 mm	16ER	A60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05		0.05												
		AG60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05		0.05												
1.75 mm	16ER	G60	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04	0.04														
		AG60	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.08	0.07	0.07	0.06	0.04										
2.00 mm	16ER	G60	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04													
		AG60	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04												
2.50 mm	16ER	G60	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04											
		AG60	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.09	0.07	0.05										
3.00 mm	16ER	G60	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05									
		AG60	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05							

(ap shows the value of radial ap)

J51

60°/ 55° (Partial profile)

(ap shows the value of radial ap)

Type	Pitch / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Unified	Internal thread	28 TPI	061R 60005	0.05	0.54	12	0.07	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03							
		24 TPI		0.05	0.64	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03							
		20 TPI	061R 60005	0.05	0.77	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03				
		18 TPI	081R 60007	0.07	0.75	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03			
		16 TPI	081R 60007	0.07	0.85	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	
		48 TPI	111R A60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04													
		24 TPI			0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04											
		20 TPI			0.8	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04										
		18 TPI			0.9	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04									
		16 TPI			1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04								
		48 TPI	161R A60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04													
		24 TPI	161R A60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04											
		20 TPI	161R A60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04										
		18 TPI	161R A60	0.02	0.90	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04									
		16 TPI	161R A60	0.02	1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04								
		14 TPI	161R G60	0.11	1.07	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.04									
		13 TPI	161R G60	0.11	1.16	11	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.06	0.04								
		12 TPI	161R G60	0.11	1.26	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.08	0.06	0.05	0.04	0.04						
		10 TPI	161R G60	0.11	1.35	13	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.04	0.04	0.02				
		9 TPI	161R G60	0.11	1.54	14	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.04	0.04	0.04	0.02		
		8 TPI	161R G60	0.11	1.63	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.04	0.04	0.04	0.03	0.02	
		7 TPI	221R N60	0.22	2.14	14	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.03
		6 TPI	221R N60	0.22	2.53	17	0.28	0.26	0.23	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05	0.04
		5 TPI	221R N60	0.22	3.08	19	0.30	0.28	0.26	0.25	0.23	0.22	0.20	0.17	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06
Parallel pipe / Tapered pipe	External thread	28 TPI	16ER A55-TF/TQ	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04											
		19 TPI	16ER A55-TF/TQ	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
		14 TPI	16ER G55-TF/TQ	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04							
		11 TPI	16ER G55-TF/TQ	0.22	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
		28 TPI	16ER A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04											
		19 TPI	16ER A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
		14 TPI	16ER G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04							
		11 TPI	16ER G55	0.22	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
		28 TPI	16ER A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04											
		19 TPI	16ER A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
		14 TPI	16ER G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04							
		11 TPI	16ER G55	0.22	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
	Internal thread	28 TPI	061R 5501	0.10	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.03							
		19 TPI	081R 5501	0.10	0.95	18	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	
		28 TPI	111R A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04											
		19 TPI	111R A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
		28 TPI	161R A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04											
		19 TPI	161R A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
		14 TPI	161R G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04							
		11 TPI	161R G55	0.22	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
		28 TPI	161R A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04											
		19 TPI	161R A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
		14 TPI	161R G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04							
		11 TPI	161R G55	0.22	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
Whitworth	External thread	48 TPI	16ER A55-TF/TQ	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04													
		24 TPI	16ER A55-TF/TQ	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05											
		20 TPI	16ER A55-TF/TQ	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05										
		18 TPI	16ER A55-TF/TQ	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05									
		16 TPI	16ER A55-TF/TQ	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04							
		14 TPI	16ER G55-TF/TQ	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04							
		12 TPI	16ER G55-TF/TQ	0.22	1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.10	0.09	0.07	0.05								
		11 TPI	16ER G55-TF/TQ	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04	0.03					
		10 TPI	16ER G55-TF/TQ	0.22	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08	0.05				
		9 TPI	16ER G55-TF/TQ	0.22	2.01	14	0.24	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05			
		8 TPI	16ER G55-TF/TQ	0.22	2.29	15	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05		

60° / 55° (Partial profile)

(ap shows the value of radial ap)

Type	Pitch / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Whitworth	External thread	48 TPI	16ER A55 AG55	0.06 0.06	0.37 0.37	5 5	0.12 0.12	0.09 0.09	0.07 0.07	0.05 0.04	0.04 0.04													
		24 TPI	16ER A55 AG55	0.06 0.06	0.79 0.79	7 7	0.18 0.18	0.16 0.16	0.14 0.14	0.11 0.11	0.08 0.08	0.07 0.07	0.05 0.05											
		20 TPI	16ER A55 AG55	0.06 0.06	0.96 0.96	8 8	0.20 0.20	0.18 0.18	0.15 0.15	0.13 0.13	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05										
		18 TPI	16ER A55 AG55	0.06 0.06	1.07 1.07	9 9	0.20 0.20	0.17 0.17	0.16 0.16	0.14 0.14	0.11 0.11	0.09 0.09	0.08 0.08	0.07 0.07	0.05 0.05									
		16 TPI	16ER A55 AG55	0.06 0.06	1.22 1.22	11 11	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.11 0.11	0.10 0.10	0.09 0.09	0.08 0.08	0.07 0.07	0.06 0.06	0.04 0.04							
		14 TPI	16ER G55 AG55	0.22 0.06	1.20 1.40	9 11	0.22 0.24	0.19 0.22	0.17 0.19	0.15 0.16	0.13 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.04 0.06	0.04 0.05								
		12 TPI	16ER G55 AG55	0.22 0.06	1.44 1.64	10 12	0.24 0.24	0.20 0.22	0.18 0.20	0.15 0.16	0.12 0.14	0.12 0.12	0.09 0.10	0.07 0.09	0.05 0.08	0.05 0.06	0.05 0.05							
		11 TPI	16ER G55 AG55	0.22 0.06	1.60 1.79	12 13	0.24 0.25	0.22 0.22	0.20 0.21	0.18 0.20	0.16 0.18	0.14 0.16	0.13 0.14	0.10 0.12	0.08 0.10	0.06 0.08	0.05 0.05	0.04 0.03						
		10 TPI	16ER G55 AG55	0.22 0.06	1.78 1.98	12 14	0.24 0.25	0.22 0.20	0.20 0.20	0.18 0.16	0.17 0.15	0.16 0.14	0.15 0.14	0.13 0.13	0.12 0.12	0.09 0.11	0.07 0.10	0.05 0.09	0.05 0.08					
		9 TPI	16ER G55 AG55	0.22 0.06	2.01 2.20	14 15	0.24 0.27	0.22 0.25	0.19 0.20	0.18 0.18	0.16 0.16	0.15 0.14	0.14 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.09	0.07 0.08	0.05 0.08	0.05 0.05				
		8 TPI	16ER G55 AG55	0.22 0.06	2.29 2.49	15 16	0.28 0.30	0.26 0.28	0.24 0.26	0.22 0.24	0.19 0.20	0.16 0.18	0.14 0.16	0.13 0.14	0.12 0.12	0.11 0.11	0.10 0.10	0.09 0.09	0.08 0.08	0.05 0.06	0.05 0.05			
		7 TPI	22ER N55	0.47	2.43	16	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.06	0.05			
		6 TPI			2.92	18	0.30	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05
		5 TPI			3.60	21	0.30	0.28	0.27	0.26	0.25	0.24	0.22	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.11	0.10	0.09
	Internal thread	28 TPI	061R 081R 5501 5501	0.10	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
		19 TPI	081R 5501	0.10	0.81	15	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03			
		24 TPI	111R A55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05											
		20 TPI			0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04										
		18 TPI			0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05										
		16 TPI			1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05									
		24 TPI	161R A55 AG55	0.06 0.06	0.72 0.72	7 7	0.16 0.16	0.14 0.12	0.12 0.10	0.10 0.08	0.08 0.07	0.07 0.05	0.05 0.05											
		20 TPI	161R A55 AG55	0.06 0.06	0.87 0.87	8 8	0.16 0.16	0.15 0.15	0.14 0.14	0.13 0.11	0.08 0.08	0.06 0.06	0.04 0.04	0.04										
		18 TPI	161R A55 AG55	0.06 0.06	0.97 0.97	8 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.10	0.10 0.08	0.06 0.06	0.05 0.05											
		16 TPI	161R A55 AG55	0.06 0.06	1.10 1.10	9 9	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05										
		14 TPI	161R G55 AG55	0.22 0.06	1.06 1.27	8 11	0.21 0.20	0.19 0.17	0.17 0.15	0.12 0.13	0.10 0.10	0.07 0.09	0.05 0.08	0.05 0.07	0.04	0.06	0.04							
		12 TPI	161R G55 AG55	0.22 0.06	1.28 1.48	9 11	0.22 0.24	0.19 0.20	0.17 0.18	0.15 0.16	0.13 0.13	0.10 0.11	0.08 0.09	0.04 0.06	0.04	0.05	0.04							
		11 TPI	161R G55 AG55	0.22 0.06	1.42 1.62	10 12	0.24 0.22	0.20 0.20	0.18 0.18	0.15 0.16	0.12 0.14	0.10 0.12	0.09 0.10	0.07 0.08	0.05 0.07	0.05 0.06	0.05 0.05							
		10 TPI	161R G55 AG55	0.22 0.06	1.59 1.79	12 13	0.24 0.25	0.22 0.21	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.10	0.06 0.08	0.05 0.05	0.04 0.03						
		9 TPI	161R G55 AG55	0.22 0.06	1.79 1.99	13 14	0.24 0.25	0.22 0.23	0.20 0.20	0.18 0.18	0.17 0.16	0.16 0.15	0.15 0.14	0.13 0.13	0.12 0.12	0.10 0.11	0.07 0.10	0.05 0.09	0.05 0.08	0.05 0.05				
		8 TPI	161R G55 AG55	0.22 0.06	2.05 2.25	14 15	0.24 0.26	0.23 0.24	0.22 0.21	0.20 0.18	0.18 0.16	0.16 0.14	0.15 0.14	0.14 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.09	0.07 0.08	0.05 0.05	0.05 0.05			
		7 TPI	221R N55	0.47	2.09	14	0.24	0.23	0.22	0.20	0.19	0.17	0.15	0.14	0.13	0.12	0.10	0.08	0.07	0.05				
		6 TPI			2.53	16	0.30	0.28	0.25	0.23	0.21	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.06	0.05			
		5 TPI			3.14	19	0.30	0.28	0.27	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.08	0.06	0.05
30° trapezoidal	External thread	2.0 mm	16ER 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03								
		3.0 mm	16ER 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.07	0.05	0.03					
		4.0 mm	22ER 400TR	-	2.24	15	0.26	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03			
		5.0 mm	22ER 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03	
	Internal thread	2.0 mm	161R 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03								
		3.0 mm	161R 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.07	0.05	0.03					
		4.0 mm	221R 400TR	-	2.24	15	0.26	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03			
		5.0 mm	221R 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03	

Corner-R(RE) selection for partial profiling insert

	External threading	Internal threading	Metric, Unified thread
Metric unified	RE ≤ 0.1443TP	RE ≤ 0.0720TP	Corner-R(RE) at Internal threading is almost half of that of External
Parallel pipe (Whitworth)	(For both external and Internal thread)		Parallel pipe, Tapered pipe, Whitworth thread
Tapered pipe	RE ≤ 0.1373TP		Same Corner-R(RE) for both External and Internal threading

RE: Corner-R TP: Pitch ($= \frac{25.4}{n}$) n: TPI

Threading

11 / 16 (60° / 55°, Partial profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description		Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Metric (60°)	External thread	1.00 mm	16ER	6001	0.10	0.66	5	0.21	0.19	0.12	0.09	0.05															
		1.25 mm	16ER	6001	0.10	0.85	6	0.25	0.21	0.15	0.12	0.07	0.05														
		1.50 mm	16ER	6001	0.10	1.04	8	0.23	0.21	0.19	0.15	0.11	0.06	0.05	0.04												
			6002	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04														
		1.75 mm	16ER	6001	0.10	1.23	9	0.25	0.22	0.20	0.17	0.14	0.09	0.07	0.05	0.04											
			6002	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04													
	Internal thread	2.00 mm	16ER	6001	0.10	1.42	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04									
			6002	0.20	1.32	10	0.25	0.22	0.20	0.16	0.14	0.12	0.08	0.07	0.04	0.04											
		2.50 mm	16ER	6001	0.10	1.79	13	0.25	0.22	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.09	0.08	0.05	0.04							
			6002	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.16	0.16	0.12	0.12	0.10	0.08	0.06	0.04								
		0.75 mm	11IR	60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02															
			1.00 mm	11IR	60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04													
Parallel pipe / Tapered pipe (55°)	External thread	28 TPI	16ER	5501	0.10	0.61	5	0.20	0.16	0.12	0.08	0.05															
		19 TPI	16ER	5501	0.10	0.95	7	0.22	0.20	0.16	0.14	0.10	0.08	0.05													
		14 TPI	16ER	5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.05									
			5502	0.20	1.22	9	0.24	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05												
		11 TPI	16ER	5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02							
			5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02									
	Internal thread	28 TPI	11IR	55005	0.05	0.67	7	0.18	0.15	0.12	0.08	0.06	0.05	0.03													
			16IR	5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.05	0.03														
		19 TPI	11IR	55005	0.05	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05												
			16IR	5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05													
		14 TPI	11IR	55005	0.05	1.39	11	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.05								
			16IR	5501	0.10	1.34	10	0.20	0.18	0.18	0.16	0.14	0.14	0.11	0.10	0.08	0.05										
Whitworth (55°)	External thread	24 TPI	16ER	5501	0.10	0.73	6	0.22	0.18	0.12	0.09	0.07	0.05														
			20 TPI	16ER	5501	0.10	0.90	6	0.22	0.18	0.17	0.16	0.12	0.05													
		18 TPI	16ER	5501	0.10	1.01	7	0.24	0.20	0.18	0.16	0.10	0.08	0.05													
			16 TPI	16ER	5501	0.10	1.15	9	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05										
		14 TPI	5502	0.20	1.04	8	0.24	0.20	0.16	0.14	0.10	0.08	0.07	0.05													
			16ER	5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.05									
	Internal thread	12 TPI	16ER	5501	0.10	1.58	12	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.08	0.08	0.07	0.05							
			5502	0.20	1.46	11	0.25	0.20	0.18	0.16	0.15	0.14	0.10	0.08	0.08	0.07	0.05										
		11 TPI	16ER	5501	0.10	1.73	12	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.07	0.05								
			5502	0.20	1.62	11	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05										
		10 TPI	16ER	5501	0.10	1.92	14	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
			5502	0.20	1.80	13	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05	0.02								
Internal thread	9 TPI	16ER	5502	0.20	2.03	14	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.08	0.06	0.02							
		24 TPI	11IR	55005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.05	0.03													
	20 TPI	16IR	5501	0.10	0.65	6	0.18	0.15	0.12	0.10	0.07	0.03															
		11IR	55005	0.05	0.87	8	0.18	0.16	0.14	0.12	0.10	0.06	0.06	0.05													
	18 TPI	16IR	5501	0.10	0.81	7	0.18	0.16	0.14	0.12	0.10	0.06	0.05														
		11IR	55005	0.05	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05													
	16 TPI	16IR	5501	0.10	0.91	7	0.20	0.18	0.16	0.14	0.10	0.08	0.05														
		11IR	55005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.10	0.10	0.08	0.08	0.05												
	14 TPI	16IR	5501	0.10	1.04	8	0.20	0.18	0.16	0.15	0.12	0.10	0.08	0.05													
		5502	0.20	0.92	7	0.20	0.18	0.16	0.15	0.10	0.08	0.05															
	12 TPI	11IR	55005	0.05	1.26	10	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.08	0.05											
		16IR	5501	0.10	1.20	9	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.08	0.05												
11 TPI	5502	0.20	1.08	8	0.20	0.18	0.18	0.16	0.13	0.10	0.08	0.05															
	16IR	5501	0.10	1.42	10	0.25	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05												
11 TPI	5502	0.20	1.30	9	0.25	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05														
	16IR	5501	0.10	1.56	11	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05	0.08	0.05										
11 TPI	5502	0.20	1.44	10	0.25	0.20	0.18	0.16	0.16	0.16	0.14	0.12	0.10	0.08	0.05												

TT (60° / 55°, Partial profile) Part 1

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Cornor-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Metric (60°)	External thread	0.50 mm	TT32°/L 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02												
		0.70 mm	TT32°/L 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02											
		0.75 mm	TT32°/L 6000	0.00	0.57	8	0.10	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
		0.80 mm	TT32°/L 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02										
		1.00 mm	TT32°/L 6000	0.00	0.76	8	0.15	0.12	0.12	0.11	0.10	0.08	0.06	0.02										
			TT32/43°/L 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02												
		1.25 mm	TT32°/L 6000	0.00	0.95	9	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.02		0.02							
			TT32/43°/L 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02											
		1.50 mm	TT32°/L 6000	0.00	1.14	10	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.07	0.05	0.02		0.02						
			TT32/43°/L 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02		0.02							
			6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02										
		1.75 mm	TT32°/L 6000	0.00	1.33	11	0.25	0.23	0.20	0.13	0.10	0.10	0.10	0.08	0.07	0.05	0.02		0.05	0.02				
			TT32/43°/L 6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02		0.02						
			6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02									
		2.00 mm	TT32°/L 6000	0.00	1.52	12	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02		0.08	0.05	0.02		
			TT32/43°/L 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02		0.08	0.05	0.02		
			6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02							
		2.50 mm	TT32°/L 6000	0.00	1.89	13	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.14	0.13	0.10	0.08	0.06	0.02					
			TT32/43°/L 6001	0.10	1.79	12	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.06	0.02						
			6002	0.20	1.69	11	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.10	0.08	0.02							
			6003	0.30	1.59	11	0.27	0.25	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.05	0.02							
		3.00 mm	TT43°/L 6001	0.10	2.17	14	0.30	0.25	0.23	0.20	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02				
			6002	0.20	2.07	13	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.13	0.12	0.10	0.05	0.02					
			6003	0.30	1.97	12	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.02						
			6004	0.40	1.87	12	0.30	0.25	0.23	0.20	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.02						
		3.50 mm	TT43°/L 6001	0.10	2.55	16	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02		
			6002	0.20	2.45	15	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.05	0.02			
			6003	0.30	2.35	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.02				
			6004	0.40	2.25	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02				
	Internal thread	0.50 mm	TT32°/L 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02													
		0.70 mm	TT32°/L 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02												
		0.75 mm	TT32°/L 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02												
		0.80 mm	TT32°/L 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02												
		1.00 mm	TT32°/L 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02											
		1.25 mm	TT32°/L 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02										
		1.50 mm	TT32°/L 6000	0.00	0.97	9	0.20	0.18	0.16	0.14	0.10	0.08	0.05	0.04	0.02									
			TT32/43°/L 6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02										
		1.75 mm	TT32°/L 6000	0.00	1.14	10	0.20	0.18	0.16	0.13	0.12	0.10	0.10	0.08	0.05	0.02								
			TT32/43°/L 6001	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02									
		2.00 mm	TT32°/L 6000	0.00	1.30	12	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02							
			TT32/43°/L 6001	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02							
		2.50 mm	TT32°/L 6000	0.00	1.62	14	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02					
			TT32/43°/L 6001	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02					
		3.00 mm	TT43°/L 6001	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
			6002	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02				
Parallel pipe / tapered pipe (55°)	External thread	28TPI	TT32°/L 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02													
		19TPI	TT32/43°/L 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02										
		14TPI	TT32/43°/L 5501	0.10	1.34	10	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.05	0.02								
			5502	0.20	1.22	9	0.25	0.22	0.20	0.18	0.12	0.10	0.08	0.05	0.02									
		11TPI	TT32/43°/L 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02						
			5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02						
	Internal thread	5503	0.30	1.50	11	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.04	0.02								
		28TPI	TT32/43°/L 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.06	0.02												
		19TPI	TT32/43°/L 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05											
		14TPI	TT32/43°/L 5501	0.10	1.34	10	0.20	0.18	0.18	0.16	0.14	0.14	0.11	0.10	0.08	0.05								
			5502	0.20	1.22	9	0.20	0.18	0.18	0.16	0.15	0.12	0.10	0.08	0.05									
		11TPI	TT32/43°/L 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02						
Whitworth (55°)	External thread	24TPI	TT32/43°/L 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02												
		20TPI	TT32/43°/L 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02											
		18TPI	TT32/43°/L 5501	0.10	1.01	8	0.20	0.18	0.18	0.16	0.12	0.10	0.05	0.02										
		16TPI	TT32/43°/L 5501	0.10	1.15	9	0.25	0.20	0.18	0.14	0.12	0.10	0.08	0.06	0.02									
			5502	0.20	1.04	8	0.25	0.20	0.18	0.14	0.10	0.08	0.07	0.02										

TT (60° / 55°, Partial profile) Part 2

(ap shows the value of radial ap)

Type	Pitch / TPI mm / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Whitworth (55°)	Internal thread	24TPI TT32/43 [°] L 5501	0.10	0.65	6	0.20	0.16	0.12	0.10	0.05	0.02											
		20TPI TT32/43 [°] L 5501	0.10	0.81	7	0.20	0.18	0.16	0.12	0.08	0.05	0.02										
		18TPI TT32/43 [°] L 5501	0.10	0.91	8	0.20	0.18	0.16	0.15	0.10	0.05	0.05	0.02									
		16TPI TT32/43 [°] L 5501	0.10	1.04	9	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.05	0.02								
		5502	0.20	0.92	8	0.20	0.18	0.16	0.13	0.10	0.08	0.05	0.02									
		14TPI TT32/43 [°] L 5501	0.10	1.20	10	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.05	0.02							
		5502	0.20	1.08	9	0.20	0.18	0.16	0.15	0.14	0.10	0.08	0.05	0.02								
		12TPI TT32/43 [°] L 5501	0.10	1.42	10	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.05	0.02							
		5502	0.20	1.30	9	0.25	0.22	0.20	0.18	0.16	0.12	0.10	0.05	0.02								
		11TPI TT32/43 [°] L 5501	0.10	1.56	11	0.25	0.22	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.05	0.02						
		5502	0.20	1.44	10	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.05	0.02							
		TT43 [°] L 5503	0.30	1.33	9	0.25	0.22	0.20	0.18	0.16	0.14	0.10	0.06	0.02								
		10TPI TT32/43 [°] L 5501	0.10	1.73	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.05	0.02						
		5502	0.20	1.61	11	0.25	0.22	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.05	0.02						
		TT43 [°] L 5503	0.30	1.50	10	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.05	0.02							
		9TPI TT43 [°] L 5501	0.10	1.93	13	0.25	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02				
		5502	0.20	1.82	12	0.25	0.23	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.05	0.02					
		5503	0.30	1.70	11	0.25	0.22	0.22	0.20	0.20	0.18	0.14	0.12	0.10	0.05	0.02						
		8TPI TT43 [°] L 5501	0.10	2.19	15	0.27	0.25	0.23	0.21	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.05	0.02		
		5502	0.20	2.07	14	0.27	0.25	0.23	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.02			
		5503	0.30	1.96	13	0.30	0.25	0.23	0.22	0.20	0.18	0.15	0.12	0.10	0.08	0.06	0.05	0.02				
		5504	0.40	1.84	12	0.30	0.25	0.23	0.21	0.20	0.18	0.14	0.12	0.08	0.06	0.05	0.02					

TT (60°, Full profile)

(ap shows the value of radial ap)

Type	Pitch / TPI mm / TPI	Description	HC (mm)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric	External thread	1.00 mm TT43E [°] L 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05												
		1.25 mm 125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05											
		1.50 mm 150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05											
		2.00 mm 200M	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05							

TTX (60° / 55°, Partial profile)

(ap shows the value of radial ap)

Type	Pitch / TPI mm / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (60°)	External thread	0.50 mm TTX32R 6000 6000S	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
		6000S 6000SS	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02												
		0.70 mm TTX32R 6000 6000S	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
		6000S	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02											
		0.75 mm TTX32R 6000 6000S	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
		6000S	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02										
		0.80 mm TTX32R 6000 6000S	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02									
		6000S	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02										
		1.00 mm TTX32R 6000 6000S	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.04	0.02									
		6000S	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02										
		6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02											
		1.25 mm	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02										
Parallel pipe / tapered pipe (55°)	External thread	1.50 mm TTX32R 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
		1.75 mm	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02							
		2.00 mm	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02						
		28TPI TTX32R 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02												
		19TPI TTX32R 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02									
		5501S	0.15	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		14TPI TTX32R 5501S	0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
		11TPI	0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.02						
		24TPI TTX32R 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
		20TPI TTX32R 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		5501S	0.15	0.84	7	0.20	0.18	0.16	0.12	0.10	0.06	0.02										
Whitworth (55°)	External thread	18TPI TTX32R 5501S	0.15	0.95	8	0.20	0.18	0.15	0.14	0.12	0.10	0.04	0.02									
		16TPI	0.15	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.06	0.02									
		14TPI TTX32R 5501S	0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
		12TPI	0.15	1.52	11	0.25	0.20	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.05	0.02						
		11TPI	0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.02					

- <Note> 1) Select the insert with suitable corner-R(RE) determined by the pitch.
2) Do not exceed 0.3mm for the 1st ap.
3) Finishing ap should be 0.02~0.05mm.
4) Prepare chamfering for C0.3~C0.5 to the workpiece to prevent the insert cracking during the 1st pass.
5) Coolant is recommended.

TTX

Suitable for threading of smaller pitch sizes or more TPI than TT. Suitable for threading to the shoulder.

Insert description	Thread types	Metric (mm)	Unifed (TPI)	Parallel pipe (TPI)	Whitworth (TPI)
TTX32R 6000 6000S 6001		0.5~1.0 0.5~1.0 1.0~2.0	56~32 48~32 28~14	- - -	- - -
TTX32R 6000S 6000SS		0.5 0.5	56~48 48	- -	- -
TTX32R 5501 5501S		- -	- -	28~19 19~11	24~20 20~14

TPGB (60°, Partial profile)

(ap shows the value of radial ap)

Type	Pitch / TPI mm / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (60°)	Internal thread	0.75 mm	TPGB 1102005 1103005	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02											
		0.80 mm	TPGB 1102005 1103005	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02											
		1.00 mm	TPGB 1102005 1103005	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02										
		1.25 mm	TPGB 1102005 1103005	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02									
		1.50 mm	TPGB 1102005 1103005	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02								
			110201 110301	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02								
		1.75 mm	TPGB 1102005 1103005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.04	0.02							
			110301	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02							
		2.00 mm	TPGB 1102005 1103005	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02					
			110301	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02					
		2.50 mm	TPGB 1102005 1103005	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02			
			110301	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02			
		3.00 mm	TPGB 1102005 1103005	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.12	0.10	0.08	0.08	0.07	0.05	0.02	
			110301	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02	
			110302	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02		
		3.50 mm	TPGB 1102005 1103005	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02
			110301	0.10	2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02
			110302	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02	

Guide for internal threading

For internal threading, pay extra attention to “stabilizing bore dia.” and “chip evacuation”.

1. “Stabilizing bore dia.”

Because small pitch Internal threading has small corner-R (RE), there is variation in the bore dia. which may greatly influence the tool life of an insert.
In order to eliminate the variation in the bore dia., “0” Cutting (zero cutting) should be performed as the zero pass, before the first pass in threading.
The bore dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2. “Chip evacuation”

If machining process is continued when chips are tangled with a toolholder and other parts of the machine, it may cause damages to the insert.
Therefore, please ensure that there are no tangled chips in the machine by the following method.

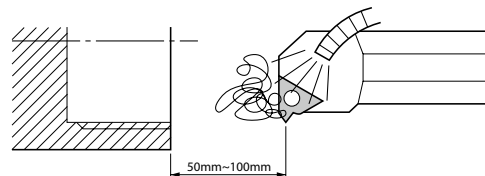
<When processing the first workpiece>

Set the program with the “single block”

Keep the threading starting point 50 mm~100 mm away from the side of workpiece,
and confirm that coolant is flushing down the chips for each pass.

<When processing the second workpiece and later>

Ensure that chips are not tangled; then, start the continuous run.



In applicable toolholder / insert lists on **J58-J62**, right-hand insert / right-hand toolholder descriptions are listed based on the previous TNN type inserts. For other applicable inserts / toolholders or stock availability of left-hand, see each relevant page and **J65**.

Parallel pipe [G(PF), Rp(PS)]

Nominal thread Symbol (Previous symbol)	TPI	External thread (G)			Internal thread (G, Rp)				Same root's radius
		Toolholder	Insert		Toolholder	Insert		Bore dia.	
			Partial profile	Full profile		Partial profile	Full profile		
G 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ 16ERAG55-TF/TQ 16ERA55 16ERAG55	-	SINR0612S-06E (EZT ⚙️ J40)	06IR5501	-	6.56	0.12
G 1/8 (PF 1/8)								8.57	
G 1/4 (PF 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ 16ERAG55-TF/TQ 16ERA55 16ERAG55	16ER19W-TF/TQ 16ER19W	SINR0816S-08E (EZT ⚙️ J40)	08IR5501	-	11.45	0.18
G 3/8 (PF 3/8)					SINR1216S-11E (EZT ⚙️ J40)	11IRA55 11IR5500S	-	14.95	
G 1/2 (PF 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER14W-TF/TQ 16ER14W	SINR1516S-11	11IR5500S	-	18.63	0.25
G 5/8 (PF 5/8)					SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W	20.59	
G 3/4 (PF 3/4)					SINR2016S-16			24.12	
G 7/8 (PF 7/8)					SINR2420S-16			27.88	
G 1 (PF 1)					SINR2420S-16			30.29	
G 1 1/8 (PF 1 1/8)	11	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W	CINR3025S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF/TQ 16IR11W	34.94	0.32
G 1 1/4 (PF 1 1/4)					CINR3732S-16			38.95	
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G1 1/4 is recommended.									

Tapered pipe [R Rc(PT)(BSPT)]

Nominal thread	TPI	External thread (R)			Internal thread (Rc)			Same root's radius
Symbol (Previous symbol)		Toolholder	Insert		Toolholder	Insert		
			Partial profile	Full profile		Partial profile	Full profile	
R 1/16, Rc 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER28BSPT-TF/TQ 16ER28BSPT	SINR0612S-06E (EZT ⚙️ J40)	06IR5501	-	0.12
R 1/8, Rc 1/8 (PT 1/8)								
R 1/4 Rc 1/4 (PT 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER19BSPT-TF/TQ 16ER19BSPT	SINR0816S-08E (EZT ⚙️ J40)	08IR5501	-	0.18
R 3/8, Rc 3/8 (PT 3/8)					SINR1216S-11E (EZT ⚙️ J40)	(11IRA55) (11IR5500S)	11IR19BSPT-TF/TQ 11IR19BSPT	
R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER14BSPT-TF/TQ 16ER14BSPT	SINR1516S-11	(11IR5500S)	11IR14BSPT-TF/TQ 11IR14BSPT	0.25
R 3/4, Rc 3/4 (PT 3/4)					SINR1616S-16 SINR2016S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR14BSPT-TF/TQ 16IR14BSPT	
R 1, Rc 1 (PT 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER11BSPT-TF/TQ 16ER11BSPT	SINR2420S-16			16IR11BSPT-TF/TQ 16IR11BSPT
R 1 1/4, Rc 1 1/4 (PT 1 1/4)					CINR3025S-16			
R 1 1/2, Rc 1 1/2 (PT 1 1/2)					CINR3732S-16			
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for R1 1/2 is recommended.					Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for Rc1 1/2 is recommended.			

1) The largest size of minimum diameter toolholder is recommended for Internal threading toolholders.

Therefore it is available if minimum diameter is smaller than recommended toolholders.

(e.g.) SINR2420S-16 (Min. Bore dia.: ø24mm) is recommended for the Tool of G7/8 Internal threading from the above table, but SINR2016S-16 can also be used.

2) When using "Partial profile" for Tapered pipe threading, thread's corners become sharp edged, and the shape will not be the same as the standard shape for Tapered pipe.

American national tapered pipe (NPT)

Nominal thread	TPI	External thread			Internal thread		
		Toolholder	Insert		Toolholder	Insert	
			Partial profile	Full profile		Partial profile	Full profile
1/16NPT 1/8NPT	27	KTTR○○○○□-16 KTNR○○○○□-16F	TT32R6000 TTX32R6000	-	No tools available		
1/4NPT 3/8NPT	18	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER18NPT	EZH Sleeves J41	EZTR060050-60-004 EZTR070060-60-004	-
1/4NPT 3/4NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER14NPT	EZH Sleeves J41	EZTR070060-60-004	-
1/2NPT 3/4NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER14NPT	SINR1616S-16 SINR2016S-16	-	16IR14NPT
1 NPT 1 1/2 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER11.5NPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	-	16IR11.5NPT

• Application of NPTF thread

NPTF is the thread for sealing pipes without using any sealing material.

Thread symbol is similar to NPT but the tolerance is different from that of NPT, therefore the above inserts are not available for NPTF.

30° Trapezoidal (Tr)

The JIS Standard Trapezoidal Size to be machined by previous TNN Insert are shown.

Nominal thread	Pitch (mm)	External thread			Internal thread						
		Toolholder	Insert		Toolholder	Insert		Bore dia.			
			Partial profile	Full profile		Partial profile	Full profile				
Tr 16X2 Tr 18X2 Tr 20X2	2	No tools available			No tools available	-	-	14.00			
		KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ER200TR	-	SINR1616S-16	16IR200TR	-	16.00 18.00			
Tr 22X3		3	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ER300TR	-	SINR1616S-16	16IR300TR	-	19.00		
Tr 24X3 Tr 26X3	3	SINR2016S-16				16IR300TR	-	21.00 23.00			
Tr 28X3 Tr 30X3 Tr 32X3 Tr 34X3 Tr 36X3 Tr 38X3 Tr 40X3	3	SINR2420S-16				16IR300TR	-	25.00 27.00 29.00			
		CINR3025S-16				16IR300TR	-	31.00 33.00 35.00 37.00			
Tr 42X3 Tr 44X3 Tr 46X3 Tr 48X3 Tr 50X3 Tr 52X3 Tr 55X3 Tr 60X3 Tr 65X3	3	CINR3732S-16				16IR300TR	-	39.00 41.00 43.00 45.00 47.00 49.00 52.00 57.00 62.00			
Tr 70X4 Tr 75X4 Tr 80X4 Tr 90X4 Tr 95X4 Tr 100X4 Tr 105X4 Tr 110X4	4	KTNR○○○○□-22				22ER400TR	-	CINR3732S-22	22IR400TR	-	66.00 71.00 76.00 86.00 91.00 96.00 101.00 106.00

• TM thread: TM thread (old JIS 30° trapezoidal thread) has been discontinued. But if the "Nominal dia. X pitch" is the same, the above Tr thread can be used.

• TW thread: TW thread is 29° trapezoidal thread, therefore the above inserts are not available.



Threading

Metric coarse thread: M

Nominal thread	Pitch (mm)	Internal thread					
		Toolholder	Insert		Bore dia.		
			Partial profile	Full profile			
M1 . . .	0.25 0.5	No tools available	-	-	0.73 . . .		
M3						2.46	
M4	0.7				EZTR030025-60-002	3.24	
M5	0.8				EZTR040035-60-004	4.13	
M6	1.0	-	VNTR045-11	-	4.92		
M7	1.0		EZTR050040-60-004	-	5.92		
			VNTR045-11	-			
M8	1.25		-	EZTR060050-60-004	-	6.65	
			VNTR060-11	-			
		SINR0612S-06E	06IR60005	-			
M9	1.25	-	EZTR070060-60-004	-	7.65		
		SINR0612S-06E	06IR60005	-			
M10	1.5	SINR0816S-08E	08IR60007	-	8.38		
M11	1.5				9.38		
M12	1.75	SINR0816S-08E	08IR60007	-	10.11		
M16	2.0	SINR1216S-11E	-	11IR200ISO	13.84		
M18	2.5	No tools available				15.29	
M20	2.5	SINR1616S-16	Table 5	16IR250ISO-□□	17.29		
M22	2.5				19.29		
M24	3.0	SINR2016S-16	Table 4	16IR300ISO-□□	20.75		
M27	3.0				23.75		
M30	3.5	SINR2420S-22	22IRN60	22IR350ISO	26.21		
M33	3.5				29.21		
M36	4.0	CINR3025S-22		22IR400ISO	31.67		
M39	4.0				34.67		
M42	4.5	CINR3732S-22		22IR450ISO	37.13		
M45	4.5				40.13		
M48	5.0	CINR3732S-22		22IR500ISO	42.59		
M52	5.0					46.59	
M56 . . .	5.5	* Threading of M56 and over is not available due to too large pitch size.				50.05 . . .	

Metric fine thread: M

Part 2

Nominal thread	Pitch (mm)	Internal thread			
		Toolholder	Insert		Bore dia.
			Partial profile	Full profile	
M14x1.5 M14x1.25 M14x1.0	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	12.38
	1.25			11IR125ISO-□□	12.65
	1.0			11IR100ISO-□□	12.92
M15x1.5 M15x1.0	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	13.38
	1.0			11IR100ISO-□□	13.92
M16x1.5 M16x1.0	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	14.38
	1.0			11IR100ISO-□□	14.92
M17x1.5 M17x1.0	1.5	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-□□	15.38
	1.0			11IR100ISO-□□	15.92
M18x2.0 M18x1.5 M18x1.0	2.0	SINR1516S-11	-	11IR200ISO	15.84
	1.5			Table 2	16IR150ISO-□□
	1.0			Table 3	16IR100ISO-□□
M20x2.0 M20x1.5 M20x1.0	2.0	SINR1616S-16	-	Table 1	16IR200ISO-□□
	1.5			Table 2	16IR150ISO-□□
	1.0			Table 3	16IR100ISO-□□
M22x2.0 M22x1.5 M22x1.0	2.0	SINR1616S-16	-	Table 1	16IR200ISO-□□
	1.5			Table 2	16IR150ISO-□□
	1.0			Table 3	16IR100ISO-□□
M24x2.0 M24x1.5 M24x1.0	2.0	SINR2016S-16	-	Table 1	16IR200ISO-□□
	1.5			Table 2	16IR150ISO-□□
	1.0			Table 3	16IR100ISO-□□
M25x2.0 M25x1.5 M25x1.0	2.0	SINR2016S-16	-	Table 1	16IR200ISO-□□
	1.5			Table 2	16IR150ISO-□□
	1.0			Table 3	16IR100ISO-□□
M26x1.5 M27x2.0 M27x1.5 M27x1.0	1.5	SINR2420S-16	-	Table 2	16IR150ISO-□□
	2.0			Table 1	16IR200ISO-□□
	1.5			Table 2	16IR150ISO-□□
M28x2.0 M28x1.5 M28x1.0	2.0	SINR2420S-16	-	Table 1	16IR200ISO-□□
	1.5			Table 2	16IR150ISO-□□
	1.0			Table 3	16IR100ISO-□□
M30x3.0 M30x2.0 M30x1.5 M30x1.0	3.0	SINR2420S-22	-	22IR300ISO	26.75
	2.0			Table 4	16IR300ISO-□□
	1.5			Table 1	16IR200ISO-□□
M32x2.0 M32x1.5	2.0	SINR2420S-16	-	Table 2	16IR150ISO-□□
	1.5			Table 3	16IR100ISO-□□
M33x3.0 M33x2.0 M33x1.5	3.0	SINR2420S-22	-	22IR300ISO	29.75
	2.0			Table 4	16IR300ISO-□□
	1.5			Table 1	16IR200ISO-□□
M35x1.5 M36x3.0 M36x2.0 M36x1.5	1.5	CINR3025S-16	-	Table 2	16IR150ISO-□□
	3.0			Table 2	16IR100ISO-□□
	2.0			Table 4	16IR300ISO-□□
M38x1.5 M39x3.0 M39x2.0 M39x1.5	1.5	CINR3025S-22	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M40x3.0 M40x2.0 M40x1.5	3.0	CINR3025S-16	-	Table 1	16IR200ISO-□□
	2.0			Table 2	16IR150ISO-□□
	1.5			Table 4	16IR300ISO-□□
M42x4.0 M42x3.0 M42x2.0 M42x1.5	4.0	CINR3732S-22	-	22IRN60	22IR400ISO
	3.0			Table 1	16IR200ISO-□□
	2.0			Table 2	16IR150ISO-□□
M45x4.0 M45x3.0 M45x2.0 M45x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M48x4.0 M48x3.0 M48x2.0 M48x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M50x4.0 M50x3.0 M50x2.0 M50x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M52x4.0 M52x3.0 M52x2.0 M52x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M54x4.0 M54x3.0 M54x2.0 M54x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M56x4.0 M56x3.0 M56x2.0 M56x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M58x4.0 M58x3.0 M58x2.0 M58x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M60x4.0 M60x3.0 M60x2.0 M60x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M62x4.0 M62x3.0 M62x2.0 M62x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M64x4.0 M64x3.0 M64x2.0 M64x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M66x4.0 M66x3.0 M66x2.0 M66x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M68x4.0 M68x3.0 M68x2.0 M68x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M70x4.0 M70x3.0 M70x2.0 M70x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M72x4.0 M72x3.0 M72x2.0 M72x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M74x4.0 M74x3.0 M74x2.0 M74x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M76x4.0 M76x3.0 M76x2.0 M76x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M78x4.0 M78x3.0 M78x2.0 M78x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M80x4.0 M80x3.0 M80x2.0 M80x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M82x4.0 M82x3.0 M82x2.0 M82x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M84x4.0 M84x3.0 M84x2.0 M84x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-□□
	3.0			Table 2	16IR150ISO-□□
	2.0			Table 4	16IR300ISO-□□
M86x4.0 M86x3.0 M86x2.0 M86x1.5	4.0	CINR3732S-16	-	Table 1	16IR200ISO-

Unified coarse thread: UNC

Nominal thread	TPI	Internal thread			
		Toolholder	Insert		Bore dia.
			Partial profile	Full profile	
No.2-56 UNC . . . No.6-32 UNC	56 . . . 32	No tools available	-	-	1.69 . . . 2.65
No.8-32 UNC	32				3.31
No.10-24 UNC	24				3.68
No.12-24 UNC	24				4.34
1/4-20 UNC	20	-	EZTR030025-60-002	-	4.98
		-	EZTR050040-60-004	-	
		-	VNTR045-11	-	
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41
		-	VNTR060-11	-	
3/8-16 UNC	16	-	EZTR070060-60-004	-	7.81
7/16-14 UNC	14	No tools available			9.15
1/2-13 UNC	13				10.58
9/16-12 UNC	12				12.00
5/8-11 UNC	11				13.38
3/4-10 UNC	10				16.30
7/8-9 UNC	9	SINR1616S-16	16IRAG60	16IR10UN(-□□)	19.17
1-8 UNC	8	SINR2016S-16	16IRG60	16IR08UN(-□□)	21.96
1 1/8-7 UNC	7	SINR2420S-22	22IRN60	-	24.65
1 1/4-7 UNC	7				27.82
1 3/8-6 UNC	6	CINR3025S-22			30.34
1 1/2-6 UNC	6				33.52
1 3/4-5 UNC	5	CINR3732S-22			38.95
2-4 1/2 UNC . . .	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.			44.69 . . .

Unified extra fine thread: UNEF

Nominal thread	TPI	Internal thread			
		Toolholder	Insert		Bore dia.
			Partial profile	Full profile	
No.12 -32UNEF 1/4-32UNEF 5/16-32UNEF 3/8-32UNEF	32	-	EZTR035030-60-002	-	4.63 5.49 7.08 8.67
7/16-28UNEF 1/2-28UNEF	28	SINR0612S-06E	06IR60005	-	10.13 11.72
9/16-24UNEF 5/8-24UNEF	24	SINR1216S-11E	11IRA60 11IR60005	-	13.14 14.73
11/16-24UNEF		SINR1516S-11		16IR24UN(-□□)	16.32
3/4-20UNEF 13/16-20UNEF 7/8-20UNEF 15/16-20UNEF 1-20UNEF	20	SINR1616S-16	16IRA60 16IRAG60	16IR20UN(-□□)	17.68 19.26 20.85 22.44 24.03
		SINR2016S-16			
1 1/16 -18UNEF 1 1/8-18UNEF 1 3/16 -18UNEF 1 1/4-18UNEF 1 5/16 -18UNEF 1 3/8-18UNEF 1 7/16-18UNEF	18	SINR2420S-16		16IR18UN(-□□)	25.46 27.05 28.63 30.22 31.81 33.40 34.98
1 1/2-18UNEF 1 9/16 -18UNEF 1 5/8 -18UNEF 1 11/16 -18UNEF		CINR3025S-16			
		CINR3732S-16			

Unified fine thread: UNF

Nominal thread	TPI	Internal thread			Bore dia.			
		Toolholder	Insert					
			Partial profile	Full profile				
No.0-80 UNF . . . No.6-40 UNF	80 40	No tools available	-	-	1.18 . . . 2.82			
No.8-36 UNF	36				-	EZTR030025-60-002	-	3.40
No.10-32 UNF	32				-	EZTR035030-60-002	-	3.97
No.12-28 UNF	28				-	EZTR040035-60-004	-	4.50
1/4-28 UNF	28	-	EZTR050040-60-004	-	5.37			
		-	VNTR045-11	-				
5/16-24 UNF	24	-	EZTR060050-60-004	-	6.79			
		-	VNTR060-11	-				
		SINR0612S-06E	06IR60005	-				
3/8-24 UNF	24	-	EZTR070060-60-004	-	8.38			
		SINR0612S-06E	06IR60005	-				
7/16-20 UNF 1/2-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74			
					11.33			
9/16-18 UNF 5/8-18 UNF	18	SINR1216S-11E	11IRA60 11IR60005	-	12.76			
					14.35			
3/4-16 UNF	16	SINR1516S-11	11IRA60 11IR60005	-	17.33			
		SINR1616S-16		16IR16UN(-□□)				
7/8-14 UNF	14	SINR2016S-16		16IR14UN(-□□)	20.26			
1-12 UNF	12	SINR2016S-16	16IRAG60	16IR12UN(-□□)	23.10			
1 1/8-12 UNF	12	SINR2420S-16	16IRG60		26.28			
1 1/4-12 UNF			16IR6001		29.46			
1 3/8-12 UNF					32.63			
1 1/2-12 UNF	12	CINR3025S-16			36.81			

Whitworth coarse thread: W

Nominal thread	TPI	Internal thread			
		Toolholder	Insert		Bore dia.
			Partial profile	Full profile	
W 1/4	20	No tools available	-	-	4.91
W 5/16	18		-	-	6.34
W 3/8	16	No tools available			7.73
W 7/16	14				9.06
W 1/2	12				10.30
W 9/16					11.89
W 5/8	11				13.26
W 3/4	10	SINR1616S-16	16IRAG55 16IRG55	-	16.17
W 7/8	9				19.03
W 1	8	SINR2016S-16		-	21.80
W 1 1/8	7	SINR2420S-22	22IRN55	-	24.47
W 1 1/4					27.64
W 1 3/8	6	CINR3025S-22	22IRN55	-	30.13
W 1 1/2					33.30
W 1 5/8	5				35.52
W 1 3/4	5	CINR3732S-22	22IRN55	-	38.69
W 1 7/8	4 1/2				41.23
W 2					44.41
W 2 1/4	4				49.96

Whitworth fine thread: W

Nominal thread	TPI	Internal thread			Bore dia.	
		Toolholder	Insert			
			Partial profile	Full profile		
W9.5 TPI 24 W10 TPI 24 W10.5 TPI 24	24	SINR0816S-08E	08IR5501	-	8.30 8.80 9.30	
W9.5 TPI 20 W10 TPI 20 W10.5 TPI 20 W11 TPI 20 W11.5 TPI 20 W12 TPI 20 W12.5 TPI 20 W13 TPI 20	20	SINR0816S-08E	08IR5501		-	8.06 8.56 9.06 9.56 10.06 10.56 11.06 11.56
W13.5 TPI 20	20	SINR1216S-11E	11IRA55 11IR5500S			-
W11 TPI 18 W11.5 TPI 18 W12 TPI 18 W12.5 TPI 18 W14 TPI 18 W14.5 TPI 18 W15 TPI 18 W16 TPI 18	18	No tools available				9.40 9.90 10.40 10.90
W13 TPI 16 W13.5 TPI 16	16	No tools available			11.20 11.70	
W14 TPI 16 W14.5 TPI 16 W15 TPI 16	16	SINR1216S-11E	11IRA55 11IR5500S	-	12.20 12.70 13.20	
W17 TPI 16	16	SINR1516S-11			15.20	
W18 TPI 16 W19 TPI 16 W20 TPI 16	16	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR16W-□□)	16.20 17.20 18.20	
W16 TPI 14 W17 TPI 14 W18 TPI 14	14	SINR1216S-11E	11IRA55 11IR5500S	-	13.94 14.94	
W21 TPI 14 W22 TPI 14	14	SINR1516S-11			15.94	
W21 TPI 14 W22 TPI 14 W23 TPI 14 W24 TPI 14 W25 TPI 14 W26 TPI 14	14	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR14W-□□) (16IR14W)	18.94 19.94 20.94 21.94 22.94 23.94	
W19 TPI 12 W20 TPI 12 W21 TPI 12 W22 TPI 12	12	SINR1616S-16		-	16.60 17.60 18.60 19.60	
W28 TPI 12 W30 TPI 12 W32 TPI 12 W34 TPI 12 W35 TPI 12 W36 TPI 12 W38 TPI 12 W40 TPI 12 W42 TPI 12 W44 TPI 12 W45 TPI 12 W46 TPI 12 W48 TPI 12 W50 TPI 12 . . .	12	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502		-	25.60 26.60 27.60 29.60 31.60 32.60 33.60 35.60 37.60 39.60 41.60 42.60 43.60 45.60 47.60 . . .
W23 TPI 10 W24 TPI 10 W25 TPI 10 W26 TPI 10	10	SINR2016S-16		-	20.12 21.12 22.12 23.12	
W28 TPI 9 W30 TPI 9 W32 TPI 9	9	SINR2420S-16	16IRAG55 16IRG55		-	24.80 26.80 28.80
W34 TPI 8 W35 TPI 8 W36 TPI 8 W38 TPI 8 W40 TPI 8 W42 TPI 8	8	CINR3025S-16		-	30.40 31.40 32.40 34.40 36.40 38.40	
W44 TPI 7 W45 TPI 7 W46 TPI 7 W48 TPI 7 W50 TPI 7 W52 TPI 7	7	CINR3732S-22	22IRN55		-	39.89 40.89 41.89 43.89 45.89 47.89
W55 TPI 6 W58 TPI 6 W60 TPI 6 W62 TPI 6 . W72 TPI 6	6	CINR3732S-22	22IRN55	-	50.20 53.20 55.20 57.20 . 67.20	
W75 TPI 5 . W105 TPI 5	5	CINR3732S-22	22IRN55		-	69.24 . 99.24
W110 TPI 4 . .	4	No tools available			102.8	

External threading (Left-hand thread / Right-hand thread)

External thread

Left-hand thread

Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M04

A technical diagram showing a left-hand toolholder (labeled 'Left-hand') cutting a left-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M04'. The workpiece is shown with a left-hand thread being formed. The toolholder and insert are both labeled 'Left-hand'.

Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M04

A technical diagram showing a right-hand toolholder (labeled 'Right-hand') cutting a left-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M04'. The workpiece is shown with a left-hand thread being formed. The toolholder and insert are both labeled 'Right-hand'.

Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M03

A technical diagram showing a left-hand toolholder (labeled 'Left-hand') cutting a left-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M03'. The workpiece is shown with a left-hand thread being formed. The toolholder and insert are both labeled 'Left-hand'.

Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M03

A technical diagram showing a right-hand toolholder (labeled 'Right-hand') cutting a left-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M03'. The workpiece is shown with a left-hand thread being formed. The toolholder and insert are both labeled 'Right-hand'.

Right-hand thread

Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M03

A technical diagram showing a right-hand toolholder (labeled 'Right-hand') cutting a right-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M03'. The workpiece is shown with a right-hand thread being formed. The toolholder and insert are both labeled 'Right-hand'.

Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M03

A technical diagram showing a left-hand toolholder (labeled 'Left-hand') cutting a right-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M03'. The workpiece is shown with a right-hand thread being formed. The toolholder and insert are both labeled 'Left-hand'.

Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M04

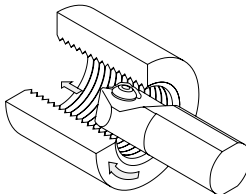
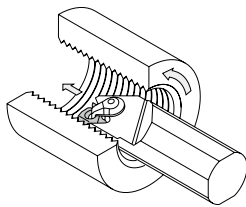
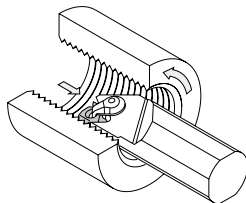
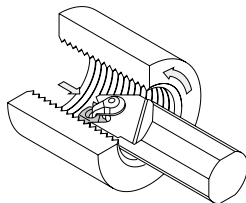
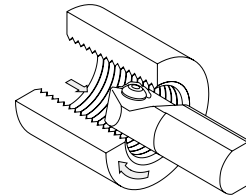
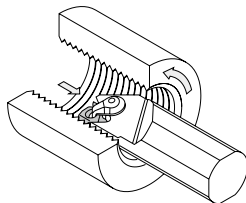
A technical diagram showing a right-hand toolholder (labeled 'Right-hand') cutting a right-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M04'. The workpiece is shown with a right-hand thread being formed. The toolholder and insert are both labeled 'Right-hand'.

Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M04

A technical diagram showing a left-hand toolholder (labeled 'Left-hand') cutting a right-hand external thread on a workpiece. The toolholder is positioned on the left, and the insert is on the right. The spindle revolution is indicated by a curved arrow labeled 'M04'. The workpiece is shown with a right-hand thread being formed. The toolholder and insert are both labeled 'Left-hand'.

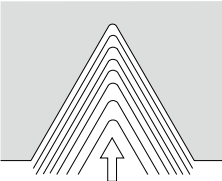
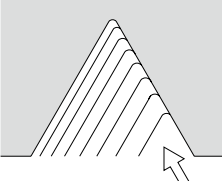
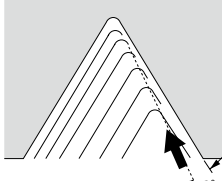
* These tables are based on KTN / KTNS / KTT / KTTX toolholder.

Internal threading (Left-hand thread / Right-hand thread)

Internal thread						
Left-hand thread		Toolholder	Left-hand		Toolholder	Right-hand
		Insert	Left-hand		Insert	Right-hand
		The direction of spindle revolution	M04		The direction of spindle revolution	M03
		Toolholder	Right-hand	Toolholder	Left-hand	
Insert	Right-hand	Insert	Left-hand			
The direction of spindle revolution	M03	The direction of spindle revolution	M04			
Right-hand thread		Toolholder	Right-hand		Toolholder	Left-hand
		Insert	Right-hand		Insert	Left-hand
		The direction of spindle revolution	M03		The direction of spindle revolution	M04
		Toolholder	Left-hand	Toolholder	Right-hand	
Insert	Left-hand	Insert	Right-hand			
The direction of spindle revolution	M04	The direction of spindle revolution	M03			

* These tables are based on SIN / CIN toolholder.
For KITG (for large Internal threading), left-hand insert for right-hand toolholder, right-hand insert for left-hand toolholder.

Infeed methods

Infeed methods	Features
 Radial infeed	• The most common threading method. The cutting edge moves toward the center of the workpiece every pass. • Suitable for relatively small pitch size threading. • V-shape chips are generated and chip control may be difficult depending on workpiece material.
 Flank infeed	• Suitable for large pitch size threading. • The wear on the right side edge of the figure (no ap) tends to become greater. • Chips flow to one side.
 Modified flank infeed	• Revised compound methods of the above flank infeed method. • No "no ap." condition. • Chips flow to one side.

Lead angle of thread

Thread's lead angle β as shown in Fig. 1 decides from the workpiece diameter "D" (Pitch dia.) And the lead "L" (In case of single-start thread, it is the same as pitch "TP"). By rolling a right-angled triangle around a cylinder and the angle ACB in Fig. 2 becomes the lead angle β . The calculation formula is shown as follows.

$$\tan \beta = \frac{L}{\pi D} = \frac{nTP}{\pi D}$$

β : Lead angle D: Pitch dia. n: Number of thread TP: Pitch
L: Lead (In case of single-start thread, it is equal to TP. In case of n-start thread, it is equal to $n \times TP$.)

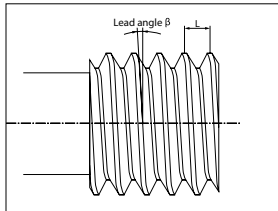


Fig. 1

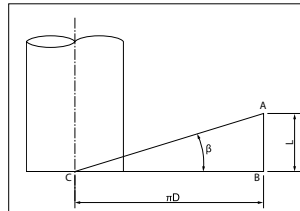


Fig. 2

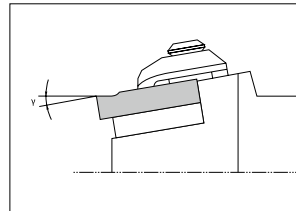


Fig. 3

Relief angle of thread

Against this lead angle, the threading insert requires side relief angle α . Negative type threading insert has no relief angle. When installing the negative type insert in the toolholder, the edge inclination angle γ (Fig. 3) is set, and at the same time front relief angle as well as side relief angle are generated to the insert. Side relief angle is described by the following formula. (Fig. 4)

$$\tan \alpha = \tan \gamma \times \tan \left(\frac{\theta}{2} \right)$$

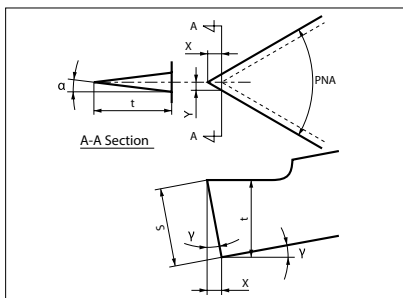


Fig. 4

Symbol	e.g.)
α : Side relief angle	
γ : Inclination angle after installing insert	External insert: 10° Internal insert: 15°
PNA: Insert's thread angle	Metric: 60° Tapered pipe: 55° 30° trapezoidal: 30°
S: Insert thickness	

$$\begin{cases} X = S \cdot \sin \gamma \\ Y = X \cdot \tan(\theta/2) = t \cdot \tan \alpha \\ t = S \cdot \cos \gamma \end{cases}$$

Table 1

Inserts	Side relief angle α	
	External	Internal
60° thread (M, UN, NPT)	5° 49′	8° 47′
55° thread (W, G, PT)	5° 14′	7° 56′
30° trapezoidal (Tr)	2° 43′	5° 7′

Ref. to Table 1 for the side relief angle depending on the insert type.

However, the side relief angle is set for 1° in the traveling direction by the toolholder itself, so that the actual side relief angle becomes $\alpha + 1^\circ$.

Threading

Above shows the usage example of applicable Toolholder / Insert.

* For the case when the thread root's corner-R(RE) can be smaller than the standard.

