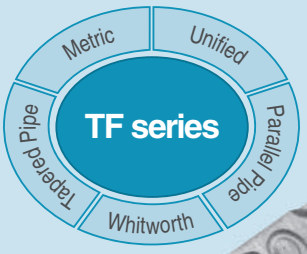
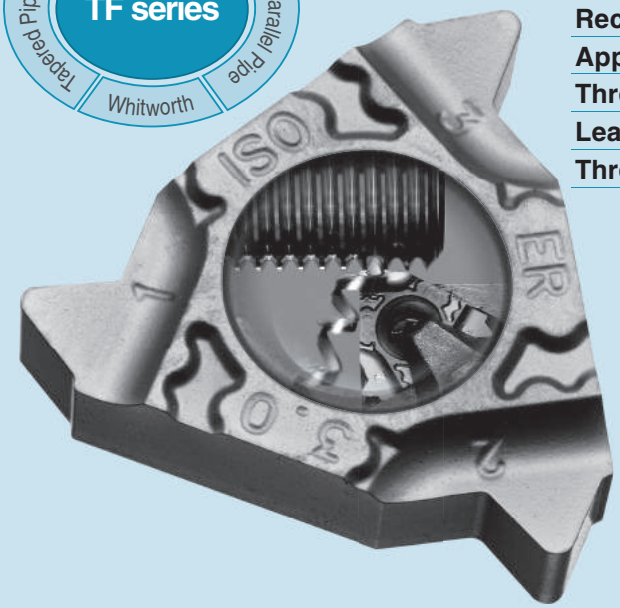
Threading

J1~J52

J

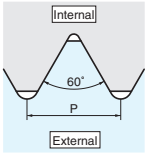
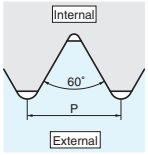
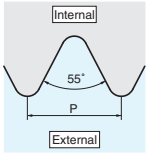
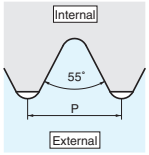
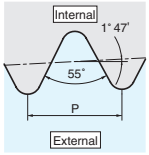
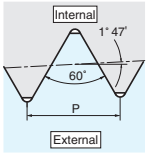
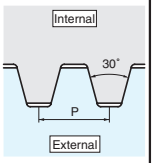
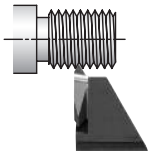
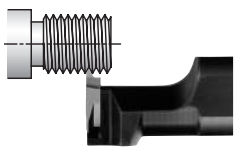
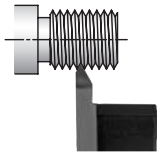
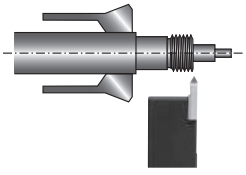
Summary of External Threading / Summary of Internal Threading		**J2**
Product Introduction		**J4**
Summary of Threading Inserts		**J5**
Threading Inserts (External / Internal)		**J6~J19**
Metric (M)		J6
Unified (UN)		J8
Parallel Pipe [G (PF)] Whitworth (W)		J10
Tapered Pipe [R, Rc(PT) (BSPT)]		J12
American National Tapered Pipe (NPT)		J14
60° Type (Partial Profile / M, UN)		J16
55° Type [Partial Profile / G(PF), R, Rc(PT) (BSPT), W]		J18
30° Trapezoidal		J18
Threading Toolholders (External / Internal)		**J20~J35**
KTN / KTNS		J20
S-KTN	Sleeve Holder	J20
SIN / CIN		J21
KTKF	Small Tools	J22
KTKF (Goose-neck Holder)	Small Tools	J22
KTTX	Small Tools	J24
S-KTTX	Sleeve Holder	J24
KTT		J26
KITG		J27
EZT	EZ Bars	J28
HPT (will be switched to EZT)	2-Edge Tip-Bars	J32
VNT	System Tip-Bars	J34
PST-S (will be switched to EZT)	Tip-Bars	J34
S-STWP / S-STWP-E		J35
Technical Information		**J36~J52**
Recommended Cutting Conditions		J36
Applicable Toolholders & Inserts		J46
Threading Methods		J50
Lead Angle & Relief Angle of Thread		J51
Thread Types & Basic Profile		J52





Summary of External Threading

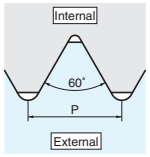
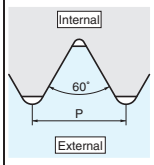
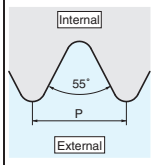
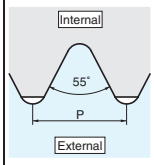
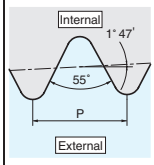
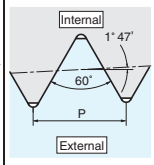
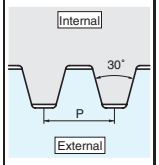
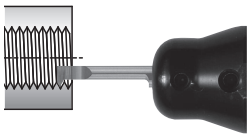
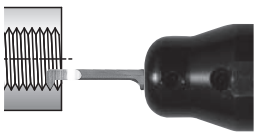
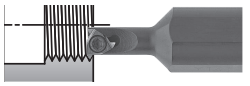
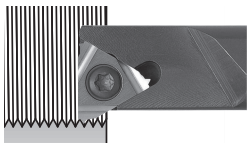
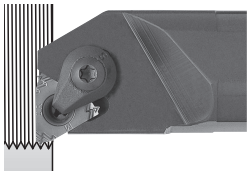
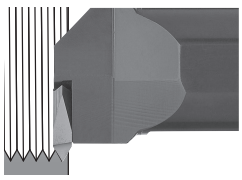
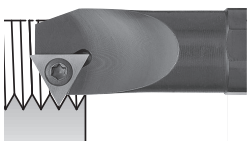
Tooling Application Table (External Thread)

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 ⇨ J20	Full Profile	0.5~5.0 ⇨ J6	24~8 ⇨ J8	19~11 ⇨ J10	16~11 ⇨ J10	28~11 ⇨ J12	18~11.5 ⇨ J14	-
	Partial Profile	0.5~5.0 ⇨ J16	48~5 ⇨ J16	28~11 ⇨ J18	40~5 ⇨ J18	28~11 ⇨ J18	-	2.0~5.0 ⇨ J18
KTNS ⇨ J20 Sleeve Holder S-KTN ⇨ J20	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 ⇨ J18
KTT ⇨ J26	Full Profile	1.0~2.0 ⇨ J26	-	-	-	-	-	-
	Partial Profile	0.5~3.5 ⇨ J26	56~8 ⇨ J26	28~11 ⇨ J26	24~7 ⇨ J26	28~11 ⇨ J26	-	-
KTTX ⇨ J24 	Partial Profile	0.5~2.0 ⇨ J25	56~14 ⇨ J25	28~11 ⇨ J25	24~11 ⇨ J25	28~11 ⇨ J25	-	-
S-KTTX ⇨ J24 	Partial Profile	0.5~2.0 ⇨ J25	56~14 ⇨ J25	28~11 ⇨ J25	24~11 ⇨ J25	28~11 ⇨ J25	-	-
KTKF ⇨ J22 	Partial Profile	0.2~1.5 ⇨ J22	64~18 ⇨ J22	28~19 ⇨ J22	40~16 ⇨ J22	28~19 ⇨ J22	-	-
KTKF ⇨ J22 (Goose-neck Holder) 								

· Threading Inserts Identification System
Full Profile ⇨ J6
Partial Profile ⇨ J16

Summary of Internal Threading

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								
Toolholder Shape \ Pitch		mm	TPI	TPI	TPI	TPI	TPI	mm
EZT ⇒ J28 	Partial Profile	0.5~1.75 ⇒ J28	36~16 ⇒ J28	28~19 ⇒ J28	24~18 ⇒ J28	28~19 ⇒ J28	18~14 ⇒ J28	-
VNT ⇒ J34	Partial Profile	0.75~1.5 ⇒ J34	28~18 ⇒ J34	-	-	-	-	-
PST ⇒ J34 (HPT ⇒ J32) 	Partial Profile	0.75~1.5 (0.75~1.5) ⇒ J34 (⇒ J32)	28~18 (28~16) ⇒ J34 (⇒ J32)	(28~19) (⇒ J32)	(24~18) (⇒ J32)	(28~19) (⇒ J32)	(18~14) (⇒ J32)	-
SIN ⇒ J21 	Full Profile	0.5~5.0 ⇒ J7	24~8 ⇒ J9	19~11 ⇒ J11	16~11 ⇒ J11	28~11 ⇒ J13	18~11.5 ⇒ J15	-
	Partial Profile	0.5~5.0 ⇒ J17	48~5 ⇒ J17	28~11 ⇒ J19	40~5 ⇒ J19	28~11 ⇒ J19	-	2.0~5.0 ⇒ J19
CIN ⇒ J21 	Full Profile	1.0~5.0 ⇒ J7	24~8 ⇒ J9	19~11 ⇒ J11	16~11 ⇒ J11	14~11 ⇒ J13	18~11.5 ⇒ J15	-
	Partial Profile	0.5~5.0 ⇒ J17	48~5 ⇒ J17	28~11 ⇒ J19	40~5 ⇒ J19	28~11 ⇒ J19	-	2.0~5.0 ⇒ J19
KITG ⇒ J27 	Partial Profile	0.5~3.0 ⇒ J27	48~8 ⇒ J27	28~11 ⇒ J27	24~8 ⇒ J27	28~11 ⇒ J27	-	-
STWP ⇒ J35 	Partial Profile	0.75~3.5 ⇒ J35	28~8 ⇒ J35	-	-	-	-	-

· For parallel pipe and tapered pipe the average values are only to be used if specifically recommendation.
· Pitch inside ( ) indicates HPT.

Threading Insert with Molded Chipbreaker

TQ Chipbreaker

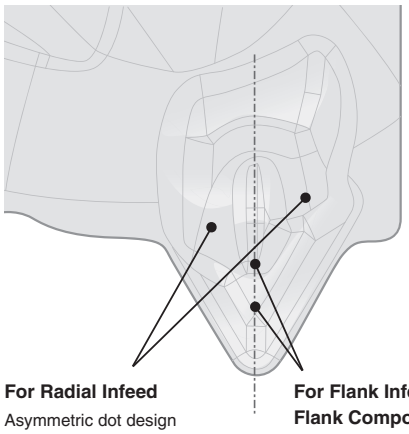
Advanced Productivity with Chip Control Improvement
Improved Tool Life with Newly Added Grades

1 Stable Chip Control

Stable Chip Control with Asymmetric Chipbreaker Design

Chipbreaker Geometry

Stable chip control regardless of cutting direction

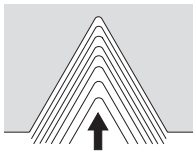


For Radial Infeed
Asymmetric dot design controls chip-flow direction

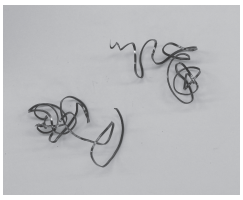
For Flank Infeed / Flank Compound Infeed
Breaks chips easily with shallow chipbreaker depth

Comparison of Chip Control (Internal evaluation)

Radial Infeed

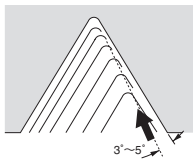


TQ Chipbreaker

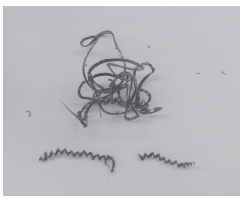


Competitor A

Flank Compound Infeed



TQ Chipbreaker



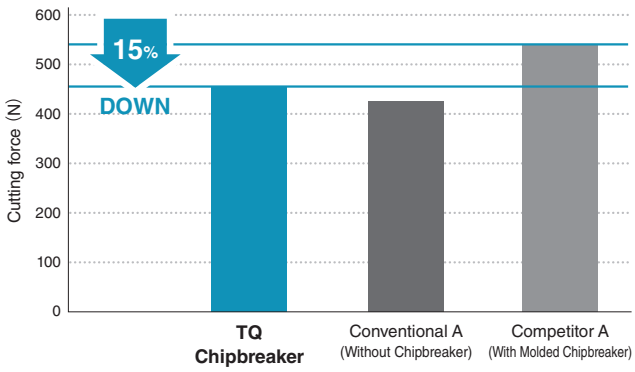
Competitor A

Cutting Conditions : Vc = 150m/min, ap = 0.12 mm (4th Pass), L = 25 mm, Wet,
16ER150ISO type, M45 × P1.5 Workpiece Material : SCM415

2 Low Cutting Force and Resists Vibration

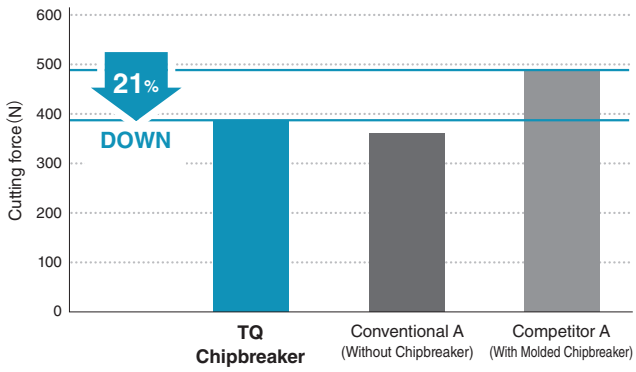
Strong Edge and Low Cutting Force

Comparison of Cutting force Radial Infeed (Internal evaluation)



Cutting Conditions : Vc = 150 m/min, Wet, 16ER150ISO type
Cutting force is average in total passes (6 passes), M35 × P1.5 Workpiece Material : SCM415

Comparison of Cutting force Flank Compound Infeed (Internal evaluation)



Cutting Conditions : Vc= 150 m/min, Adjusted Angle 5°, Wet, 16ER150ISO type
Cutting force is average in total passes (6 passes), M35 × P1.5 Workpiece Material : SCM415

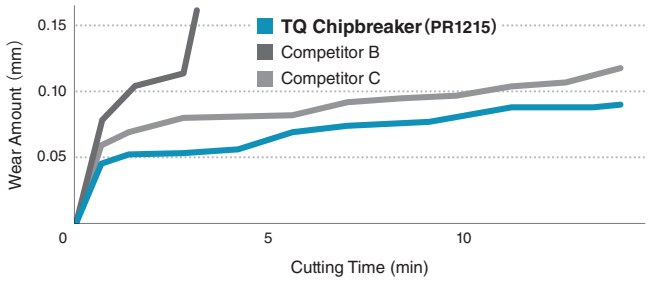
3 Improved Tool Life with Newly Added Grades

For Steel Machining **PR1215**

For Stainless Steel Machining **PR1515** **PR1535 (Stability Oriented)**

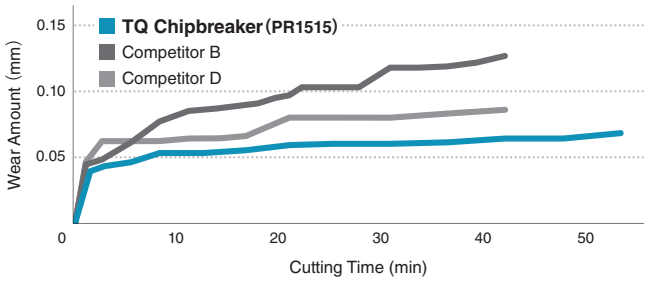
Comparison of Wear Resistance (Internal evaluation)

Workpiece Material : SCM435



Cutting Conditions : Vc = 150 m/min, P = 1.5 mm, No. of Passes = 6, Wet, 16ER150ISO type Radial Infeed

Workpiece Material : SUS304



Cutting Conditions : Vc = 100 m/min, P = 1.5 mm, No. of Passes = 8, Wet, 16ER150ISO type Radial Infeed

KTKF J22

"Threading" is added to Small Tools special tool series

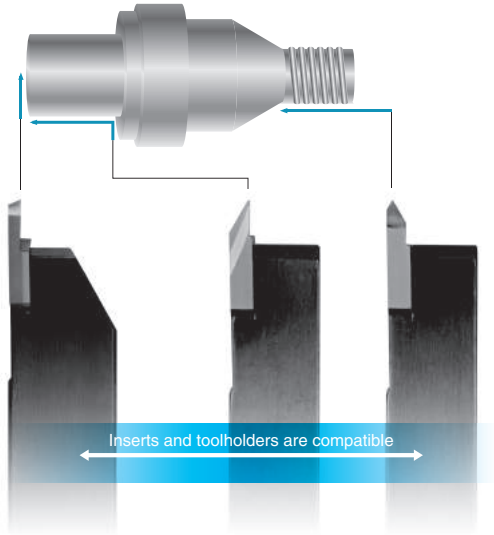
Threading

For Threading

TKFT

Applicable for various type of threading

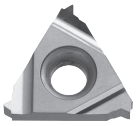
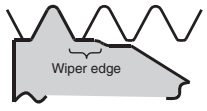
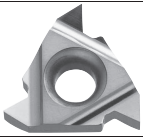
- Metric (M)
- Parallel Pipe [G (PF)]
- Unified (UN)
- Tapered Pipe [R(PT) (BSPT)]



Small Diameter Cut-Off **TKF** | Back Turning **TKFB** | Threading **TKFT**

Threading Insert Features

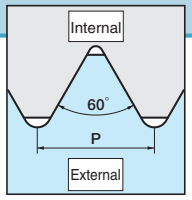
Full Profile and Partial Profile

	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. needs 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.



External Threading Inserts

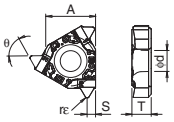
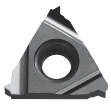
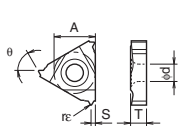
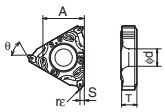
Metric (M)

Full Profile 60° (mm)

Description	A	T	ϕd
16ER/L	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●			
M	Stainless Steel			●	○	
K	Cast Iron					●
N	Non-ferrous Metals					●

Insert (Handed Insert shows Right-hand)			Description	Applicable Thread M Pitch mm	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			16ER 100ISO-TF	1.0	0.12	0.80	60°			●		●		●		●				J37
			125ISO-TF	1.25	0.15	0.90				●		●		●		●				
			150ISO-TF	1.5	0.19	1.00				●		●		●		●				
			175ISO-TF	1.75	0.22	1.60				●		●		●		●				
			200ISO-TF	2.0	0.25	1.50				●		●		●		●				
			250ISO-TF	2.5	0.33	1.60				●		●		●		●				
			300ISO-TF	3.0	0.41	1.60				●		●		●		●				
			16E R/L 050ISO	0.5	0.06	0.40	60°	●								●	●	●		
			075ISO	0.75	0.09	0.53		●								●	●	●		
			100ISO	1.0	0.12	0.80		●								●	●	●		
			125ISO	1.25	0.15	0.90		●								●	●	●		
			150ISO	1.5	0.19	1.00		●								●	●	●		
			175ISO	1.75	0.22	1.50		●								●				
			200ISO	2.0	0.25	1.50		●								●	●	●		
			250ISO	2.5	0.32	1.60		●								●		●		
			22ER 300ISO	3.0	0.41	2.10	60°	●								●				
			350ISO	3.5	0.48	2.10		●								●				
			400ISO	4.0	0.55	2.80		●								●				
			450ISO	4.5	0.62	2.80		●								●				
			500ISO	5.0	0.70	2.80		●								●				
	With Molded Chipbreaker		16ER 100ISO-TQ	1.0	0.12	0.80	60°			●		●		●						
			125ISO-TQ	1.25	0.15	0.90				●		●		●						
			150ISO-TQ	1.5	0.19	1.00				●		●		●						
			175ISO-TQ	1.75	0.22	1.60				●		●		●						
			200ISO-TQ	2.0	0.25	1.50				●		●		●						
			250ISO-TQ	2.5	0.33	1.60				●		●		●						
			300ISO-TQ	3.0	0.41	1.60				●		●		●						

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 / KTNSR···16 S···KTNL16	J20
16EL···	KTNL···16	
22ER···	KTNR···22	

Applicable Thread	M: Metric	R, Rc (PT) (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading Inserts Identification System (Full Profile) ➡ J6~J15

16	E	R	100	ISO	-TF
(1)	(2)	(3)	(4)	(5)	(6)

(1)Insert Size	
11	6.35
16	9.525
22	12.70
Symbol	I.C. Size (mm)

(2)External / Internal	
E	External Threading
I	Internal Threading

(3)Insert Hand	
R	Right-hand
L	Left-hand

(4)Pitch	
Metric	
100	Pitch 1mm
150	Pitch 1.5mm
Inch Screw Thread	
24	24 TPI
20	20 TPI
Full Profile	

(5)Type of Applicable Thread	
ISO	Metric
M	Metric
UN	Unified
W	Whitworth
BSPT	Tapered Pipe
NPT	American National Tapered Pipe
Full Profile	

(6) Manufacture's Option	
-TF	TF Cutting Edge
-TQ	With Molded Chipbreaker

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item

Internal Threading Inserts

Metric (M)

Full Profile 60°

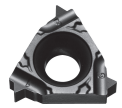
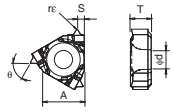
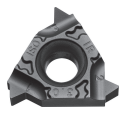
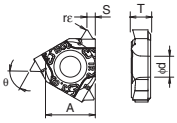
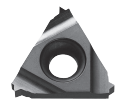
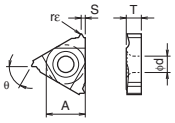
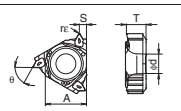
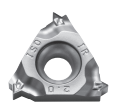
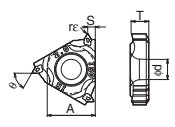
(mm)

Description	A	T	ϕd
11IR/L	6.35	3.18	3.0
16IR/L	9.525	3.68	4.0
22IR	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●				
M	Stainless Steel			●	○		
K	Cast Iron						●
N	Non-ferrous Metals						●

See Page for Depth of Cut & Number of Passes

Insert (Handed Insert shows Right-hand)			Description		Applicable Thread M Pitch mm	Dimension (mm) rε	S	Angle θ	Cermet TC60M R	TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			11IR	100ISO-TF	1.0	0.07	0.80	60°			●		●		●		●				
				125ISO-TF	1.25	0.08	1.10				●		●		●		●				
				150ISO-TF	1.5	0.11	1.10				●		●		●		●				
				175ISO-TF	1.75	0.12	1.10				●		●		●		●				
			16IR	100ISO-TF	1.0	0.07	0.80	60°			●		●		●		●				
				125ISO-TF	1.25	0.08	1.10				●		●		●		●				
				150ISO-TF	1.5	0.11	1.10				●		●		●		●				
				175ISO-TF	1.75	0.12	1.10				●		●		●		●				
				200ISO-TF	2.0	0.14	1.50				●		●		●		●				
				250ISO-TF	2.5	0.17	1.50				●		●		●		●				
				300ISO-TF	3.0	0.19	1.60				●		●		●		●				
			11IR/L	050ISO	0.5	0.03	0.55	60°	●								●		●		
				075ISO	0.75	0.05	0.68		●								●		●		
				100ISO	1.0	0.07	0.80		●								●	●	●		
				125ISO	1.25	0.08	1.10		●								●		●		
				150ISO	1.5	0.11	1.10		●								●	●	●		
				175ISO	1.75	0.12	1.10		●								●				
				200ISO	2.0	0.14	0.90										●				
			16IR/L	100ISO	1.0	0.07	0.80		●								●	●	●		
				125ISO	1.25	0.08	1.10		●								●				
				150ISO	1.5	0.11	1.10		●								●	●	●		
				175ISO	1.75	0.12	1.10		●								●				
				200ISO	2.0	0.14	1.50		●								●	●	●		
				250ISO	2.5	0.16	1.50		●								●		●		
				300ISO	3.0	0.19	1.60										●		●		
			22IR	300ISO	3.0	0.19	1.80	60°	●												
				350ISO	3.5	0.23	2.10		●								●				
				400ISO	4.0	0.26	2.80		●								●				
				450ISO	4.5	0.30	2.80		●								●				
				500ISO	5.0	0.34	2.80		●								●				
	With Molded Chipbreaker		11IR	100ISO-TQ	1.0	0.07	0.80	60°			●		●		●						
				125ISO-TQ	1.25	0.08	1.10				●		●		●						
				150ISO-TQ	1.5	0.11	1.10				●		●		●						
				175ISO-TQ	1.75	0.12	1.10				●		●		●						
	 With Molded Chipbreaker		16IR	100ISO-TQ	1.0	0.07	0.80	60°			●		●		●						
				125ISO-TQ	1.25	0.08	1.10				●		●		●						
				150ISO-TQ	1.5	0.11	1.10				●		●		●						
				175ISO-TQ	1.75	0.12	1.10				●		●		●						
				200ISO-TQ	2.0	0.14	1.50				●		●		●						
				250ISO-TQ	2.5	0.17	1.50				●		●		●						
				300ISO-TQ	3.0	0.19	1.60				●		●		●						

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
11IR···	SINR···11E SINR···11	J21
11IL···	SINL···11E SINL···11	

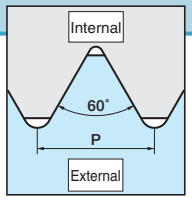
Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR···	SINR···16 CINR···16	J21
16IL···	SINL···16 CINL···16	
22IR···	SINR···22 CINR···22	

Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.



External Threading Inserts

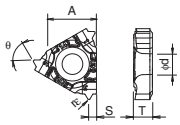
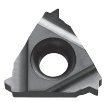
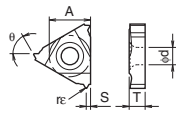
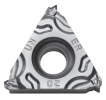
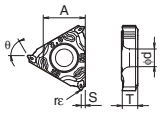
Unified (UN)

Full Profile 60° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●					
M	Stainless Steel			●	○			
K	Cast Iron							
N	Non-ferrous Metals							

Insert (Handed Insert shows Right-hand)			Description	Applicable Thread UN,UNF Pitch TPI	Dimension (mm) rε	S	Angle θ	Cermet TC60M R	L	MEGACOAT MEGACOAT NANO PR1215 R	L	PR1515 R	L	PR1535 R	L	PVD Coated Carbide PR1115 R	L	Carbide GW15 R	L	See Page for Depth of Cut & Number of Passes
Full Profile			16ER 24UN-TF	24	0.12	0.80	60°			●		●		●		●				J37
			20UN-TF	20	0.15	1.00				●		●		●		●				
			18UN-TF	18	0.18	1.00				●		●		●		●				
			16UN-TF	16	0.20	1.10				●		●		●		●				
			14UN-TF	14	0.23	1.50				●		●		●		●				
			13UN-TF	13	0.25	1.50				●		●		●		●				
			12UN-TF	12	0.27	1.50				●		●		●		●				
			10UN-TF	10	0.34	1.50				●		●		●		●				
			08UN-TF	8	0.43	1.75				●		●		●		●				
			16ER 24UN	24	0.13	0.80	60°	●								●				
			20UN	20	0.16	1.00		●								●				
			18UN	18	0.18	1.00		●								●				
			16UN	16	0.20	1.10		●								●				
			14UN	14	0.23	1.50		●								●				
			12UN	12	0.27	1.50		●								●				
			22ER 08UN	8	0.43	2.10		●								●				
	 With Molded Chipbreaker		16ER 24UN-TQ	24	0.12	0.80	60°			●		●		●						
			20UN-TQ	20	0.15	1.00				●		●		●						
			18UN-TQ	18	0.18	1.00				●		●		●						
			16UN-TQ	16	0.20	1.10				●		●		●						
			14UN-TQ	14	0.23	1.50				●		●		●						
			13UN-TQ	13	0.25	1.50				●		●		●						
			12UN-TQ	12	0.27	1.50				●		●		●						
			10UN-TQ	10	0.34	1.50				●		●		●						
			08UN-TQ	8	0.43	1.75				●		●		●						

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 KTNSR···16 S···KTNL16	J20
22ER···	KTNR ···22	

Applicable Thread		
	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item

Internal Threading Inserts

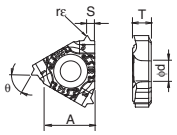
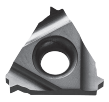
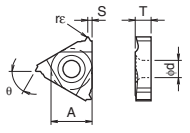
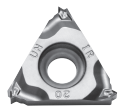
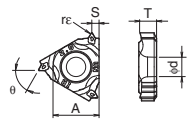
Unified (UN)

Full Profile 60° (mm)

Description	A	T	ϕd
16IR	9.525	3.68	4.0
22IR	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●					
M	Stainless Steel			●	○			
K	Cast Iron							
N	Non-ferrous Metals							

Insert (Handed Insert shows Right-hand)			Description	Applicable Thread UN,UNF Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			16IR 24UN-TF	24	0.06	0.80	60°			●		●		●		●				J37
			20UN-TF	20	0.08	1.00				●		●		●		●				
			18UN-TF	18	0.09	1.00				●		●		●		●				
			16UN-TF	16	0.10	1.10				●		●		●		●				
			14UN-TF	14	0.12	1.50				●		●		●		●				
			13UN-TF	13	0.13	1.50				●		●		●		●				
			12UN-TF	12	0.14	1.50				●		●		●		●				
			10UN-TF	10	0.17	1.50				●		●		●		●				
			08UN-TF	8	0.21	1.80				●		●		●		●				
			16IR 24UN	24	0.05	0.80	60°	●								●				
			20UN	20	0.07	1.00		●								●				
			18UN	18	0.09	1.00		●								●				
			16UN	16	0.10	1.10		●								●				
			14UN	14	0.12	1.50		●								●				
			12UN	12	0.14	1.50		●								●				
			22IR 08UN	8	0.20	1.80		●								●				
	 With Molded Chipbreaker		16IR 24UN-TQ	24	0.06	0.80	60°			●		●		●						
			20UN-TQ	20	0.08	1.00				●		●		●						
			18UN-TQ	18	0.09	1.00				●		●		●						
			16UN-TQ	16	0.10	1.10				●		●		●						
			14UN-TQ	14	0.12	1.50				●		●		●						
			13UN-TQ	13	0.13	1.50				●		●		●						
			12UN-TQ	12	0.14	1.50				●		●		●						
			10UN-TQ	10	0.17	1.50				●		●		●						
			08UN-TQ	8	0.21	1.80				●		●		●						

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

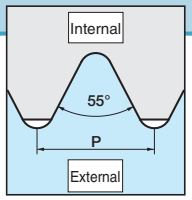
Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR···	SINR···16 CINR···16	J21
22IR···	SINR···22 CINR···22	

Applicable Thread		
	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.



External Threading Inserts

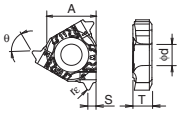
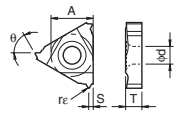
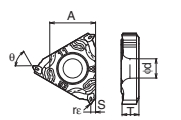
Parallel Pipe [G (PF)] Whitworth (W)

Full Profile 55° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●					
M	Stainless Steel			●	○			
K	Cast Iron							
N	Non-ferrous Metals							

Insert (Handed Insert shows Right-hand)			Description	Applicable Thread G (PF)	Applicable Thread W	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
				Pitch																	
				TPI																	
Full Profile			16ER 19W-TF	19	-	0.16	1.00	55°			●		●		●		●				J38
			16ER 16W-TF	-	16	0.19	1.10				●		●		●		●				
			16ER 14W-TF	14	14	0.23	1.50				●		●		●		●				
			16ER 11W-TF	11	11	0.30	1.50				●		●		●		●				
			16ER 19W	19	-	0.16	1.00	55°	●								●				
			16ER 14W	14	14	0.23	1.50		●								●				
			16ER 11W	11	11	0.30	1.50		●								●				
	With Molded Chipbreaker		16ER 19W-TQ	19	-	0.16	1.00	55°			●		●		●						
			16ER 16W-TQ	-	16	0.19	1.10				●		●		●						
			16ER 14W-TQ	14	14	0.23	1.50				●		●		●						
			16ER 11W-TQ	11	11	0.30	1.50				●		●		●						

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 KTNSR···16 S···KTNL16	J20

Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item

Internal Threading Inserts

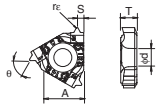
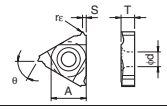
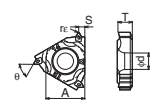
Parallel Pipe [G (PF)] Whitworth (W)

Full Profile 55° (mm)

Description	A	T	ϕd
16IR	9.525	3.68	4.0

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●				
M	Stainless Steel			●	○		
K	Cast Iron						
N	Non-ferrous Metals						

Insert (Handed Insert shows Right-hand)			Description		Applicable Thread G (PF)	Applicable Thread W	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
					Pitch TPI																	
Full Profile			**16IR**	**19W-TF**	19	-	0.16	1.00	55°			●		●		●		●				
				16W-TF	-	16	0.19	1.10				●		●		●		●				
				14W-TF	14	14	0.23	1.50				●		●		●		●				
				11W-TF	11	11	0.30	1.50				●		●		●		●				
			**16IR**	**14W**	14	14	0.23	1.50		●								●				**J38**
				11W	11	11	0.30	1.50		●								●				
	With Molded Chipbreaker		**16IR**	**19W-TQ**	19	-	0.16	1.00	55°			●		●		●						
				16W-TQ	-	16	0.19	1.10				●		●		●						
				14W-TQ	14	14	0.23	1.50				●		●		●						
				11W-TQ	11	11	0.30	1.50				●		●		●						

Recommended Cutting Conditions ➡ **J36**

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR···	**SINR···16** **CINR···16**	**J21**

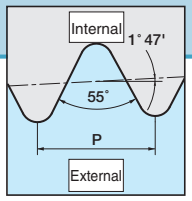
· No wiper effect is expected when threading the internal whitworth screw using 16IR○○W (TNN32IR○○W) insert.

Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.



External Threading Inserts

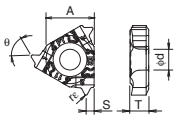
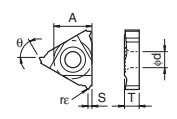
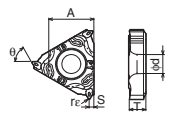
Tapered Pipe [R (PT) (BSPT)]

Full Profile 55° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●					
M	Stainless Steel			●	○			
K	Cast Iron							●
N	Non-ferrous Metals							●

Insert (Handed Insert shows Right-hand)			Description		Applicable Thread R(PT) (BSPT) Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			16ER	28BSPT-TF	28	0.10	0.80	55°			●		●		●		●				J38
				19BSPT-TF	19	0.16	1.00				●		●		●		●				
				14BSPT-TF	14	0.22	1.60				●		●		●		●				
				11BSPT-TF	11	0.29	1.60				●		●		●		●				
			16ER	28BSPT	28	0.10	0.80	55°	●								●		●		
				19BSPT	19	0.16	1.00		●								●		●		
				14BSPT	14	0.22	1.60		●								●		●		
				11BSPT	11	0.29	1.60		●								●		●		
	With Molded Chipbreaker		16ER	28BSPT-TQ	28	0.10	0.80	55°			●		●		●						
				19BSPT-TQ	19	0.16	1.00				●		●		●						
				14BSPT-TQ	14	0.22	1.60				●		●		●						
				11BSPT-TQ	11	0.29	1.60				●		●		●						

Recommended Cutting Conditions J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 KTNSR···16 S···KTNL16	J20

Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item

Internal Threading Inserts

Tapered Pipe [Rc (PT) (BSPT)]

Full Profile 55° (mm)

Description	A	T	ϕd
11IR	6.35	3.18	3.0
16IR	9.525	3.68	4.0

Classification of usage
● : 1st Choice
○ : 2nd Choice

		Cermet	MEGACOAT MEGACOAT NANO			PVDCoated Carbide	Carbide
P	Carbon Steel / Alloy Steel		●				
M	Stainless Steel			●	○		
K	Cast Iron						●
N	Non-ferrous Metals						●

See Page for Depth of Cut & Number of Passes

Insert (Handed Insert shows Right-hand)			Description		Applicable Thread Rc (PT) (BSPT) Pitch TPI	Dimension (mm) rε	S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVDCoated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			11IR	28BSPT-TF	28	0.10	0.60	55°			●		●		●		●				
				19BSPT-TF	19	0.16	0.78				●		●		●		●				
				14BSPT-TF	14	0.22	0.97				●		●		●		●				
			16IR	14BSPT-TF	14	0.22	0.97				●		●		●		●				
				11BSPT-TF	11	0.29	1.50				●		●		●		●				
			11IR	28BSPT	28	0.10	0.60	55°	●								●		●		J38
				19BSPT	19	0.16	0.78		●								●		●		
				14BSPT	14	0.22	0.97		●								●		●		
			16IR	14BSPT	14	0.22	0.97		●								●		●		
				11BSPT	11	0.29	1.50		●								●		●		
	With Molded Chipbreaker		11IR	28BSPT-TQ	28	0.10	0.60	55°			●		●		●						
				19BSPT-TQ	19	0.16	0.78				●		●		●						
				14BSPT-TQ	14	0.22	0.97				●		●		●						
	With Molded Chipbreaker		16IR	14BSPT-TQ	14	0.22	0.97				●		●		●						
				11BSPT-TQ	11	0.29	1.50				●		●		●						

Recommended Cutting Conditions J36

Applicable Toolholders

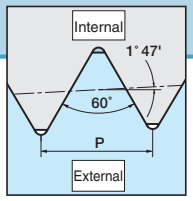
Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
11IR··	SINR···11E SINR···11	J21
16IR··	SINR···16 CINR···16	

Applicable Thread		
	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.



External Threading Inserts

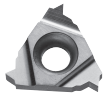
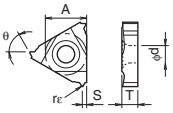
American National Tapered Pipe (NPT)

Full Profile 60° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0

Classification of usage ●:1st Choice

P	Carbon Steel / Alloy Steel					●			
M	Stainless Steel					●			
K	Cast Iron						●		
N	Non-ferrous Metals						●		

Insert (Handed Insert shows Right-hand)			Description		Applicable Thread NPT / Pitch / TPI	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			16ER	18NPT	18	0.04	0.9	60°	●								●		●		J38
				14NPT	14	0.05	1.5		●								●		●		
				11.5NPT	11.5	0.06	1.5		●								●		●		

Recommended Cutting Conditions J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···-16 KTNSR···-16 S···KTNL16	J20

Applicable Thread		
	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item

Internal Threading Inserts

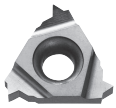
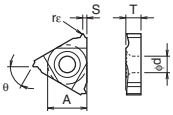
American National Tapered Pipe(NPT)

Full Profile 60° (mm)

Description	A	T	ϕd
16IR	9.525	3.68	4.0

Classification of usage ●:1st Choice

P	Carbon Steel / Alloy Steel	●
M	Stainless Steel	●
K	Cast Iron	●
N	Non-ferrous Metals	●

Insert (Handed Insert shows Right-hand)		Description		Applicable Thread NPT / Pitch / TPI	Dimension (mm) rε	S	Angle θ	Cermet TC60M R	TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Full Profile			**16IR**	**18NPT**	18	0.04	0.9	60°	●							●		●		**J38**
				14NPT	14	0.05	1.5		●							●		●		
				11.5NPT	11.5	0.06	1.5		●							●		●		

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR···	**SINR···16** **CINR···16**	**J21**

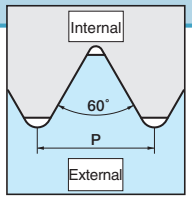
Recommended Cutting Conditions ➡ **J36**

Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.



External Threading Inserts

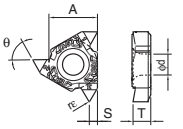
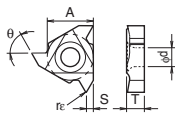
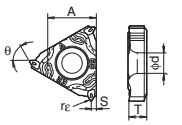
60° Type [Partial Profile / M, UN]

Partial Profile 60° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●				
M	Stainless Steel			●	○		
K	Cast Iron						●
N	Non-ferrous Metals						●

Insert			Description	Applicable Thread M	Applicable Thread UN UNF	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Handed Insert shows Right-hand				Pitch mm	Pitch TPI																
Partial Profile			16ER A60-TF	0.5~1.5	48~16	0.06	1.00	60°			●		●		●		●				J38 J39
			G60-TF	1.75~3	14~8	0.22	1.60				●		●		●		●				
			AG60-TF	0.5~3	48~8	0.06	1.60				●		●		●		●				
			16ER A60	0.5~1.5	48~16	0.06	1.00	60°											●		
			G60	1.75~3	14~8	0.22	1.70												●		
			AG60	0.5~3	48~8	0.06	1.70												●		
			22ER N60	3.5~5	7~5	0.48	2.50										●		●		
			16ER 6001	1.0~2.5	24~11	0.10	1.50		●												J42
			6002	1.5~2.5	16~11	0.20	1.50		●												
	With Molded Chipbreaker		16ER A60-TQ	0.5~1.5	48~16	0.06	1.00	60°			●		●		●						J38 J39
			G60-TQ	1.75~3	14~8	0.22	1.60				●		●		●						
			AG60-TQ	0.5~3	48~8	0.06	1.60				●		●		●						

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 KTNSR···16 S···KTNL16	J20
22ER···	KTNR ···22	

Applicable Thread	M: Metric	R, Rc (PT) (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading Inserts Identification System (Partial Profile) ➡ J16~J19

16 (1) **E** (2) **R** (3) **A60** (4) **-TF** (5)

(1)Insert Size	
06	3.97
08	4.76
11	6.35
16	9.525
22	12.70
Symbol	I.C. Size (mm)

(2)External / Internal	
E	External Threading
I	Internal Threading

(3)Insert Hand	
R	Right-hand
L	Left-hand

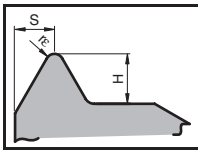
(4)Pitch		
60°	A60	60° Type (Partial Profile) 0.5~1.5mm
	G60	60° Type (Partial Profile) 1.75~3mm
	AG60	60° Type (Partial Profile) 0.5~3mm
55°	A55	55° Type (Partial Profile) 40~16 TPI
	G55	55° Type (Partial Profile) 14~8 TPI
	AG55	55° Type (Partial Profile) 40~8 TPI
Vertex angle	Partial Profile	

(5)Manufacture's Option	
-TF	TF Cutting Edge
-TQ	With Molded Chipbreaker

(4)Pitch		
60°	6001	60° Type (Partial Profile) Corner-R(rε)=0.1mm 1.0~2.5mm
55°	5501	55° Type (Partial Profile) Corner-R(rε)=0.1mm 28~11 TPI
Vertex angle	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) rε	S	H
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

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item

Internal Threading Inserts

60° Type [Partial Profile / M, UN]

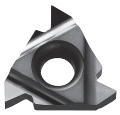
Partial Profile 60° (mm)

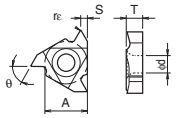
Description	A	T	ϕd
06IR	3.97	1.91	2.3
08IR	4.76	2.38	2.3
11IR	6.35	3.18	3.0
16IR	9.525	3.68	4.0
22IR	12.70	4.9	4.85

Classification of usage ● : 1st Choice

P	Carbon Steel / Alloy Steel					●		
M	Stainless Steel					●		
K	Cast Iron						●	
N	Non-ferrous Metals						●	

Insert (Handed Insert shows Right-hand)	Description	Applicable Thread M (Pitch mm)	Applicable Thread UN UNF (Pitch TPI)	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT NANO PR1215 R	MEGACOAT NANO PR1215 L	MEGACOAT NANO PR1515 R	MEGACOAT NANO PR1515 L	MEGACOAT NANO PR1535 R	MEGACOAT NANO PR1535 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	Carbide GW15 R	Carbide GW15 L	See Page for Depth of Cut & Number of Passes
Partial Profile	11IR A60	0.5~1.5	48~16	0.02	1.00	60°									●		●		J39 J40
	16IR A60	0.5~1.5	48~16	0.02	1.00										●		●		
	G60	1.75~3	14~8	0.11	1.70										●		●		
	AG60	0.5~3	48~8	0.02	1.70										●		●		
	22IR N60	3.5~5	7~5	0.22	2.50										●		●		
	06IR 60005	0.75~1.25	28~20	0.05	0.60	60°									●				
	08IR 60007	1.0~1.75	20~16	0.07	0.80										●				
	11IR 60005	0.75~1.5	32~16	0.05	1.00		●												J42
	16IR 6001	1.5~2.5	16~10	0.10	1.50		●												
	60015	2.5	11~10	0.15	1.50		●												





Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
06IR··	SINR···06E	J21
08IR··	SINR···08E	
11IR··	SINR···11E SINR···11	
16IR··	SINR···16 CINR···16	
22IR··	SINR···22 CINR···22	

Recommended Cutting Conditions ➡ J36

Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Corner-R(rε) Selection for Partial Profiling Insert

	External Threading	Internal Threading
Metric Unified	rε≤0.1443P	rε≤0.0720P
Parallel Pipe (Whitworth) Tapered Pipe	(For Both External and Internal Thread) rε≤0.1373P	

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

- Metric, Unified Thread

Corner-R(rε) at Internal Threading is almost half of that of External

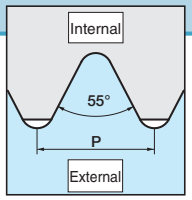
- Parallel Pipe, Tapered Pipe, Whitworth Thread

Same Corner-R(rε) for both External and Internal Threading

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.



External Threading Inserts

55° Type [Partial Profile / G (PF), R (PT, BSPT), (W)]

Partial Profile 55° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

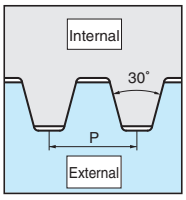
		Cermet	MEGACOAT MEGACOAT NANO			PVD Coated Carbide	Carbide
P	Carbon Steel / Alloy Steel		●				
M	Stainless Steel			●	○		
K	Cast Iron						●
N	Non-ferrous Metals						●

Insert (Handed Insert shows Right-hand)			Description	Applicable Thread G(PF) R(PT)	Applicable Thread W Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Partial Profile			16ER A55-TF	28, 19	40~16	0.06	1.00	55°			●		●		●		●				J40
			G55-TF	14, 11	14~8	0.22	1.60	55°			●		●		●		●				J40
			AG55-TF	28~11	40~8	0.06	1.60	55°			●		●		●		●				J40
			16ER A55	28, 19	40~16	0.06	1.00	55°											●		J41
			G55	14, 11	14~8	0.22	1.70	55°											●		J41
			AG55	28~11	40~8	0.06	1.65	55°											●		J41
			22ER N55	-	7~5	0.47	2.50	55°									●		●		J41
			16ER 5501	28~11	24~10	0.10	1.50		●												J42
			5502	14, 11	16~9	0.20	1.50		●												J42
	With Molded Chipbreaker		16ER A55-TQ	28, 19	40~16	0.06	1.00	55°			●		●		●						J40
	With Molded Chipbreaker		G55-TQ	14, 11	14~8	0.22	1.60	55°			●		●		●						J40
	With Molded Chipbreaker		AG55-TQ	28~11	40~8	0.06	1.60	55°			●		●		●						J40

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 KTNSR···16 S···KTNL16	J20
22ER···	KTNR···22	



External Threading Inserts

30° Trapezoidal (Tr)

Partial Profile 30° (mm)

Description	A	T	ϕd
16ER	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice

		PVD Coated Carbide
P	Carbon Steel / Alloy Steel	●
M	Stainless Steel	●
K	Cast Iron	
N	Non-ferrous Metals	

Insert (Handed Insert shows Right-hand)			Description	Applicable Thread Tr Pitch mm	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT MEGACOAT NANO PR1215 R	PR1215 L	PR1515 R	PR1515 L	PR1535 R	PR1535 L	PVD Coated Carbide PR1115 R	PR1115 L	Carbide GW15 R	GW15 L	See Page for Depth of Cut & Number of Passes
Partial Profile			16ER 200TR	2.0	0.20	1.6	30°	●								●				J41
			300TR	3.0	0.20	1.6	30°	●								●				J41
			22ER 400TR	4.0	0.20	2.5	30°	●								●				J41
			500TR	5.0	0.20	2.5	30°	●								●				J41

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER···	KTNR···16 KTNSR···16 S···KTNL16	J20
22ER···	KTNR ···22	

Applicable Thread		
	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

Internal Threading Inserts

55° Type [Partial Profile / G (PF), Rc (PT), (W)]

Partial Profile 55° (mm)

Description	A	T	ϕd
06IR	3.97	1.91	2.3
08IR	4.76	2.38	2.3
11IR	6.35	3.18	3.0
16IR	9.525	3.68	4.0
22IR	12.70	4.9	4.85

Classification of usage ● : 1st Choice

		Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide	
P	Carbon Steel / Alloy Steel						●		
M	Stainless Steel						●		
K	Cast Iron							●	
N	Non-ferrous Metals							●	

Insert (Handed Insert shows Right-hand)	Description	Applicable Thread G(PF) Rc(PT) / W / Pitch / TPI	rε	S	θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT PR1215 R	MEGACOAT PR1215 L	MEGACOAT NANO PR1515 R	MEGACOAT NANO PR1515 L	MEGACOAT NANO PR1535 R	MEGACOAT NANO PR1535 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	Carbide GW15 R	Carbide GW15 L	See Page for Depth of Cut & Number of Passes
Partial Profile	11IR A55	28, 19 / 40~16	0.06	1.10	55°									●		●		J40 J41
	16IR A55	28, 19 / 40~16	0.06	1.00										●		●		
	G55	14, 11 / 14~8	0.22	1.70										●		●		
	AG55	28~11 / 40~8	0.06	1.70										●		●		
	22IR N55	- / 7~5	0.47	2.50										●		●		
	06IR 5501	28 / 24	0.10	0.60	55°									●				
	08IR 5501	28, 19 / 24, 20	0.10	0.80										●				
	11IR 55005	28~14 / 24~14	0.05	1.10		●												J42
	16IR 5501	28~11 / 24~11	0.10	1.50		●												
	5502	14~11 / 16~11	0.20	1.50		●												

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
06IR···	SINR···06E	J21
08IR···	SINR···08E	
11IR···	SINR···11E SINR···11	

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR···	SINR···16 CINR···16	J21
22IR···	SINR···22 CINR···22	

Internal Threading Inserts

30° Trapezoidal (Tr)

Partial Profile 30° (mm)

Description	A	T	ϕd
16IR	9.525	3.68	4.0
22IR	12.70	4.9	4.85

Classification of usage ● : 1st Choice

		Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide	
P	Carbon Steel / Alloy Steel						●		
M	Stainless Steel						●		
K	Cast Iron								
N	Non-ferrous Metals								

Insert (Handed Insert shows Right-hand)	Description	Applicable Thread Tr / Pitch / mm	rε	S	θ	Cermet TC60M R	Cermet TC60M L	MEGACOAT PR1215 R	MEGACOAT PR1215 L	MEGACOAT NANO PR1515 R	MEGACOAT NANO PR1515 L	MEGACOAT NANO PR1535 R	MEGACOAT NANO PR1535 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	Carbide GW15 R	Carbide GW15 L	See Page for Depth of Cut & Number of Passes
Partial Profile	16IR 200TR	2.0	0.20	1.6	30°									●				J41
	300TR	3.0	0.20	1.6										●				
	22IR 400TR	4.0	0.20	2.5	30°									●				
	500TR	5.0	0.20	2.5										●				

Recommended Cutting Conditions ➡ J36

Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR···	SINR···16 CINR···16	J21
22IR···	SINR···22 CINR···22	

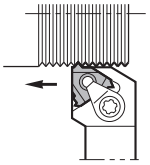
Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

● : Std. Item

Threading inserts are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

KTN / KTNS



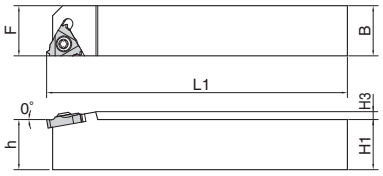


Fig.1

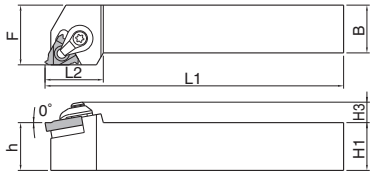
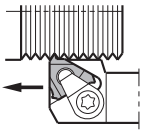
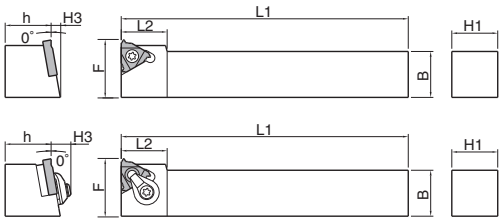


Fig.2

• Right-hand shown

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





KTNSR1010H-16
1212K-16

Fig.3

KTNSR1616K-16
2020K-16

Fig.4

• Right-hand shown

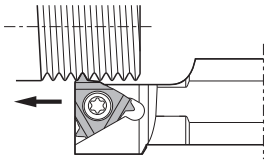
Right-hand Insert for Right-hand Toolholder.

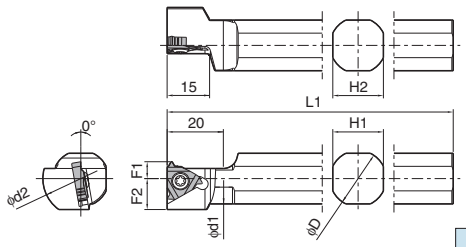
Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F	Drawing	Spare Parts: Clamp Set	Clamp Screw	Wrench	Shim	Shim Screw	Applicable Inserts
KTN R/L	1216JX-16F	●	●	12	3	16	120	-	16	Fig.1	-	SB-3.5TR	LTW-15S	-	-	16E R/L...
	1616H-16	●	●	16	8.5	16	100	25	20	Fig.2	CPS-5S	-	FT-15	TN-32	SP3X8	
	1616JX-16F	●	●		3		120	-	16	Fig.1	-	SB-3.5TR	LTW-15S	-	-	
	2020H-16*	●			8.5		100	25	25	Fig.2	CPS-5S	-	FT-15	TN-32	SP3X8	
	2020JX-16F	●	●	20	3	20	120	-	20	Fig.1	-	SB-3.5TR	LTW-15S	-	-	
	2020K-16	●	●		8.5		125	25	25	Fig.2	CPS-5S	-	FT-15	TN-32	SP3X8	
	2525M-16	●	●	25		25	150		30							
	2525M-22	●		25	10	25	150	29	32		CPS-6S	-	LW-3	TN-43	SP3X8	22ER...
	3225P-22	●		32			170	34								
KTNSR	1010H-16	●		10	8.5	10	100	16	16	Fig.3	-	SB-3.5TR	FT-15	-	-	16ER...
	1212K-16	●		12		12	125	18	18							
	1616K-16	●		16		16			22	Fig.4	CPS-5S	-		TN-32	SP3X8	
	2020K-16	●		20		20		20	27.4							

★ mark indicates short shank type.

S-KTN (Sleeve Holder)





• Left-hand shown

Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Std.	Dimension (mm) φD	L1	F1	F2	φd1	φd2	H1=H2	Spare Parts: Clamp Screw	Wrench	Applicable Inserts
S16F-KTNL16	●	16	85	6	11	15	27	15	SB-3.5TR	LTW-15S	16ER...
S19K-KTNL16	●	19.05	120			18		17			
S20K-KTNL16	●	20				19		18			
S22K-KTNL16	●	22				21		20			
S25.0H-KTNL16	●	25	100	10	14	24	32	23			
S25K-KTNL16	●	25.4	120								

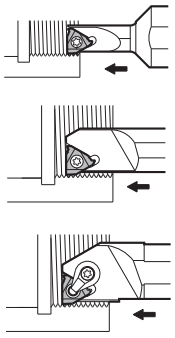
See page for applicable inserts

Nominal Thread	Full Profile	Partial Profile	Nominal Thread	Full Profile	Partial Profile
M: Metric	J6	J16	R (PT) (BSPT) Tapered Pipe	J12	J18
UN: Unified UNF: Unified Fine Thread	J8	J16	W: Whitworth	J10	J18
			NPT American National Tapered Pipe	J14	-
G (PF): Parallel Pipe	J10	J18	Tr: 30° Trapezoidal	-	J18

● : Std. Item

Internal Threading Toolholders

SIN / CIN



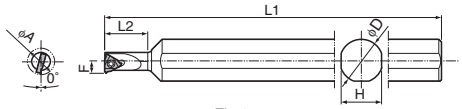


Fig.1

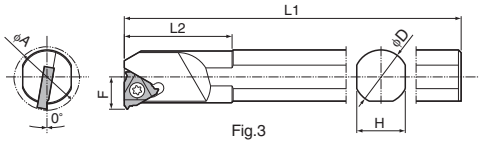


Fig.3

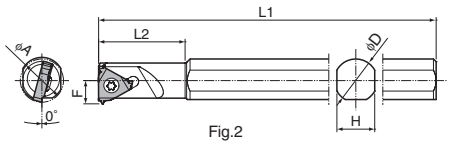


Fig.2

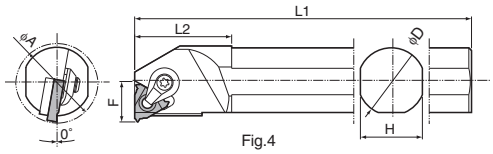
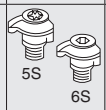
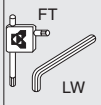
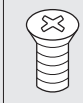


Fig.4

• Right-hand shown

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

Toolholder Dimensions

Description		Std. R	Std. L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	L2	F	Drawing	Spare Parts: Clamp Screw	Clamp Set	Wrench	Shim	Shim Screw	Applicable Inserts
																
SIN R/L	0612S-06E	●		6.4	12	11	100	10	3.8	Fig.1	SB-2040TR	-	FT-6	-	-	06 IR...
	0816S-08E	●		7.8	16	15	125	16	4.0		SB-2050TR	-	FT-6	-	-	08 IR...
	1216S-11E	●	●	12	16	14	150	25	6.3		SB-2TR	-	FT-8	-	-	11 I R/L...
	1516S-11	●	●	15				30	7.5							
	1616S-16	●	●	16	16	14	150	32	8.6	Fig.2	SB-3.5TR	-	FT-15	-	-	16 I R/L...
	2016S-16	●	●	20				37	10.0	Fig.3						
	2420S-16	●	●	24	20	18	180	40	12.0							
	2420S-22	●		24	20	18	180	40	13.5		SB-4085TR	-	FT-15	-	-	22 IR...
CIN R/L	3025S-16	●	●	30	25	23	200	36	15.0	Fig.4	-	CPS-5S	FT-15	TN-32	SP3X8	16 I R/L...
	3732S-16	●		37	32	30	250	45	18.5							
	3025S-22	●		30	25	23	200	40	16.5		-	CPS-6S	LW-3	TN-43	SP3X8	22 IR...
	3732S-22	●		37	32	30	250	45	20							

See page for applicable inserts

Nominal Thread	Full Profile	Partial Profile	Nominal Thread	Full Profile	Partial Profile
M: Metric	**J7**	**J17**	Rc (PT) (BSPT) Tapered Pipe	**J13**	**J19**
UN: Unified UNF: Unified Fine Thread	**J9**	**J17**	W: Whitworth	**J11**	**J19**
			NPT American National Tapered Pipe	**J15**	**-**
G (PF): Parallel Pipe	**J11**	**J19**	Tr: 30° Trapezoidal	**-**	**J19**

Guide for Internal Threading

For the 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(rε), 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.

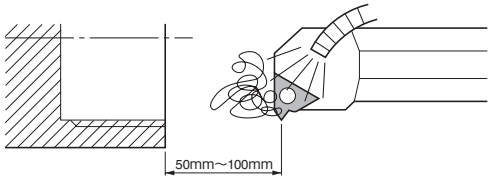
<When processing the first workpiece>

Set the program with the “single block”

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

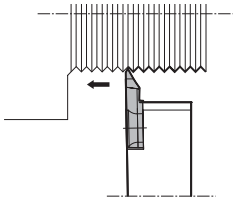
<When processing the second workpiece and later>

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



● : Std. Item

KTKF / KTKF Goose-neck Holder



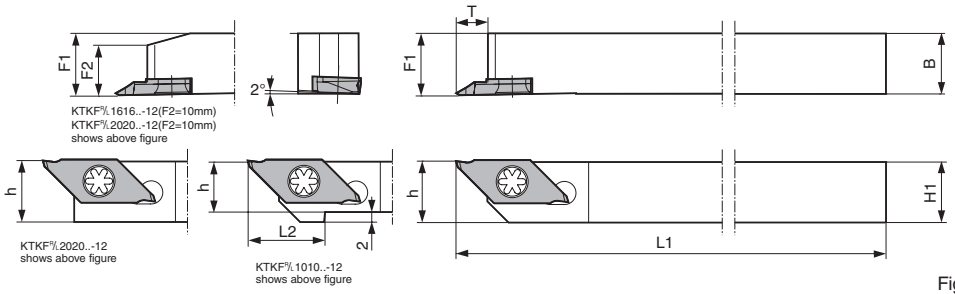
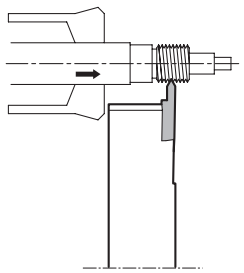


Fig.1

• Right-hand shown

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



<Goose-neck Holder>

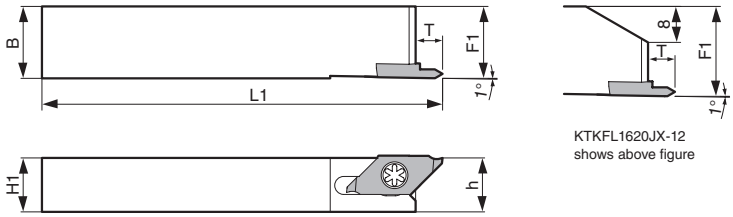


Fig.2

• Left-hand shown

Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

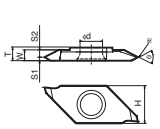
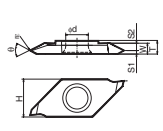
Description		Std. R	Std. L	Dimension (mm) H1=h	B	L1	L2	F1	T	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts
KTKF□/L	1010JX-12	●	●	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKFT12□/L …
	1212JX-12	●	●	12	12		-	12					
	1616JX-12	●	●	16	16			16					
	2020JX-12	●	●	20	20			20					
KTKF□/L	1212F-12	●	●	12	12	85	-	12	6		SB-4590TRWN	LTW-10S	TKFT12□/L …
KTKFL	1216JX-12		●	12	16	120	-	16	6	Fig.2	SB-4590TRWN	LTW-10S	TKFT12L..
	1620JX-12		●	16	20			20					

· Dimension T shows the distance from the Toolholder to the cutting edge.

Applicable Inserts

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel	●	○	○	○	
M	Stainless Steel	○	●	○	○	
K	Cast Iron					●
N	Non-ferrous Metals					●

Insert (Photo shows Right-hand.)			Description	Applicable Thread	Pitch mm	Pitch TPI	T	W	H	ϕd	rε	S1	S2	Angle θ	MEGACOAT NANO PR1425	MEGACOAT NANO PR1535	MEGA COAT PR1225	PVD Coated Carbide PR1025	Carbide KW10	Applicable Toolholders
Partial Profile		 · Right-hand shown	TKFT 12RA6000	M UN	0.2~0.6	64~48	3.0	2.5	8.7	5.2	Max. 0.05 Flat	0.4	2.1	60°	●	●	●	●	●	KTKFR ...12
			12RB6000									2.1	0.4		●	●	●	●	●	
			12RA60005		0.5~1.25	48~24					0.05	0.8	1.7		●	●	●	●	●	
			12RB60005									1.7	0.8		●	●	●	●	●	
			12RN6001		1~1.5	24~18					0.1	1.25	1.25		●	●	●	●	●	
			12RA55005	G,R W	-	40~16					0.05	0.8	1.7	55°	●	●	●	●	●	
			12RB55005									1.7	0.8		●	●	●	●	●	
		 · Left-hand shown	TKFT 12LA6000	M UN	0.2~0.6	64~48	3.0	2.5	8.7	5.2	Max. 0.05 Flat	2.1	0.4	60°	●	●	●	●	●	KTKFL ...12
			12LB6000									0.4	2.1		●	●	●	●	●	
			12LA60005		0.5~1.25	48~24					0.05	1.7	0.8		●	●	●	●	●	
			12LB60005									0.8	1.7		●	●	●	●	●	
			12LN6001		1~1.5	24~18					0.1	1.25	1.25		●	●	●	●	●	
			12LA55005	G,R W	-	40~16					0.05	1.7	0.8	55°	●	●	●		●	
			12LB55005									0.8	1.7		●	●	●		●	

Inserts are sold in 10 piece boxes

● : Std. Item

Inserts Identification System (Ref. to Table-1)

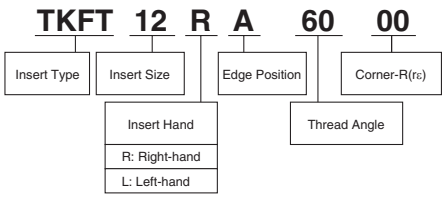
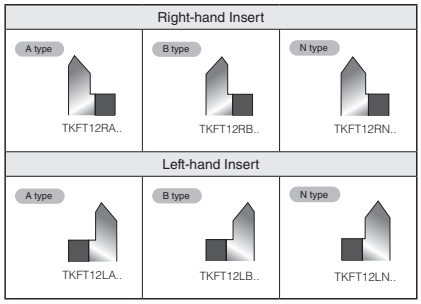


Table-1



Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades			
	MEGACOAT NANO	MEGACOAT	PVD Coated Carbide	Carbide
	PR1425 / PR1535	**PR1225**	**PR1025**	**KW10**
Carbon Steel	Vc = 70~170 m/mim First ap (Radial): 0.2mm and under		Vc = 60~150 m/mim First ap (Radial): 0.2mm and under	-
Alloy Steel	Vc = 70~170 m/mim First ap (Radial): 0.2mm and under		Vc = 60~150 m/mim First ap (Radial): 0.2mm and under	-
Stainless Steel	Vc = 60~100 m/mim First ap (Radial): 0.15mm and under		Vc = 50~80 m/mim First ap (Radial): 0.15mm and under	-
Cast Iron	-		-	Vc = 100 m/mim First ap (Radial): 0.2mm and under
Aluminum Alloys	-		-	Vc = 150~400 m/mim First ap (Radial): 0.2mm and under
Brass	-		-	Vc = 150~300 m/mim First ap (Radial): 0.15mm 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

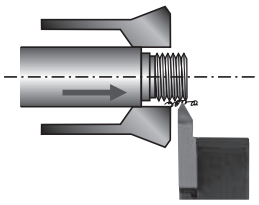
(ap shows the value of radial ap)

Type		Pitch mm / TPI	Description	Corner-R(rε)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12
Metric	External Thread	0.20mm	TKFT 12R/L A/B6000	Max. 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02								
		0.25mm			0.19	4	0.07	0.06	0.04	0.02								
		0.30mm			0.23	4	0.08	0.07	0.06	0.02								
		0.35mm			0.27	5	0.08	0.07	0.06	0.04	0.02							
		0.40mm			0.30	5	0.10	0.08	0.06	0.04	0.02							
		0.45mm			0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		0.50mm	TKFT 12R/L A/B6000		0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
			12R/L A/B60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02							
		0.60mm	TKFT 12R/L A/B6000	Max. 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
			12R/L A/B60005	0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02						
		0.70mm	TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
		0.75mm		0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		0.80mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		1.00mm	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					
		1.25mm		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				
		1.50mm	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	0.02		
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		
		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	

Swiss Tool Automatic Lathe (Guide Bush System)

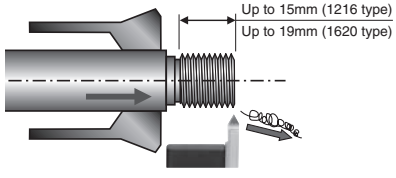
Goose-neck holder is applicable to automatic lathes whose toolholder does not move to longitudinal direction (Z-axis direction).

Conventional Tool



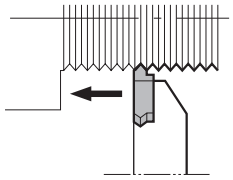
Chips may come into the guide bush and scratch the thread surface.

Goose-neck Holder

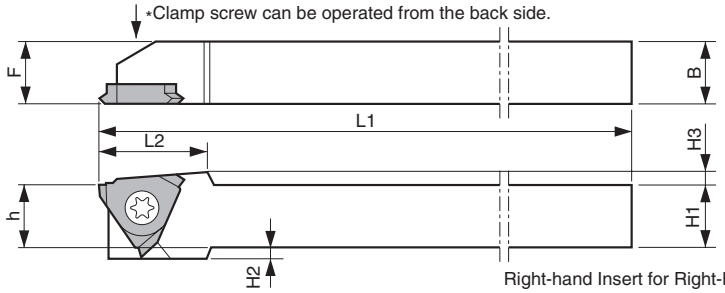


Goose-neck holder is capable of threading without returning the thread part into the guide bush (thread length up to 15 mm or 19 mm).

KTTX



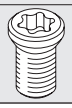
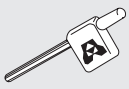
Thread to shoulder



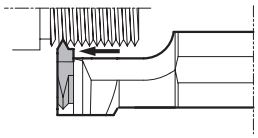
● Right-hand shown

Right-hand Insert for Right-hand Toolholder.

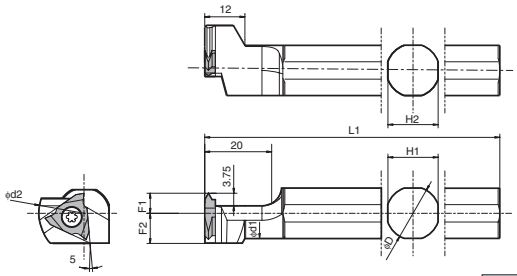
Toolholder Dimensions

Description		Std.	Dimension (mm)							Spare Parts				
										Clamp Screw	Wrench			
			H1=h	H2	H3	B	L1	L2	F					
KTTXR	**1010JX-16F**	●	10	2	2.5	10	120	17.6	10	SB-4070TRW	FT-8			
	1212JX-16F	●	12	-		12			12					
	1616JX-16F	●	16			16			16					
KTTXR	**1212F -16F**	●	12	-	2.5	12	85	17.6	12	SB-4070TRW	FT-8			
	2020K -16F	●	20			20	125		20					

S-KTTX (External Sleeve Holder)



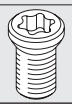
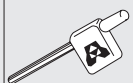
Thread to shoulder



● Left-hand shown

Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Std.	Dimension (mm)							Spare Parts				
									Clamp Screw	Wrench			
		φD	L1	F1	F2	φd1	φd2	H1=H2					
S12F-KTTXL16	●	12	80	6.0	9.0	11.0	27	11	SB-4070TRW	FT-8			
S14H-KTTXL16	●	14	100			13.0		13					
S15F-KTTXL16	●	15.875	85			14.6		15					
S16F-KTTXL16	●	16											
S19G-KTTXL16	●	19.05	90		10.5	17.6		17					
S19K-KTTXL16	●		120										
S20G-KTTXL16	●	20	90		11.0	18.6		18					
S20K-KTTXL16	●		120										
S25.0H-KTTXL16	●	25	100	10.0	14.0	23.6	32	23					
S25K-KTTXL16	●	25.4	120										

● : Std. Item

Applicable Inserts

(mm)

Description	A	T	ϕ d
TTX32R	9.525	3.18	4.4

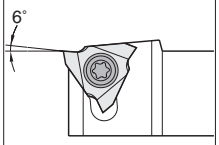
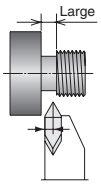
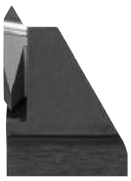
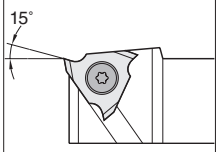
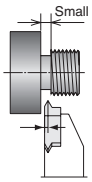
					Classification of usage
P	Carbon Steel / Alloy Steel	○	○	●	● : 1st Choice
M	Stainless Steel		○	●	○ : 2nd Choice
K	Cast Iron				●
N	Non-ferrous Metals				●

Insert (Handed Insert shows Right-hand)	Description		Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε	S1	S2	Angle θ	Cermet TC60M	PVD Coated Carbide PR930	PVD Coated Carbide PR1115	Carbide KW10	Applicable Toolholders	See Page for Depth of Cut & Number of Passes
Partial Profile	**TTX32R**	**6000**	M UN	0.5~1.0 -	- 56~32	0.00	0.6	1.12	60°				●	**KTTXR····16 S···KTTXL16**	**J44**
		60005	M UN	0.5~1.0 -	- 48~32	0.05	0.6	1.12		●	●	●	●		
		6001	M UN	1.0~2.0 -	- 28~14	0.10	1.1	1.62		●	●	●	●		
	TTX32R	**6000S**	M UN	0.5 -	- 56~48	0.00	0.3	1.12	60°		●	●	●		
		60005S	M UN	0.5 -	- 48	0.05	0.3	1.12			●	●	●		
	TTX32R	**5501**	G, R W	-	28~19 24~20	0.10	0.75	1.01	55°	●	●	●	●		
		55015	G, R W	-	19~11 20~11	0.15	1.20	1.46		●			●		

Applicable Thread		
	M : Metric	R(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	

Recommended Cutting Conditions J36

TT and TTX

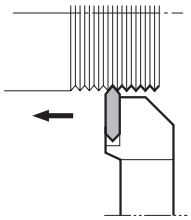
Type	Shape	Features: Rake Angle after Installation	Features: Condition	Features: Dead Space
TT			・One insert can machine various pitch sizes	
TTX			・The Least Cutting Force ・Thread to shoulder (Less dead space) ・One Insert can machine various pitch sizes. (less than TT)	

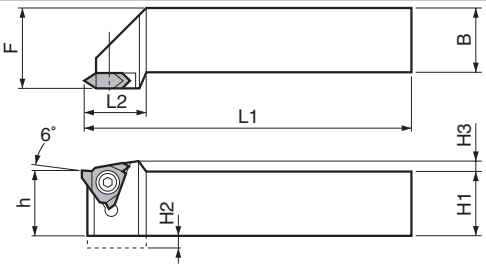
● : Std. Item

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

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

KTT





• Right-hand shown

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

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F	Spare Parts: Clamp Screw		Spare Parts: Wrench	
KTT$^{R}_{L}$	1010F-16	●	●	10	4	2.5	10	80	18	12	SB-4070TRS	-	FT-10	-
	1212H-16	●	●	12	2		12	100		16				
	1616H-16	●	●	16	-		16	100		20				
	2020K-16	●	●	20			20	125		25	SB-4TR	-	FT-15	-
	2525M-16	●	●	25			25	150		30				
	2020K-22	●	●	20	-	3.0	20	125	25	25	-	GS-50	-	LW-3
	2525M-22	●	●	25			25	150		30				

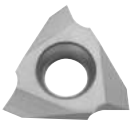
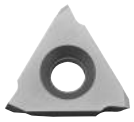
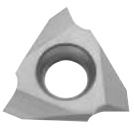
Applicable Inserts

(mm)

Description	A	T	ϕd
TT32$^{R}_{L}$	9.525	3.18	4.4
TT43$^{R}_{L}$	12.70	4.76	5.5

		TC60M	PR930	PR1115	KW10
P	Carbon Steel / Alloy Steel	○	○	●	
M	Stainless Steel		○	●	
K	Cast Iron				●
N	Non-ferrous Metals				●

Classification of usage: ● : 1st Choice ○ : 2nd Choice

Insert (Handed Insert shows Right-hand)		Description		Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle θ	Cermet TC60M	PVD Coated Carbide PR930	PVD Coated Carbide PR1115	Carbide KW10	Applicable Toolholders	See Page for Depth of Cut & Number of Passes
Partial Profile		TT32$^{R}_{L}$	6000	M UN	0.5~2.5 -	- 56~10	0.0	-	60°	●	●	●		KTT$^{R}_{L}$····-16	J43
			6001	M UN	1.0~2.5 -	- 24~10	0.1			●	●	●	●		
			6002	M UN	1.5~2.5 -	- 16~10	0.2			●	●	●	●		
			6003	M UN	2.5 -	- 11~10	0.3			●	R	R			
		TT32$^{R}_{L}$	5501	G, PT W	-	28~11 24~10	0.1	-	55°	●	●	R	●		
			5502	G, PT W	-	14~11 14~10	0.2			●	●	R	●		
Full Profile		TT43ER	100M	M	1.00	-	0.12	0.8	60°	R	R	R		KTT$^{R}_{L}$····-22	J44
			125M		1.25		0.15	0.9		R	R	R			
			150M		1.50		0.19	1.0		R	R	R			
			200M		2.00		0.25	1.7		R	R	R			
Partial Profile		TT43$^{R}_{L}$	6001	M UN	1.0~3.5 -	- 24~8	0.1	-	60°	●	●	●	●		J43
			6002	M UN	1.5~3.5 -	- 16~8	0.2			●	●	●	●		
			6003	M UN	2.5~3.5 -	- 11~8	0.3			●	●	R			
			6004	M UN	3.0~3.5 -	- 8	0.4			●	●	R			
		TT43$^{R}_{L}$	5501	G, PT W	-	28~11 24~7	0.1	-	55°	●	R	R	●		
			5502	G, PT W	-	14~11 16~7	0.2			●	R	R	●		
			5503	G, PT W	-	11 10~7	0.3			●	R	R			
			5504	G, PT W	-	- 8~7	0.4			●					

Applicable Thread		
	M : Metric	R(PT)(BSPT) : Tapered Pipe
	UN : Unified	W : Whitworth
	UNF : Unified Fine Thread	NPT : American National Tapered Pipe
	G (PF) : Parallel Pipe	

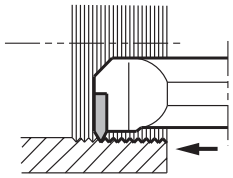
Recommended Cutting Conditions J36

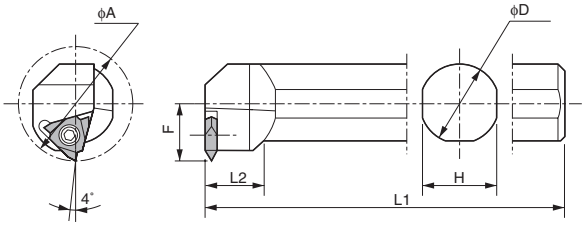
PR930 / PR1115 (Threading) are sold in 5 piece boxes.

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

● : Std. Item
R : Std. Item (Right-hand Only)

KITG





• Right-hand shown

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

Toolholder Dimensions

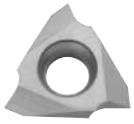
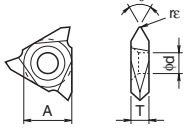
Description		Std. R	Std. L	Min. Bore Dia. ϕA	Dimension (mm) ϕD	H	L1	L2	F	Spare Parts: Clamp Screw		Wrench	
KITG R/L	3525T-16	●	●	35	25	23	220	18	17.5	SB-4TR	-	FT-15	-
	4532T-22	●	●	45	32	30	250	20	22.5	-	GS-50	-	LW-3

· Max. available Pitch: KITG R/L3525T-16···P2.5 or 10TPI, KITG R/L4532T-22···P3.0 or 8TPI.

Applicable Inserts

Description	A	T	ϕ d
TT32 R/L	9.525	3.18	4.4
TT43 R/L	12.70	4.76	5.5

						Classification of usage
P	Carbon Steel / Alloy Steel	○	○	●		● : 1st Choice
M	Stainless Steel		○	●		○ : 2nd Choice
K	Cast Iron				●	
N	Non-ferrous Metals				●	

Insert (Handed Insert shows Right-hand)		Description		Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε	Angle θ	Cermet TC60M	PVD Coated Carbide PR930	PVD Coated Carbide PR1115	Carbide KW10	Applicable Toolholders	See Page for Depth of Cut & Number of Passes
Partial Profile	 	TT32 R/L	6000	M UN	0.5~2.5 -	- 48~10	0.0	60°	●	●	●		KITG R/L····16	J43 J44
			6001	M UN	1.5~2.5 -	- 16~10	0.1		●	●	●	●		
		TT32 R/L	5501	G,PT W	-	28~11 24~10	0.1	55°	●	●	R	●		
			5502	G,PT W		- 16~18	0.2		●	●	R	●		
		TT43 R/L	6001	M UN	1.5~3.0 -	14~11 16~10	0.1	60°	●	●	●	●	KITG R/L····22	
			6002	M UN	3.0 -	- 8	0.2		●	●	●	●		
		TT43 R/L	5501	G,PT W	-	28~11 24~8	0.1	55°	●	R	R	●		
			5502	G,PT W		14~11 16~8	0.2		●	R	R	●		
			5503	G,PT W		11 11~8	0.3		●	R	R			
			5504	G,PT W		- 8	0.4		●					

Recommended Cutting Conditions J36

Applicable Thread	M : Metric	Rc(PT)(BSPT): Tapered Pipe
	UN : Unified	W : Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	

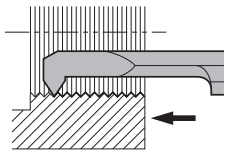
● : Std. Item
R : Std. Item (Right-hand Only)

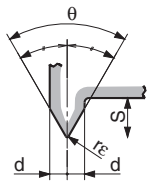
PR930 / PR1115 (Threading) are sold in 5 piece boxes.

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

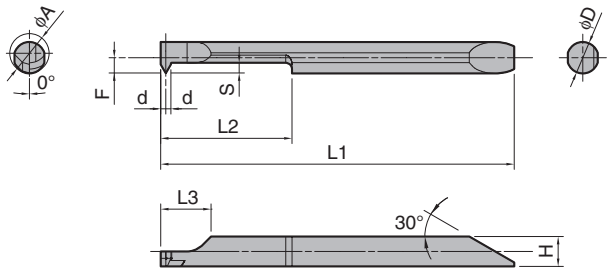
Micro Internal Threading EZ Bars

EZT





Detail of edge



● Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)										MEGA COAT	Applicable Thread					
														Metric		Unified		American National Tapered Pipe	
		φA	φD	H	L1	L2	L3	F	S	d	rε	θ	PR1225	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	Nominal Thread	Pitch (TPI)
EZTR	030025-60-002	3.0	2.5	2.3	35.0	6.5	5.4	1.19	1.0	0.5	$0.02^{\pm0.01}$	60°	●	M4 and over (Fine Thread : M3.5 and over)	P0.5~P0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-
	035030-60-002	3.5	3.0	2.8	39.0	9.0	5.9	1.44	1.2	0.6			●	M4.5 and over (Fine Thread : M4.5 and over)	P0.5~P1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-
	040035-60-004	4.0	3.5	3.3	42.0	11.0	5.9	1.69	1.2	0.6	$0.04^{\pm0.01}$		●	M5 and over (Fine Thread : M6 and over)	P0.75~P1.25	No.12-24UNC No.12-28UNF and over	28~20	-	-
	050040-60-004	5.0	4.0	3.8	45.0	16.0	6.4	1.94	1.3	0.65			●	M7 and over (Fine Thread : M6 and over)	P0.75~P1.5	1/4-20UNC 1/4-28UNF and over	28~18	-	-
	060050-60-004	6.0	5.0	4.8	53.2	20.0	7.4	2.44	1.6	0.8			●	M8 and over (Fine Thread : M7 and over)	P0.75~P1.5	5/16-18UNC 5/16-24UNF and over	24~16	1/4NPT 3/8NPT	18
	070060-60-004	7.0	6.0	5.8	61.2	25.0	8.4	2.94	2.0	1.0			●	M9 and over (Fine Thread : M8 and over)	P0.75~P1.75	3/8-16UNC 3/8-24UNF and over	24~16	1/4NPT and over	18,14
														Whitworth		Parallel Pipe / Tapered Pipe			
EZTR	060050-55-008	6.0	5.0	4.8	53.2	20.0	7.4	2.44	1.6	0.8	$0.085^{\pm0.015}$	55°	●	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-
	080070-55-008	8.0	7.0	6.8	64.2	25.0	8.9	3.44	2.0	1.0			●	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 J31
Applicable Sleeves J29

EZ Bars are sold in 1 piece boxes.

●: Std. Item

Applicable Sleeves

Sleeve Description			Applicable Inserts			Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) ➡ F24	EZH-HP (Adjustable overhang length) ➡ F26	EZH-ST ➡ F28	Sleeve Shank Dia. ϕD1(mm)	EZT	HPT	Shank Dia. ϕD(mm)	
-	-	EZH 02512ST-80	12	EZTR...025-...	-	2.5	(General purpose)
		03012ST-80		EZTR...030-...	-	3	
		03512ST-80		EZTR...035-...	-	3.5	
		04012ST-80		EZTR...040-...	HPTR..04-...	4	
		05012ST-80		EZTR...050-...	HPTR..05-...	5	
		06012ST-80		EZTR...060-...	-	6	
		07012ST-80		EZTR...070-...	HPTR..07-...	7	
-	EZH 02516HP-100	EZH 02516ST-100	16	EZTR...025-...	-	2.5	(General purpose)
	03016HP-100	03016ST-100		EZTR...030-...	-	3	
	03516HP-100	03516ST-100		EZTR...035-...	-	3.5	
	04016HP-100	04016ST-100		EZTR...040-...	HPTR..04-...	4	
	05016HP-100	05016ST-100		EZTR...050-...	HPTR..05-...	5	
	06016HP-100	06016ST-100		EZTR...060-...	-	6	
	07016HP-100	07016ST-100		EZTR...070-...	HPTR..07-...	7	
EZH 02519CT-120	EZH 02519HP-120	EZH 02519ST-120	19.05	EZTR...025-...	-	2.5	Citizen Machinery
03019CT-120	03019HP-120	03019ST-120		EZTR...030-...	-	3	
03519CT-120	03519HP-120	03519ST-120		EZTR...035-...	-	3.5	
04019CT-120	04019HP-120	04019ST-120		EZTR...040-...	HPTR..04-...	4	
05019CT-120	05019HP-120	05019ST-120		EZTR...050-...	HPTR..05-...	5	
06019CT-120	06019HP-120	06019ST-120		EZTR...060-...	-	6	
07019CT-120	07019HP-120	07019ST-120		EZTR...070-...	HPTR..07-...	7	
EZH 02520CT-120	EZH 02520HP-120	EZH 02520ST-120	20	EZTR...025-...	-	2.5	Eguro Tsugami Citizen Machinery (General purpose)
03020CT-120	03020HP-120	03020ST-120		EZTR...030-...	-	3	
03520CT-120	03520HP-120	03520ST-120		EZTR...035-...	-	3.5	
04020CT-120	04020HP-120	04020ST-120		EZTR...040-...	HPTR..04-...	4	
05020CT-120	05020HP-120	05020ST-120		EZTR...050-...	HPTR..05-...	5	
06020CT-120	06020HP-120	06020ST-120		EZTR...060-...	-	6	
07020CT-120	07020HP-120	07020ST-120		EZTR...070-...	HPTR..07-...	7	
EZH 02522CT-135	EZH 02522HP-135	EZH 02522ST-135	22	EZTR...025-...	-	2.5	Star Micronics Nomura DS Tsugami
03022CT-135	03022HP-135	03022ST-135		EZTR...030-...	-	3	
03522CT-135	03522HP-135	03522ST-135		EZTR...035-...	-	3.5	
04022CT-135	04022HP-135	04022ST-135		EZTR...040-...	HPTR..04-...	4	
05022CT-135	05022HP-135	05022ST-135		EZTR...050-...	HPTR..05-...	5	
06022CT-135	06022HP-135	06022ST-135		EZTR...060-...	-	6	
07022CT-135	07022HP-135	07022ST-135		EZTR...070-...	HPTR..07-...	7	
EZH 02525.0CT-135	EZH 02525.0HP-135	EZH 02525.0ST-135	25	EZTR...025-...	-	2.5	Eguro Tsugami Citizen Machinery (General purpose)
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZTR...030-...	-	3	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZTR...035-...	-	3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZTR...040-...	HPTR..04-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZTR...050-...	HPTR..05-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZTR...060-...	-	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZTR...070-...	HPTR..07-...	7	
EZH 02525.4CT-120	EZH 02525.4HP-120	EZH 02525.4ST-120	25.4	EZTR...025-...	-	2.5	Citizen Machinery
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZTR...030-...	-	3	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZTR...035-...	-	3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZTR...040-...	HPTR..04-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZTR...050-...	HPTR..05-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZTR...060-...	-	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZTR...070-...	HPTR..07-...	7	

· Choose sleeves (ϕd1) to meet with ϕD dimension of Bars.
· 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.

Recommended Cutting Conditions (EZT)

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)
	MEGACOAT
	PR1225
Carbon Steel / Alloy Steel	★ 30~100
Stainless Steel	★ 30~80
Non-ferrous Metals	-

★: 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	0.04	0.03	0.03

◆ Depth of Cut & Number of Passes (Whitworth : W)

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

Application of Parallel Pipe / Tapered Pipe Thread

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

Nominal Thread Symbol (Previous Symbol)	TPI	Internal Thread (G, Rp) Insert	Bore Dia.	Same Root's Radius
G1/16 (-)	28	EZTR 060050-55-008	6.56	0.12
G 1/8 (PF 1/8)		080070-55-008	8.57	
G 1/4 (PF 1/4)	19	EZTR 080070-55-008	11.45	0.18
G 3/8 (PF 3/8)			14.95	

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

Nominal Thread Symbol (Previous Symbol)	TPI	Internal Thread (Rc) Insert	Bore Dia.	Same Root's Radius
R1/16,Rc1/16 (-)	28	EZTR 060050-55-008	-	0.12
R 1/8, Rc 1/8 (PT 1/8)		080070-55-008	-	
R 1/4, Rc 1/4 (PT 1/4)	19	EZTR 080070-55-008	-	0.18
R 3/8, Rc 3/8 (PT 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	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass
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	Insert Full Profile
1/16 NPT 1/8 NPT	27	No Tools Available		
1/4 NPT 3/8 NPT	18	EZH sleeve	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	EZH sleeve	EZTR070060-60-004	-
1/2 NPT	14	SINR1616S-16	-	16IR14NPT
3/4 NPT		SINR2016S-16		

· 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.

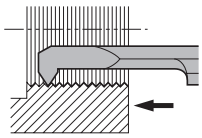
Depth of Cut & Number of Passes (American National Tapered Pipe)

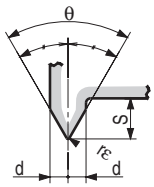
TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass	19Pass
18	1.23	16	0.18	0.14	0.12	0.12	0.10	0.09	0.08	0.08	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.02			
14	1.56	19	0.18	0.16	0.14	0.14	0.12	0.10	0.09	0.09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

2-Edge Tip-Bars for Micro Internal Threading

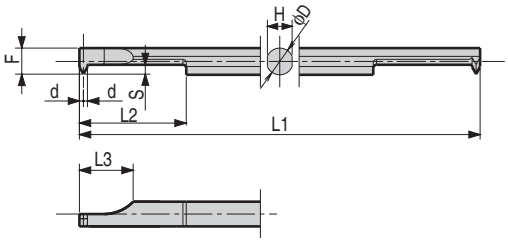
HPT (Micro Internal Threading)

This insert will be switched to EZT J28





Detail of edge



• Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)										Insert Grades		Applicable Thread			
													PVD Coated Carbide	Carbide	Metric		Unified	
		φA	φD	H	L1	L2	L3	F	S	d	rε	θ	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
HPTR	04504-60-005	4.5	4	3.7	60	16	8	3.9	1.3	0.6	$0.05^{+0}_{-0.02}$	60°	□	□	M6 and over	P0.75 ~P1.25	1/4-20UNC 1/4-28UNF and over	28~20
	06005-60-005	6	5	4.6	70	21		4.9	1.6	0.8			□	□	M8 and over	P0.75 ~P1.50	5/16-18UNC 5/16-24UNF and over	24~18
	07507-60-005	7.5	7	6.4	80	26	10	6.9	2.0	1.0			□	□	M10 and over	P0.75 ~P1.50	3/8-16UNC 3/8-24UNF and over	24~16
															Whitworth		Parallel Pipe Tapered Pipe	
HPTR	06005-55-010	6	5	4.6	70	21	8	4.9	1.6	0.8	$0.1^{+0}_{-0.02}$	55°	□	□	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28
	08007-55-010	8	7	6.4	80	26	10	6.9	2.0	1.0			□	□	W11 TPI24 and over	20~18	G1/8 and over R1/8 and over	28,19

· For American National Pipe (NPT), use HPTR..-60-005. J33

Description Table for Tip-Bars and Applicable Sleeves

Tip-Bars Description		See Page for Applicable Sleeves J29	
HPTR	04504-60-005	EZH	04-····
	06005-60-005		05-····
	07507-60-005		07-····
HPTR	06005-55-010	EZH	05-····
	08007-55-010		07-····

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)	
	PVD Coated Carbide	Carbide
	PR930	KW10
Carbon Steel / Alloy Steel	★ 30~100	-
Stainless Steel	★ 30~80	-
Non-ferrous Metals	-	★ ~300

★: 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
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

Depth of Cut & Number of Passes (Whitworth : W)

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
28	0.54	12	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03						
24	0.64	12	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03						
20	0.77	14	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				
18	0.87	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	0.03	0.03	0.03	
16	0.98	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	0.05	0.05	0.04	0.04	0.04	0.03

Tip-Bars are sold in 1 piece boxes.

□ : Deleted from the next catalogue

Application of Parallel Pipe / Tapered Pipe Thread

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

Nominal Thread Symbol (Previous Symbol)	TPI	Internal Thread (G, Rp) Insert		Bore Dia.	Same Root's Radius
G1/16 (-)	28	**HPTR**	**06005-55-010**	6.56	0.12
G 1/8 (PF 1/8)			**08007-55-010**	8.57	
G 1/4 (PF 1/4)	19	**HPTR**	**08007-55-010**	11.45	0.18
G 3/8 (PF 3/8)				14.95	

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

Nominal Thread Symbol (Previous Symbol)	TPI	Internal Thread (Rc) Insert		Bore Dia.	Same Root's Radius
R1/16, Rc1/16 (-)	28	**HPTR**	**06005-55-010**	-	0.12
R 1/8, Rc 1/8 (PT 1/8)			**08007-55-010**	-	
R 1/4, Rc 1/4 (PT 1/4)	19	**HPTR**	**08007-55-010**	-	0.18
R 3/8, Rc 3/8 (PT 3/8)				-	

· When using "HPT 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	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass
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	Insert Full Profile
1/16 NPT 1/8 NPT	27	No Tools Available		
1/4 NPT 3/8 NPT	18	**EZH** sleeve (See Page **J29**)	**HPTR06005-60-005** **HPTR07507-60-005**	-
1/2 NPT 3/4 NPT	14	**EZH** sleeve (See Page **J29**)	**HPTR07507-60-005**	-
1/2 NPT	14	**SINR1616S-16**	-	**16IR14NPT**
3/4 NPT		**SINR2016S-16**		

· Application of NPTF Thread

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

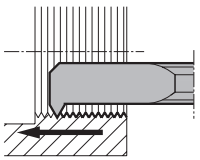
Thread symbol is similar to NPT but the Tolerance is different from that of NPT, therefore the above Inserts are not available for NPTF.

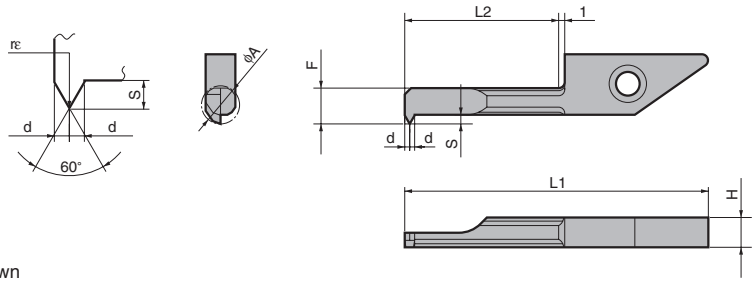
Depth of Cut & Number of Passes (American National Tapered Pipe)

TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass	19Pass
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

Tip-Bars for Micro Threading

VNT (System Tip-Bars)





• Right-hand shown

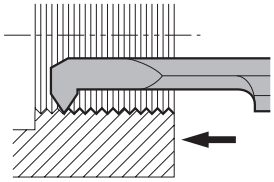
Dimensions

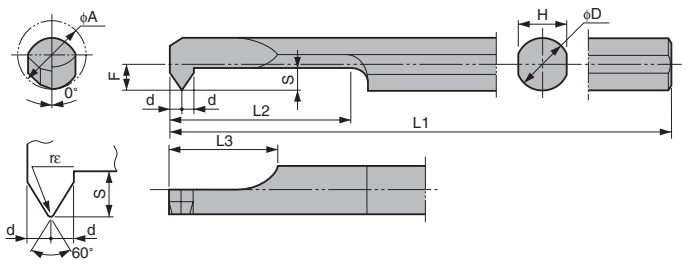
Description		Min. Bore Dia.	Dimension (mm)								Insert Grades			Applicable Thread			
											MEGA COAT	PVD Coated Carbide	Carbide	Metric		Unified	
		φA	H	L1	L2	F	S	d	rε		PR1225	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
VNTR	045-11	4.5	3.9	30.8	11	3.6	1.3	0.6	+0 -0.02 0.05		●	●	●	M6 and over	P0.75 ~P1.25	1/4-20UNC, 1/4-28UNF and over	28~20
	060-11	6.0				4.6	1.6	0.8			●	●	●	M8 and over	P0.75 ~P1.50	5/16-18UNC, 5/16-24UNF and over	24~18

For applicable Toolholder, See Page F32~F33.

PST-S (Tip-Bars)

This insert will be switched to EZT J28





• Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)									Insert Grades			Applicable Thread			
												Cermet	PVD Coated Carbide	Carbide	Metric		Unified	
		φA	φD	H	L1	L2	L3	F	S	d	rε	TC60M	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
PSTR	0604-60S	4.5	3.8	3.6	60	15	8	1.7	1.6	0.8	+0.01 -0.02 0.05			○	M6 and over	P0.75 ~P1.25	1/4-20UNC, 1/4-28UNF and over	28~20
	0805-70S	6.0	4.8	4.4	70	20		2.2	2.1	1.0				○	M8 and over	P0.75 ~P1.50	5/16-18UNC, 5/16-24UNF and over	24~18

For Applicable Sleeves, See Page F86.

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
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

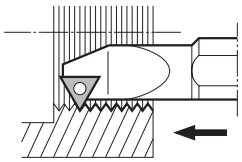
<Note> 1) The standard cutting speed is Vc=30~50m/min. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
2) Coolant is recommended.

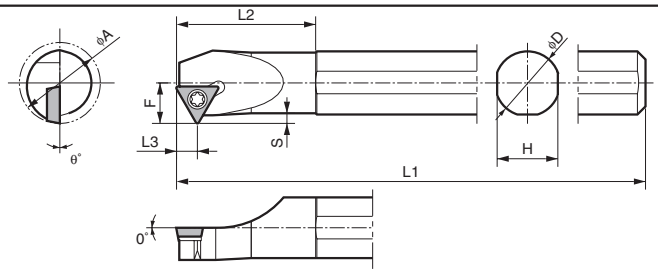
System Tip-Bars are sold in 5 piece boxes.

Tip-Bars are sold in 1 piece boxes.

● : Std. Item
○ : Check Availability

S-STWP

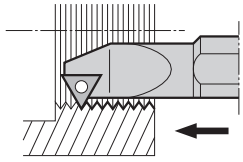


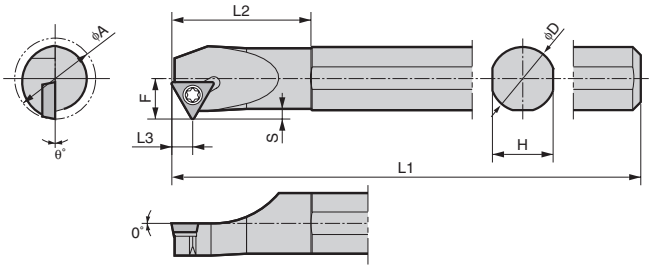


• Right-hand shown

This Tool can also be used as a boring bar.

S-STWP-E Excellent Bar





• Right-hand shown

This Tool can also be used as a boring bar.

Toolholder Dimensions

Description	Std. R	Std. L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	L2	L3	F	S	Available Pitch(mm)	Spare Parts: Clamp Screw	Spare Parts: Wrench
S10M -STWPR11-12	●		12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWPR11-16	●		16	12	11	150	30		8	1.5	2.0 and under		
S16Q -STWPR11-20	●		20	16	15	180	35		10	2.0	3.0 and under	SB-3TR	
S20R -STWPR11-25	●		25	20	19	200	40		12.5	2.5	3.5 and under		
S10M -STWP R/L11-12E	●	●	12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWP R/L11-16E	●	●	16	12	11	150	30		8	1.5	2.0 and under		
S16R -STWP R/L11-20E	●	●	20	16	15	200	35		10	2.0	3.0 and under	SB-3TR	
S20X -STWP R/L11-25E	●	●	25	20	19	220	40		12.5	2.5	3.5 and under		

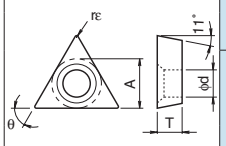
· Dimension S: shows the Max. available ap.

Applicable Inserts

(mm)

Description	A	T	φ d
TPGB1102···	6.35	2.38	3.5
TPGB1103···	6.35	3.18	3.3

					Classification of usage
P	Carbon Steel / Alloy Steel		●		● : 1st Choice
M	Stainless Steel				○ : 2nd Choice
K	Cast Iron			●	
N	Non-ferrous Metals			●	

Insert			Description		Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε			Angle θ	Cermet TN6020	Cermet TN60	PVD PV7020	Carbide KW10	Applicable Toolholders	See Page for Depth of Cut & Number of Passes
Partial Profile			**TPGB**	**1102005**	M UN	0.75~1.5 -	- 28~16	0.05			60°		●		●	···STWP R/L11-12(E)	J45
				110201	M UN	1.5 -	- 16	0.10					●		●		
			TPGB	**1103005**	M UN	0.75~3.5 -	- 28~11	0.05					●		●	···STWP R/L11-16(E) ···STWP R/L11-20(E) ···STWP R/L11-25(E)	
				110301	M UN	1.5~3.5 -	- 16~8	0.10					●		●		
				110302	M UN	3.0~3.5 -	- 8	0.20				●	●	●	●		

Applicable Thread		
	M: Metric	Rc (PT) (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	

Recommended Cutting Conditions J36

●: Std. Item

Inserts are sold in 10 piece boxes

Recommended Cutting Conditions

KTN / KTNS / SIN / CIN / S-KTN

Workpiece Material	Recommended Insert Grades (Cutting Speed 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)	0.3mm and under	0.3mm and under			0.3mm and under	
Alloy Steel	☆ 100~150	★ 100~150	-	-	☆ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under			0.3mm and under	
Stainless Steel	☆ 60~80	-	★ 60~100	☆ 40~80	☆ 60~80	-
First ap (Radial)	0.25mm and under		0.25mm and under	0.25mm and under	0.25mm and under	
Cast Iron	-	-	-	-	-	★ 100
First ap (Radial)						0.3mm and under
Aluminum Alloys	-	-	-	-	-	★ 150~400
First ap (Radial)						0.3mm and under
Brass	-	-	-	-	-	★ 150~300
First ap (Radial)						0.3mm and under

•For 06IR / 08IR, please lower it to a figure under 40% of above condition list

KTT

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			
	Cermet	PVD Coated Carbide		Carbide
	TC60M	**PR930**	**PR1115**	**KW10**
Carbon Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	0.3mm and under	
Alloy Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	0.3mm and under	
Stainless Steel	☆ 60~80	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25mm and under	0.25mm and under	0.25mm and under	
Cast Iron	-	-	-	★ 100
First ap (Radial)				0.3mm and under
Aluminum Alloys	-	-	-	★ 150~400
First ap (Radial)				0.3mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.3mm and under

S-STWP (-E)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			
	Cermet		PVD Coated Cermet	Carbide
	TN6020	**TN60**	**PV7020**	**KW10**
Carbon Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.25mm and under	0.25mm and under	0.25mm and under	
Alloy Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.25mm and under	0.25mm and under	0.25mm and under	
Stainless Steel	-	-	-	-
First ap (Radial)				
Cast Iron	-	-	-	★ 100
First ap (Radial)				0.25mm and under
Aluminum Alloys	-	-	-	★ 150~400
First ap (Radial)				0.25mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.25mm and under

KTTX / S-KTTX

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			
	Cermet	PVD Coated Carbide		Carbide
	TC60M	**PR930**	**PR1115**	**KW10**
Carbon Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	0.3mm and under	
Alloy Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	0.3mm and under	
Stainless Steel	☆ 60~80	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25mm and under	0.25mm and under	0.25mm and under	
Cast Iron	-	-	-	★ 100
First ap (Radial)				0.3mm and under
Aluminum Alloys	-	-	-	★ 150~400
First ap (Radial)				0.3mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.3mm and under

KITG

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			
	Cermet	PVD Coated Carbide		Carbide
	TC60M	**PR930**	**PR1115**	**KW10**
Carbon Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	0.3mm and under	
Alloy Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	0.3mm and under	
Stainless Steel	☆ 60~80	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25mm and under	0.25mm and under	0.25mm and under	
Cast Iron	-	-	-	★ 100
First ap (Radial)				0.3mm and under
Aluminum Alloys	-	-	-	★ 150~400
First ap (Radial)				0.3mm and under
Brass	-	-	-	★ 150~300
First ap (Radial)				0.3mm and under

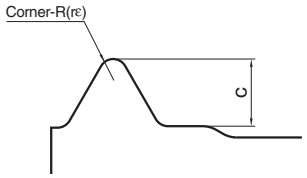
★ : 1st Recommendation ☆ : 2nd Recommendation

- 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>.

Depth of Cut & Number of Passes

◆Cautions for Usage of Full Profile Insert.

1) Max. ap is based on the value of 0.05~0.08mm
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 mm / TPI	Description	C (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
Metric	External Thread	1.00mm	16ER 100ISO-TF/TQ	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25mm	125ISO-TF/TQ	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50mm	150ISO-TF/TQ	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		1.75mm	175ISO-TF/TQ	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10	0.08	0.05											
		2.00mm	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									
		2.50mm	250ISO-TF/TQ	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05							
		3.00mm	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					
		0.50mm	16ER/L 050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04															
		0.75mm	075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04														
		1.00mm	100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25mm	125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50mm	150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		2.00mm	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									
		2.50mm	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							
		3.00mm	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					
		3.50mm	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				
		4.00mm	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	0.12	0.10	0.10	0.08	0.05	0.02		
		4.50mm	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	
		5.00mm	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	1.00mm	11IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO-TF/TQ	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		1.75mm	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										
		0.50mm	11IR/L 050ISO	0.31	0.36	4	0.14	0.10	0.08	0.04															
		0.75mm	075ISO	0.45	0.50	5	0.15	0.14	0.10	0.07	0.04														
		1.00mm	100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		1.75mm	175ISO	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05										
		2.00mm	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									
		1.00mm	16IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO-TF/TQ	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05											
		1.75mm	175ISO-TF/TQ	1.02	1.10	9	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05										
		2.00mm	200ISO-TF/TQ	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									
		2.50mm	250ISO-TF/TQ	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							
		3.00mm	300ISO-TF/TQ	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					
		1.00mm	16IR/L 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50mm	150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05											
		2.00mm	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									
		2.50mm	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							
		3.00mm	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					
		3.00mm	22IR 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					
		3.50mm	350ISO	2.05	2.13	15	0.26	0.24	0.22	0.20	0.17	0.17	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02				
		4.00mm	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	0.12	0.10	0.10	0.05	0.05	0.02		
		4.50mm	450ISO	2.63	2.71	18	0.26	0.25	0.24	0.22	0.22	0.20	0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02	
		5.00mm	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							
		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	0.12	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	16IR 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							
		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	16IR 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	16UN	0.94	1.02	7	0.24	0.20	0.18	0.14	0.11	0.10	0.05												
		14 TPI	14UN	1.07	1.15	8	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.05											
		12 TPI	12UN	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								
		8 TPI	22IR 08UN	1.84	1.92	15	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.10	0.10	0.09	0.05	0.05	0.02				

Depth of Cut & Number of Passes

11 / 16 (Full Profile) type

(ap shows the value of radial ap)

Type		Pitch / TPI (mm / TPI)	Description	C (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
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	0.10	0.08	0.05										
		11TPI	11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	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	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	0.12	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	0.12	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	0.12	0.10	0.10	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	0.05													
		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							
		14 TPI	16IR 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							
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				
		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	0.04	0.02			
	Internal Thread	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	0.04	0.02			

60˚ / 55˚ (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI (mm / TPI)	Description	Corner-R (rε)	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	External Thread	0.5mm	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														
		0.75mm	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													
		1.00mm	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												
		1.25mm	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											
		1.50mm	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										
			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										
		1.75mm	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											
			AG60-TF/TQ	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04								
		2.00mm	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								
		2.50mm	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						
		3.00mm	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				
		0.5mm	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														
		0.75mm	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													
		1.00mm	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												
		1.25mm	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											
		1.50mm	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										
			AG60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		1.75mm	16ER G60	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04											
			AG60	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04								
		2.00mm	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								
		2.50mm	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						
		3.00mm	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				

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (rε)	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	External Thread	3.50mm	22ER N60	0.48	2.17	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.05				
		4.00mm			2.55	17	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05		
		4.50mm			2.93	18	0.30	0.28	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05	
		5.00mm			3.31	19	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05
	Internal Thread	0.75mm	06IR 60005	0.05	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03									
		1.00mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03							
			08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.03	0.03							
		1.25mm	06IR 60005	0.05	0.76	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03					
			08IR 60007	0.07	0.74	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	0.03	0.03					
		1.5mm	08IR 60007	0.07	0.90	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03		
		1.75mm		0.07	1.07	19	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	0.04	0.03
		0.50mm	11IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		1.00mm			0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.50mm			0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		0.5mm	16IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
			AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		0.75mm	16IR A60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
			AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
		1.00mm	16IR A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
			AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.25mm	16IR A60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
			AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
		1.50mm	16IR A60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
			AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		1.75mm	16IR G60	0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04										
			AG60	0.02	1.12	10	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.06	0.05	0.04									
		2.00mm	16IR G60	0.11	1.19	10	0.20	0.18	0.17	0.15	0.13	0.11	0.08	0.07	0.06	0.04									
			AG60	0.02	1.28	12	0.20	0.17	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04							
		2.50mm	16IR G60	0.11	1.51	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
			AG60	0.02	1.60	16	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02			
		3.00mm	16IR G60	0.11	1.84	16	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.08	0.07	0.06	0.04	0.02			
			AG60	0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02	
		3.50mm	22IR N60	0.22	2.05	14	0.26	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.08	0.06	0.05					
		4.00mm			2.38	16	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05			
		4.50mm			2.70	18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05	
		5.00mm			3.03	19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05
Unified	External Thread	48 TPI	16ER A60-TF/TQ	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
			AG60-TF/TQ	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
		24 TPI	16ER A60-TF/TQ	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
			AG60-TF/TQ	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
		20 TPI	16ER A60-TF/TQ	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
			AG60-TF/TQ	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
		18 TPI	16ER A60-TF/TQ	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
			AG60-TF/TQ	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
		16 TPI	16ER A60-TF/TQ	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
			AG60-TF/TQ	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
		14 TPI	16ER G60-TF/TQ	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05										
			AG60-TF/TQ	0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		13 TPI	16ER G60-TF/TQ	0.22	1.26	9	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
			AG60-TF/TQ	0.06	1.43	11	0.25	0.23	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		12 TPI	16ER G60-TF/TQ	0.22	1.38	10	0.25	0.22	0.20	0.17	0.15	0.12	0.10	0.07	0.06	0.04									
			AG60-TF/TQ	0.06	1.55	12	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.09	0.07	0.06	0.04							
		10 TPI	16ER G60-TF/TQ	0.22	1.71	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.05							
			AG60-TF/TQ	0.06	1.87	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
		9 TPI	16ER G60-TF/TQ	0.22	1.92	13	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
			AG60-TF/TQ	0.06	2.08	14	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05					
		8 TPI	16ER G60-TF/TQ	0.22	2.19	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
			AG60-TF/TQ	0.06	2.35	16	0.30	0.25	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05			
		48 TPI	16ER A60	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
			AG60	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
		24 TPI	16ER A60	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
			AG60	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
		20 TPI	16ER A60	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
			AG60	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
		18 TPI	16ER A60	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
			AG60	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
		16 TPI	16ER A60	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
			AG60	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
		14 TPI	16ER G60	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05										
			AG60	0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		13 TPI	16ER G60	0.22	1.26	9	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
			AG60	0.06	1.43	11	0.25	0.23	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		12 TPI	16ER G60	0.22	1.38	10	0.25	0.22	0.20	0.17	0.15	0.12	0.10	0.07	0.06	0.04									
			AG60	0.06	1.55	12	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.09	0.07	0.06	0.04							
		10 TPI	16ER G60	0.22	1.71	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.05							
			AG60	0.06	1.87	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
		9 TPI	16ER G60	0.22	1.92	13	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
			AG60	0.06	2.08	14	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05					
		8 TPI	16ER G60	0.22	2.19	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
			AG60	0.06	2.35	16	0.30	0.25	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05			
		7 TPI	22ER N60	0.48	2.27	15	0.27	0.25	0.24	0.23	0.20	0.18	0.15	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05				
		6 TPI			2.73	18	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.08	0.06	0.05	
		5 TPI			3.37	19	0.30	0.29	0.28	0.27	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05

Depth of Cut & Number of Passes

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (rε)	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	06IR 60005	0.05	0.54	12	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03							
		24 TPI	06IR 60005	0.05	0.64	12	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03							
		20 TPI	06IR 60005	0.05	0.77	14	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					
			08IR 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	0.03	0.03					
		18 TPI	08IR 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		
		16 TPI	08IR 60007	0.07	0.96	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	
		48 TPI	11IR 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	16IR A60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04														
			AG60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04														
		24 TPI	16IR A60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
			AG60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
		20 TPI	16IR A60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
			AG60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
		18 TPI	16IR A60	0.02	0.90	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04										
			AG60	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	16IR 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									
			AG60	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	16IR G60	0.11	1.07	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.04										
			AG60	0.02	1.16	11	0.15	0.14	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.06	0.04								
		13 TPI	16IR G60	0.11	1.16	10	0.20	0.18	0.16	0.14	0.12	0.11	0.08	0.07	0.06	0.04									
			AG60	0.02	1.25	12	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04							
		12 TPI	16IR 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								
			AG60	0.02	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						
		10 TPI	16IR 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	0.02					
			AG60	0.02	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	0.05	0.04	0.04	0.02			
		9 TPI	16IR G60	0.11	1.72	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.07	0.06	0.04	0.02			
			AG60	0.02	1.81	17	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.10	0.08	0.07	0.06	0.05	0.03	0.02		
		8 TPI	16IR G60	0.11	1.95	17	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.03	0.02		
			AG60	0.02	2.04	19	0.20	0.19	0.18	0.17	0.15	0.14	0.14	0.13	0.13	0.11	0.10	0.09	0.07	0.06	0.05	0.04	0.04	0.03	0.02
		7 TPI	22IR 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	0.07	0.06	0.05					
		6 TPI	22IR N60		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		
		5 TPI	22IR N60		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	0.12	0.11	0.10	0.10	0.08	0.06	0.05
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												
			AG55-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											
			AG55-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	0.04										
			AG55-TF/TQ	0.06	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								
		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							
			AG55-TF/TQ	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	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												
			AG55	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											
			AG55	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	0.04										
			AG55	0.06	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								
		11 TPI	16ER G55	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							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
	Internal Thread	28 TPI	06IR 5501	0.10	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							
			08IR 5501																						
		19 TPI	08IR 5501	0.10	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	
		28 TPI	11IR A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI	11IR A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		28 TPI	16IR A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
			AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI	16IR A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
			AG55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		14 TPI	16IR G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55	0.06	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								
		11 TPI	16IR G55	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							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	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														
			AG55-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												
			AG55-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											
			AG55-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										
			AG55-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								
			AG55-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	0.04										
			AG55-TF/TQ	0.06	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								
		12 TPI	16ER G55-TF/TQ	0.22	1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.12	0.09	0.07	0.05									
			AG55-TF/TQ	0.06	1.64	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.06	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							
			AG55-TF/TQ	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	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	0.09	0.07	0.05							
			AG55-TF/TQ	0.06	1.98	14	0.25	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					
		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	0.12	0.11	0.10	0.08	0.07	0.05					
			AG55-TF/TQ	0.06	2.20	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	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	0.19	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05				
			AG55-TF/TQ	0.06	2.49	16	0.30	0.28	0.26	0.24	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.06	0.05			

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (rε)	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	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
			AG55	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
		24 TPI	16ER A55	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
			AG55	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI	16ER A55	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
			AG55	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	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
			AG55	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	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								
			AG55	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	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55	0.06	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								
		12 TPI	16ER G55	0.22	1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.12	0.09	0.07	0.05									
			AG55	0.06	1.64	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.05							
		11 TPI	16ER G55	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							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
		10 TPI	16ER G55	0.22	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.09	0.07	0.05							
			AG55	0.06	1.98	14	0.25	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					
		9 TPI	16ER G55	0.22	2.01	14	0.24	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05					
			AG55	0.06	2.20	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
		8 TPI	16ER G55	0.22	2.29	15	0.28	0.26	0.24	0.22	0.19	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05				
			AG55	0.06	2.49	16	0.30	0.28	0.26	0.24	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.06	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	0.10	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	0.07
							0.05	0.04																	
	Internal Thread	28 TPI	06IR 5501 08IR 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	08IR 5501	0.10	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				
		24 TPI	11IR 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	16IR A55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
			AG55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI	16IR A55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
			AG55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI	16IR A55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
			AG55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16 TPI	16IR A55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
			AG55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		14 TPI	16IR G55	0.22	1.06	8	0.21	0.19	0.17	0.15	0.12	0.10	0.07	0.05											
			AG55	0.06	1.27	11	0.20	0.18	0.17	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		12 TPI	16IR G55	0.22	1.28	9	0.22	0.20	0.19	0.17	0.15	0.13	0.10	0.08	0.04										
			AG55	0.06	1.48	11	0.24	0.22	0.20	0.18	0.16	0.13	0.11	0.09	0.06	0.05	0.04								
		11 TPI	16IR G55	0.22	1.42	10	0.24	0.22	0.20	0.18	0.15	0.12	0.10	0.09	0.07	0.05									
			AG55	0.06	1.62	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05							
		10 TPI	16IR G55	0.22	1.59	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
		9 TPI	16IR G55	0.22	1.79	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.10	0.07	0.05							
			AG55	0.06	1.99	14	0.25	0.23	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05					
		8 TPI	16IR G55	0.22	2.05	14	0.24	0.23	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05					
			AG55	0.06	2.25	15	0.28	0.26	0.24	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
		7 TPI	22IR 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	0.10	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	0.12	0.11	0.10	0.10	0.08	0.06	0.05
30° Trapezoidal	External Thread	2.0mm	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									
		3.0mm	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	0.10	0.07	0.05	0.03					
		4.0mm	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				
		5.0mm	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	2.0mm	16IR 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.0mm	16IR 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
		4.0mm	22IR 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				
		5.0mm	22IR 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(rε) Selection for Partial Profiling Insert

	External Threading	Internal Threading
Metric Unified	rε≤0.1443P	rε≤0.0720P
Parallel Pipe (Whitworth) Tapered Pipe	(For Both External and Internal Thread) rε≤0.1373P	

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

- Metric, Unified Thread

Corner-R(rε) at Internal Threading is almost half of that of External

- Parallel Pipe, Tapered Pipe, Whitworth Thread

Same Corner-R(rε) for both External and Internal Threading

Depth of Cut & Number of Passes

11 / 16 (60° / 55° Type, Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI (mm / TPI)	Description	Corner-R (rε)	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	1.00mm	16ER 6001	0.10	0.66	5	0.21	0.19	0.12	0.09	0.05														
		1.25mm	16ER 6001	0.10	0.85	6	0.25	0.21	0.15	0.12	0.07	0.05													
		1.50mm	16ER 6001	0.10	1.04	8	0.23	0.21	0.19	0.15	0.11	0.06	0.05	0.04											
			16ER 6002	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04												
		1.75mm	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										
			16ER 6002	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04											
		2.00mm	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								
			16ER 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									
		2.50mm	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						
			16ER 6002	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.16	0.12	0.12	0.10	0.08	0.06	0.04							
	Internal Thread	0.75mm	11IR 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02														
		1.00mm	11IR 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04													
		1.25mm	11IR 60005	0.05	0.76	7	0.18	0.15	0.12	0.10	0.10	0.07	0.04												
		1.50mm	11IR 60005	0.05	0.92	9	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.06	0.04										
			16IR 6001	0.10	0.87	8	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05											
		1.75mm	16IR 6001	0.10	1.04	9	0.20	0.18	0.15	0.12	0.12	0.10	0.08	0.05	0.04										
		2.00mm	16IR 6001	0.10	1.20	11	0.20	0.18	0.15	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04								
		2.50mm	16IR 6001	0.10	1.52	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.06	0.04	0.02					
			60015	0.15	1.47	13	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.04	0.02						
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									
			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								
			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									
			5502	0.20	1.22	9	0.20	0.18	0.18	0.16	0.15	0.12	0.10	0.08	0.05										
		11 TPI	16IR 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	0.11	0.07	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										
			5502	0.20	1.04	8	0.24	0.20	0.16	0.14	0.10	0.08	0.07	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									
			5502	0.20	1.22	9	0.24	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		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	0.07	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						
		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					
	Internal Thread	24 TPI	11IR 55005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.05	0.03												
			16IR 5501	0.10	0.65	6	0.18	0.15	0.12	0.10	0.07	0.03													
		20 TPI	11IR 55005	0.05	0.87	8	0.18	0.16	0.14	0.12	0.10	0.06	0.06	0.05											
			16IR 5501	0.10	0.81	7	0.18	0.16	0.14	0.12	0.10	0.06	0.05												
		18 TPI	11IR 55005	0.05	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
			16IR 5501	0.10	0.91	7	0.20	0.18	0.16	0.14	0.10	0.08	0.05												
		16 TPI	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										
			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												
		14 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										
			5502	0.20	1.08	8	0.20	0.18	0.18	0.16	0.13	0.10	0.08	0.05											
		12 TPI	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									
			5502	0.20	1.30	9	0.25	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05										
		11 TPI	16IR 5501	0.10	1.56	11	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.08	0.05								
			5502	0.20	1.44	10	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05									

<Note> 1) Select the insert with suitable corner-R(rε) 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.

TT (60° / 55° Type, Partial Profile) Part 1

(ap shows the value of radial ap)

Type		Pitch / TPI (mm / TPI)	Description	Corner-R (rε)	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	0.50mm	TT32R/L 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
		0.70mm	TT32R/L 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
		0.75mm	TT32R/L 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
		0.80mm	TT32R/L 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02									
		1.00mm	TT32R/L 6000	0.00	0.76	8	0.15	0.12	0.12	0.11	0.10	0.08	0.06	0.02									
			TT32/43R/L 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02											
		1.25mm	TT32R/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								
			TT32/43R/L 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02										
		1.50mm	TT32R/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							
			TT32/43R/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								
			6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02									
		1.75mm	TT32R/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						
			TT32/43R/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							
			6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02								
		2.00mm	TT32R/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					
			TT32/43R/L 6001	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						
			6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.08	0.05	0.02							
		2.50mm	TT32R/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				
			TT32/43R/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						
		3.00mm	TT43R/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					
		3.50mm	TT43R/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	0.50mm	TT32R/L 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02												
		0.70mm	TT32R/L 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02											
		0.75mm	TT32R/L 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02											
		0.80mm	TT32R/L 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02											
		1.00mm	TT32R/L 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02										
		1.25mm	TT32R/L 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02									
		1.50mm	TT32R/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								
			TT32/43R/L 6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		1.75mm	TT32R/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							
			TT32/43R/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								
		2.00mm	TT32R/L 6000	0.00	1.30	12	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.10	0.08	0.05	0.03	0.02					
			TT32/43R/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						
		2.50mm	TT32R/L 6000	0.00	1.62	14	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.03	0.02			
			TT32/43R/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				
		3.00mm	TT43R/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	0.10	0.08	0.07	0.05	0.05	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	28 TPI	TT32R/L 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02												
		19 TPI	TT32/43R/L 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02									
		14 TPI	TT32/43R/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								
		11 TPI	TT32/43R/L 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					
			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						
	Internal Thread	28 TPI	TT32/43R/L 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.06	0.02											
		19 TPI	TT32/43R/L 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05										
		14 TPI	TT32/43R/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								
		11 TPI	TT32/43R/L 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					
			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						
Whitworth (55°)	External Thread	24 TPI	TT32/43R/L 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
		20 TPI	TT32/43R/L 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		18 TPI	TT32/43R/L 5501	0.10	1.01	8	0.20	0.18	0.18	0.16	0.12	0.10	0.05	0.02									
		16 TPI	TT32/43R/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									
		14 TPI	TT32/43R/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								
		12 TPI	TT32/43R/L 5501	0.10	1.58	12	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.08	0.06	0.02					
			5502	0.20	1.46	11	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.02						
		11 TPI	TT32/43R/L 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					
			TT43R/L 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						
		10 TPI	TT32/43R/L 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				
			TT43R/L 5503	0.30	1.68	12	0.25	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.05	0.02					
		9 TPI	TT43R/L 5501	0.10	2.14	14	0.25	0.23	0.23	0.20	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02			
			5502	0.20	2.03	13	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.02				
			5503	0.30	1.91	12	0.30	0.25	0.23	0.23	0.20	0.18	0.15	0.12	0.10	0.08	0.05	0.02					
		8 TPI	TT43R/L 5501	0.10	2.43	15	0.27	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.05	0.02		
			5502	0.20	2.31	14	0.27	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.05	0.02			
			5503	0.30	2.19	13	0.30	0.27	0.25	0.23	0.20	0.18	0.18	0.15	0.14	0.12	0.10	0.05	0.02				
			5504	0.40	2.08	12	0.30	0.27	0.25	0.23	0.23	0.20	0.18	0.15	0.12	0.08	0.05	0.02					

Depth of Cut & Number of Passes

TT (60°/ 55° Type, Partial Profile) Part 2

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (rε)	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	TT32/43R/L 5501	0.10	0.65	6	0.20	0.16	0.12	0.10	0.05	0.02											
		20TPI	TT32/43R/L 5501	0.10	0.81	7	0.20	0.18	0.16	0.12	0.08	0.05	0.02										
		18TPI	TT32/43R/L 5501	0.10	0.91	8	0.20	0.18	0.16	0.15	0.10	0.05	0.05	0.02									
		16TPI	TT32/43R/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	TT32/43R/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	TT32/43R/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	TT32/43R/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							
			TT43R/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	TT32/43R/L 5501	0.10	1.73	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	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						
			TT43R/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	TT43R/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	TT43R/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°Type, Full Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	C (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	1.00mm	TT43ER/L 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05												
		1.25mm	125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05											
		1.50mm	150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05											
		2.00mm	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° Type, Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (rε)	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	0.50mm	TTX32R 6000 6000S	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
			60005 60005S	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02												
		0.70mm	TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
			60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02											
		0.75mm	TTX32R 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
			60005	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02										
		0.80mm	TTX32R 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02									
			60005	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02										
		1.00mm	TTX32R 6000	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.04	0.02									
			60005	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											
		1.25mm	TTX32R 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02										
		1.50mm		0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
		1.75mm		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							
		2.00mm		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						
Parallel Pipe / Tapered Pipe (55°)	External Thread	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									
			55015	0.15	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		14TPI	TTX32R 55015	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	0.14	0.12	0.10	0.08	0.06	0.02					
Whitworth (55°)	External Thread	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										
			TTX32R 55015	0.15	0.84	7	0.20	0.18	0.16	0.12	0.10	0.06	0.02										
		18TPI	TTX32R 55015	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	0.12	0.10	0.06	0.02								
		14TPI		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(rε) 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 Type

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

Thread Types / Insert Description	Metric (mm)	Unified (TPI)	Parallel Pipe (TPI)	Whitworth (TPI)
TTX32R 6000	0.5~1.0	56~32	-	-
60005	0.5~1.0	48~32	-	-
6001	1.0~2.0	28~14	-	-
TTX32R 6000S	0.5	56~48	-	-
60005S	0.5	48	-	-
TTX32R 5501	-	-	28~19	24~20
55015	-	-	19~11	20~14

TPGB (60° Type, Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (rε)	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	0.75mm	TPGB1102005 1103005	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02												
		0.80mm	TPGB1102005 1103005	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02												
		1.00mm	TPGB1102005 1103005	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02											
		1.25mm	TPGB1102005 1103005	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02										
		1.50mm	TPGB1102005 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									
		1.75mm	TPGB1102005 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								
		2.00mm	TPGB1102005 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						
		2.50mm	TPGB1102005 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				
		3.00mm	TPGB1102005 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			
		3.50mm	TPGB1102005 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 the 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(rε), 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”

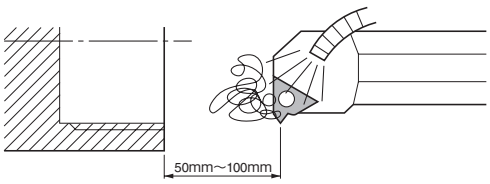
If machining process is continued when chips are tangled with
a toolholder and other parts of the machine, it may cause damages to the insert.
Therefore, please ensure that there are no tangled chips in the machine
by the following method.

<When processing the first workpiece>

Set the program with the “single block”
Keep the threading starting point 50mm~100mm 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.



Applicable Toolholders & Inserts

In Applicable Toolholder / Insert Lists on **J46~J49** 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 **J52**.

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		
G1/16 (-)	28	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	16ERA55-TF/TQ 16ERAG55-TF/TQ 16ERA55 16ERAG55	-	**SINR0612S-06E** (EZT➡**J28**) (HPT➡**J32**)	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➡**J28**) (HPT➡**J32**)	08IR5501	-	11.45	0.18
G 3/8 (PF 3/8)					**SINR1216S-11E** (EZT➡**J28**) (HPT➡**J32**)	11IRA55 11IR55005	-	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**	11IR55005	-	18.63	0.25
					SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W		
G 5/8 (PF 5/8)					**SINR2016S-16**			20.59	
G 3/4 (PF 3/4)								24.12	
G 7/8 (PF 7/8)					**SINR2420S-16**			27.88	
G 1 (PF 1)	11	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W	**SINR2420S-16**	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF/TQ 16IR11W	30.29	0.32
G 1 1/8 (PF 1 1/8)					**CINR3025S-16**			34.94	
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 Symbol (Previous Symbol)	TPI	External Thread (G)			Internal Thread (Rc)			Same Root's Radius
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
R1/16, Rc1/16 (-)	28	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER28BSPT-TF/TQ 16ER28BSPT	**SINR0612S-06E** (EZT➡**J28**) (HPT➡**J32**)	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➡**J28**) (HPT➡**J32**)	08IR5501	-	0.18
R 3/8, Rc 3/8 (PT 3/8)					**SINR1216S-11E** (EZT➡**J28**) (HPT➡**J32**)	(11IRA55) (11IR55005)	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**	(11IR55005)	11IR14BSPT-TF/TQ 11IR14BSPT	0.25
					SINR1616S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR14BSPT-TF/TQ 16IR14BSPT	
R 3/4, Rc 3/4 (PT 3/4)					**SINR2016S-16**			
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	0.32
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.: ϕ24mm) 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	
1/16 NPT 1/8 NPT	27	**KTTR○○○○□-16** **KTTXR○○○○□-16F**	TT32R6000 TTX32R6000	-	No Tools Available			
1/4 NPT 3/8 NPT	18	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	-	16ER18NPT	**EZH**sleeve (See Page **J29**)	**EZTR060050-60-004** **EZTR070060-60-004** **HPTR06005-60-005** **HPTR07507-60-005**	-	
1/2 NPT 3/4 NPT	14	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	-	16ER14NPT	**EZH**sleeve (See Page **J29**)	**EZTR070060-60-004** **HPTR07507-60-005**	-	
1/2 NPT	14	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	-	16ER14NPT	**SINR1616S-16**	-	16IR14NPT	
3/4 NPT					**SINR2016S-16**			
1 NPT	11.5	**KTNR○○○○□-16** **KTNSR○○○○□-16** **S○○□-KTNL16**	-	16ER11.5NPT	**SINR2420S-16**	-	16IR11.5NPT	
1 1/4 NPT					**CINR3025S-16**			
1 1/2 NPT 2 NPT					**CINR3732S-16**			

・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 TNN Insert are shown.

Nominal Thread	Pitch (mm)	External Thread			Internal Thread			Bore Dia.
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
Tr 16X2	2	No Tools Available			No Tools Available	-	-	14.00
Tr 18X2 Tr 20X2		**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	3				**SINR2420S-16**	16IR300TR	-	25.00 27.00 29.00
Tr 34X3 Tr 36X3 Tr 38X3 Tr 40X3	3				**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.

Metric Coarse Thread: M

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
M1 • • • M3	0.25 0.5	No Tools Available	-	-	0.73 • • • 2.46
M4	0.7		EZTR030025-60-002		3.24
M5	0.8		EZTR040035-60-004		4.13
M6	1.0	-	HPTR04504-60 / VNTR045-11		4.92
M7	1.0		EZTR050040-60-004	-	5.92
			HPTR04504-60 / VNTR045-11		
M8	1.25	-	EZTR060050-60-004	-	6.65
			HPTR06005-60 / 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 1

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
M1 × 0.2 • • • M3 × 0.35	0.2 0.35	No Tools Available	-	-	0.78 • • • 2.62
M3.5 × 0.35	0.35	-	EZTR030025-60-002		3.12
M4.5 × 0.5	0.5	-	EZTR035030-60-002		3.96
M5 × 0.5	0.5	-			4.46
M6 × 0.75	0.75	-	HPTR04504-60 / VNTR045-11		5.19
M7 × 0.75	0.75	-	EZTR050040-60-004	-	6.20
			HPTR06005-60 / VNTR060-11		
M8 × 1.0	1.0	-	EZTR060050-60-004	-	6.92
			HPTR06005-60 / VNTR060-11		
		SINR0612S-06E	06IR60005	-	
M8 × 0.75	0.75	-	EZTR060050-60-004	-	7.19
			HPTR06005-60 / VNTR060-11		
		SINR0612S-06E	06IR60005	-	
M9 × 1.0	1.0	-	EZTR070060-60-004	-	7.92
			HPTR07507-60 / VNTR060-11		
		SINR0612S-06E	06IR60005	-	
		SINR0816S-08E	08IR60007		
M9 × 0.75	0.75	-	EZTR070060-60-004	-	8.19
			HPTR07507-60 / VNTR060-11		
		SINR0612S-06E	06IR60005	-	
M10 × 1.25	1.25	-	HPTR07507-60 / VNTR060-11		8.65
		SINR0816S-08E	08IR60007	-	
M10 × 1.0	1.0	-	HPTR07507-60 / VNTR060-11		8.92
		SINR0816S-08E	08IR60007	-	
M10 × 0.75	0.75	-	HPTR07507-60 / VNTR060-11		9.19
		SINR0612S-06E	06IR600005	-	
M11 × 1.0	1.0	-	HPTR07507-60 / VNTR060-11		9.92
		SINR0816S-08E	08IR60007	-	
M11 × 0.75	0.75	-	HPTR07507-60 / VNTR060-11		10.19
		SINR0612S-06E	06IR60005	-	
M12 × 1.5	1.5	SINR0816S-08E	08IR60007	-	10.38
M12 × 1.25	1.25				10.65
M12 × 1.0	1.0				10.92

Metric Fine Thread: M

Part 2

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
M14×1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	12.38
M14×1.25	1.25			11IR125ISO-□□	12.65
M14×1.0	1.0			11IR100ISO-□□	12.92
M15×1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	13.38
M15×1.0	1.0			11IR100ISO-□□	13.92
M16×1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	14.38
M16×1.0	1.0			11IR100ISO-□□	14.92
M17×1.5	1.5	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-□□	15.38
M17×1.0	1.0			11IR100ISO-□□	15.92
M18×2.0	2.0	SINR1516S-11	-	11IR200ISO	15.84
M18×1.5	1.5	SINR1616S-16	Table 2	16IR150ISO-□□	16.38
M18×1.0	1.0		Table 3	16IR100ISO-□□	16.92
M20×2.0	2.0	SINR1616S-16	Table 1	16IR200ISO-□□	17.84
M20×1.5	1.5		Table 2	16IR150ISO-□□	18.38
M20×1.0	1.0		Table 3	16IR100ISO-□□	18.92
M22×2.0	2.0	SINR1616S-16	Table 1	16IR200ISO-□□	19.84
M22×1.5	1.5	SINR2016S-16	Table 2	16IR150ISO-□□	20.38
M22×1.0	1.0		Table 3	16IR100ISO-□□	20.92
M24×2.0	2.0	SINR2016S-16	Table 1	16IR200ISO-□□	21.84
M24×1.5	1.5		Table 2	16IR150ISO-□□	22.38
M24×1.0	1.0		Table 3	16IR100ISO-□□	22.92
M25×2.0	2.0	SINR2016S-16	Table 1	16IR200ISO-□□	22.84
M25×1.5	1.5		Table 2	16IR150ISO-□□	23.38
M25×1.0	1.0		Table 3	16IR100ISO-□□	23.92
M26×1.5	1.5	SINR2420S-16	Table 2	16IR150ISO-□□	24.38
M27×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	24.84
M27×1.5	1.5		Table 2	16IR150ISO-□□	25.38
M27×1.0	1.0		Table 3	16IR100ISO-□□	25.92
M28×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	25.84
M28×1.5	1.5		Table 2	16IR150ISO-□□	26.38
M28×1.0	1.0		Table 3	16IR100ISO-□□	26.92
M30×3.0	3.0	SINR2420S-22	-	22IR300ISO	26.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M30×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	27.84
M30×1.5	1.5		Table 2	16IR150ISO-□□	28.38
M30×1.0	1.0		Table 3	16IR100ISO-□□	28.92
M32×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	29.84
M32×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	30.38
M33×3.0	3.0	SINR2420S-22	-	22IR300ISO	29.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M33×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	30.84
M33×1.5	1.5		Table 2	16IR150ISO-□□	31.38
M35×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	33.38
M36×3.0	3.0	CINR3025S-22	-	22IR300ISO	32.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M36×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	33.84
M36×1.5	1.5		Table 2	16IR150ISO-□□	34.38
M38×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	36.38
M39×3.0	3.0	CINR3025S-22	-	22IR300ISO	35.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M39×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	36.84
M39×1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	37.38
M40×3.0	3.0	CINR3025S-22	-	22IR300ISO	36.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M40×2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	37.84
M40×1.5	1.5		Table 2	16IR150ISO-□□	38.38
M42×4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67
M42×3.0	3.0		-	22IR300ISO	38.75
		CINR3732S-16	Table 4	16IR300ISO-□□	
M42×2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	39.84
M42×1.5	1.5		Table 2	16IR150ISO-□□	40.38
M45×4.0 • • •	4.0	* Threading of M45 and over can be machined by the same tool for M42. (P=4.0, 3.0, 2.0, 1.5)			40.67 • • •

Table 1 (P=2.0mm)

16IRG60
16IRAG60
16IR6001

Table 2 (P=1.5mm)

16IRA60
16IRAG60
16IR6001

Table 3 (P=1.0mm)

16IRA60
16IRAG60

Table 4 (P=3.0mm)

16IRG60
16IRAG60

Table 5 (P=2.5mm)

16IRG60
16IRAG60
16IR6001
16IR60015

• Above shows the usage example of applicable Toolholder / Insert.

Unified Coarse Thread: UNC

Nominal Thread	TPI	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
2-56 UNC • • • 6-32 UNC	56 32	No Tools Available	-	-	1.69 • • • 2.65
8-32 UNC	32	-	EZTR030025-60-002	-	3.31
10-24 UNC	24	-	EZTR035030-60-002	-	3.68
12-24 UNC	24	-	EZTR040035-60-004	-	4.34
1/4-20 UNC	20	-	EZTR050040-60-004	-	4.98
		-	HPTR04504-60 / VNTR045-11		
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41
		-	HPTR06005-60 / VNTR060-11		
3/8-16 UNC	16	-	EZTR070060-60-004	-	7.81
		-	HPTR07507-60-005	-	
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	SINR1616S-16	16IRAG60 16IRG60	16IR10UN-□□	16.30
7/8- 9 UNC	9			-	19.17
1- 8 UNC	8	SINR2016S-16		16IR08UN-□□	21.96
1 1/8- 7 UNC 1 1/4- 7 UNC	7	SINR2420S-22	22IRN60	-	24.65 27.82
1 3/8- 6 UNC 1 1/2- 6 UNC	6	CINR3025S-22			30.34 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 Fine Thread: UNF

Nominal Thread	TPI	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
0-80 UNF • • • 6-40 UNF	80 40	No Tools Available	-	-	1.18 • • • 2.82
8-36 UNF	36	-	EZTR030025-60-002	-	3.40
10-32 UNF	32	-	EZTR035030-60-002	-	3.97
12-28 UNF	28	-	EZTR040035-60-004	-	4.50
1/4-28 UNF	28	-	EZTR050040-60-004	-	5.37
		-	HPTR04504-60 / VNTR045-11		
5/16-24 UNF	24	-	EZTR060050-60-004	-	6.79
		-	HPTR06005-60 / VNTR060-11		
		SINR0612S-06E	06IR60005	-	
3/8-24 UNF	24	-	EZTR070060-60-004	-	8.38
		-	HPTR07507-60-005	-	
		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	16IRAG60 16IRG60 16IR6001	16IR16UN(-□□)	
7/8-14 UNF	14	SINR2016S-16		16IR14UN(-□□)	20.26
1-12 UNF	12	SINR2016S-16		16IR12UN(-□□)	23.10
1 1/8-12 UNF 1 1/4-12 UNF	12	SINR2420S-16			26.28 29.46
1 3/8-12 UNF 1 1/2-12 UNF	12	CINR3025S-16			32.63 36.81

Whitworth Coarse Thread: W

Nominal Thread	TPI	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
W 1/4 W 5/16	20 18	No Tools Available	-	-	4.91 6.34
W 3/8	16	No Tools Available			7.73
W 7/16	14				9.06
W 1/2 W 9/16	12				10.30 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 W 1 1/4	7	SINR2420S-22	22IRN55	-	24.47 27.64
W 1 3/8 W 1 1/2	6	CINR3025S-22	22IRN55	-	30.13 33.30
W 1 5/8	5				35.52
W 1 3/4	5	CINR3732S-22	22IRN55	-	38.69
W 1 7/8 W 2	4 1/2	No Tools Available			41.23 44.41
W 2 1/4	4				49.96

Whitworth Fine Thread: W

Nominal Thread	TPI	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
W9.5 TPI24 W10 TPI24 W10.5 TPI24	24	SINR0816S-08E	08IR5501	-	8.30
		-	EZTR060050-55-008 HPTR06005-55		8.80 9.30
W9.5 TPI20 W10 TPI20 W10.5 TPI20 W11 TPI20 W11.5 TPI20 W12 TPI20 W12.5 TPI20 W13 TPI20	20	SINR0816S-08E	08IR5501	-	8.06 8.56 9.06 9.56 10.06 10.56 11.06 11.56
		-	EZTR060050-55-008 EZTR080070-55-008 HPTR06005-55 HPTR08007-55		
W13.5 TPI20	20	SINR1216S-11E	11IRA55 11IR55005	-	12.06
W11 TPI18 W11.5 TPI18 W12 TPI18 W12.5 TPI18	18	No Tools Available			9.40 9.90 10.40 10.90
W14 TPI18 W14.5 TPI18 W15 TPI18 W16 TPI18	18	SINR1216S-11E	11IRA55 11IR55005	-	12.40 12.90 13.40 14.40
W13 TPI16 W13.5 TPI16	16	No Tools Available			11.20 11.70
W14 TPI16 W14.5 TPI16 W15 TPI16	16	SINR1216S-11E	11IRA55 11IR55005	-	12.20 12.70 13.20
W17 TPI16	16	SINR1516S-11			15.20
W18 TPI16 W19 TPI16 W20 TPI16	16	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR16W-□□)	16.20 17.20 18.20
W16 TPI14 W17 TPI14	14	SINR1216S-11E	11IRA55 11IR55005	-	13.94 14.94
W18 TPI14	14	SINR1516S-11			15.94
W21 TPI14 W22 TPI14	14	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR14W-□□) (16IR14W)	18.94 19.94
W23 TPI14 W24 TPI14 W25 TPI14 W26 TPI14	14	SINR2016S-16			20.94 21.94 22.94 23.94
W19 TPI12 W20 TPI12 W21 TPI12 W22 TPI12	12	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	-	16.60 17.60 18.60 19.60
W28 TPI12 W30 TPI12 W32 TPI12	12	SINR2420S-16		-	25.60 27.60 29.60
W34 TPI12 W35 TPI12 W36 TPI12 W38 TPI12	12	CINR3025S-16		-	31.60 32.60 33.60 35.60
W40 TPI12 W42 TPI12 W44 TPI12 W45 TPI12 W46 TPI12 W48 TPI12 W50 TPI12 • • •	12	CINR3732S-16		-	37.60 39.60 41.60 42.60 43.60 45.60 47.60 • • •
		* Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.			
W23 TPI10 W24 TPI10 W25 TPI10 W26 TPI10	10	SINR2016S-16	16IRAG55 16IRG55	-	20.12 21.12 22.12 23.12
W28 TPI 9 W30 TPI 9 W32 TPI 9	9	SINR2420S-16		-	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 • •

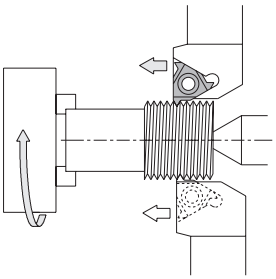
• Above shows the usage example of applicable Toolholder / Insert.

External Threading (Left-hand Thread / Right-hand Thread)

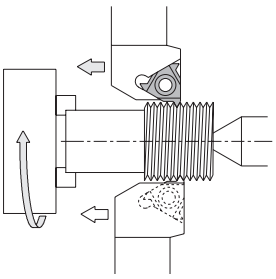
External Thread

Left-hand Thread

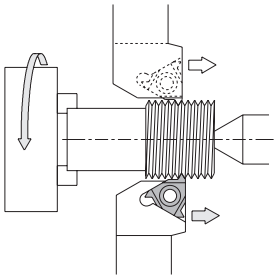
Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M04



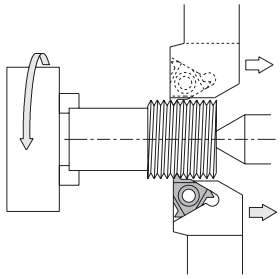
Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M04



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

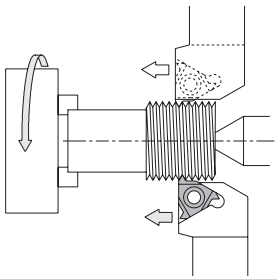


Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M03

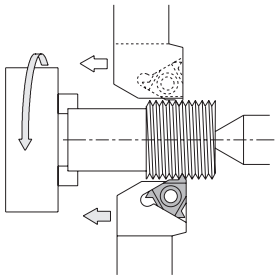


Right-hand Thread

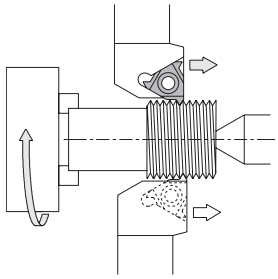
Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M03



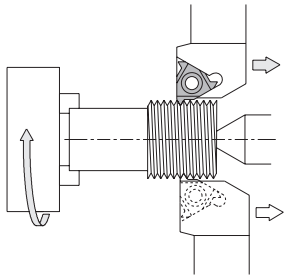
Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M03



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



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

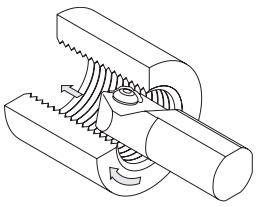


* These tables are based on KTN / KTNS / KTT / KTTX type Toolholder.

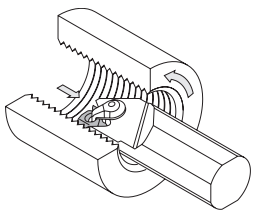
Internal Threading (Left-hand Thread / Right-hand Thread)

Internal Thread

Left-hand Thread

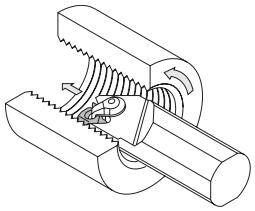


Toolholder	Left-hand
Insert	Left-hand
The direction of spindle revolution	M04

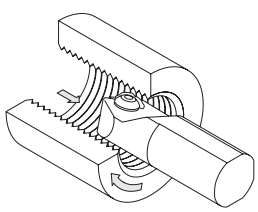


Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M03

Right-hand Thread



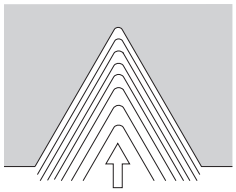
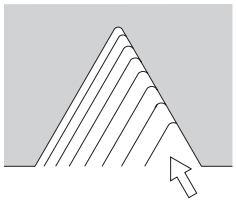
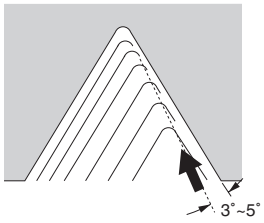
Toolholder	Right-hand
Insert	Right-hand
The direction of spindle revolution	M03



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

* These tables are based on SIN / CIN type Toolholder.
For KITG type (for large internal threading), Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Infeed Methods

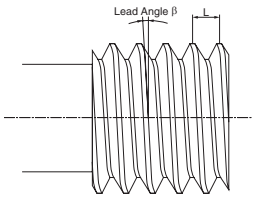
Infeed Methods	Features
 Radial Infeed	• The most common threading method. The cutting edge moves toward the center of the workpiece every pass. • Suitable for relatively small pitch size threading. • V-shape chips are generated and chip control may be difficult depending on workpiece material.
 Flank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

Lead Angle of Thread

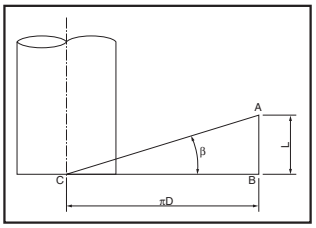
Thread's Lead Angle β as shown in Fig. 1 decides from the Workpiece Diameter "D"(Pitch Dia.) and the Lead "L" (in case of Single-start Thread, it is the same as Pitch "P"). By rolling a right-angled Triangle around a Cylinder and the Angle ACB in Fig. 2 becomes the Lead Angle β. The calculation formula is shown as follows.

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

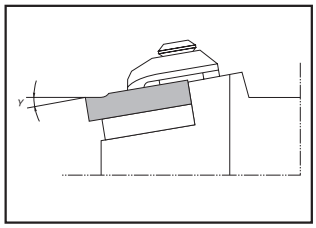
β : Lead Angle D : Pitch Dia. n : Number of Thread P : Pitch
L : Lead (In case of single-start thread, it is equal to P. In case of n-start thread, it is equal to n×P.)



(Fig.1)



(Fig.2)

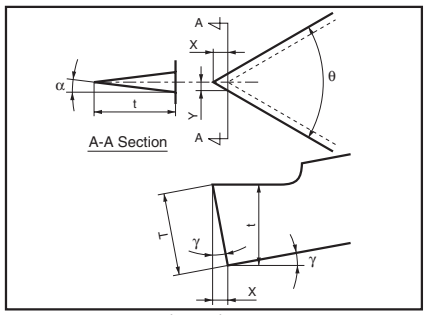


(Fig.3)

Relief Angle of Thread

Against this lead angle, the threading insert requires side relief angle α. TNN type threading insert is a negative insert and there is no relief angle. When installing the 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°
θ : Insert's Thread Angle	Metric : 60° Tapered Pipe : 55° 30° Trapezoidal : 30°
T : Insert Thickness	

X=T・sinγ
Y=X・tan (θ/2) =t・tanα
t =T・cosγ

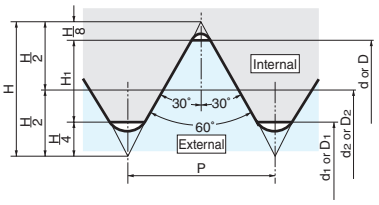
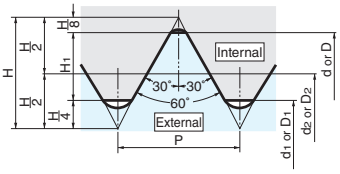
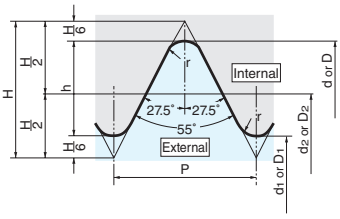
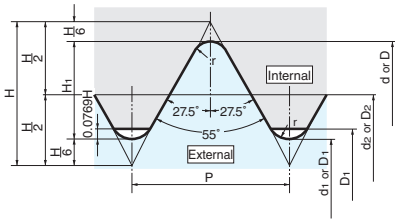
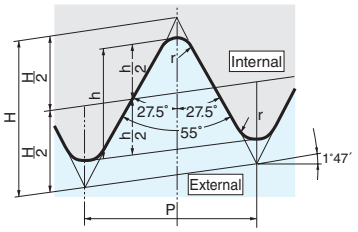
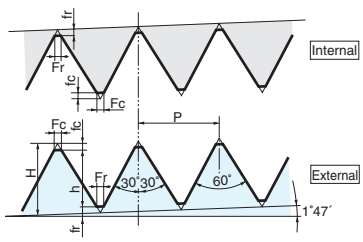
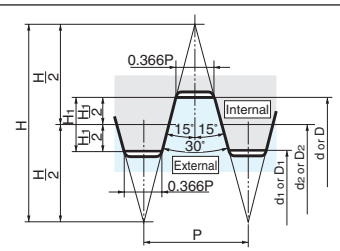
(Table 1)

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 α+1°.

Thread Types & Basic Profile

Thread Types & Basic Profile / Applicable Toolholders & Inserts

	Basic Profile	Symbol (Previous Symbol)	Type	Applicable Inserts	Applicable Toolholders
Metric		**M** e.g.) **M30**	External	○○ E$^{R}_{L}$○○○ ISO(-TF/TQ) ○○ ER □□60(-TF/TQ) 16ER60 ○○	KTN$^{R}_{L}$○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
				TT43E$^{R}_{L}$○○○ M TT ○○ $^{R}_{L}$60 ○○	KTT$^{R}_{L}$○○○○□-○○
				TTX32R60 ○○	KTTXR ○○○○□-16F, S ○○□-KTTXL16
			Internal	○○ I$^{R}_{L}$○○○ ISO(-TF/TQ) ○○ IR □□60 ○○ IR60 ○○ (○)	SIN$^{R}_{L}$○○○○ S- ○○ (E) CIN$^{R}_{L}$○○○○ S- ○○
				TT ○○$^{L}_{R}$ 60 ○○	KITG$^{R}_{L}$○○○○ T- ○○
				TPGB11 ○○○○ (○)	S ○○□-STWP$^{R}_{L}$11- ○○ (E)
Unified		**UN** **UNC** **UNF** **UNEF** e.g.) **¾ -16 UNF**	External	○○ ER ○○ UN(-TF/TQ) ○○ ER □□60(-TF/TQ) 16ER60 ○○	KTNR ○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
				TT ○○ $^{R}_{L}$60 ○○	KTT$^{R}_{L}$○○○○□-○○
				TTX32R60 ○○	KTTXR ○○○○□-16F, S ○○□-KTTXL16
			Internal	○○ IR ○○ UN-(TF/TQ) ○○ IR □□60 ○○ IR60 ○○ (○)	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○
				TT ○○ $^{L}_{R}$60 ○○	KITG$^{R}_{L}$○○○○ T- ○○
				TPGB11 ○○○○ (○)	S ○○□ -STWP$^{R}_{L}$11- ○○ (E)
Parallel Pipe		External : **G(PF)** Internal : **G(PF)** **Rp(PS)** e.g.) **G¾ (PF¾)**	External	○○ ER ○○ W(-TF/TQ) ○○ ER □□55 16ER55 ○○	KTNR ○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
				TT ○○ $^{R}_{L}$55 ○○	KTT$^{R}_{L}$○○○○□-○○
				TTX32R55 ○○	KTTXR ○○○○□-16F, S ○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF/TQ) ○○ IR □□55 ○○ IR55 ○○ (○)	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○
				TT ○○ $^{L}_{R}$55 ○○	KITG$^{R}_{L}$○○○○ T- ○○
Whitworth		**W** e.g.) **W⅜**	External	○○ ER ○○ W(-TF/TQ) ○○ ER □□ 55 16ER55 ○○	KTNR ○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
				TT ○○ $^{R}_{L}$55 ○○	KTT$^{R}_{L}$○○○○□-○○
				TTX32R55 ○○	KTTXR ○○○○□-16F, S ○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF/TQ) ○○ IR □□55 ○○ IR55 ○○ (○)	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○
				TT ○○ $^{L}_{R}$55 ○○	KITG$^{R}_{L}$○○○○ T- ○○
Tapered Pipe		External : **R(PT)** **(BSPT)** Internal : **Rc(PT)** **(BSPT)** e.g.) **R½ (PT½)**	External	16ER ○○ BSPT(-TF/TQ)	KTNR ○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
				TT ○○ $^{R}_{L}$55 ○○ *	KTT$^{R}_{L}$○○○○□-○○
				TTX32R55 ○○ *	KTTXR ○○○○□-16F, S ○○□-KTTXL16
			Internal	○○ IR ○○ BSPT(-TF/TQ)	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○
				TT ○○ $^{L}_{R}$55 ○○ *	KITG$^{R}_{L}$○○○○ T- ○○
American National Tapered Pipe		**NPT** e.g.) **⅜ -18 NPT**	External	16ER ○○ (.○)NPT	KTNR ○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
			Internal	16IR ○○ (.○)NPT	SINR ○○○○ S- ○○ CINR ○○○○ S- ○○
30° Trapezoidal		**Tr** e.g.) **Tr 26×3**	External	○○ ER ○○○ TR	KTNR ○○○○□-○○ KTNSR ○○○○□-16 S○○□-KTNL16
			Internal	○○ IR ○○○ TR	SINR ○○○○ S- ○○ CINR ○○○○ S- ○○

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

- Above shows the usage example of applicable Toolholder / Insert.