

Threading

J1~J48

Summary of External Threading / Summary of Internal Threading J2

Product Introduction J4

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Threading Inserts (External / Internal) J6~J15

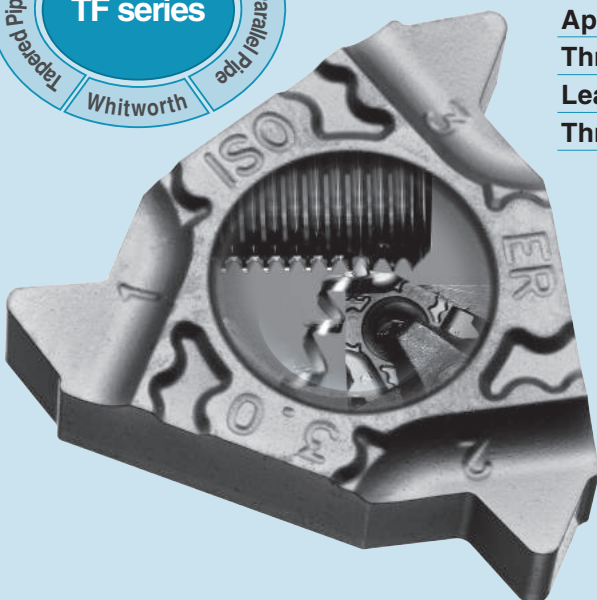
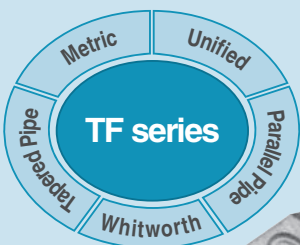
Metric (M)	J6
Unified (UN)	J8
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Tapered Pipe [R,Rc (PT) (BSPT)]	J10
American National Tapered Pipe (NPT)	J10
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Threading Toolholders (External / Internal) J16~J31

KTN / KTNS	J16
SIN / CIN	J17
KTKF	Small Tools J18
KTKF (Goose-neck Holder)	Small Tools J18
KTTX	Small Tools J20
S... KTTX	Sleeve Holder J20
KTT	J22
KITG	J23
EZT	EZ Bars J24
HPT	2-Edge Tip-Bars J28
VNT	System Tip-Bars J30
PST-S (will be switched to EZT)	Tip-Bars J30
S...STWP / S...STWP-E	J31

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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								
Pitch		mm	TPI	TPI	TPI	TPI	TPI	mm
Toolholder Shape								
 KTN J16	Full Profile	0.5 ~ 5.0 J6	24 ~ 8 J8	19 ~ 11 J8	16 ~ 11 J8	28 ~ 11 J10	18 ~ 11.5 J10	-
	Partial Profile	0.5 ~ 5.0 J12	48 ~ 5 J12	28 ~ 11 J14	40 ~ 5 J14	28 ~ 11 J14	-	2.0 ~ 5.0 J14
 KTNS J16	Full Profile	0.5 ~ 3.0 J6	24 ~ 8 J8	19 ~ 11 J8	16 ~ 11 J8	28 ~ 11 J10	18 ~ 11.5 J10	-
	Partial Profile	0.5 ~ 3.0 J12	48 ~ 8 J12	28 ~ 11 J14	40 ~ 8 J14	28 ~ 11 J14	-	2.0 ~ 3.0 J14
 KTT J22	Full Profile	1.0 ~ 2.0 J22	-	-	-	-	-	-
	Partial Profile	0.5 ~ 3.5 J22	56 ~ 8 J22	28 ~ 11 J22	24 ~ 7 J22	28 ~ 11 J22	-	-
 KTTX J20	Partial Profile	0.5 ~ 2.0 J21	56 ~ 14 J21	28 ~ 11 J21	24 ~ 11 J21	28 ~ 11 J21	-	-
 S-KTTX J20	Partial Profile	0.5 ~ 2.0 J21	56 ~ 14 J21	28 ~ 11 J21	24 ~ 11 J21	28 ~ 11 J21	-	-
 KTKF J18	Partial Profile	0.2 ~ 1.5 J18	64 ~ 18 J18	28 ~ 19 J18	40 ~ 16 J18	28 ~ 19 J18	-	-
 KTKF J18 (Goose-neck Holder)								

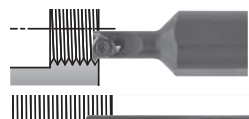
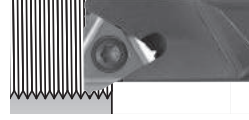
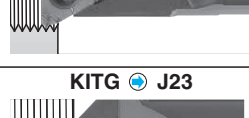
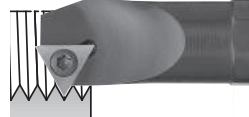
· Threading Inserts Identification System

Full Profile J6

Partial Profile J12

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								
Pitch		mm	TPI	TPI	TPI	TPI	TPI	mm
Toolholder Shape								
EZT ⚙ J24 	Partial Profile	0.5 ~ 1.75 ⚙ J24	36 ~ 16 ⚙ J24	28 ~ 19 ⚙ J24	24 ~ 18 ⚙ J24	28 ~ 19 ⚙ J24	18 ~ 14 ⚙ J24	—
VNT ⚙ J30 	Partial Profile	0.75 ~ 1.5 ⚙ J30	28 ~ 18 ⚙ J30	—	—	—	—	—
HPT ⚙ J28 (PST ⚙ J30) 	Partial Profile	0.75 ~ 1.5 (0.75 ~ 1.5) ⚙ J28 (⚙ J30)	28 ~ 16 (28 ~ 18) ⚙ J28 (⚙ J30)	28 ~ 19 ⚙ J28	24 ~ 18 ⚙ J28	28 ~ 19 ⚙ J28	18 ~ 14 ⚙ J28	—
SIN ⚙ J17 	Full Profile	0.5 ~ 5.0 ⚙ J7	24 ~ 8 ⚙ J9	19 ~ 11 ⚙ J9	16 ~ 11 ⚙ J9	28 ~ 11 ⚙ J11	18 ~ 11.5 ⚙ J11	—
	Partial Profile	0.5 ~ 5.0 ⚙ J13	48 ~ 5 ⚙ J13	28 ~ 11 ⚙ J15	40 ~ 5 ⚙ J15	28 ~ 11 ⚙ J15	—	2.0 ~ 5.0 ⚙ J15
CIN ⚙ J17 	Full Profile	1.0 ~ 5.0 ⚙ J7	24 ~ 8 ⚙ J9	19 ~ 11 ⚙ J9	16 ~ 11 ⚙ J9	28 ~ 11 ⚙ J11	18 ~ 11.5 ⚙ J11	—
	Partial Profile	0.5 ~ 5.0 ⚙ J13	48 ~ 5 ⚙ J13	28 ~ 11 ⚙ J15	40 ~ 5 ⚙ J15	28 ~ 11 ⚙ J15	—	2.0 ~ 5.0 ⚙ J15
KITG ⚙ J23 	Partial Profile	0.5 ~ 3.0 ⚙ J23	48 ~ 8 ⚙ J23	28 ~ 11 ⚙ J23	24 ~ 8 ⚙ J23	28 ~ 11 ⚙ J23	—	—
STWP ⚙ J31 	Partial Profile	0.75 ~ 3.5 ⚙ J31	28 ~ 8 ⚙ J31	—	—	—	—	—

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

J



Threading

Product Introduction

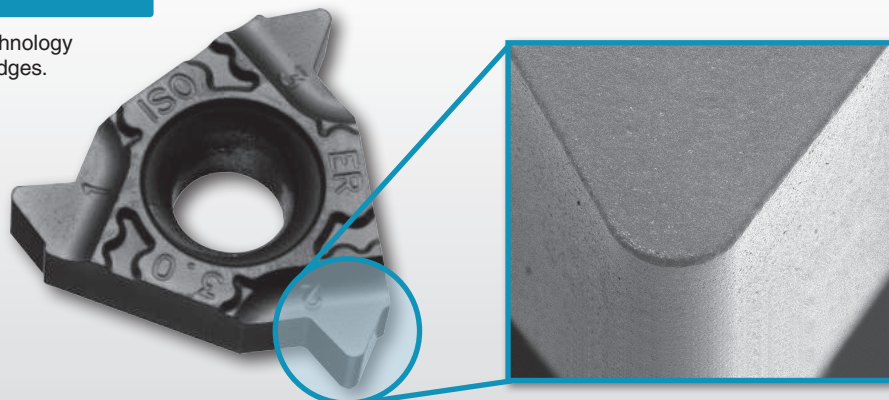
TF series Threading Inserts

High quality edge and new grade insert PR1115 achieve long tool life.
Economical, owing to new molding technology.

High Quality Cutting Edge

TF series

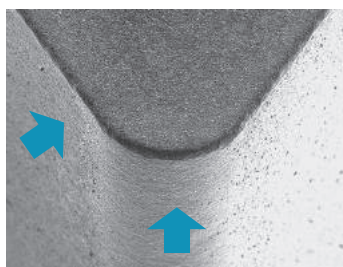
- High precision fine molding technology produces high quality cutting edges.



Cutting Edge close-up picture

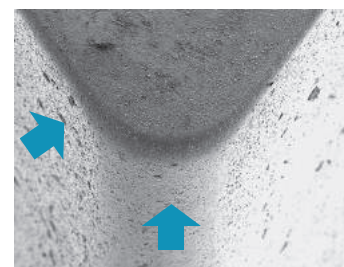
Consistent micro honing technology enables sharpness and high quality thread shape.

Sharp cutting



16ER150ISO-TF

Inconsistent edge honing condition.



Competitor

Available for every standard screw thread

Metric (M)

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

Unified (UN)

60° Type (Partial Profile)

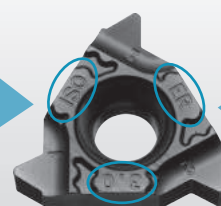
Parallel Pipe [G (PF)]

55° Type (Partial Profile)

Whitworth (W)

Clear markings provide user friendly insert identification

ISO Thread (Metric)



External Threading

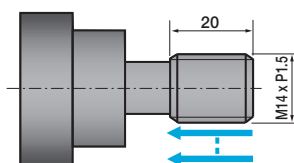
Thread pitch 3.0 mm

- 16---TF has the mark on its top face side,
- 11---TF has the mark on its seating face side (bottom side).

Case Studies

SCM415

- Machine parts
- Vc=65m/min
- Wet



16ER150ISO-TF(PR1115)

1,800 pcs/edge

Competitor A

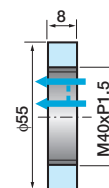
600 pcs/edge

TF Series extended the tool life 3 times compared to Competitor A.

(Evaluation by the user)

S25C

- Nut
- Vc=262m/min
- Wet



16IR150ISO-TF(PR1115)

500 pcs/edge

Competitor B

300 pcs/edge

TF Series extended the tool life 1.7 times compared to Competitor B.

(Evaluation by the user)

Summary of Threading Inserts

KT **KTKF**  J18

“Threading” is added to Small Tools special tool series. Total toolholder length 120 mm series is now available (referred to as JX in the part number).

Threading

For Threading

TKFT



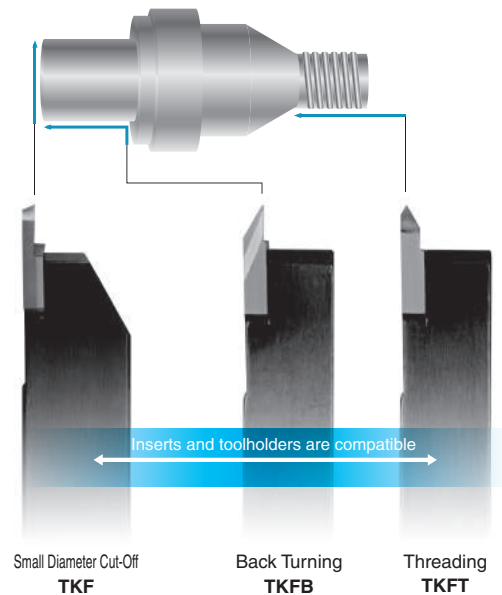
● Applicable for various type of threading

Metric(M)

Parallel Pipe [G (PF)]

Unified (UN)

Tapered Pipe
[R(PT)(BSPT)]



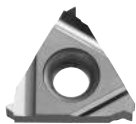
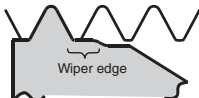
Small Diameter Cut-Off
TKF

Back Turning
TKFB

Threading
TKFT

■ Threading Insert Features

● Full Profile and Partial Profile

	Insert shape	Function	Features
Full Profile		 Wiper edge	(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		N/A	OK	OK

* Not recommended if strict thread precision is required.

J



Threading

Full Profile 60°

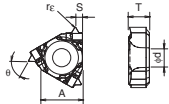
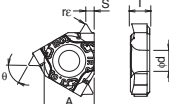
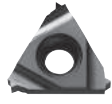
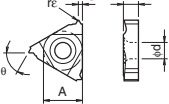
●: Std. Item

Internal Threading Inserts

● Metric (M)

Full Profile 60°

(mm)

Description				A	T	φd	Classification of usage ● :1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes				
11I ^{R/L}				6.35	3.18	3.0 <th>M</th> <td>Stainless Steel</td> <th></th> <th>●</th> <th></th>		M	Stainless Steel		●						
16I ^{R/L}				9.525	3.68	4.0 <th>K</th> <td>Cast Iron</td> <th></th> <th></th> <th>●</th>		K	Cast Iron			●					
22IR				12.70	4.9	4.85 <th>N</th> <td>Non-ferrous Metals</td> <th></th> <th></th> <th>●</th>		N	Non-ferrous Metals			●					
Insert Handed Insert shows Right-hand				Description		Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide			
							M	rε		S	θ	TC60M		PR1115		GW15	
							Pitch					R	L	R	L	R	L
						mm											
Full Profile			11IR	100ISO-TF	1.0	0.07	0.8	60°			●						
				125ISO-TF	1.25	0.08	1.1				●						
				150ISO-TF	1.5	0.11	1.1				●						
				175ISO-TF	1.75	0.12	1.1				●						
			16IR	100ISO-TF	1.0	0.07	0.8	60°			●						
				125ISO-TF	1.25	0.08	1.1				●						
				150ISO-TF	1.5	0.11	1.1				●						
				175ISO-TF	1.75	0.12	1.1				●						
				200ISO-TF	2.0	0.14	1.5				●						
				250ISO-TF	2.5	0.17	1.5				●						
				300ISO-TF	3.0	0.19	1.6				●						
			11I ^{R/L}	050ISO	0.5	0.03	0.55	60°	●		●		●				
				075ISO	0.75	0.05	0.68		●		●		●				
				100ISO	1.0	0.07	0.8		●		●	●	●				
				125ISO	1.25	0.08	1.1		●		●		●				
				150ISO	1.5	0.11	1.1		●		●	●	●				
				175ISO	1.75	0.12	1.1		●		●						
				200ISO	2.0	0.14	0.9		●		●						
			16I ^{R/L}	100ISO	1.0	0.07	0.8	60°	●		●	●	●				
				125ISO	1.25	0.08	1.1		●		●						
				150ISO	1.5	0.11	1.1		●		●	●	●				
				175ISO	1.75	0.12	1.1		●		●						
				200ISO	2.0	0.14	1.5		●		●	●	●				
				250ISO	2.5	0.16	1.5		●		●		●				
				300ISO	3.0	0.19	1.6		●		●		●				
			22IR	300ISO	3.0	0.19	1.8	60°	●								
				350ISO	3.5	0.23	2.1		●		●						
				400ISO	4.0	0.26	2.8		●		●						
				450ISO	4.5	0.30	2.8		●		●						
	500ISO	5.0		0.34	2.8	●			●								

● Applicable Toolholders

Recommended Cutting Conditions ● J32

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders	Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
11IR ...	SINR---11E SINR---11	J17	16IR ...	SINR---16 CINR---16	J17
11IL ...	SINL---11E SINL---11		16IL ...	SINL---16 CINL---16	
			22IR ...	SINR---22 CINR---22	

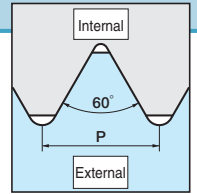
Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

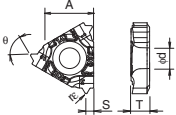
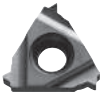
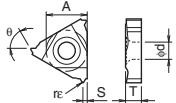
Threading Inserts



External Threading Inserts

Unified (UN)

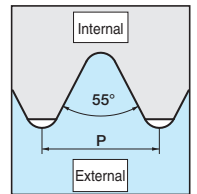
Full Profile 60°

Full Profile 60°				(mm)												Ref. to Page for Depth of Cut & Number of Passes	
Description		A	T	φd	Classification of usage		P	Carbon Steel / Alloy Steel									
16ER		9.525	3.68	4.0	● :1st Choice		M	Stainless Steel									
22ER		12.70	4.9	4.85			K	Cast Iron									
						N	Non-ferrous Metals										
Insert				Description		Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide			
						UN,UNF			θ	TC60M		PR1115		GW15			
						Pitch				R		L		R		L	
Handed Insert shows Right-hand						TPI											
Full Profile			16ER	24UN-TF	24	0.12	0.80	60°			●				J33		
				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	0.8	60°	●		●						
				20UN	20	0.16	1.0		●		●						
				18UN	18	0.18	1.0		●		●						
				16UN	16	0.20	1.1		●		●						
				14UN	14	0.23	1.5		●		●						
				12UN	12	0.27	1.5		●		●						
				22ER	08UN	8	0.43		2.1	●		●					

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER ...	KTNR...16 KTNSR...16	J16
22ER ...	KTNR...22	

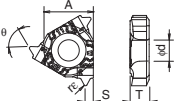
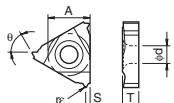
Recommended Cutting Conditions J32



External Threading Inserts

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

Full Profile 55°

Full Profile 55°				(mm)		Classification of usage				M	Stainless Steel					Ref. to Page for Depth of Cut & Number of Passes		
Description		A	T	φd	● :1st Choice				K	Cast Iron								
16ER		9.525	3.68	4.0					N	Non-ferrous Metals								
Insert				Description				Applicable Thread		Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide	
								G (PF)	W	rε	S	θ	TC60M		PR1115		GW15	
								Pitch					R	L	R	L	R	L
Handed Insert shows Right-hand								TPI										
Full Profile			16ER	19W-TF	19	-	0.16	1.0	55°			●				J34		
				16W-TF	-	16	0.19	1.1				●						
				14W-TF	14	14	0.23	1.5				●						
				11W-TF	11	11	0.30	1.5				●						
				16ER	19	-	0.16	1.0		●		●						
			16ER	14W	14	14	0.23	1.5	55°	●		●						
				11W	11	11	0.30	1.5		●		●						

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER ...	KTNR...16 KTNSR...16	J16

Recommended Cutting Conditions J32

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

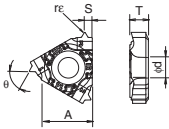
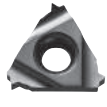
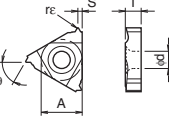
●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

Internal Threading Inserts

Unified (UN)

Full Profile 60°				(mm)				P		Carbon Steel / Alloy Steel								Ref. to Page for Depth of Cut & Number of Passes
Description		A	T	φd	Classification of usage			M		Stainless Steel								
16IR		9.525	3.68	4.0	● :1st Choice			K		Cast Iron								
22IR		12.70	4.9	4.85				N		Non-ferrous Metals								
Insert Handed Insert shows Right-hand				Description		Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide				
						UN,UNF	rε	S	θ	TC60M		PR1115		GW15				
						Pitch				R	L	R	L	R	L			
						TPI												
Full Profile			16IR	24UN-TF	24	0.06	0.8	60°			●						J33	
				20UN-TF	20	0.08	1.0				●							
				18UN-TF	18	0.09	1.0				●							
				16UN-TF	16	0.10	1.1				●							
				14UN-TF	14	0.12	1.5				●							
				13UN-TF	13	0.13	1.5				●							
				12UN-TF	12	0.14	1.5				●							
				10UN-TF	10	0.17	1.5				●							
				08UN-TF	8	0.21	1.8				●							
			16IR	24UN	24	0.05	0.8	60°	●		●							
				20UN	20	0.07	1.0		●		●							
				18UN	18	0.09	1.0		●		●							
				16UN	16	0.10	1.1		●		●							
				14UN	14	0.12	1.5		●		●							
				12UN	12	0.14	1.5		●		●							
				22IR 08UN	8	0.20	1.8		●		●							

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16IR ...	SINR---16 CINR---16	J17
22IR ...	SINR---22 CINR---22	

Recommended Cutting Conditions J32

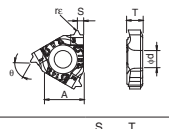
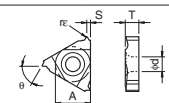
J



Threading

Internal Threading Inserts

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

Full Profile 55°				(mm)		Classification of usage		M	Stainless Steel		●			Ref. to Page for Depth of Cut & Number of Passes					
Description		A	T	φd	● :1st Choice		K	Cast Iron											
16IR		9.525	3.68	4.0			N	Non-ferrous Metals											
Insert Handed Insert shows Right-hand				Description		Applicable Thread		Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide				
						G (PF)	W	rε	S		θ	TC60M		PR1115		GW15			
		Pitch								R		L		R		L			
		TPI																	
Full Profile			16IR	19W-TF	19	-	0.16	1.0	55°			●					J34		
				16W-TF	-	16	0.19	1.1				●							
				14W-TF	14	14	0.23	1.5				●							
				11W-TF	11	11	0.30	1.5				●							
			16IR	14W	14	14	0.23	1.5	55°	●		●							
				11W	11	11	0.30	1.5		●		●							

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16IR ...	SINR---16 CINR---16	J17

Recommended Cutting Conditions J32

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

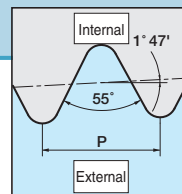
Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

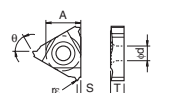
TC60M (Threading) are sold in 10 piece boxes.

Threading Inserts



External Threading Inserts

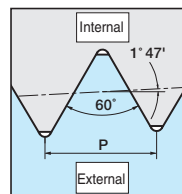
Tapered Pipe [R (PT) (BSPT)]

Full Profile 55°				(mm)		Classification of usage		M	Stainless Steel		●			Ref. to Page for Depth of Cut & Number of Passes
Description		A	T	φd	● :1st Choice		K	Cast Iron			●			
16ER		9.525	3.68	4.0			N	Non-ferrous Metals			●			
Insert		Description		Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide		
Handed Insert shows Right-hand				R(PT) (BSPT)	rε	S	θ	TC60M		PR1115		GW15		
				Pitch										
				TPI	R	L		R	L	R	L			
Full Profile			16ER	28BSPT-TF	28	0.10	0.8	55°			●			
				19BSPT-TF	19	0.16	1.0				●			
				14BSPT-TF	14	0.22	1.6				●			
				11BSPT-TF	11	0.29	1.6				●			
			16ER	28BSPT	28	0.10	0.8	55°	●		●		●	
				19BSPT	19	0.16	1.0		●		●		●	
				14BSPT	14	0.22	1.6		●		●		●	
				11BSPT	11	0.29	1.6		●		●		●	

Recommended Cutting Conditions J32

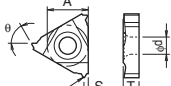
Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER...	KTNR...-16 KTNSR...-16	J16



External Threading Inserts

American National Tapered Pipe (NPT)

Full Profile 60°				(mm)		Classification of usage				M		Stainless Steel				●				Ref. to Page for Depth of Cut & Number of Passes					
Description		A		T		φd		● :1st Choice		K		Cast Iron						●							
16ER		9.525		3.68		4.0				N		Non-ferrous Metals						●							
Insert										Applicable Thread		Dimension (mm)		Angle		Cermet		PVD Coated Carbide			Carbide				
										NPT								TC60M		PR1115		GW15			
										Pitch		rε		S		θ									
Handed Insert shows Right-hand										TPI								R		L		R		L	
Full Profile			16ER	18NPT	18	0.04	0.9	60°	●		●		●		●		J34								
				14NPT	14	0.05	1.5		●		●		●												
				11.5NPT	11.5	0.06	1.5		●		●		●												

Recommended Cutting Conditions J32

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER...	KTNR...-16 KTNSR...-16	J16

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

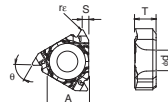
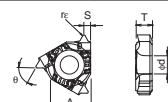
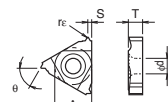
●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

Internal Threading Inserts

Tapered Pipe [Rc (PT) (BSPT)]

Full Profile 55°				(mm)		Classification of usage ● :1st Choice		P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes				
Description		A	T	φd	M			Stainless Steel		●							
11IR		6.35	3.18	3.0	K			Cast Iron			●						
16IR		9.525	3.68	4.0	N			Non-ferrous Metals			●						
Insert Handed Insert shows Right-hand				Description		Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide			
						Rc(PT) (BSPT)	rε	S		θ	TC60M		PR1115		GW15		
																	Pitch
																	TPI
Full Profile			11IR	28BSPT-TF	28	0.10	0.6	55°			●						
				19BSPT-TF	19	0.16	0.78				●						
				14BSPT-TF	14	0.22	0.97				●						
			16IR	14BSPT-TF	14	0.22	0.97	55°			●						
				11BSPT-TF	11	0.29	1.5				●						
			11IR	28BSPT	28	0.10	0.6	55°	●		●		●				
				19BSPT	19	0.16	0.78		●		●		●				
			14BSPT	14	0.22	0.97	●			●		●					
			16IR	14BSPT	14	0.22	0.97		●		●		●				
				11BSPT	11	0.29	1.5		●		●		●				
Recommended Cutting Conditions														J32			

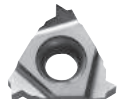
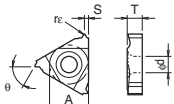
Recommended Cutting Conditions J32

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
11IR··	SINR...11E SINR...11	J17
16IR··	SINR...16 CINR...16	

Internal Threading Inserts

American National Tapered Pipe (NPT)

Full Profile 60°				(mm)		Classification of usage ● :1st Choice		M		Stainless Steel				●				Ref. to Page for Depth of Cut & Number of Passes			
Description		A	T	φd	K			Cast Iron						●							
16IR		9.525	3.68	4.0	N			Non-ferrous Metals						●							
Insert					Description			Applicable Thread		Dimension (mm)		Angle		Cermet		PVD Coated Carbide			Carbide		
Handed Insert shows Right-hand								NPT		rε		S		θ		TC60M		PR1115		GW15	
								Pitch													
													TPI		R		L		R		L
Full Profile			16IR	18NPT	18	0.04	0.9	60°	●		●		●		J34						
				14NPT	14	0.05	1.5		●		●		●								
				11.5NPT	11.5	0.06	1.5		●		●		●								

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16IR...	SINR...16 CINR...16	J17

Recommended Cutting Conditions J32

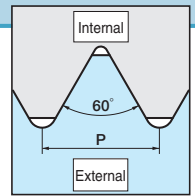
Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

Threading Inserts



External Threading Inserts

60° Type [Partial Profile / M, UN]

Partial Profile 60°				(mm)		Classification of usage ● :1st Choice		P	Carbon Steel / Alloy Steel			Ref. to Page for Depth of Cut & Number of Passes		
Description	A	T	φd	M	Stainless Steel									
16ER	9.525	3.68	4.0	K	Cast Iron					●				
22ER	12.70	4.9	4.85	N	Non-ferrous Metals					●				
Insert			Description	Applicable Thread		Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide	
				M	UN UNF	rε	S	θ	TC60M		PR1115		GW15	
				Pitch										
				Handed Insert shows Right-hand		mm	TPI	R	L	R	L	R	L	
Partial Profile		16ER A60-TF	0.5~1.5	48~16	0.06	1.00	60°			●				J34 J35
		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°					●		J38
		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		●						
		6002	1.5~2.5	16~11	0.20	1.50		●						

Recommended Cutting Conditions J32

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER ...	KTNR...16 KTNSR...16	J16
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) J12~J15

16 (1)	E (2)	R (3)	A60 (4)	-TF (5)																																																	
(1)Insert Size <table><tr><td>06</td><td>3.97</td></tr><tr><td>08</td><td>4.76</td></tr><tr><td>11</td><td>6.35</td></tr><tr><td>16</td><td>9.525</td></tr><tr><td>22</td><td>12.70</td></tr><tr><td>Symbol</td><td>I.C. Size (mm)</td></tr></table>	06	3.97	08	4.76	11	6.35	16	9.525	22	12.70	Symbol	I.C. Size (mm)	(2)External / Internal <table><tr><td>E</td><td>External Threading</td></tr><tr><td>I</td><td>Internal Threading</td></tr></table>	E	External Threading	I	Internal Threading	(3)Insert Hand <table><tr><td>R</td><td>Right-hand</td></tr><tr><td>L</td><td>Left-hand</td></tr></table>	R	Right-hand	L	Left-hand	(4)Pitch <table><tr><td rowspan="3">60°</td><td>A60</td><td>60° Type (Partial Profile) 0.5~1.5mm</td></tr><tr><td>G60</td><td>60° Type (Partial Profile) 1.75~3mm</td></tr><tr><td>AG60</td><td>60° Type (Partial Profile) 0.5~3mm</td></tr><tr><td rowspan="3">55°</td><td>A55</td><td>55° Type (Partial Profile) 40~16 TPI</td></tr><tr><td>G55</td><td>55° Type (Partial Profile) 14~8 TPI</td></tr><tr><td>AG55</td><td>55° Type (Partial Profile) 40~8 TPI</td></tr><tr><td colspan="2">Vertex angle</td><td>Partial Profile</td></tr></table>	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 <table><tr><td>-TF</td><td>TF Cutting Edge</td></tr></table> (4)Pitch <table><tr><td rowspan="2">60°</td><td rowspan="2">6001</td><td>60° Type (Partial Profile) Corner-R(r_c)=0.1mm 1.0~2.5mm</td></tr><tr><td>55° Type (Partial Profile) Corner-R(r_c)=0.1mm 28~11 TPI</td></tr><tr><td>55°</td><td>5501</td><td></td></tr><tr><td colspan="2">Vertex angle</td><td>Partial Profile</td></tr></table>	-TF	TF Cutting Edge	60°	6001	60° Type (Partial Profile) Corner-R(r _c)=0.1mm 1.0~2.5mm	55° Type (Partial Profile) Corner-R(r _c)=0.1mm 28~11 TPI	55°	5501		Vertex angle		Partial Profile
06	3.97																																																				
08	4.76																																																				
11	6.35																																																				
16	9.525																																																				
22	12.70																																																				
Symbol	I.C. Size (mm)																																																				
E	External Threading																																																				
I	Internal Threading																																																				
R	Right-hand																																																				
L	Left-hand																																																				
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																																																			
-TF	TF Cutting Edge																																																				
60°	6001	60° Type (Partial Profile) Corner-R(r _c)=0.1mm 1.0~2.5mm																																																			
		55° Type (Partial Profile) Corner-R(r _c)=0.1mm 28~11 TPI																																																			
55°	5501																																																				
Vertex angle		Partial Profile																																																			
•Example of shape of A, G and AG <table><tr><th rowspan="2">Description</th><th colspan="3">Dimension (mm)</th></tr><tr><th>r_c</th><th>S</th><th>H</th></tr><tr><td>16ERA60-TF</td><td>0.06</td><td>1.00</td><td>1.5</td></tr><tr><td>16ERG60-TF</td><td>0.22</td><td>1.60</td><td>2.6</td></tr><tr><td>16ERAG60-TF</td><td>0.06</td><td>1.60</td><td>2.7</td></tr></table>					Description	Dimension (mm)			r _c	S	H	16ERA60-TF	0.06	1.00	1.5	16ERG60-TF	0.22	1.60	2.6	16ERAG60-TF	0.06	1.60	2.7																														
Description	Dimension (mm)																																																				
	r _c	S	H																																																		
16ERA60-TF	0.06	1.00	1.5																																																		
16ERG60-TF	0.22	1.60	2.6																																																		
16ERAG60-TF	0.06	1.60	2.7																																																		

Corner-R(r_e) Selection for Partial Profiling Insert

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

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

Metric, Unified Thread

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

Parallel Pipe, Tapered Pipe, Whitworth Thread

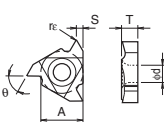
Same Corner-R(r_e) for both External and Internal Threading

●: 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	Classification of usage ● :1st Choice				P	Carbon Steel / Alloy Steel			●			Ref. to Page for Depth of Cut & Number of Passes
08IR				4.76	2.38	2.3					M	Stainless Steel			●			
11IR				6.35	3.18	3.0					K	Cast Iron					●	
16IR				9.525	3.68	4.0					N	Non-ferrous Metals					●	
22IR				12.70	4.9	4.85												
Insert				Description		Applicable Thread		Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide			
Handed Insert shows Right-hand						M	UN UNF	rε	S	θ	TC60M		PR1115		GW15			
						Pitch					R	L	R	L	R	L		
						mm	TPI											
Partial Profile			11IR	A60	0.5~1.5	48~16	0.02	1.00	60°				●		●		J35 J36	
			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°					●				J38
			08IR	60007	1.0~1.75	20~16	0.07	0.80						●				
			11IR	60005	0.75~1.5	32~16	0.05	1.00		●								
			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	Ref. to Page for Applicable Toolholders
06IR··	SINR...06E	J17
08IR··	SINR...08E	
11IR··	SINR...11E SINR...11	
16IR··	SINR...16 CINR...16	
22IR··	SINR...22 CINR...22	

Recommended Cutting Conditions J32



Threading

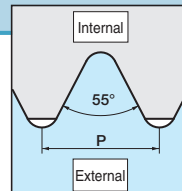
Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

Threading Inserts



External Threading Inserts

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

Partial Profile 55°				(mm)		Classification of usage ●:1st Choice		P	Carbon Steel / Alloy Steel				Ref. to Page for Depth of Cut & Number of Passes		
Description	A	T	φd	M	Stainless Steel										
16ER	9.525	3.68	4.0	K	Cast Iron					●					
22ER	12.70	4.9	4.85	N	Non-ferrous Metals					●					
Insert Handed Insert shows Right-hand			Description	Applicable Thread		Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide		
				G(PF) R(PT)	W	rε	S		θ	TC60M		PR1115		GW15	
				Pitch				R		L	R	L	R	L	
				TPI											
Partial Profile		16ER	A55-TF	28,19	40~16	0.06	1.00	55°			●				
			G55-TF	14,11	14~8	0.22	1.60				●				
			AG55-TF	28~11	40~8	0.06	1.60				●				
		16ER	A55	28,19	40~16	0.06	1.00	55°						●	
			G55	14,11	14~8	0.22	1.70						●		
			AG55	28~11	40~8	0.06	1.65						●		
		22ER	N55	-	7~5	0.47	2.50			●		●			
		16ER	5501	28~11	24~10	0.10	1.50	55°	●						
	5502		14,11	16~9	0.20	1.50	●								

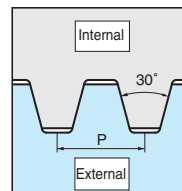
Applicable Toolholders

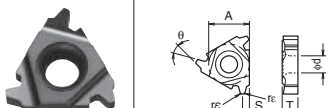
Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER...	KTNR...16 KTNSR...16	J16
22ER...	KTNR...22	

Recommended Cutting Conditions J32

External Threading Inserts

30° Trapezoidal (Tr)



Partial Profile 30° (mm)				Classification of usage ●:1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes				
Description	A	T	φd		M	Stainless Steel		●						
16ER	9.525	3.68	4.0		K	Cast Iron								
22ER	12.70	4.9	4.85		N	Non-ferrous Metals								
Insert					Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide	
Handed Insert shows Right-hand				Tr		rε	S	θ	TC60M		PR1115		GW15	
				Pitch					R	L	R	L	R	L
				mm										
Partial Profile		16ER	200TR	2.0	0.20	1.6	30°	●		●				J37
			300TR	3.0	0.20	1.6		●		●				
		22ER	400TR	4.0	0.20	2.5	30°	●		●				
			500TR	5.0	0.20	2.5		●		●				

Applicable Toolholders

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16ER...	KTNR...16 KTNSR...16	J16
22ER...	KTNR...22	

Recommended Cutting Conditions J32

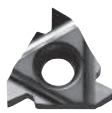
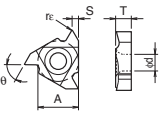
Applicable Thread	M: Metric	R,Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

●: Std. Item

Internal Threading Inserts

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

Partial Profile 55° (mm)

Description				A	T	φd	Classification of usage ●:1st Choice										Ref. to Page for Depth of Cut & Number of Passes			
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														
Insert Handed Insert shows Right-hand							Description		Applicable Thread		Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide		
									G(PF) Rc(PT)	W	rε	S	θ	TC60M		PR1115		GW15		
									Pitch											
									TPI											
										R	L	R	L	R	L					
Partial Profile			11IR	A55	28,19	40~16	0.06	1.10	55°			●			●		J36 J37			
			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	55°			●			●					
			06IR	5501	28	24	0.10	0.60				●								
			08IR	5501	28,19	24,20	0.10	0.80				●								
			11IR	55005	28~14	24~14	0.05	1.10		●										
			16IR	5501	28~11	24~11	0.10	1.50		●										
				5502	14~11	16~11	0.20	1.50		●										

Applicable Toolholders

Recommended Cutting Conditions J32

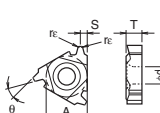
Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
06IR...	SINR...06E	J17
08IR...	SINR...08E	
11IR...	SINR...11E SINR...11	

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16IR...	SINR...16 CINR...16	J17
22IR...	SINR...22 CINR...22	

Internal Threading Inserts

30° Trapezoidal (Tr)

Partial Profile 30° (mm)

Description				A	T	φd	Classification of usage ●:1st Choice				M	Stainless Steel			●			
16IR				9.525	3.68	4.0 <th>K</th> <th>Cast Iron</th> <th colspan="2"></th> <th colspan="2"></th> <th colspan="2"></th>					K	Cast Iron						
22IR				12.70	4.9	4.85 <th>N</th> <th>Non-ferrous Metals</th> <th colspan="2"></th> <th colspan="2"></th> <th colspan="2"></th>					N	Non-ferrous Metals						
Insert Handed Insert shows Right-hand					Description		Applicable Thread	Dimension (mm)		Angle	Cermet		PVD Coated Carbide		Carbide			
							Tr	rε	S		θ	TC60M		PR1115		GW15		
							Pitch					R	L	R	L	R	L	
							mm											
Partial Profile			16IR	200TR	2.0	0.20	1.6	30°			●							
				300TR	3.0	0.20	1.6				●							
			22IR	400TR	4.0	0.20	2.5	30°			●							
				500TR	5.0	0.20	2.5				●							

Ref. to Page for
Depth of Cut & Number of Passes

J37

Applicable Toolholders

Recommended Cutting Conditions J32

Insert Description	Applicable Toolholders	Ref. to Page for Applicable Toolholders
16IR...	SINR...16 CINR...16	J17
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

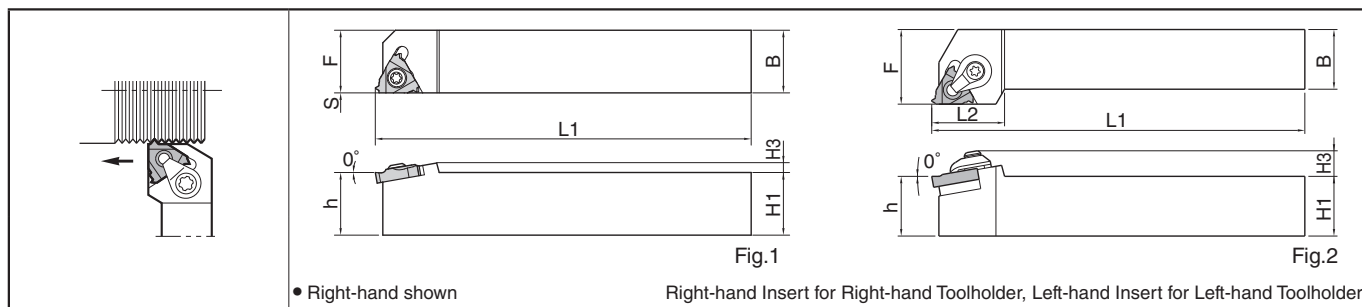
●: Std. Item

PR1115 / GW15 (Threading) are sold in 5 piece boxes.

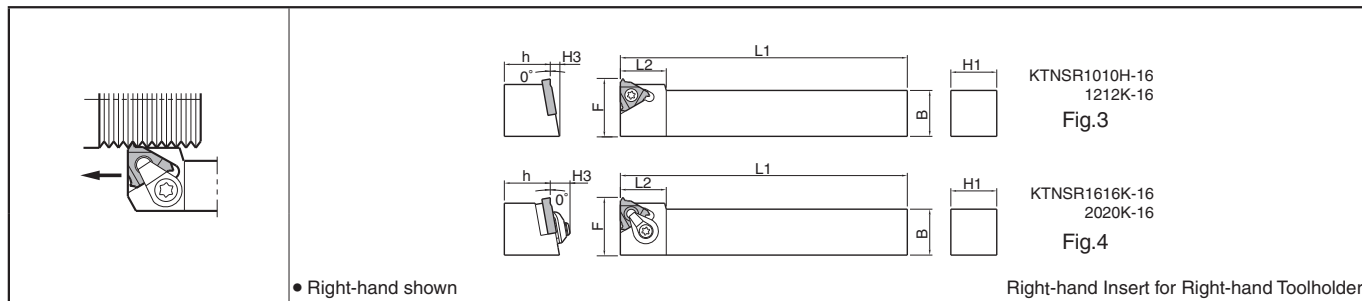
TC60M (Threading) are sold in 10 piece boxes.

External Threading Toolholders

KTN



KTNS (For Gang Type NC Lathe)



External Threading Toolholders

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

★ mark indicates short shank type.

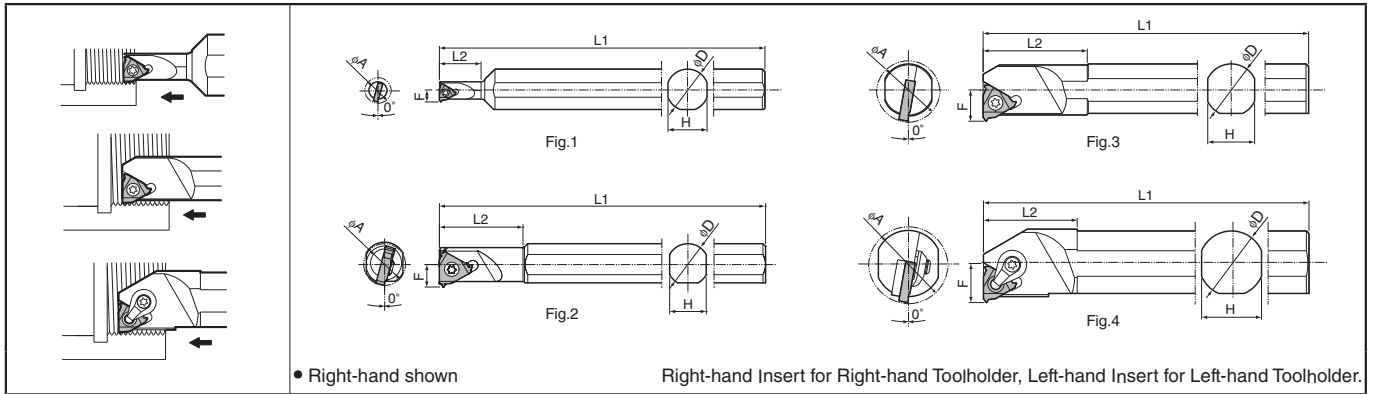
Refer to page for applicable inserts

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

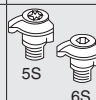
●: Std. Item

Internal Threading Toolholders

SIN / CIN



Internal Threading Toolholders

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

Refer to page for applicable inserts

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

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(r_c), 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.

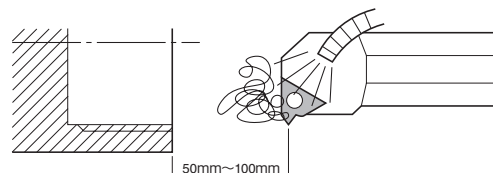
<When processing the first workpiece>

Set the program with the "single block"

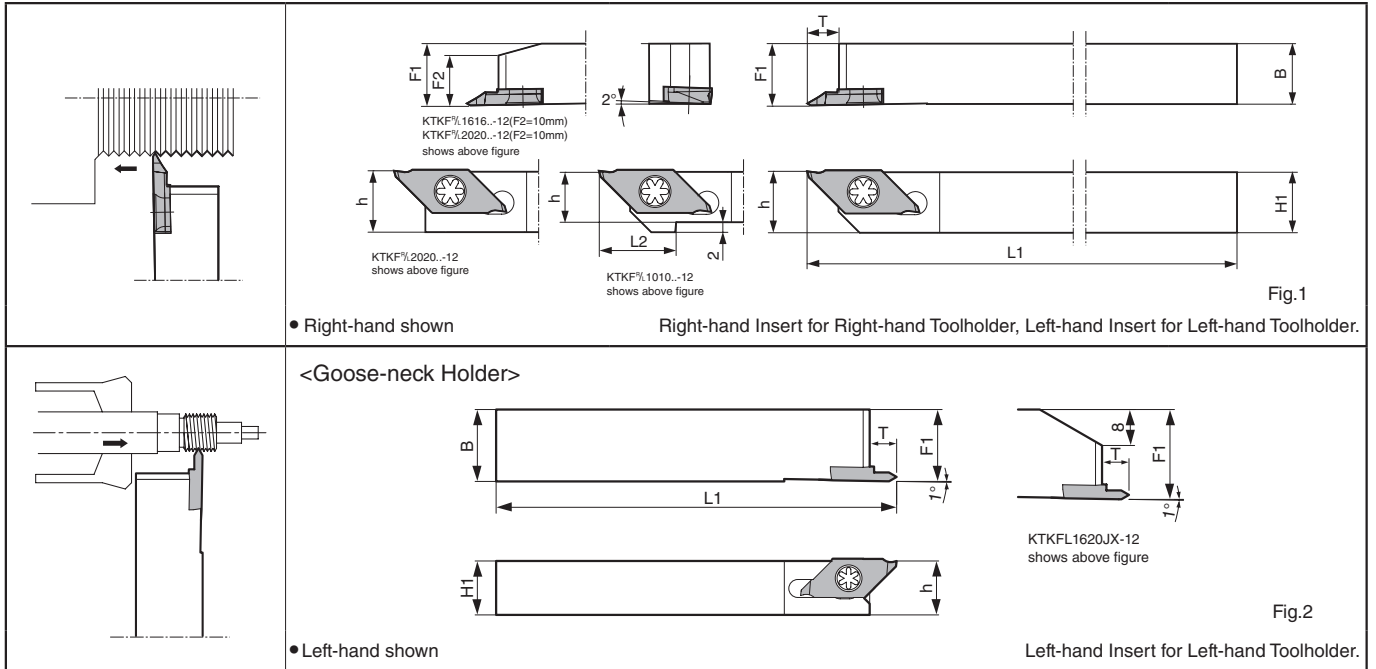
Keep the threading starting point 50mm~100mm away from the side of workpiece, and confirm that coolant is flushing down the chips for each pass.

<When processing the second workpiece and later>

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



■ KTKF / KTKF Goose-neck Holder

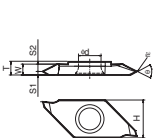
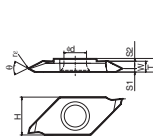


● Toolholder Dimensions

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

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

● Applicable Inserts

Insert		Description	Applicable Thread	Pitch		Dimension (mm)						Angle	MEGACOAT NANO		MEGACOAT	PVD Coated Carbide	Carbide	Applicable Toolholders							
				mm	TPI	T	W	H	φd	rε	S1		S2	θ	PR1425	PR1535			PR1225	PR1025	KW10				
Partial Profile			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		0.5~1.25	48~24					2.1	0.4	●		●	●	●	●						
				12RA6000S								0.05	0.8	1.7		●	●	●	●	●					
				12RB6000S	G,R W	1~1.5	24~18					0.1	1.25	1.25		●	●	●	●	●		●			
				12RN6001		-	40~16					0.05	0.8	1.7		●	●	●	●	●					
				12RB5500S								0.05	1.7	0.8		●	●	●	●	●		●			
			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		0.5~1.25	48~24					0.4	2.1	●		●	●	●	●						
				12LA6000S								0.05	1.7	0.8		●	●	●	●	●		●			
				12LB6000S	G,R W	1~1.5	24~18					0.1	1.25	1.25		●	●	●	●	●		●			
				12LN6001		-	40~16					0.05	1.7	0.8		●	●	●	□	●					
				12LA5500S								0.05	0.8	1.7		●	●	●	□	●					

● : Std. Item
□ : Deleted from the next catalogue

Inserts Identification System (Ref. to Table-1)

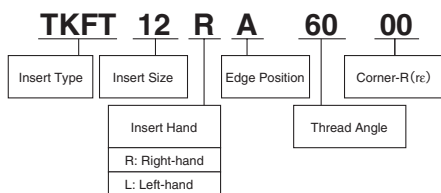
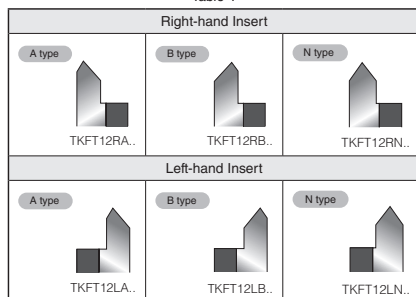


Table-1



Recommended Cutting Conditions

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

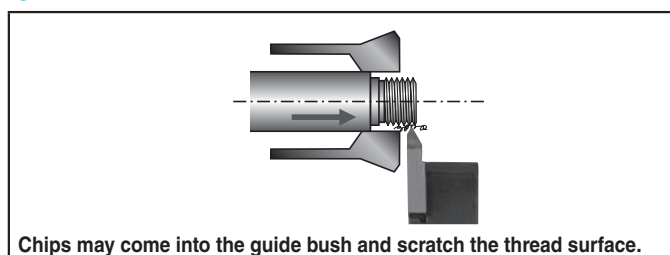
(ap shows the value of radial ap)

Type	Pitch	Description	Corner-R (r _e)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12
Metric	External Thread	TKFT 12°/A/B6000	Max. 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02								
				0.19	4	0.07	0.06	0.04	0.02								
				0.23	4	0.08	0.07	0.06	0.02								
				0.27	5	0.08	0.07	0.06	0.04	0.02							
				0.30	5	0.10	0.08	0.06	0.04	0.02							
				0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		TKFT 12°/A/B6000 12°/A/B60005	0.05	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
				0.33	5	0.10	0.10	0.07	0.04	0.02							
		TKFT 12°/A/B6000 12°/A/B60005	Max. 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
				0.40	6	0.10	0.10	0.08	0.06	0.04	0.02						
		TKFT 12°/A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
				0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		TKFT 12°/A/B60005 12°/N6001	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
				0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
				0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
		TKFT 12°/N6001	0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
				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	TKFT 12°/A/B55005	0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02					
				1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02			
Whitworth	External Thread	TKFT 12°/A/B55005	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02				
				0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02			
				1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
				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	

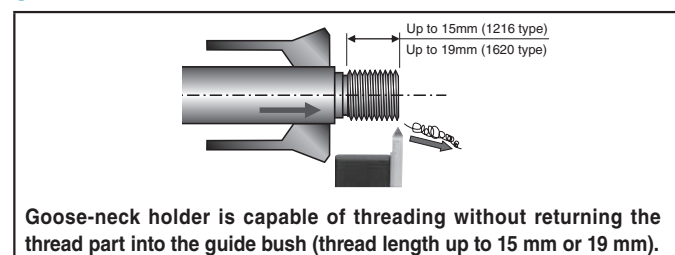
Swiss Tool Automatic Lathe (Guide Bush System)

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

Conventional Tool

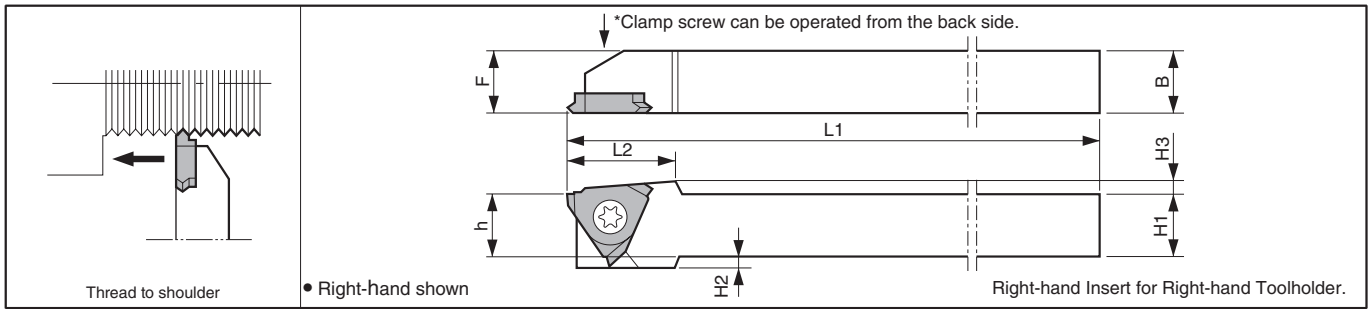


Goose-neck Holder

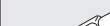


External Threading Toolholders [TTX Insert]

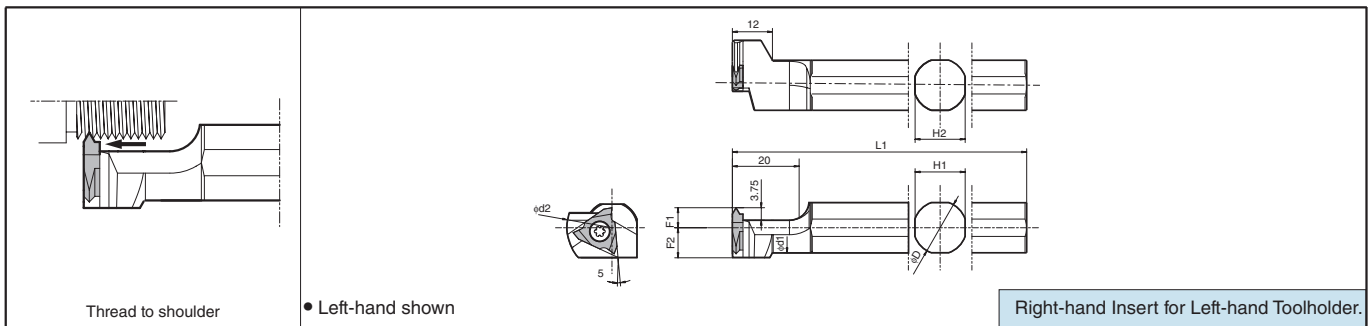
KTTX



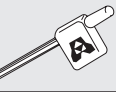
Toolholder Dimensions

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)



Toolholder Dimensions

Description	Std.	Dimension (mm)							Spare Parts				
									Clamp Screw	Wrench			
													
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			10.5	17							
S19G-KTTXL16	●	19.05	90			17.6		18					
S19K-KTTXL16	●		120										
S20G-KTTXL16	●	20	90		18.6								
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

● Applicable Inserts				(mm)			<table><tr><td>P</td><td>Carbon Steel / Alloy Steel</td><td></td><td></td><td></td><td></td></tr><tr><td>M</td><td>Stainless Steel</td><td></td><td></td><td></td><td></td></tr><tr><td>K</td><td>Cast Iron</td><td></td><td></td><td></td><td></td></tr><tr><td>N</td><td>Non-ferrous Metals</td><td></td><td></td><td></td><td></td></tr></table>				P	Carbon Steel / Alloy Steel					M	Stainless Steel					K	Cast Iron					N	Non-ferrous Metals					Classification of usage	
P	Carbon Steel / Alloy Steel																																			
M	Stainless Steel																																			
K	Cast Iron																																			
N	Non-ferrous Metals																																			
Description	A	T	φd	● : 1st Choice ○ : 2nd Choice																																
TTX32R	9.525	3.18	4.4																																	
Insert			Description	Applicable Thread	Pitch		Dimension (mm)			Angle	<table><tr><td>Cermet</td><td>PVD Coated Carbide</td><td>Carbide</td><td></td></tr><tr><td>TC60M</td><td>PR930</td><td>PR1115</td><td>KW10</td></tr></table>				Cermet	PVD Coated Carbide	Carbide		TC60M	PR930	PR1115	KW10	Applicable Toolholders	Ref. to Page for Depth of Cut & Number of Passes												
Cermet	PVD Coated Carbide	Carbide																																		
TC60M	PR930	PR1115	KW10																																	
Handed Insert shows Right-hand			mm	TPI	r _ε	S1	S2	θ																												
Partial Profile				TTX32R 6000	M UN	0.5~1.0 -	- 56~32	0.00	0.6	1.12	60°					KTTXR----16 S---KTTXL16	J40																			
				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,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

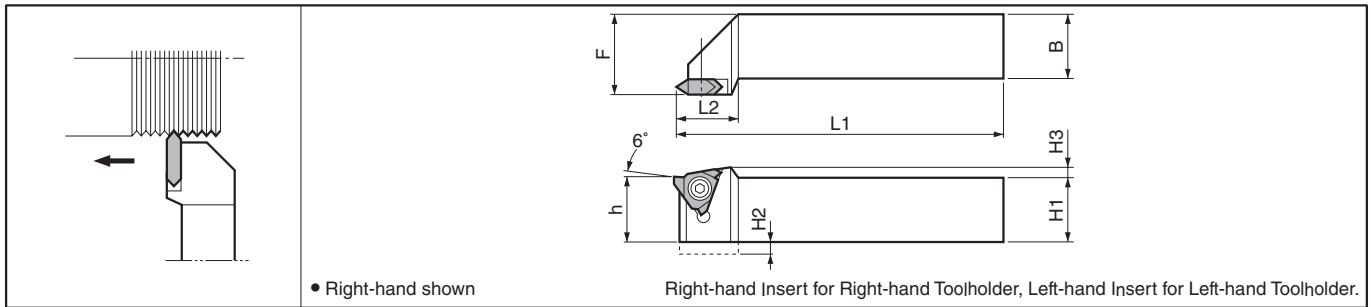
Recommended Cutting Conditions J32

■ TT and TTX

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

External Threading Toolholders [TT Insert]

KTT



Toolholder Dimensions

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

Applicable Inserts

Description				Classification of usage			
Description	A	T	φd	P	M	K	N
TT32 ^{R/L}	9.525	3.18	4.4	Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals
TT43 ^{R/L}	12.70	4.76	5.5				

Insert	Description	Applicable Thread	Pitch		Dimension (mm)		Angle	Cement	PVD Coated Carbide	Carbide	Applicable Toolholders	Ref. to Page for Depth of Cut & Number of Passes
			mm	TPI	rε	S						
Partial Profile		M UN	0.5~2.5	56~10	0.0	-	60°	●	●	●	KTT ^{R/L} ----16	J39
			1.0~2.5	24~10	0.1	-	60°	●	●	●		
			1.5~2.5	16~10	0.2	-	60°	●	●	●		
			2.5	11~10	0.3	-	60°	●	R	R		
			-	-	-	-	60°	●	●	●		
Full Profile		M	1.00	-	0.12	0.8	60°	R	R	R	J40	J40
			1.25	-	0.15	0.9	60°	R	R	R		
			1.50	-	0.19	1.0	60°	R	R	R		
			2.00	-	0.25	1.7	60°	R	R	R		
			-	-	-	-	60°	R	R	R		
Partial Profile		M UN	1.0~3.5	24~8	0.1	-	60°	●	●	●	KTT ^{R/L} ----22	J39
			1.5~3.5	16~8	0.2	-	60°	●	●	●		
			2.5~3.5	11~8	0.3	-	60°	●	●	R		
			3.0~3.5	8	0.4	-	60°	●	●	R		
			-	-	-	-	60°	●	●	●		
		G, PT W	28~11	24~7	0.1	-	55°	●	R	R		
			14~11	16~7	0.2	-	55°	●	R	R		
			11	10~7	0.3	-	55°	●	R	R		
			-	-	-	-	55°	●	●	●		
			8~7	-	0.4	-	55°	●	●	●		

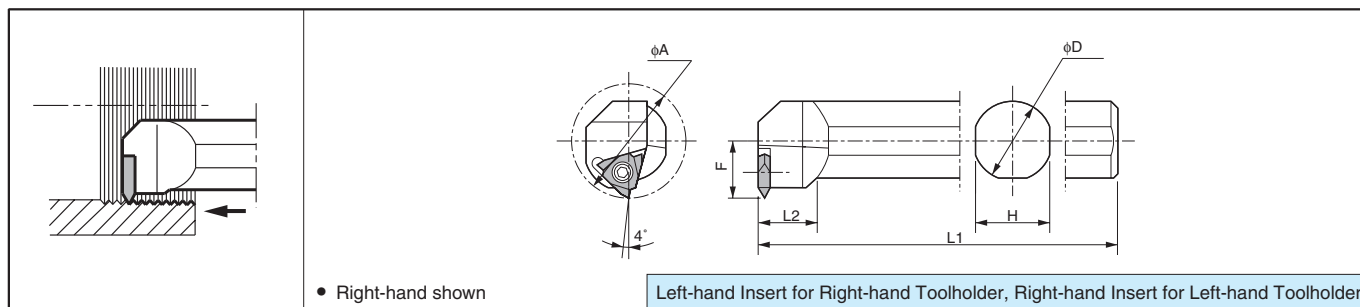
Applicable Thread	M: Metric	R, Rc(PT)(BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Recommended Cutting Conditions **J32**

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

Internal Threading Toolholders [TT Insert]

KITG



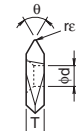
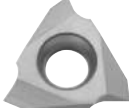
Toolholder Dimensions

Description		Std.		Min. Bore Dia.	Dimension (mm)					Spare Parts				
							Clamp Screw		Wrench					
		R	L		φA	φD	H	L1	L2	F				
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/L} 3525T-16...P2.5 or 10TPI, KITG^{R/L} 4532T-22...P3.0 or 8TPI.

Applicable Inserts

Description				A	T	φd					Classification of usage			
TT32 ^{R/L}				9.525	3.18	4.4					● : 1st Choice ○ : 2nd Choice			
TT43 ^{R/L}				12.70	4.76	5.5								

Insert Handed Insert shows Right-hand		Description	Applicable Thread	Pitch		Dimension (mm)		Angle	Cermet	PVD Coated Carbide		Carbide	Applicable Toolholders	Ref. to Page for Depth of Cut & Number of Passes					
				mm	TPI	re	θ			TC60M	PR930				PR1115	KW10			
Partial Profile 	TT32 ^{R/L}	6000	M UN	0.5~2.5	-	48~10	0.0	60°	●	●	●		KITG ^{R/L} ----16	J39 J40					
		6001	M UN	1.5~2.5	-	16~10	0.1								60°	●	●	●	●
	TT32 ^{R/L}	5501	G,PT W	-	28~11	0.1	55°	●	●	R	●								
		5502	G,PT W	-	16~18	0.2									55°	●	●	R	●
	TT43 ^{R/L}	6001	M UN	1.5~3.0	14~11	0.1	60°	●	●	●	●		KITG ^{R/L} ----22						
		6002	M UN	3.0	-	16~10									0.2	60°	●	●	●
	TT43 ^{R/L}	5501	G,PT W	-	28~11	0.1	55°	●	R	R	●								
		5502	G,PT W	-	14~11	0.2									55°	●	R	R	●
		5503	G,PT W	-	11	0.3									55°	●	R	R	
		5504	G,PT W	-	8	0.4									55°	●			

Recommended Cutting Conditions **J32**

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

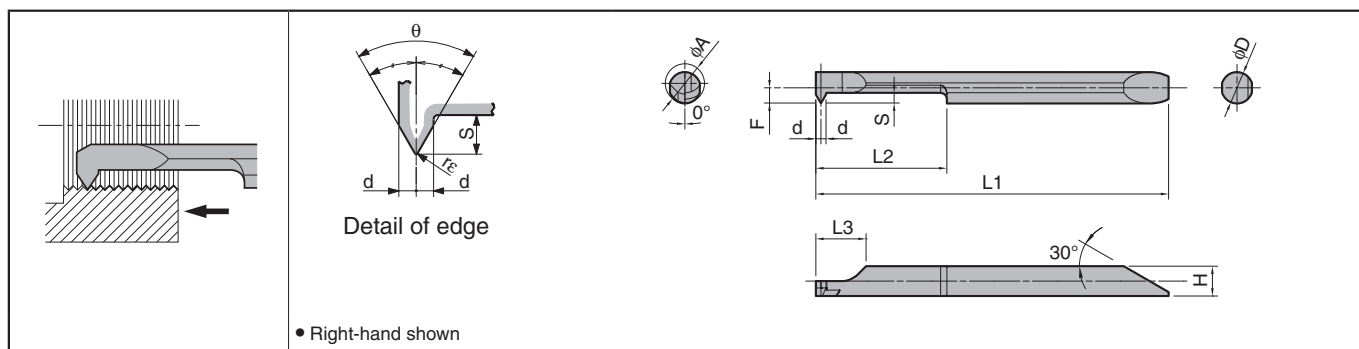
● : Std. Item
R : Std. Item (Right-hand Only)

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

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

Micro Internal Threading EZ Bars

EZT



Dimensions

Description	Min. Bore Dia.	Dimension (mm)										MEGA COAT	Applicable Thread					
		ϕA	ϕD	H	L1	L2	L3	F	S	d	r_e	θ	Metric		Unified		American National Tapered Pipe	
													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 $\pm$ 0.01	60°	PR1225	● 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				● M5 and over (Fine Thread: M5 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 $\pm$ 0.015	55°	●	W10 TPI 24 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 TPI 20 and over	20 ~ 18	G1/8 and over R1/8 and over	28,19	—	—

• For American National Tapered Pipe (NPT), use EZTR..-60-004 **J27**
Applicable Sleeves **J25**

Applicable Sleeves

Sleeve Description				Applicable Inserts			Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) F22	EZH-HP (Adjustable overhang length) F24	EZH-ST F26	Sleeve Shank Dia. φD1(mm)	EZT	HPT	Shank Dia. φD(mm)	
—	—	EZH 02512ST-80 03012ST-80 03512ST-80 04012ST-80 05012ST-80 06012ST-80 07012ST-80	12	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	(General purpose)
—	EZH 02516HP-100 03016HP-100 03516HP-100 04016HP-100 05016HP-100 06016HP-100 07016HP-100	EZH 02516ST-100 03016ST-100 03516ST-100 04016ST-100 05016ST-100 06016ST-100 07016ST-100	16	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	(General purpose)
EZH 02519CT-120 03019CT-120 03519CT-120 04019CT-120 05019CT-120 06019CT-120 07019CT-120	EZH 02519HP-120 03019HP-120 03519HP-120 04019HP-120 05019HP-120 06019HP-120 07019HP-120	EZH 02519ST-120 03019ST-120 03519ST-120 04019ST-120 05019ST-120 06019ST-120 07019ST-120	19.05	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	Citizen Machinery
EZH 02520CT-120 03020CT-120 03520CT-120 04020CT-120 05020CT-120 06020CT-120 07020CT-120	EZH 02520HP-120 03020HP-120 03520HP-120 04020HP-120 05020HP-120 06020HP-120 07020HP-120	EZH 02520ST-120 03020ST-120 03520ST-120 04020ST-120 05020ST-120 06020ST-120 07020ST-120	20	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 02522CT-135 03022CT-135 03522CT-135 04022CT-135 05022CT-135 06022CT-135 07022CT-135	EZH 02522HP-135 03022HP-135 03522HP-135 04022HP-135 05022HP-135 06022HP-135 07022HP-135	EZH 02522ST-135 03022ST-135 03522ST-135 04022ST-135 05022ST-135 06022ST-135 07022ST-135	22	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	Star Micronics Nomura DS Tsugami
EZH 02525.0CT-135 03025.0CT-135 03525.0CT-135 04025.0CT-135 05025.0CT-135 06025.0CT-135 07025.0CT-135	EZH 02525.0HP-135 03025.0HP-135 03525.0HP-135 04025.0HP-135 05025.0HP-135 06025.0HP-135 07025.0HP-135	EZH 02525.0ST-135 03025.0ST-135 03525.0ST-135 04025.0ST-135 05025.0ST-135 06025.0ST-135 07025.0ST-135	25	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 02525.4CT-120 03025.4CT-120 03525.4CT-120 04025.4CT-120 05025.4CT-120 06025.4CT-120 07025.4CT-120	EZH 02525.4HP-120 03025.4HP-120 03525.4HP-120 04025.4HP-120 05025.4HP-120 06025.4HP-120 07025.4HP-120	EZH 02525.4ST-120 03025.4ST-120 03525.4ST-120 04025.4ST-120 05025.4ST-120 06025.4ST-120 07025.4ST-120	25.4	EZTR...025-... EZTR...030-... EZTR...035-... EZTR...040-... EZTR...050-... EZTR...060-... EZTR...070-...	— — — HPTR..04-... HPTR..05-... — HPTR..07-...	2.5 3 3.5 4 5 6 7	Citizen Machinery

· 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.

J



Threading



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	0.04	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

J



Threading

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
G $\frac{1}{16}$ (-)	28	EZTR 060050-55-008 080070-55-008	6.56	0.12
G $\frac{1}{8}$ (PF $\frac{1}{8}$)			8.57	
G $\frac{1}{4}$ (PF $\frac{1}{4}$)	19	EZTR 080070-55-008	11.45	0.18
G $\frac{3}{8}$ (PF $\frac{3}{8}$)			14.95	

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

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

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

Depth of Cut & Number of Passes (Parallel Pipe / Tapered Pipe)

TPI	Total ap (mm)	No. of Passes	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	Full Profile
$\frac{1}{16}$ NPT $\frac{1}{8}$ NPT	27	No Tools Available		
$\frac{1}{4}$ NPT $\frac{3}{8}$ NPT	18	EZH sleeve	EZTR060050-60-004 EZTR070060-60-004	-
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	EZH sleeve	EZTR070060-60-004	-
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	SINR1616S-16 SINR2016S-16	-	16IR14NPT

Application of NPTF Thread

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

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

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

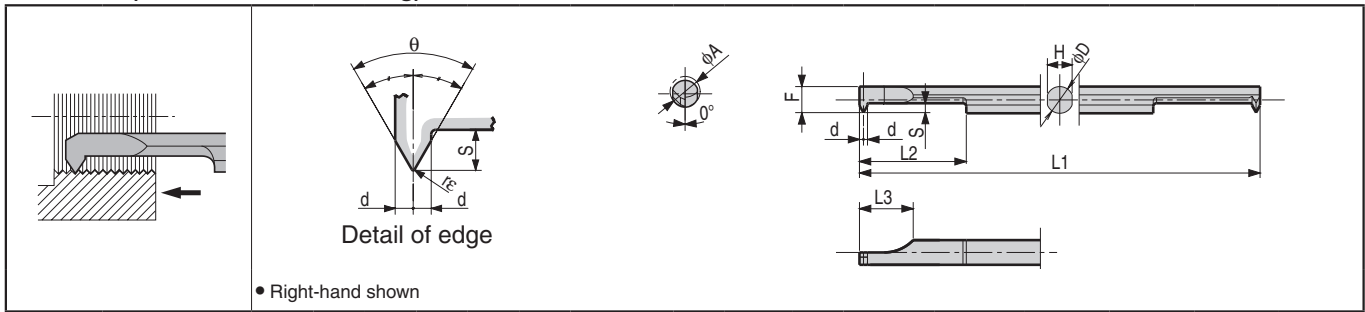
TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass	19Pass
18	1.23	16	0.18	0.14	0.12	0.12	0.10	0.09	0.08	0.08	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.02			
14	1.56	19	0.18	0.16	0.14	0.14	0.12	0.10	0.09	0.09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

J



Threading

HPT (Micro Internal Threading)



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	re	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
															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 TPI20 and over	20 ~ 18	G1/8 and over R1/8 and over	28, 19

For American National Pipe (NPT), use HPTR...-60-005. ● J29

Description Table for Tip-Bars and Applicable Sleeves

Tip-Bars Description	Ref. to Page for Applicable Sleeves ● J25	
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

<Note>

- 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.
- Coolant is recommended.

★: 1st Recommendation

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

●: Std. Item

Application of Parallel Pipe / Tapered Pipe Thread

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

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

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

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

· 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	Full Profile
$\frac{1}{16}$ NPT $\frac{1}{8}$ NPT	27	No Tools Available		
$\frac{1}{4}$ NPT $\frac{3}{8}$ NPT	18	EZH sleeve (Ref. to Page J25)	HPTR06005-60-005 HPTR07507-60-005	-
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	EZH sleeve (Ref. to Page J25)	HPTR07507-60-005	-
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	SINR1616S-16 SINR2016S-16	-	16IR14NPT

· Application of NPTF Thread

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

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

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

TPI	Total ap (mm)	No. of Passes	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

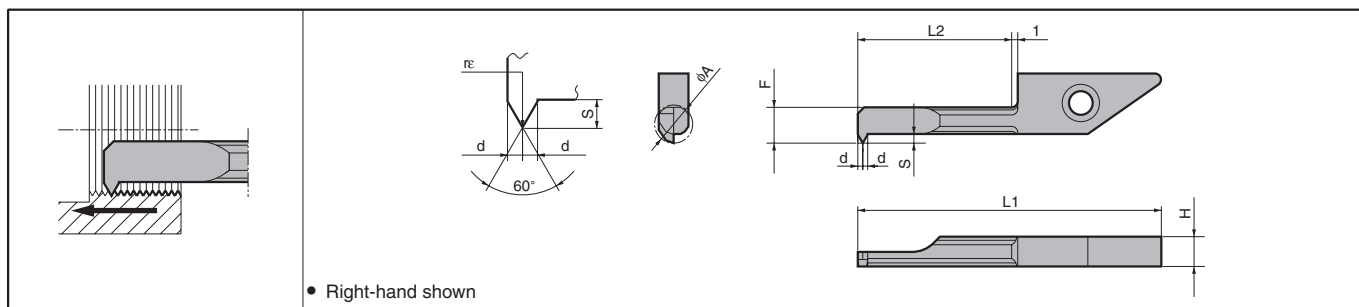
J



Threading

Tip-Bars for Micro Threading

VNT (System Tip-Bars)



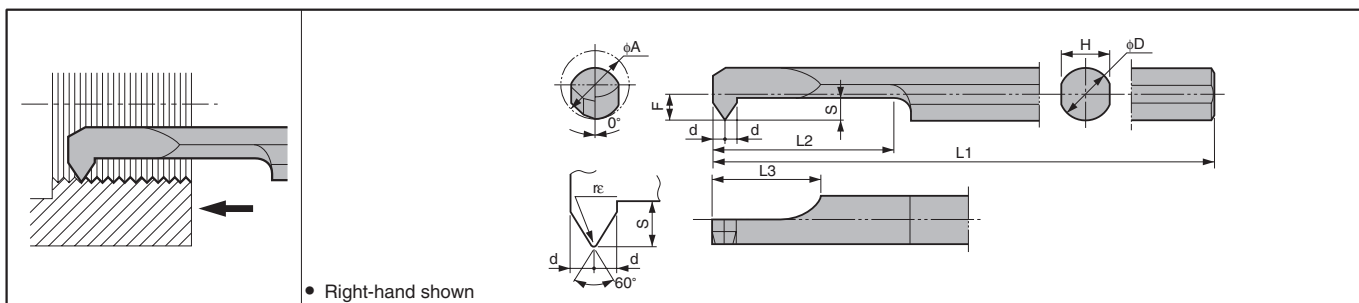
Dimensions

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	●	●	●

For applicable Toolholder, Ref. to Page F30 ~ F31.

PST-S (Tip-Bars)

This insert will be switched to EZT J24



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, Ref. to Page F84.

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

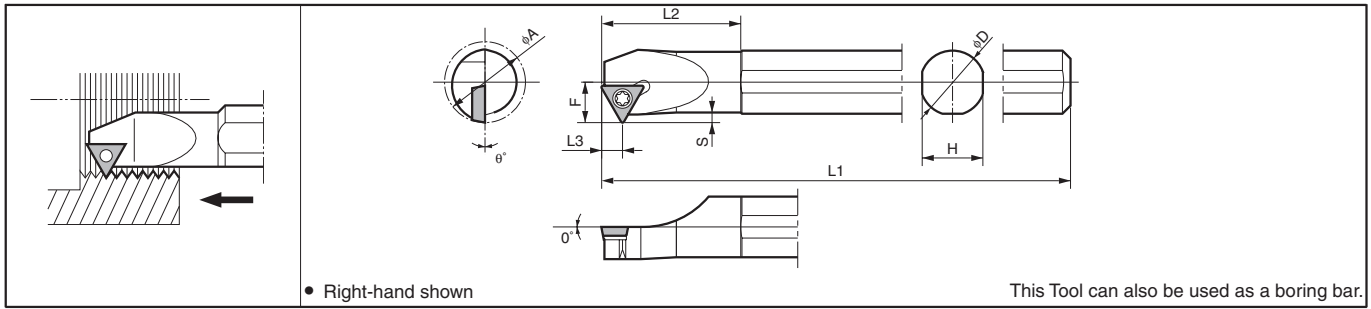
<Note>1) The standard cutting speed is Vc=30~50m/min. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.

2) Coolant is recommended.

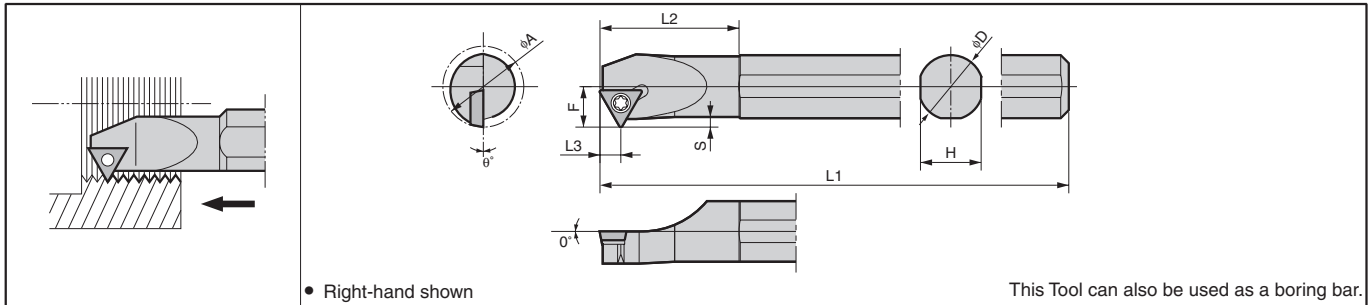
● : Std. Item ○ : Check Availability

Internal Threading Toolholders [TPGB Insert]

S...STWP



S...STWP-E Excellent Bar

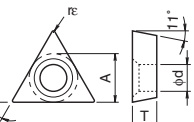


Toolholder Dimensions

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

* Dimension S: shows the Max. available ap.

Applicable Inserts

Description				A	T	φd					P	Carbon Steel / Alloy Steel		●			Classification of usage		
TPGB1102...				6.35	2.38	3.5					M	Stainless Steel					● : 1st Choice		
TPGB1103...				6.35	3.18	3.3 <th colspan="4"></th> <th>K</th> <th colspan="2">Cast Iron</th> <th></th> <th colspan="2"></th> <th colspan="2">○ : 2nd Choice</th>					K	Cast Iron					○ : 2nd Choice		
												N	Non-ferrous Metals						
Insert				Description		Applicable Thread	Pitch		Dimension (mm)			Angle	Cermet		Carbide	Applicable Toolholders		Ref. to Page for Depth of Cut & Number of Passes	
							mm	TPI	rε				θ	TN6020					TN60
Partial Profile			TPGB	1102005	M UN	0.75~1.5	-	28~16	0.05				60°	●	●	...STWP $\frac{R}{L}$ 11-12(E)		J41	
			110201	M UN	1.5	-	16	0.10				●	●	●	...				
			TPGB	1103005	M UN	0.75~3.5	-	28~11	0.05				●	●	●	...STWP $\frac{R}{L}$ 11-16(E)			
			110301	M UN	1.5~3.5	-	16~8	0.10				●	●	●	...STWP $\frac{R}{L}$ 11-20(E)				
			110302	M UN	3.0~3.5	-	8	0.20				●	●	●	●	...STWP $\frac{R}{L}$ 11-25(E)			

Recommended Cutting Conditions **J32**

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

Inserts are sold in 10 piece boxes

Recommended Cutting Conditions

KTN / KTNS

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		
	Cermet	PVD Coated Carbide	Carbide
	TC60M	PR1115	GW15
Carbon Steel	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	
Alloy Steel	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	
Stainless Steel	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25mm and under	0.25mm and under	
Cast Iron	-	-	★ 100
First ap (Radial)			0.3mm and under
Aluminum	-	-	★ 150~400
First ap (Radial)			0.3mm and under
Brass	-	-	★ 150~300
First ap (Radial)			0.3mm and under

SIN / CIN

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		
	Cermet	PVD Coated Carbide	Carbide
	TC60M	PR1115	GW15
Carbon Steel	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	
Alloy Steel	☆ 100~150	★ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under	
Stainless Steel	☆ 60~80	★ 60~80	-
First ap (Radial)	0.25mm and under	0.25mm and under	
Cast Iron	-	-	★ 100
First ap (Radial)			0.3mm and under
Aluminum	-	-	★ 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	-	-	-	★ 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	-	-	-	★ 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	-	-	-	★ 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	-	-	-	★ 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>.

J

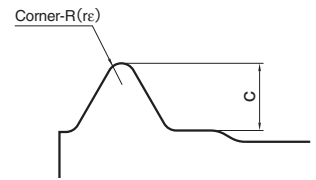


Threading

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.



(ap shows the value of radial ap)

11 / 16 / 22 (Full Profile) type

Type		Pitch / 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
		mm / TPI																							
Metric	External Thread	1.00mm	16ER 100ISO-TF	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25mm	125ISO-TF	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50mm	150ISO-TF	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		1.75mm	175ISO-TF	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	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	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.10	0.10	0.08	0.06	0.05								
		3.00mm	300ISO-TF	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	16E% 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	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04		0.06	0.04											
		1.25mm	125ISO-TF	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.10	0.08	0.07	0.05										
		1.50mm	150ISO-TF	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.10	0.08	0.07	0.05										
		1.75mm	175ISO-TF	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	11I% 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		0.06	0.04											
		1.25mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.08	0.07	0.05										
		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	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04		0.06	0.04												
1.25mm		125ISO-TF	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04													
1.50mm		150ISO-TF	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	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	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	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.05	0.05	0.05						
3.00mm		300ISO-TF	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02					
1.00mm		16I% 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04		0.06	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	0.05	0.05	0.02					
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	0.05	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	0.05	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	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05														
		20 TPI	20UN-TF	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05													
		18 TPI	18UN-TF	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05													
		16 TPI	16UN-TF	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05												
		14 TPI	14UN-TF	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	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	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	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	8UN-TF	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	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.																			

Depth of Cut & Number of Passes

11 / 16 (Full Profile) type

(ap shows the value of radial ap)

Type		Pitch / 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
		mm / TPI																							
Parallel Pipe	External Thread	19 TPI	16ER 19W-TF	0.89	0.97	6	0.27	0.22	0.18	0.15	0.10	0.05													
		14 TPI	14W-TF	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	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	0.88	0.96	6	0.25	0.21	0.20	0.15	0.10	0.05													
		14 TPI	14W-TF	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	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	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	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	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	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	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	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	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04														
		19 TPI	19BSPT-TF	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05													
		14 TPI	14BSPT-TF	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	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													
	Internal Thread	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							
		28 TPI	11IR 28BSPT-TF	0.58	0.63	5	0.20	0.16	0.13	0.10	0.04														
		19 TPI	19BSPT-TF	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04												
		14 TPI	14BSPT-TF	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														
	Internal Thread	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	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	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	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	
		mm / TPI																								
Metric	External Thread	0.5mm	16ER A60-TF AG60-TF	0.06 0.06	0.33 0.33	5 5	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05	0.03 0.03															
		0.75mm	16ER A60-TF AG60-TF	0.06 0.06	0.51 0.51	6 6	0.14 0.14	0.11 0.11	0.09 0.09	0.07 0.07	0.06 0.06	0.04 0.04														
		1.00mm	16ER A60-TF AG60-TF	0.06 0.06	0.70 0.70	7 7	0.18 0.18	0.13 0.13	0.12 0.12	0.09 0.09	0.08 0.08	0.06 0.06	0.04 0.04													
		1.25mm	16ER A60-TF AG60-TF	0.06 0.06	0.89 0.89	8 8	0.18 0.18	0.15 0.15	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05												
		1.50mm	16ER A60-TF AG60-TF	0.06 0.06	1.08 1.08	9 9	0.21 0.21	0.17 0.17	0.16 0.16	0.14 0.14	0.11 0.11	0.09 0.09	0.08 0.08	0.07 0.07	0.05 0.05											
		1.75mm	16ER G60-TF AG60-TF	0.22 0.06	1.11 1.27	8 11	0.24 0.22	0.20 0.20	0.18 0.18	0.16 0.13	0.13 0.11	0.10 0.09	0.06 0.09	0.04 0.08	0.04 0.07			0.04								
		2.00mm	16ER G60-TF AG60-TF	0.22 0.06	1.30 1.46	10 11	0.24 0.25	0.20 0.22	0.18 0.20	0.16 0.16	0.14 0.14	0.12 0.12	0.09 0.10	0.07 0.09	0.06 0.08	0.04 0.06	0.04 0.06	0.04								
		2.50mm	16ER G60-TF AG60-TF	0.22 0.06	1.67 1.84	12 13	0.25 0.25	0.22 0.22	0.20 0.20	0.18 0.19	0.16 0.17	0.14 0.16	0.12 0.14	0.12 0.11	0.10 0.10	0.08 0.09	0.06 0.09	0.06 0.09	0.04 0.07	0.04 0.05						
		3.00mm	16ER G60-TF AG60-TF	0.22 0.06	2.05 2.22	14 15	0.25 0.27	0.23 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.13 0.13	0.12 0.12	0.11 0.12	0.10 0.12	0.10 0.11	0.09 0.10	0.07 0.09	0.05 0.08	0.05				
		0.5mm	16ER A60 AG60	0.06 0.06	0.33 0.33	5 5	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05	0.03 0.03															
		0.75mm	16ER A60 AG60	0.06 0.06	0.51 0.51	6 6	0.14 0.14	0.11 0.11	0.09 0.09	0.07 0.07	0.06 0.06	0.04 0.04														
		1.00mm	16ER A60 AG60	0.06 0.06	0.70 0.70	7 7	0.18 0.18	0.13 0.13	0.12 0.12	0.09 0.09	0.08 0.08	0.06 0.06	0.04 0.04													
		1.25mm	16ER A60 AG60	0.06 0.06	0.89 0.89	8 8	0.18 0.18	0.15 0.15	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05												
		1.50mm	16ER A60 AG60	0.06 0.06	1.08 1.08	9 9	0.21 0.21	0.17 0.17	0.16 0.16	0.14 0.14	0.11 0.11	0.09 0.09	0.08 0.08	0.07 0.07	0.05 0.05											
		1.75mm	16ER G60 AG60	0.22 0.06	1.11 1.27	8 11	0.24 0.22	0.20 0.18	0.16 0.13	0.13 0.11	0.10 0.09	0.08 0.10	0.07 0.13	0.04 0.12					0.04							
		2.00mm	16ER G60 AG60	0.22 0.06	1.30 1.46	10 11	0.24 0.25	0.20 0.22	0.18 0.16	0.14 0.14	0.12 0.12	0.09 0.10	0.07 0.09	0.06 0.08	0.04 0.06			0.04								
		2.50mm	16ER G60 AG60	0.22 0.06	1.67 1.84	12 13	0.25 0.25	0.22 0.20	0.18 0.19	0.16 0.17	0.14 0.16	0.12 0.14	0.12 0.11	0.10 0.10	0.08 0.09	0.06 0.10	0.06 0.09	0.06 0.09	0.04 0.07	0.04 0.05						
		3.00mm	16ER G60 AG60	0.22 0.06	2.05 2.22	14 15	0.25 0.27	0.23 0.25	0.22 0.20	0.20 0.18	0.18 0.16	0.16 0.14	0.14 0.13	0.13 0.12	0.12 0.11	0.11 0.10	0.10 0.10	0.10 0.09	0.09 0.07	0.07 0.05	0.05 0.08	0.05				

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI	Description	Corner-R (r _e)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
		mm / TPI																								
Metric	External Thread	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	0.04	0.03	0.03						
			08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	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	0.05	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	0.05	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	0.05	0.04	0.04	0.04	0.03	0.03		
				0.07	1.07	19	0.07	0.07	0.07	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	0.04	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															
					0.63	6	0.16	0.14	0.12	0.10	0.07	0.04														
		0.95			9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04												
		1.00mm	16IR A60 AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04															
					0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		0.75mm	16IR A60 AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04														
					0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
		1.00mm	16IR A60 AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04														
					0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.25mm	16IR A60 AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04													
					0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
		1.50mm	16IR A60 AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04											
					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 AG60	0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04												
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 AG60	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												
			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 AG60	0.11	1.51	14	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04												
			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	0.02						
3.00mm	16IR G60 AG60	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	0.10	0.08	0.07	0.06	0.04	0.02					
			0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02			
External Thread	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								
			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	0.08	0.06	0.05							
			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	0.08	0.06	0.05					
			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	0.08	0.06	0.05				
Unified	External Thread	48 TPI	16ER A60-TF AG60-TF	0.06 0.06	0.35 0.35	5 5	0.10 0.10	0.08 0.08	0.07 0.07	0.06 0.06	0.04 0.04															
		24 TPI	16ER A60-TF AG60-TF	0.06 0.06	0.75 0.75	7 7	0.18 0.18	0.15 0.15	0.13 0.13	0.10 0.10	0.08 0.08	0.07 0.07	0.04 0.04													
		20 TPI	16ER A60-TF AG60-TF	0.06 0.06	0.91 0.91	8 8	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.09 0.09	0.07 0.07	0.05 0.05												
		18 TPI	16ER A60-TF AG60-TF	0.06 0.06	1.01 1.01	8 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.08 0.08	0.08 0.08	0.05 0.05												
		16 TPI	16ER A60-TF AG60-TF	0.06 0.06	1.15 1.15	10 10	0.22 0.22	0.18 0.18	0.15 0.15	0.13 0.13	0.11 0.11	0.10 0.10	0.08 0.08	0.08 0.06	0.06 0.04											
		14 TPI	16ER G60-TF AG60-TF	0.22 0.06	1.15 1.32	9 11	0.20 0.22	0.18 0.20	0.16 0.18	0.14 0.15	0.13 0.13	0.12 0.10	0.10 0.09	0.08 0.08	0.07 0.07	0.05 0.06	0.04 0.04									
		13 TPI	16ER G60-TF AG60-TF	0.22 0.06	1.26 1.43	9 11	0.24 0.25	0.20 0.23	0.18 0.20	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.07 0.08	0.05 0.06	0.05 0.05	0.04 0.04									
		12 TPI	16ER G60-TF AG60-TF	0.22 0.06	1.38 1.55	10 12	0.25 0.24	0.22 0.20	0.17 0.18	0.15 0.16	0.12 0.15	0.10 0.12	0.07 0.10	0.07 0.09	0.06 0.07	0.04 0.07	0.04 0.06	0.04 0.05								
		10 TPI	16ER G60-TF AG60-TF	0.22 0.06	1.71 1.87	12 13	0.25 0.25	0.22 0.21	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.08	0.06 0.06	0.05 0.04								
		9 TPI	16ER G60-TF AG60-TF	0.22 0.06	1.92 2.08	13 14	0.27 0.27	0.24 0.24	0.22 0.22	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.13	0.11 0.12	0.10 0.11	0.08 0.10	0.06 0.09	0.04 0.07	0.05 0.05						
		8 TPI	16ER G60-TF AG60-TF	0.22 0.06	2.19 2.35	15 16	0.27 0.30	0.25 0.25	0.22 0.23	0.20 0.20	0.18 0.18	0.16 0.17	0.14 0.16	0.12 0.14	0.12 0.12	0.11 0.12	0.10 0.11	0.09 0.10	0.08 0.09	0.05 0.08	0.05 0.05	0.05 0.05				
		48 TPI	16ER A60 AG60	0.06 0.06	0.35 0.35	5 5	0.10 0.10	0.08 0.08	0.07 0.07	0.06 0.06	0.04 0.04															
		24 TPI	16ER A60 AG60	0.06 0.06	0.75 0.75	7 7	0.18 0.18	0.15 0.15	0.13 0.13	0.10 0.10	0.08 0.08	0.07 0.07	0.04 0.04													
		20 TPI	16ER A60 AG60	0.06 0.06	0.91 0.91	8 8	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.09 0.09	0.07 0.07	0.05 0.05												
		18 TPI	16ER A60 AG60	0.06 0.06	1.01 1.01	8 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.08 0.08	0.08 0.08	0.05 0.05												

Depth of Cut & Number of Passes

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type	Pitch / TPI	Description	Corner-R (r _c)	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	18 TPI 081R 60007	0.07	0.85	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03		
		16 TPI 081R 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	0.03	0.03	
		48 TPI		0.32	5	0.08	0.07	0.07	0.06	0.04														
		24 TPI		0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
		20 TPI		0.8	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
		18 TPI		0.9	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04										
		16 TPI		1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04									
		48 TPI 161R A60 AG60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04														
		24 TPI 161R A60 AG60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
		20 TPI 161R A60 AG60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
		18 TPI 161R A60 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 161R A60 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 161R G60 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 161R G60 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 161R G60 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 161R G60 AG60	0.02	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					
		9 TPI 161R G60 AG60	0.02	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	0.06	0.04	0.02				
		8 TPI 161R G60 AG60	0.02	1.81	17	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.03	0.02			
		7 TPI 221R N60	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		
		6 TPI 221R N60	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	0.03	0.02	
		5 TPI 221R N60	0.22	2.14	14	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.07	0.06	0.05	0.04	0.03	0.02		
Parallel Pipe / Tapered Pipe	External Thread	28 TPI 16ER A55-TF AG55-TF	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI 16ER A55-TF AG55-TF	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 AG55-TF	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		11 TPI 16ER G55-TF AG55-TF	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
		28 TPI 16ER A55 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								
		19 TPI 16ER A55 AG55	0.06	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04	0.03						
		14 TPI 16ER G55 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	0.06	0.05	0.04	0.03					
		11 TPI 16ER G55 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	0.06	0.05	0.04	0.03					
	Internal Thread	28 TPI 061R 5501 081R 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							
		19 TPI 081R 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 111R A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI 111R A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		28 TPI 161R A55 AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI 161R A55 AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		14 TPI 161R G55 AG55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		11 TPI 161R G55 AG55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		14 TPI 161R G55 AG55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.06	0.05	0.04								
		11 TPI 161R G55 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	0.03							
Whitworth	External Thread	48 TPI 16ER A55-TF AG55-TF	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
		24 TPI 16ER A55-TF AG55-TF	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI 16ER A55-TF AG55-TF	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 AG55-TF	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 AG55-TF	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 AG55-TF	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 AG55-TF	0.22	1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.10	0.09	0.07	0.05									
		11 TPI 16ER G55-TF AG55-TF	0.06	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04	0.03						
		10 TPI 16ER G55-TF AG55-TF	0.06	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08	0.05					
		9 TPI 16ER G55-TF AG55-TF	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					
		8 TPI 16ER G55-TF AG55-TF	0.22	2.01	14	0.24	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05				
		48 TPI 16ER A55 AG55	0.06	2.29	15	0.28	0.26	0.24	0.22	0.19	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05					
			0.06	2.49	16	0.30	0.28	0.26	0.24	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.06	0.05				
			0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
			0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														

60° · 55° (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch / TPI	Description	Corner-R (r _e)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		mm / TPI																							
Whitworth	External Thread	24 TPI	16ER A55 AG55	0.06 0.06	0.79 0.79	7 7	0.18 0.18	0.16 0.16	0.14 0.14	0.11 0.11	0.08 0.08	0.07 0.07	0.05 0.05												
		20 TPI	16ER A55 AG55	0.06 0.06	0.96 0.96	8 8	0.20 0.20	0.18 0.18	0.15 0.15	0.13 0.13	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05											
		18 TPI	16ER A55 AG55	0.06 0.06	1.07 1.07	9 9	0.20 0.20	0.17 0.17	0.16 0.16	0.14 0.14	0.11 0.11	0.09 0.09	0.08 0.08	0.07 0.07	0.05 0.05										
		16 TPI	16ER A55 AG55	0.06 0.06	1.22 1.22	11 11	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.11 0.11	0.10 0.10	0.09 0.09	0.08 0.08	0.07 0.07	0.06 0.06	0.04 0.04								
		14 TPI	16ER G55 AG55	0.22 0.06	1.20 1.40	9 11	0.22 0.24	0.19 0.22	0.17 0.19	0.15 0.16	0.13 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.04 0.06	0.05 0.05	0.04 0.04								
		12 TPI	16ER G55 AG55	0.22 0.06	1.44 1.64	10 12	0.24 0.24	0.22 0.22	0.20 0.20	0.18 0.18	0.15 0.16	0.12 0.14	0.12 0.12	0.09 0.10	0.07 0.09	0.05 0.08	0.05 0.06	0.05 0.05							
		11 TPI	16ER G55 AG55	0.22 0.06	1.60 1.79	12 13	0.24 0.25	0.22 0.22	0.20 0.21	0.18 0.20	0.16 0.18	0.14 0.16	0.13 0.14	0.10 0.12	0.08 0.10	0.06 0.08	0.05 0.05	0.04 0.05	0.03						
		10 TPI	16ER G55 AG55	0.22 0.06	1.78 1.98	12 14	0.24 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.17 0.16	0.16 0.15	0.15 0.14	0.13 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.09 0.09	0.07 0.08	0.05 0.08	0.05 0.05				
		9 TPI	16ER G55 AG55	0.22 0.06	2.01 2.20	14 15	0.24 0.27	0.22 0.25	0.20 0.22	0.19 0.20	0.18 0.18	0.16 0.16	0.15 0.14	0.14 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.09	0.07 0.08	0.05 0.08	0.05 0.05				
		8 TPI	16ER G55 AG55	0.22 0.06	2.29 2.49	15 16	0.28 0.30	0.26 0.27	0.24 0.26	0.22 0.24	0.19 0.20	0.16 0.18	0.14 0.16	0.13 0.14	0.12 0.12	0.12 0.12	0.11 0.11	0.10 0.10	0.09 0.09	0.08 0.08	0.05 0.06	0.05 0.05			
		7 TPI	22ER N55	0.47	2.43	16	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.10	0.09	0.08	0.06	0.05			
		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		
		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	
	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 AG55	0.06 0.06	0.72 0.72	7 7	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05												
		20 TPI	16IR A55 AG55	0.06 0.06	0.87 0.87	8 8	0.16 0.16	0.15 0.15	0.14 0.14	0.13 0.13	0.11 0.11	0.08 0.08	0.06 0.06	0.04 0.04											
		18 TPI	16IR A55 AG55	0.06 0.06	0.97 0.97	8 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.10 0.10	0.08 0.08	0.06 0.06	0.05 0.05											
		16 TPI	16IR A55 AG55	0.06 0.06	1.10 1.10	9 9	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05										
		14 TPI	16IR G55 AG55	0.22 0.06	1.06 1.27	8 11	0.21 0.20	0.19 0.18	0.17 0.17	0.15 0.15	0.12 0.13	0.10 0.10	0.07 0.09	0.05 0.08	0.05 0.07	0.04 0.06	0.04 0.04								
		12 TPI	16IR G55 AG55	0.22 0.06	1.28 1.48	9 11	0.22 0.24	0.20 0.22	0.19 0.20	0.17 0.18	0.15 0.16	0.13 0.13	0.10 0.11	0.08 0.09	0.04 0.06	0.04 0.05	0.04 0.05								
		11 TPI	16IR G55 AG55	0.22 0.06	1.42 1.62	10 12	0.24 0.24	0.22 0.22	0.20 0.20	0.18 0.18	0.15 0.16	0.12 0.14	0.10 0.12	0.09 0.10	0.07 0.08	0.05 0.07	0.05 0.07	0.05 0.06							
		10 TPI	16IR G55 AG55	0.22 0.06	1.59 1.79	12 13	0.24 0.25	0.22 0.22	0.20 0.21	0.18 0.20	0.16 0.18	0.14 0.16	0.12 0.14	0.10 0.12	0.08 0.10	0.06 0.08	0.05 0.05	0.04 0.05	0.03						
		9 TPI	16IR G55 AG55	0.22 0.06	1.79 1.99	12 14	0.24 0.25	0.22 0.23	0.20 0.20	0.18 0.18	0.17 0.16	0.16 0.15	0.15 0.14	0.13 0.13	0.12 0.12	0.10 0.11	0.07 0.10	0.05 0.09	0.05 0.08	0.05 0.05					
		8 TPI	16IR G55 AG55	0.22 0.06	2.05 2.25	14 15	0.24 0.28	0.23 0.26	0.22 0.24	0.20 0.21	0.18 0.18	0.16 0.16	0.15 0.14	0.14 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.10	0.07 0.09	0.05 0.08	0.05 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	0.11	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				
Internal Thread	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		
	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				

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 (re)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
Metric (60°)	External Thread	1.00mm	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													
			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												
			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											
		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									
		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		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												
	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									
2.50mm	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														
		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																											

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

(ap shows the value of radial ap)

Type		Pitch / TPI mm / TPI	Description	Corner-R (r _e)	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	TT32° 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02												
		0.70mm	TT32° 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02											
		0.75mm	TT32° 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02										
		0.80mm	TT32° 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02										
		1.00mm	TT32° TT32/43° 6000 6001	0.00 0.10	0.76 0.66	8 6	0.15 0.20	0.12 0.15	0.12 0.12	0.11 0.10	0.10 0.07	0.08 0.02	0.06	0.02										
		1.25mm	TT32° TT32/43° 6000 6001	0.00 0.10	0.95 0.85	9 7	0.18 0.25	0.16 0.20	0.14 0.13	0.12 0.10	0.10 0.10	0.08 0.05	0.02	0.05	0.02									
		1.50mm	TT32° TT32/43° 6000 6001 6002	0.00 0.10 0.20	1.14 1.04 0.94	10 9 8	0.20 0.25 0.25	0.18 0.18 0.18	0.16 0.14 0.14	0.14 0.12 0.12	0.10 0.10 0.10	0.07 0.08 0.05	0.05 0.02	0.05	0.02	0.02								
		1.75mm	TT32° TT32/43° 6000 6001 6002	0.00 0.10 0.20	1.33 1.23 1.13	11 10 9	0.25 0.25 0.25	0.23 0.23 0.23	0.20 0.20 0.20	0.13 0.10 0.10	0.10 0.10 0.08	0.08 0.07 0.05	0.07 0.05 0.02	0.05	0.02	0.05	0.02							
		2.00mm	TT32° TT32/43° 6000 6001 6002	0.00 0.10 0.20	1.52 1.42 1.32	12 11 10	0.25 0.25 0.25	0.23 0.23 0.23	0.20 0.16 0.13	0.16 0.13 0.10	0.13 0.10 0.10	0.10 0.10 0.08	0.08 0.05 0.05	0.10 0.08 0.05	0.08 0.05 0.02	0.05	0.02	0.02						
		2.50mm	TT32° TT32/43° 6000 6001 6002 6003	0.00 0.10 0.20 0.30	1.89 1.79 1.69 1.59	13 12 11 11	0.27 0.27 0.27 0.27	0.25 0.25 0.25 0.25	0.20 0.18 0.18 0.20	0.18 0.17 0.17 0.17	0.15 0.14 0.14 0.15	0.14 0.13 0.13 0.12	0.14 0.12 0.10 0.08	0.13 0.12 0.10 0.08	0.10 0.06 0.02	0.08 0.06 0.02	0.06 0.02	0.02						
		3.00mm	TT43° 6001 6002 6003 6004	0.10 0.20 0.30 0.40	2.17 2.07 1.97 1.87	14 13 12 12	0.30 0.30 0.30 0.30	0.25 0.25 0.25 0.25	0.23 0.23 0.23 0.23	0.20 0.20 0.20 0.20	0.20 0.18 0.18 0.18	0.16 0.15 0.14 0.14	0.16 0.14 0.14 0.12	0.14 0.13 0.12 0.10	0.14 0.12 0.10 0.08	0.10 0.10 0.10 0.05	0.08 0.05 0.02	0.05 0.02	0.02					
		3.50mm	TT43° 6001 6002 6003 6004	0.10 0.20 0.30 0.40	2.55 2.45 2.35 2.25	16 15 14 14	0.30 0.30 0.30 0.30	0.27 0.27 0.27 0.27	0.23 0.23 0.23 0.23	0.22 0.22 0.22 0.20	0.20 0.18 0.18 0.18	0.18 0.16 0.16 0.16	0.16 0.16 0.15 0.14	0.16 0.14 0.14 0.12	0.14 0.14 0.12 0.10	0.14 0.12 0.10 0.08	0.10 0.10 0.10 0.05	0.08 0.10 0.08 0.02	0.05 0.05 0.02	0.02	0.05	0.02	0.02	
		Internal Thread	0.50mm	TT32° 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02												
			0.70mm	TT32° 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02											
			0.75mm	TT32° 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02											
			0.80mm	TT32° 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02											
	1.00mm		TT32° 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02											
	1.25mm		TT32° 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02										
	1.50mm		TT32° TT32/43° 6000 6001	0.00 0.10	0.97 0.87	9 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.10 0.08	0.05 0.05	0.04 0.02	0.02										
	1.75mm		TT32° TT32/43° 6000 6001	0.00 0.10	1.14 1.04	10 9	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.12 0.10	0.10 0.08	0.05 0.05	0.02	0.02									
	2.00mm		TT32° TT32/43° 6000 6001	0.00 0.10	1.30 1.20	12 11	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.13 0.12	0.10 0.10	0.08 0.08	0.05 0.05	0.02	0.05	0.03	0.02						
	2.50mm		TT32° TT32/43° 6000 6001	0.00 0.10	1.62 1.52	14 13	0.23 0.23	0.20 0.20	0.18 0.18	0.13 0.13	0.13 0.12	0.10 0.10	0.10 0.08	0.07 0.07	0.05 0.05	0.03 0.03	0.03 0.02	0.03 0.02	0.02					
	3.00mm		TT43° 6001 6002	0.10 0.20	1.85 1.75	15 14	0.25 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.14 0.14	0.13 0.13	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05	0.05 0.05	0.05 0.02	0.05	0.02	0.02		
	Parallel Pipe / Tapered Pipe (55°)		External Thread	28 TPI	TT32° 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02											
				19 TPI	TT32/43° 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02								
				14 TPI	TT32/43° 5501 5502	0.10 0.20	1.34 1.22	10 9	0.25 0.25	0.22 0.22	0.20 0.20	0.16 0.18	0.14 0.12	0.10 0.10	0.08 0.08	0.05 0.02	0.02							
			Internal Thread	11 TPI	TT32/43° 5501 5502 5503	0.10 0.20 0.30	1.73 1.62 1.50	13 12 11	0.25 0.25 0.25	0.22 0.22 0.22	0.22 0.20 0.20	0.18 0.18 0.16	0.14 0.14 0.14	0.12 0.12 0.12	0.10 0.10 0.10	0.08 0.08 0.07	0.05 0.05 0.04	0.05 0.04 0.02	0.05 0.02	0.02				
				28 TPI	TT32/43° 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.06	0.02										
		19 TPI		TT32/43° 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05										
	Whitworth (55°)	External Thread	24 TPI	TT32/43° 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
			20 TPI	TT32/43° 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
			18 TPI	TT32/43° 5501	0.10	1.01	8	0.20	0.18	0.18	0.16	0.12	0.10	0.05	0.02									
16 TPI			TT32/43° 5501 5502	0.10 0.20	1.15 1.04	9 8	0.25 0.25	0.20 0.20	0.18 0.18	0.14 0.14	0.12 0.10	0.08 0.08	0.06 0.07	0.02	0.02									
14 TPI			TT32/43° 5501 5502	0.10 0.20	1.34 1.22	10 9	0.25 0.25	0.22 0.22	0.20 0.18	0.16 0.12	0.14 0.10	0.12 0.08	0.10 0.05	0.08 0.02	0.05	0.02								
12 TPI			TT32/43° 5501 5502	0.10 0.20	1.58 1.46	12 11	0.25 0.25	0.20 0.20	0.18 0.18	0.16 0.15	0.14 0.12	0.12 0.10	0.12 0.08	0.10 0.06	0.08 0.02	0.06 0.02	0.02							
11 TPI			TT32/43° 5501 5502 5503	0.10 0.20 0.30	1.73 1.62 1.50	13 12 11	0.25 0.25 0.25	0.22 0.22 0.22	0.22 0.20 0.20	0.18 0.18 0.16	0.14 0.14 0.14	0.12 0.12 0.12	0.10 0.10 0.10	0.08 0.08 0.05	0.05 0.04 0.02	0.05 0.04 0.02	0.05 0.02	0.02						
10 TPI			TT32/43° 5501 5502 5503	0.10 0.20 0.30	1.92 1.80 1.68	14 13 12	0.25 0.25 0.25	0.23 0.23 0.23	0.23 0.20 0.20	0.18 0.18 0.18	0.16 0.16 0.14	0.12 0.12 0.13	0.12 0.10 0.12	0.10 0.10 0.08	0.08 0.08 0.05	0.05 0.05 0.02	0.08 0.05	0.05 0.02	0.02					
9 TPI			TT43° 5501 5502 5503	0.10 0.20 0.30	2.14 2.03 1.91	14 13 12	0.25 0.25 0.30	0.23 0.23 0.25	0.23 0.23 0.23	0.20 0.20 0.20	0.18 0.18 0.18	0.16 0.16 0.15	0.14 0.14 0.12	0.12 0.12 0.10	0.10 0.10 0.08	0.12 0.12 0.05	0.10 0.10 0.02	0.08 0.08 0.02	0.05 0.02	0.02				
8 TPI			TT43° 5501 5502 5503 5504	0.10 0.20 0.30 0.40	2.43 2.31 2.19 2.08	15 14 13 12	0.27 0.27 0.30 0.30	0.25 0.25 0.27 0.27	0.23 0.23 0.23 0.23	0.20 0.20 0.20 0.23	0.20 0.20 0.18 0.20	0.18 0.16 0.18 0.18	0.16 0.16 0.15 0.15	0.16 0.16 0.14 0.12	0.14 0.12 0.12 0.10	0.12 0.12 0.10 0.08	0.12 0.10 0.05 0.02	0.10 0.10 0.05 0.02	0.05 0.05 0.02	0.02	0.05	0.02	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 (re)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Whitworth (55°)	Internal Thread	24 TPI TT32/43% 5501	0.10	0.65	6	0.20	0.16	0.12	0.10	0.05	0.02											
		20 TPI TT32/43% 5501	0.10	0.81	7	0.20	0.18	0.16	0.12	0.08	0.05	0.02										
		18 TPI TT32/43% 5501	0.10	0.91	8	0.20	0.18	0.16	0.15	0.10	0.05	0.05	0.02									
		16 TPI TT32/43% 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									
		14 TPI TT32/43% 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								
		12 TPI TT32/43% 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								
		11 TPI TT32/43% 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	0.10	0.05	0.02						
		TT43% 5503	0.30	1.33	9	0.25	0.22	0.20	0.18	0.16	0.14	0.10	0.06	0.02								
		10 TPI TT32/43% 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						
		TT43% 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							
		9 TPI TT43% 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						
		8 TPI TT43% 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	TT43E% 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 (re)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (60°)	External Thread	TTX32R 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
		6000S																				
		6000S 6000S	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										
		6000S	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									
		6000S	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									
		6000S	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									
		6000S	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02										
Parallel Pipe (55°)	External Thread	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						
		28 TPI TTX32R 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02												
		19 TPI TTX32R 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02									
		5501S	0.15	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		14 TPI TTX32R 5501S	0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
		11 TPI TTX32R 5501S	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					
		24 TPI TTX32R 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
Whitworth (55°)	External Thread	20 TPI TTX32R 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		5501S	0.15	0.84	7	0.20	0.18	0.16	0.12	0.10	0.06	0.02										
		18 TPI	0.15	0.95	8	0.20	0.18	0.15	0.14	0.12	0.10	0.04	0.02									
		16 TPI	0.15	1.10	9	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.06	0.02								
		14 TPI TTX32R 5501S	0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
		12 TPI	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						
		11 TPI	0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.02					

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

TTX 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	-	-
6000S	0.5 ~ 1.0	48 ~ 32	-	-
6001	1.0 ~ 2.0	28 ~ 14	-	-
TTX32R 6000S	0.5	56 ~ 48	-	-
6000S	0.5	48	-	-
TTX32R 5501	-	-	28~19	24~20
5501S	-	-	19~11	20~14

TPGB (60° Type, Partial Profile)

(ap shows the value of radial ap)

Type	Pitch / TPI mm / TPI	Description	Corner-R (re)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (60°)	Internal Thread	TPGB1102005 1103005	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02												
		TPGB1102005 1103005	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02												
		TPGB1102005 1103005	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02											
		TPGB1102005 1103005	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02										
		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									
		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								
		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						
		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				
		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			
		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	0.10	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(re), there is variation in the Bore Dia. which may greatly influence the tool life of an insert.

In order to eliminate the variation in the Bore Dia., "0" cutting (zero cutting) should be performed as the zero pass, before the first pass in threading.

The Bore Dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2 "Chip evacuation"

If machining process is continued when chips are tangled with a toolholder and other parts of the machine, it may cause damages to the insert.

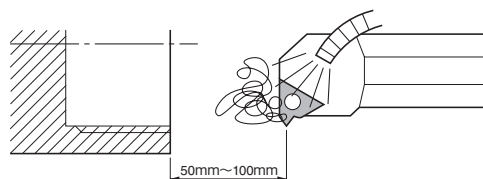
<When processing the first workpiece>

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.



J



Threading

Applicable Toolholders & Inserts

In Applicable Toolholder / Insert Lists on **J42 ~ J45**, 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 **J48**.

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

Nominal Thread	TPI	External Thread (G)			Internal Thread (G,Rp)				Same Root's Radius	
Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert		Bore Dia.		
			Partial Profile	Full Profile		Partial Profile	Full Profile			
G 1/16 (-)	28	KTNR○○○○○□-16 KTNSR○○○○○□-16	16ERA55-TF	-	SINR0612S-06E (EZT🌀J24) (HPT🌀J28)	06IR5501	-	6.56	0.12	
G 1/8 (PF 1/8)			16ERAG55-TF 16ERA55 16ERAG55					8.57		
G 1/4 (PF 1/4)	19	KTNR○○○○○□-16 KTNSR○○○○○□-16	16ERA55-TF	16ER19W-TF 16ER19W	SINR0816S-08E (EZT🌀J24) (HPT🌀J28)	08IR5501	-	11.45	0.18	
G 3/8 (PF 3/8)			16ERAG55-TF 16ERA55 16ERAG55		SINR1216S-11E (EZT🌀J24) (HPT🌀J28)			11IRA55 11IR55005		-
G 1/2 (PF 1/2)	14	KTNR○○○○○□-16 KTNSR○○○○○□-16	16ERAG55-TF 16ERG55-TF 16ERAG55 16ERG55	16ER14W-TF 16ER14W	SINR1516S-11	11IR55005	-	18.63	0.25	
G 5/8 (PF 5/8)					SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502		16IR14W-TF 16IR14W		20.59
G 3/4 (PF 3/4)					SINR2016S-16					24.12
G 7/8 (PF 7/8)					SINR2420S-16					27.88
G 1 (PF 1)	11	KTNR○○○○○□-16 KTNSR○○○○○□-16	16ERAG55-TF	16ER11W-TF 16ER11W	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF 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	TPI	External Thread (G)			Internal Thread (Rc)				Same Root's Radius
Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile		Partial Profile	Full Profile		
R 1/16,Rc 1/16 (-) R 1/8,Rc 1/8 (PT 1/8)	28	KTNR○○○○○□-16 KTNSR○○○○○□-16	(16ERA55-TF) (16ERAG55-TF) (16ERA55) (16ERAG55)	16ER28BSPT-TF 16ER28BSPT	SINR0612S-06E (EZT ⚙J24) (HPT ⚙J28)	06IR5501	-	0.12	
R 1/4,Rc 1/4 (PT 1/4) R 3/8,Rc 3/8 (PT 3/8)	19	KTNR○○○○○□-16 KTNSR○○○○○□-16	(16ERA55-TF) (16ERAG55-TF) (16ERA55) (16ERAG55)	16ER19BSPT-TF 16ER19BSPT	SINR0816S-08E (EZT ⚙J24) (HPT ⚙J28) SINR1216S-11E (EZT ⚙J24) (HPT ⚙J28)	08IR5501 (11IRA55) (11IR55005)	- 11IR19BSPT-TF 11IR19BSPT	0.18	
R 1/2,Rc 1/2 (PT 1/2) R 3/4,Rc 3/4 (PT 3/4)	14	KTNR○○○○○□-16 KTNSR○○○○○□-16	(16ERAG55-TF) (16ERG55-TF) (16ERAG55) (16ERG55)	16ER14BSPT-TF 16ER14BSPT	SINR1516S-11 SINR1616S-16 SINR2016S-16	(11IR55005)	11IR14BSPT-TF 11IR14BSPT 16IR14BSPT-TF 16IR14BSPT	0.25	
R 1,Rc 1 (PT 1) R 1 1/4,Rc 1 1/4 (PT 1 1/4) R 1 1/2,Rc 1 1/2 (PT 1 1/2)	11	KTNR○○○○○□-16 KTNSR○○○○○□-16	(16ERAG55-TF) (16ERG55-TF) (16ERAG55) (16ERG55)	16ER11BSPT-TF 16ER11BSPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR11BSPT-TF 16IR11BSPT	0.32	
		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 KTTRX○○○○○-16F	TT32R6000 TTX32R6000	-	No Tools Available		
1/4 NPT 3/8 NPT	18	KTNR○○○○○-16 KTNSR○○○○○-16	-	16ER18NPT	EZH sleeve (Ref. to Page J25)	EZTR060050-60-004 EZTR070060-60-004 HPTR06005-60-005 HPTR07507-60-005	-
1/2 NPT 3/4 NPT	14	KTNR○○○○○-16 KTNSR○○○○○-16	-	16ER14NPT	EZH sleeve (Ref. to Page J25)	EZTR070060-60-004 HPTR07507-60-005	-
1/2 NPT 3/4 NPT	14	KTNR○○○○○-16 KTNSR○○○○○-16	-	16ER14NPT	SINR1616S-16 SINR2016S-16	-	16IR14NPT
1 NPT 1 1/4 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○○-16 KTNSR○○○○○-16	-	16ER11.5NPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	-	16IR11.5NPT

• Application of NPTF Thread

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

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

30° Trapezoidal: Tr

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

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



Applicable Toolholders & Inserts (Internal)

Metric Coarse Thread: M

Nominal Thread	Pitch (mm)	Internal Thread			Bore Dia.
		Toolholder	Insert		
			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	CINR3732S-22		22IR450ISO	34.67
M42	4.5		37.13		
M45	4.5		40.13		
M48	5.0	CINR3732S-22		22IR500ISO	42.59
M52	5.0			46.59	
M56	5.5				50.05
• • •		* Threading of M56 and over is not available due to too large pitch size.			• • •

Metric Fine Thread: M

Part 1

Nominal Thread	Pitch (mm)	Internal Thread			Bore Dia.		
		Toolholder	Insert				
			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				—	EZTR040035-60-004	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		
		SINR0612S-06E	HPTR06005-60/VNTR060-11	—			
M9×1.0	1.0	—	EZTR070060-60-004	—	7.92		
		—	HPTR07507-60/VNTR060-11				
		SINR0612S-06E	06IR60005	—			
M9×0.75	0.75	SINR0816S-08E	08IR60007		—		
		—	EZTR070060-60-004	—			
		SINR0612S-06E	HPTR07507-60/VNTR060-11	—			
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	06IR60005		—		
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)	Toolholder	Internal Thread		Bore Dia.
			Partial Profile	Full Profile	
M14×1.5 M14×1.25 M14×1.0	1.5 1.25 1.0	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR125ISO-□□ 11IR100ISO-□□	12.38 12.65 12.92
M15×1.5 M15×1.0	1.5 1.0	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	13.38 13.92
M16×1.5 M16×1.0	1.5 1.0	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	14.38 14.92
M17×1.5 M17×1.0	1.5 1.0	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	15.38 15.92
M18×2.0 M18×1.5 M18×1.0	2.0 1.5 1.0	SINR1516S-11 SINR1616S-16	— Table 2 Table 3	11IR200ISO 16IR150ISO-□□ 16IR100ISO-□□	15.84 16.38 16.92
M20×2.0 M20×1.5 M20×1.0	2.0 1.5 1.0	SINR1616S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	17.84 18.38 18.92
M22×2.0 M22×1.5 M22×1.0	2.0 1.5 1.0	SINR1616S-16 SINR2016S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	19.84 20.38 20.92
M24×2.0 M24×1.5 M24×1.0	2.0 1.5 1.0	SINR2016S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	21.84 22.38 22.92
M25×2.0 M25×1.5 M25×1.0	2.0 1.5 1.0	SINR2016S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	22.84 23.38 23.92
M26×1.5 M27×2.0 M27×1.5 M27×1.0	1.5 2.0 1.5 1.0	SINR2420S-16 SINR2420S-16	Table 2 Table 1 Table 2 Table 3	16IR150ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	24.38 24.84 25.38 25.92
M28×2.0 M28×1.5 M28×1.0	2.0 1.5 1.0	SINR2420S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	25.84 26.38 26.92
M30×3.0 M30×2.0 M30×1.5 M30×1.0	3.0 2.0 1.5 1.0	SINR2420S-22 SINR2420S-16	— Table 4 Table 2 Table 3	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	26.75 27.84 28.38 28.92
M32×2.0 M32×1.5	2.0 1.5	SINR2420S-16 CINR3025S-16	Table 1 Table 2	16IR200ISO-□□ 16IR150ISO-□□	29.84 30.38
M33×3.0 M33×2.0 M33×1.5 M35×1.5	3.0 2.0 1.5 1.5	SINR2420S-22 SINR2420S-16 CINR3025S-16	— Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	29.75 30.84 31.38 33.38
M36×3.0 M36×2.0 M36×1.5 M38×1.5	3.0 2.0 1.5 1.5	CINR3025S-16 CINR3025S-16 CINR3025S-16	— Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	32.75 33.84 34.38 36.38
M39×3.0 M39×2.0 M39×1.5	3.0 2.0 1.5	CINR3025S-22 CINR3025S-16 CINR3732S-16	— Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	35.75 36.84 37.38
M40×3.0 M40×2.0 M40×1.5	3.0 2.0 1.5	CINR3025S-22 CINR3025S-16 CINR3732S-16	— Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	36.75 37.84 38.38
M42×4.0 M42×3.0 M42×2.0 M42×1.5	4.0 3.0 2.0 1.5	CINR3732S-22 CINR3732S-16 CINR3732S-16	22IRN60 — Table 1 Table 2	22IR400ISO 22IR300ISO 16IR200ISO-□□ 16IR150ISO-□□	37.67 38.75 39.84 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
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• Above shows the usage example of applicable Toolholder / Insert.

Unified Coarse Thread: UNC

Nominal Thread	TPI	Internal Thread			Bore Dia.
		Toolholder	Insert		
			Partial Profile	Full Profile	
2-56 UNC • • •	56	No Tools Available	—	—	1.69 • • •
6-32 UNC	32				2.65
8-32 UNC	32				—
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-TF	16.30
7/8- 9 UNC	9			—	19.17
1- 8 UNC	8			16IR08UN-TF	21.96
1 1/8- 7 UNC	7	SINR2420S-22	22IRN60	—	24.65
1 1/4- 7 UNC					27.82
1 3/8- 6 UNC	6	CINR3025S-22			30.34
1 1/2- 6 UNC					33.52
1 3/4- 5 UNC	5	CINR3732S-22			38.95
2-4 1/2 UNC • • •	41/2	* 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 (TPI)	Internal Thread			Bore Dia.		
		Toolholder	Insert				
			Partial Profile	Full Profile			
0-80 UNF • • 6-40 UNF	80 40	No Tools Available	—	—	1.18 • • 2.82		
8-36 UNF	36				—	—	3.40
10-32 UNF	32				—	EZTR035030-60-002	—
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	20	SINR0816S-08E	08IR60007	—	9.74		
1/2-20 UNF					11.33		
9/16-18 UNF	18	SINR1216S-11E	11IRA60 11IR60005	—	12.76		
5/8-18 UNF					14.35		
3/4-16 UNF	16	SINR1516S-11	11IRA60 11IR60005	—	17.33		
		SINR1616S-16					
7/8-14 UNF	14	SINR2016S-16		16IR16UN(-TF) 16IR14UN(-TF)	20.26		
1-12 UNF	12	SINR2016S-16	16IRAG60	16IR12UN(-TF)	23.10		
1 1/8-12 UNF	12	SINR2420S-16	16IRG60		26.28		
1 1/4-12 UNF			16IR6001		29.46		
1 3/8-12 UNF	12	CINR3025S-16			32.63		
1 1/2-12 UNF					36.81		

Whitworth Coarse Thread: W

Nominal Thread	TPI	Internal Thread			Bore Dia.
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4	20	No Tools Available	—	—	4.91
W 5/16	18				6.34
W 3/8	16	No Tools Available			7.73
W 7/16	14				9.06
W 1/2	12				10.30
W 9/16	11				11.89
W 5/8	10				13.26
W 3/4	9	SINR1616S-16	16IRAG55 16IRG55	—	16.17
W 7/8	8	SINR2016S-16		—	19.03
W 1	7	SINR2420S-22	22IRN55	—	21.80
W 1 1/8	6	CINR3025S-22	22IRN55	—	24.47
W 1 1/4	5				27.64
W 1 3/8	4	CINR3732S-22	22IRN55	—	30.13
W 1 1/2	3				33.30
W 1 5/8	2	CINR3732S-22	22IRN55	—	35.52
W 1 3/4	1				38.69
W 1 7/8	1/2	No Tools Available			41.23
W 2	1/4				44.41
W 2 1/4	1/8	No Tools Available			49.96
W 2 3/8	1/16				54.93

Whitworth Fine Thread: W

Nominal Thread	TPI	Internal Thread						
		Toolholder	Insert		Bore Dia.			
			Partial Profile	Full Profile				
W9.5 TPI 24	24	SINR0816S-08E	08IR5501	—	8.30			
W10 TPI 24		—	EZTR060050-55-008		8.80			
W10.5 TPI 24			HPTR06005-55		9.30			
W9.5 TPI 20	20	SINR0816S-08E	08IR5501	—	8.06			
W10 TPI 20		—	EZTR060050-55-008 EZTR080070-55-008 HPTR06005-55 HPTR08007-55		8.56			
W10.5 TPI 20					9.06			
W11 TPI 20					9.56			
W11.5 TPI 20					10.06			
W12 TPI 20					10.56			
W12.5 TPI 20					11.06			
W13 TPI 20					11.56			
W13.5 TPI 20	20	SINR1216S-11E	11IRA55 11IR55005	—	12.06			
W11 TPI 18	18	No Tools Available			9.40			
W11.5 TPI 18					9.90			
W12 TPI 18					10.40			
W12.5 TPI 18	18	SINR1216S-11E	11IRA55 11IR55005	—	10.90			
W14 TPI 18					12.40			
W14.5 TPI 18					12.90			
W15 TPI 18					13.40			
W16 TPI 18	16	No Tools Available			14.40			
W13 TPI 16					11.20			
W13.5 TPI 16					11.70			
W14 TPI 16	16	SINR1216S-11E	11IRA55 11IR55005	—	12.20			
W14.5 TPI 16					12.70			
W15 TPI 16					13.20			
W17 TPI 16	16	SINR1516S-11			15.20			
W18 TPI 16	16	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR16W-TF)	16.20			
W19 TPI 16					17.20			
W20 TPI 16					18.20			
W16 TPI 14	14	SINR1216S-11E	11IRA55 11IR55005	—	13.94			
W17 TPI 14	14	SINR1516S-11			14.94			
W18 TPI 14	14	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR14W-TF) (16IR14W)	15.94			
W21 TPI 14					14	SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502	18.94
W22 TPI 14								19.94
W23 TPI 14	20.94							
W24 TPI 14	21.94							
W25 TPI 14	22.94							
W26 TPI 14	12	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	—	23.94			
W19 TPI 12					SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	—	16.60
W20 TPI 12								17.60
W21 TPI 12								18.60
W22 TPI 12		19.60						
W28 TPI 12		12	CINR3025S-16	16IRAG55 16IRG55 16IR5501 16IR5502	—	25.60		
W30 TPI 12						27.60		
W32 TPI 12						29.60		
W34 TPI 12						31.60		
W35 TPI 12		12	CINR3732S-16		—	32.60		
W36 TPI 12						33.60		
W38 TPI 12						35.60		
W40 TPI 12	37.60							
W42 TPI 12	39.60							
W44 TPI 12	41.60							
W45 TPI 12	42.60							
W46 TPI 12	43.60							
W48 TPI 12	* Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.			45.60				
W50 TPI 12				47.60				
•				•				
•	10	SINR2016S-16	16IRAG55 16IRG55	—	•			
W23 TPI 10					20.12			
W24 TPI 10					21.12			
W25 TPI 10					22.12			
W26 TPI 10	9	SINR2420S-16	16IRAG55 16IRG55	—	23.12			
W28 TPI 9					24.80			
W30 TPI 9					26.80			
W32 TPI 9	8	CINR3025S-16		—	28.80			
W34 TPI 8					30.40			
W35 TPI 8					31.40			
W36 TPI 8					32.40			
W38 TPI 8					34.40			
W40 TPI 8					36.40			
W42 TPI 8	7	CINR3732S-22	22IRN55	—	38.40			
W44 TPI 7					39.89			
W45 TPI 7					40.89			
W46 TPI 7					41.89			
W48 TPI 7					43.89			
W50 TPI 7	6	CINR3732S-22	22IRN55	—	45.89			
W52 TPI 7					47.89			
W55 TPI 6					50.20			
W58 TPI 6					53.20			
W60 TPI 6	5	CINR3732S-22	22IRN55	—	55.20			
W62 TPI 6					57.20			
•					•			
W72 TPI 6	5	CINR3732S-22	22IRN55	—	67.20			
W75 TPI 5					69.24			
•					•			
W105 TPI 5	4				99.24			
•					•			
W110 TPI 4	4				102.8			
•					•			
•	4				•			
•					•			

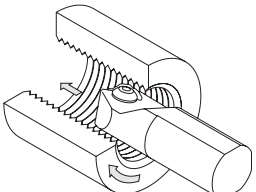
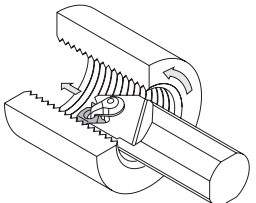
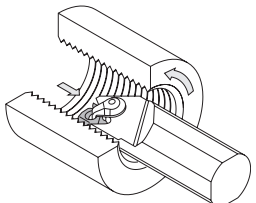
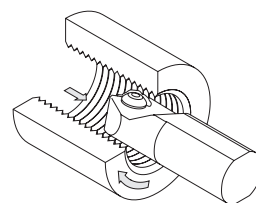
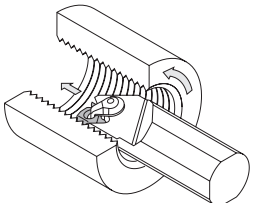
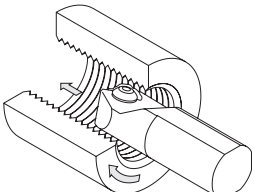
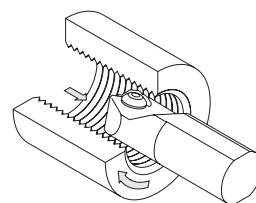
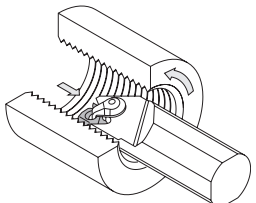
Threading Methods

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

External Thread														
Left-hand Thread	<table><tr><td>Toolholder</td><td>Left-hand</td></tr><tr><td>Insert</td><td>Left-hand</td></tr><tr><td>The direction of spindle revolution</td><td>M04</td></tr></table>	Toolholder	Left-hand	Insert	Left-hand	The direction of spindle revolution	M04	<table><tr><td>Toolholder</td><td>Right-hand</td></tr><tr><td>Insert</td><td>Right-hand</td></tr><tr><td>The direction of spindle revolution</td><td>M03</td></tr></table>	Toolholder	Right-hand	Insert	Right-hand	The direction of spindle revolution	M03
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	The direction of spindle revolution	M04												
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Toolholder	Right-hand													
Insert	Right-hand													
The direction of spindle revolution	M04													

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

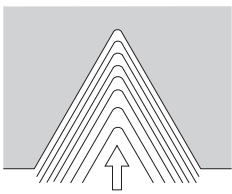
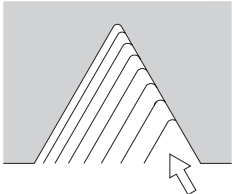
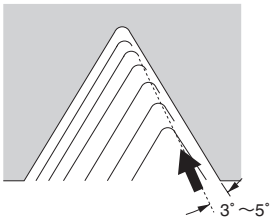
Internal Threading (Left-hand Thread / Right-hand Thread)

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

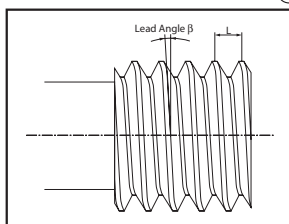
Lead Angle of Thread

Thread's Lead Angle β as shown in Fig. 1 decides from the Workpiece Diameter (Pitch Dia.) "D" and Lead "L" (in case of Single-start Thread, it is the same as Pitch "P").

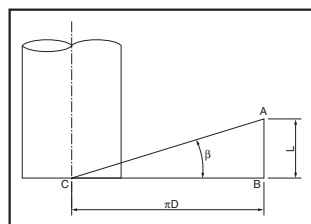
By rolling a right-angled Triangle around a Cylinder and the Angle ACB in Fig. 2 becomes the Lead Angle β . The calculation formula is shown as follows.

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

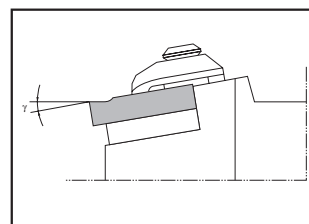
β : Lead Angle D: Pitch Dia. n: Number of Thread P: Pitch
 L : Lead (In case of single-start thread, it is equal to P, In case of n-start thread, it is equal to $n \times P$.)



(Fig.1)



(Fig.2)

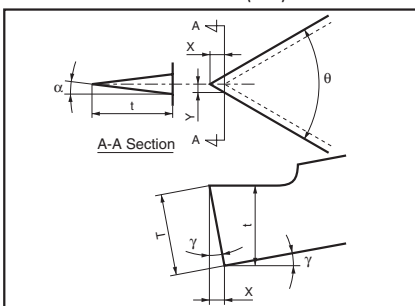


(Fig.3)

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	

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

(Table 1)

Inserts	Side Relief Angle α	
	External	Internal
60° Thread (M, UN, NPT)	5° 49'	8° 47'
55° Thread (W, G, PT)	5° 14'	7° 56'
30° Trapezoidal (Tr)	2° 43'	5° 7'

Ref. to Table 1 for the Side Relief Angle depending on the insert type.

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

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%L○○○ ISO(-TF) ○○ ER □□60(-TF) 16ER60 ○○ TT43E%L○○○ M TT ○○ %L60 ○○ TTX32R60 ○○	KTN%L○○○○□-○○ KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ I%L○○○ ISO(-TF) ○○ IR □□60 ○○ IR60 ○○ (○) TT ○○ %R 60 ○○ TPGB11 ○○○○ (○)	SIN%L○○○○ S- ○○ (E) CIN%L○○○○ S- ○○ KITG%L○○○○ T- ○○ S ○○○□-STWP%L11- ○○ (E)
			External	○○ ER ○○ UN(-TF) ○○ ER □□60(-TF) 16ER60 ○○ TT ○○ %L60 ○○ TTX32R60 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ UN(-TF) ○○ IR □□60 ○○ IR60 ○○ (○) TT ○○ %60 ○○ TPGB11 ○○○○ (○)	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○ S ○○○□-STWP%L11- ○○ (E)
Unified		UN UNC UNF UNEF e.g.) 3/4-16 UNF	External	○○ ER ○○ UN(-TF) ○○ ER □□60(-TF) 16ER60 ○○ TT ○○ %L60 ○○ TTX32R60 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ UN(-TF) ○○ IR □□60 ○○ IR60 ○○ (○) TT ○○ %60 ○○ TPGB11 ○○○○ (○)	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○ S ○○○□-STWP%L11- ○○ (E)
			External	○○ ER ○○ W(-TF) ○○ ER □□55 16ER55 ○○ TT ○○ %L55 ○○ TTX32R55 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF) ○○ IR □□55 ○○ IR55 ○○ (○) TT ○○ %55 ○○ KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
Parallel Pipe		External: G(PF) Internal: G(PF) Rp(PS) e.g.) G3/4 (PF3/4)	External	○○ ER ○○ W(-TF) ○○ ER □□55 16ER55 ○○ TT ○○ %L55 ○○ TTX32R55 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF) ○○ IR □□55 ○○ IR55 ○○ (○) TT ○○ %55 ○○ KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
			External	○○ ER ○○ W(-TF) ○○ ER □□55 16ER55 ○○ TT ○○ %L55 ○○ TTX32R55 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF) ○○ IR □□55 ○○ IR55 ○○ (○) TT ○○ %55 ○○ KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
Whitworth		W e.g.) W3/8	External	○○ ER ○○ W(-TF) ○○ ER □□55 16ER55 ○○ TT ○○ %L55 ○○ TTX32R55 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF) ○○ IR □□55 ○○ IR55 ○○ (○) TT ○○ %55 ○○ KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
			External	○○ ER ○○ W(-TF) ○○ ER □□55 16ER55 ○○ TT ○○ %L55 ○○ TTX32R55 ○○	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ W(-TF) ○○ IR □□55 ○○ IR55 ○○ (○) TT ○○ %55 ○○ KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
Tapered Pipe		External: R(PT) (BSPT) Internal: Rc(PT) (BSPT) e.g.) R1/2 (PT1/2)	External	16ER ○○ BSPT(-TF) TT ○○ %L55 ○○ * TTX32R55 ○○ *	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ BSPT(-TF) TT ○○ %55 ○○ * KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
			External	16ER ○○ BSPT(-TF) TT ○○ %L55 ○○ * TTX32R55 ○○ *	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ BSPT(-TF) TT ○○ %55 ○○ * KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ (E) CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
American National Tapered Pipe		NPT e.g.) 3/8-18 NPT	External	16ER ○○ (.○)NPT TT ○○ %L55 ○○ * TTX32R55 ○○ *	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ (.○)NPT TT ○○ %55 ○○ * KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
			External	16ER ○○ (.○)NPT TT ○○ %L55 ○○ * TTX32R55 ○○ *	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ (.○)NPT TT ○○ %55 ○○ * KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
30° Trapezoidal		Tr e.g.) Tr 26x3	External	○○ ER ○○ TR TT ○○ %L55 ○○ * TTX32R55 ○○ *	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ TR TT ○○ %55 ○○ * KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○
			External	○○ ER ○○ TR TT ○○ %L55 ○○ * TTX32R55 ○○ *	KTSNR ○○○○□-16 KTT%L○○○○□-○○ KTTXR ○○○○□-16F,S ○○○□-KTTXL16
			Internal	○○ IR ○○ TR TT ○○ %55 ○○ * KITG%L○○○○ T- ○○	SINR ○○○○ S- ○○ CINR ○○○○ S- ○○ KITG%L○○○○ T- ○○

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

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