

Threading

J1~J48



J

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Tapered Pipe [R, Rc(PT) (BSPT)]	J10
American National Tapered Pipe (NPT)	J10
60° Angle [Partial Profile / M, UN]	J12
55° Angle [Partial Profile / G(PF), R, Rc(PT) (BSPT), W]	J14
30° Trapezoidal	J14

Threading Toolholders (External / Internal) **J16~J31**

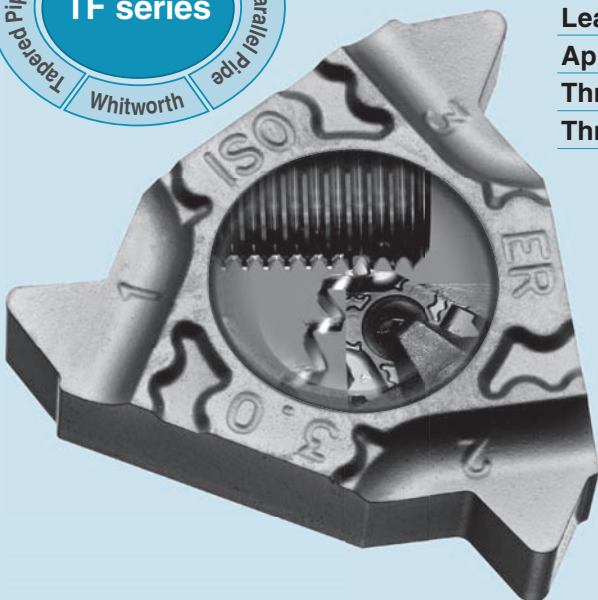
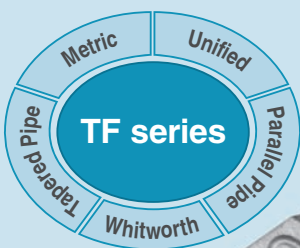


KTN / KTNS		J16
SIN / CIN		J17
KTKF	Small Tools	J18
KTKF (Goose-neck Holder)	Small Tools	J18
KTTX	Small Tools	J20
S...KTTX	Sleeve Holder	J20
KTT		J22
KITG		J23
EZT	EZ Bars	J24
HPT	2-Edge Tip-Bars	J28
VNT	System Tip-Bars	J30
PST-S (will be switched to EZT)	Tip-Bars	J30
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Technical Information **J32~J48**



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Summary of External Threading

Tooling Application Table (External Threading)

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 Threading)

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	-
	Full Profile							
VNT J30 	Partial Profile	0.75~1.5 J30	28~18 J30	-	-	-	-	-
	Full Profile							
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	-
	Full Profile							
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	-	-
	Full Profile							
STWP J31 	Partial Profile	0.75~3.5 J31	28~8 J31	-	-	-	-	-
	Full Profile							

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

Product Introduction

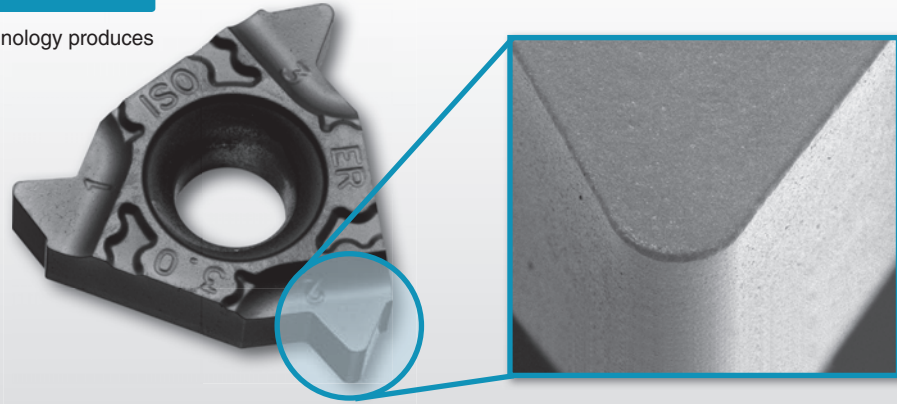
TF Series Threading Inserts

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

High Quality Cutting Edge

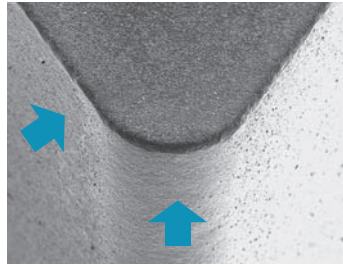
TF series

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



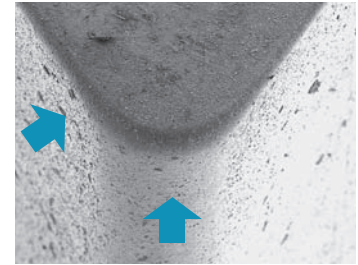
Cutting Edge close-up picture

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



16ER150ISO-TF

Inconsistent edge honing condition.



Competitor

Sharp cutting

J

Threading

Available for every standard screw thread

Metric (M)

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

Unified (UN)

60° Angle (Partial Profile)

Parallel Pipe [G(PF)]

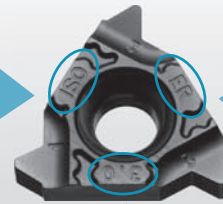
55° Angle (Partial Profile)

Whitworth (W)

Clear makings 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, and 11--TF has the mark on its seating face side (bottom side).

Case Studies

SCM415	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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

KTKF

“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



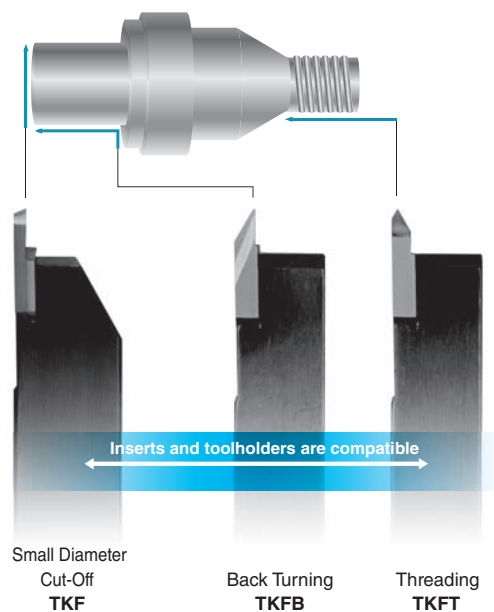
- Applicable for various type of threading

Metric (M)

Parallel Pipe [G (PF)]

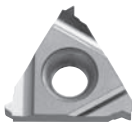
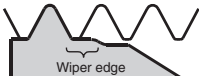


Unified (UN)

Tapered Pipe [R(PT) (BSPT)]



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

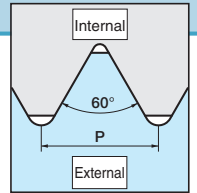
- Thread Precision

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		*NG	OK	OK

*Not recommended if strict thread precision is required.



Threading Inserts



External Threading Inserts

Metric (M)

Full Profile 60°

Description	Previous Description	A	T	φd	Classification of usage ● : 1st Choice	P		Angle (°)	Cermet	PVD Coated Carbide	Carbide	Ref. to Page for Depth of Cut & Number of Passes
						Carbon Steel / Alloy Steel	Stainless Steel					
16E ^{1/2}	TNN32E ^{1/2}	9.525	3.68	4.0	● : 1st Choice	M	Carbon Steel / Alloy Steel	60°	TC60M	PR1115	GW15	J33
22ER	TNN43ER	12.70	4.9	4.85		M	Stainless Steel					
						K	Cast Iron					
						N	Non-ferrous Metals					
Insert	Description	Previous Description	Applicable Thread		Dimension (mm)		θ	Cermet	PVD Coated Carbide	Carbide	Ref. to Page for Depth of Cut & Number of Passes	
			M	Pitch	r _c	S						TC60M
Handed Insert shows Right-hand												
Full Profile		-	16ER	100ISO-TF	1.0	0.12	0.80	60°	TC60M	PR1115	GW15	J33
				125ISO-TF	1.25	0.15	0.90					
				150ISO-TF	1.5	0.19	1.00					
				175ISO-TF	1.75	0.22	1.60					
				200ISO-TF	2.0	0.25	1.50					
				250ISO-TF	2.5	0.33	1.60					
				300ISO-TF	3.0	0.41	1.60					
		TNN32E ^{1/2}	16E ^{1/2}	050ISO	0.5	0.06	0.40	60°	TC60M	PR1115	GW15	J33
				075ISO	0.75	0.09	0.53					
				100ISO	1.0	0.12	0.80					
				125ISO	1.25	0.15	0.90					
				150ISO	1.5	0.19	1.00					
				175ISO	1.75	0.22	1.50					
				200ISO	2.0	0.25	1.50					
		TNN43ER	22ER	300ISO	3.0	0.41	2.10	60°	TC60M	PR1115	GW15	J33
				350ISO	3.5	0.48	2.10					
				400ISO	4.0	0.55	2.80					
				500ISO	5.0	0.70	2.80					

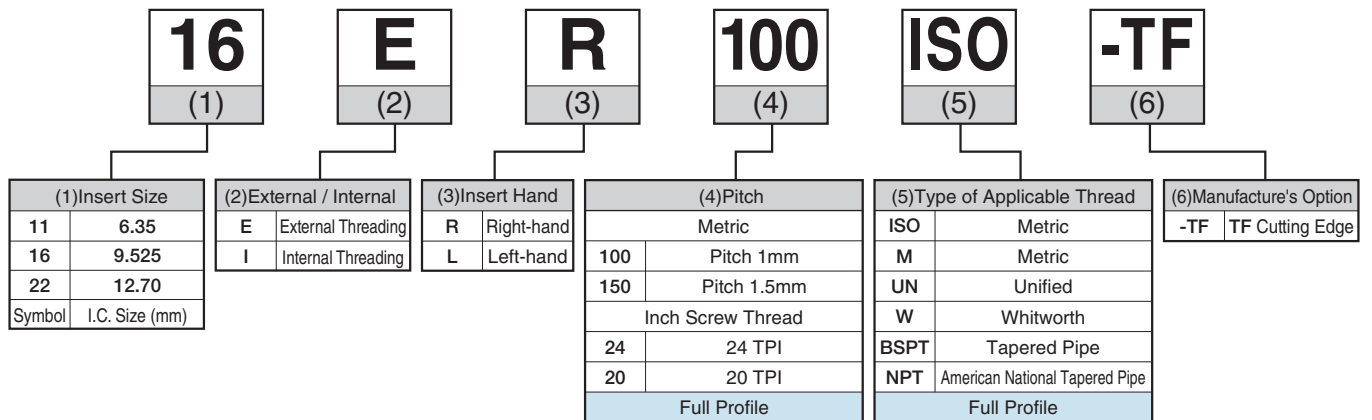
Applicable Toolholders

Recommended Cutting Conditions J32

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

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

Threading Inserts Identification System (Full Profile) J6~J11



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

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item
○ : Check Availability

Internal Threading Inserts

Metric (M)

Full Profile 60°

(mm)

Description	Previous Description	A	T	φd	Classification of usage ● : 1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes	
						M	Stainless Steel		●			
11I ³ / ₄	TNN22I ³ / ₄	6.35	3.18	3.0		K	Cast Iron		●			
16I ³ / ₄	TNN32I ³ / ₄	9.525	3.68	4.0		N	Non-ferrous Metals		●			
22IR	TNN43IR	12.70	4.9	4.85								
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread	Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide	
				M	S		TC60M		PR1115		GW15	
							Pitch	mm	R	L	R	L
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				●		
		TNN22I ³ / ₄	11I ³ / ₄ 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		○		●		●
		TNN32I ³ / ₄	16I ³ / ₄ 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		○		●		●
		TNN43IR	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		○		●		

Recommended Cutting Conditions **J32**

Applicable Toolholders

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

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

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

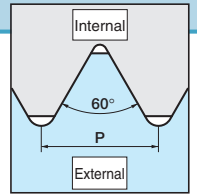
TC60M (Threading) are sold in 10 piece boxes.

J



Threading

Threading Inserts



External Threading Inserts

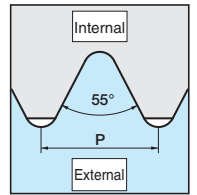
Unified (UN)

Full Profile 60° (mm)					Classification of usage ● : 1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes						
Description	Previous Description	A	T	φd		M	Stainless Steel		●								
16ER	TNN32ER	9.525	3.68	4.0	● : 1st Choice	K	Cast Iron				J33						
22ER	TNN43ER	12.70	4.9	4.85		N	Non-ferrous Metals										
Insert	Description	Previous Description	Applicable Thread			Dimension (mm)		Angle (°)	Cermet			PVD Coated Carbide		Carbide			
			UN, UNF	Pitch		r _e	S		TC60M	PR1115		GW15					
Handed Insert shows Right-hand												R	L	R	L	R	L
Full Profile		16ER 24UN-TF 20UN-TF 18UN-TF 16UN-TF 14UN-TF 13UN-TF 12UN-TF 10UN-TF 08UN-TF	-	24	0.12	0.80	60°			●							
				20	0.15	1.00				●							
				18	0.18	1.00				●							
				16	0.20	1.10				●							
				14	0.23	1.50				●							
				13	0.25	1.50				●							
				12	0.27	1.50				●							
				10	0.34	1.50				●							
				8	0.43	1.75				●							
				16ER 24UN 20UN 18UN 16UN 14UN 12UN	TNN32ER 24UN 20UN 18UN 16UN 14UN 12UN	24 20 18 16 14 12		0.13 0.16 0.18 0.20 0.23 0.27	0.8 1.0 1.0 1.1 1.5 1.5	60°	○		●				
○		●															
○		●															
○		●															
○		●															
○		●															
22ER 08UN	TNN43ER 08UN	8	0.43	2.1		○		●									

Applicable Toolholders

Recommended Cutting Conditions → J32

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



External Threading Inserts

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

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	Previous Description	A	T	φd		M	Stainless Steel		●								
16ER	TNN32ER	9.525	3.68	4.0	● : 1st Choice	K	Cast Iron				J34						
						N	Non-ferrous Metals										
Insert	Description	Previous Description	Applicable Thread			Dimension (mm)		Angle (°)	Cermet			PVD Coated Carbide		Carbide			
			G (PF)	W		r _e	S		TC60M	PR1115		GW15					
Handed Insert shows Right-hand												R	L	R	L	R	L
Full Profile		16ER 19W-TF 16W-TF 14W-TF 11W-TF	-	19	-	0.16	1.0	55°				●					
				-	16	0.19	1.1					●					
				14	14	0.23	1.5					●					
				11	11	0.30	1.5					●					
				19	-	0.16	1.0					○		●			
16ER 19W 14W 11W	TNN32ER 19W 14W 11W	19 14 11	- 14 11	0.16 0.23 0.30	1.0 1.5 1.5	55°	○		●								
○		●															
○		●															

Applicable Toolholders

Recommended Cutting Conditions → J32

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


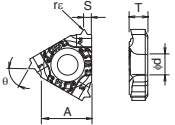
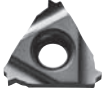
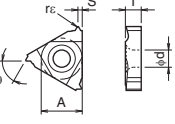
PR1115 / GW15 (Threading) are sold in 5 piece boxes.

TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item
○ : Check Availability

Internal Threading Inserts

Unified (UN)

Full Profile 60° (mm)					Classification of usage ● : 1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes			
Description	Previous Description	A	T	φd		M	Stainless Steel		●					
16IR	TNN32IR	9.525	3.68	4.0		K	Cast Iron							
22IR	TNN43IR	12.70	4.9	4.85		N	Non-ferrous Metals							
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide		
			UN, UNF	Pitch	r _e	S		TC60M		PR1115		GW15		
			TPI	θ	R	L	R	L	R	L				
Full Profile 	 16IR 24UN-TF 20UN-TF 18UN-TF 16UN-TF 14UN-TF 13UN-TF 12UN-TF 10UN-TF 08UN-TF	-	24	0.06	0.8	60°			●					
			20	0.08	1.0				●					
			18	0.09	1.0				●					
			16	0.10	1.1				●					
			14	0.12	1.5				●					
			13	0.13	1.5				●					
			12	0.14	1.5				●					
			10	0.17	1.5				●					
			8	0.21	1.8				●					
			Full Profile 	 16IR 24UN 20UN 18UN 16UN 14UN 12UN	TNN32IR 24UN		24	0.05	0.8	60°	○		●	
20	0.07	1.0				○		●						
18	0.09	1.0				○		●						
16	0.10	1.1				○		●						
14	0.12	1.5				○		●						
12	0.14	1.5				○		●						
22IR 08UN	TNN43IR 08UN	8				0.20	1.8	○			●			


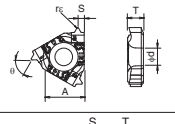
Recommended Cutting Conditions → J32

Applicable Toolholders

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

Internal Threading Inserts

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

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	Previous Description	A	T	φd		M	Stainless Steel		●				
16IR	TNN32IR	9.525	3.68	4.0		K	Cast Iron						
22IR	TNN43IR	12.70	4.9	4.85		N	Non-ferrous Metals						
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide	
			G (PF)	w	r _e	S		TC60M		PR1115		GW15	
			Pitch	TPI	θ	R	L	R	L	R	L		
Full Profile 	 16IR 19W-TF 16W-TF 14W-TF 11W-TF	-	19	-	0.16	1.0	55°			●			
			-	16	0.19	1.1				●			
			14	14	0.23	1.5				●			
			11	11	0.30	1.5				●			
			16IR 14W	TNN32IR 14W	14	14		0.23	1.5	○		●	
16IR 11W	TNN32IR 11W	11	11	0.30	1.5	○		●					

Recommended Cutting Conditions → J32

Applicable Toolholders

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

* 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

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

TC60M (Threading) are sold in 10 piece boxes.

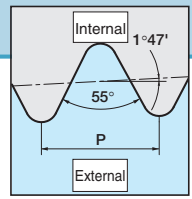
● : Std. Item
○ : Check Availability

J

Threading

J9

Threading Inserts



External Threading Inserts

Tapered Pipe [R (PT) (BSPT)]

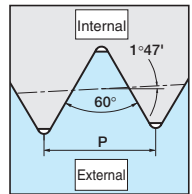
Full Profile 55° (mm)					Classification of usage ● : 1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes		
Description	Previous Description	A	T	φd		M	Stainless Steel		●				
16ER	TNN32ER	9.525	3.68	4.0		K	Cast Iron			●			
						N	Non-ferrous Metals			●			
Insert	Description	Previous Description	Applicable Thread	Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide	Carbide			
				Rc (PT) (BSPT)	rε		S	θ	TC60M		PR1115	GW15	
									R	L		R	L
Handed Insert shows Right-hand			Pitch	TPI									
Full Profile		16ER 28BSPT-TF 19BSPT-TF 14BSPT-TF 11BSPT-TF	-	28	0.10	0.8	55°	○		●		●	
				19	0.16	1.0		○		●		●	
				14	0.22	1.6		○		●		●	
				11	0.29	1.6		○		●		●	
		16ER 28BSPT 19BSPT 14BSPT 11BSPT	TNN32ER 28PT 19PT 14PT 11PT	28	0.10	0.8	55°	○		●		●	
				19	0.16	1.0		○		●		●	
				14	0.22	1.6		○		●		●	
				11	0.29	1.6		○		●		●	

Applicable Toolholders

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

Recommended Cutting Conditions ➔ J32

J



External Threading Inserts

American National Tapered Pipe (NPT)

Full Profile 60° (mm)					Classification of usage ● : 1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes		
Description	Previous Description	A	T	φd		M	Stainless Steel		●				
16ER	TNN32ER	9.525	3.68	4.0		K	Cast Iron			●			
						N	Non-ferrous Metals			●			
Insert	Description	Previous Description	Applicable Thread	Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide	Carbide			
				NPT	rε		S	θ	TC60M		PR1115	GW15	
									R	L		R	L
Handed Insert shows Right-hand			Pitch	TPI									
Full Profile		16ER 18NPT 14NPT 11.5NPT	TNN32ER 18NPT 14NPT 11.5NPT	18	0.04	0.9	60°	○		●		●	
				14	0.05	1.5		○		●		●	
				11.5	0.06	1.5		○		●		●	

Applicable Toolholders

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

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
○ : Check Availability

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	Previous Description	A	T	φd		M	Stainless Steel		●					
11IR	TNN22IR	6.35	3.18	3.0		K	Cast Iron			●				
16IR	TNN32IR	9.525	3.68	4.0		N	Non-ferrous Metals			●				
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread	Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide			
				Rc (PT) (BSPT)	r _ε		S	TC60M		PR1115		GW15		
								Pitch	R	L			R	L
									TPI	R			L	R

Full Profile	11IR	28BSPT-TF	-	28	0.10	0.6	55°	TC60M		PR1115		GW15		J34				
								19BSPT-TF	19	0.16	0.78	R	L		R	L	R	L
												14BSPT-TF	14		0.22	0.97		
	16IR	14BSPT-TF	-	14	0.22	0.97	55°	R	L	R	L	R	L					
								11BSPT-TF	11	0.29	1.5				●			
	11IR	28BSPT	TNN22IR 28PT	28	0.10	0.6	55°	R	L	R	L	R	L					
								19BSPT	19	0.16	0.78				●		●	
								14BSPT	14	0.22	0.97				●		●	
		16IR	14BSPT	TNN32IR 14PT	14	0.22	0.97	R	L	R	L	R	L					
								11BSPT	11	0.29	1.5				●		●	

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	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes			
Description	Previous Description	A	T	φd		M	Stainless Steel		●					
16IR	TNN32IR	9.525	3.68	4.0		K	Cast Iron			●				
						N	Non-ferrous Metals			●				
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread	Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide			
				NPT	r _ε		S	TC60M		PR1115		GW15		
								Pitch	R	L			R	L
									TPI	R			L	R

Full Profile	16IR	18NPT	TNN32IR 18NPT	18	0.04	0.9	60°	R	L	R	L	R	L	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
16IR...	SINR...16 CINR...16	J17

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
○ : Check Availability

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

TC60M (Threading) are sold in 10 piece boxes.

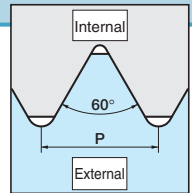
J



Threading

J11

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	Previous Description	A	T	φd		M	Stainless Steel				
16ER	TNN32ER	9.525	3.68	4.0	●						
22ER	TNN43ER	12.70	4.9	4.85	●						
Insert	Description	Previous Description	Applicable Thread		Dimension (mm)	Angle (°)	Cermet	PVD Coated Carbide	Carbide		
			M	UN UNF							
			Pitch		r _ε	S	θ	TC60M	PR1115		GW15
			mm	TPI							

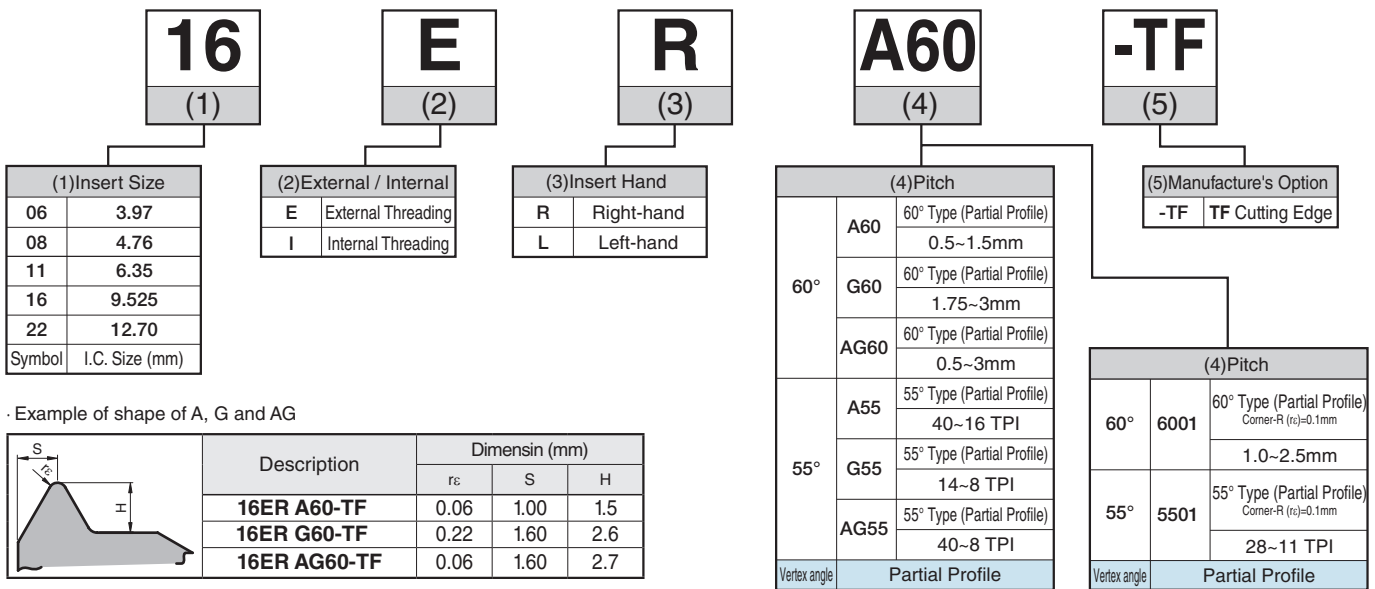
Recommended Cutting Conditions J32

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



Corner-R(r_ε) Selection for Partial Profiling Insert

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

r_ε: Corner-R P: Pitch (= 25.4/n) n: TPI

- **Metric, Unified Thread**
Corner-R(r_ε) at Internal Threading is almost half of that of External.
- **Parallel Pipe, Tapered Pipe, Whitworth Thread**
Same Corner-R(r_ε) for both External and Internal Threading

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


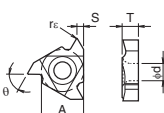
J

Threading

Internal Threading Inserts

60° Type [Partial Profile / M, UN]

Partial Profile 60° (mm)

Description	Previous Description	A	T	φd											
06IR	TNN06IR	3.97	1.91	2.3											
08IR	TNN08IR	4.76	2.38	2.3											
11IR	TNN22IR	6.35	3.18	3.0											
16IR	TNN32IR	9.525	3.68	4.0											
22IR	TNN43IR	12.70	4.9	4.85											
					Classification of usage ● : 1st Choice		P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes			
							M	Stainless Steel		●					
							K	Cast Iron			●				
							N	Non-ferrous Metals			●				
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide			
			M	UN UNF	r _ε	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	TNN06IR 60005	0.75~1.25	28~20	0.05	0.60	60°			●				J38	
	08IR 60007	TNN08IR 60007	1.0~1.75	20~16	0.07	0.80				●					
	11IR 60005	TNN22IR 60005	0.75~1.5	32~16	0.05	1.00		○							
	16IR 6001	TNN32IR 6001	1.5~2.5	16~10	0.10	1.50		○							
		60015	60015	2.5	11~10	0.15	1.50	○							

Recommended Cutting Conditions → J32

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	

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
○ : Check Availability

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

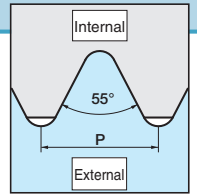
TC60M (Threading) are sold in 10 piece boxes.

J



Threading

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	Previous Description	A	T	φd		M	Stainless Steel		●						
16ER	TNN32ER	9.525	3.68	4.0	● : 1st Choice	K	Cast Iron			●					
22ER	TNN43ER	12.70	4.9	4.85		N	Non-ferrous Metals			●					
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide		Ref. to Page for Depth of Cut & Number of Passes	
			G(PF) R(PT) Pitch	W	r _e	S		θ	TC60M		PR1115		GW15		
			mm					R	L	R	L	R	L		
Partial Profile		16ER A55-TF G55-TF AG55-TF	-	28, 19	40~16	0.06	1.00	55°			●				J36 J37
				14, 11	14~8	0.22	1.60				●				
				28~11	40~8	0.06	1.60				●				
	16ER A55 G55 AG55	-	28, 19	40~16	0.06	1.00	55°					●			
			14, 11	14~8	0.22	1.70						●			
			28~11	40~8	0.06	1.65						●			
	22ER N55	-	-	7-5	0.47	2.50					●	●			
	16ER 5501 5502	TNN32ER 5501 5502	28~11	24~10	0.10	1.50	55°			○					
			14, 11	16~9	0.20	1.50				○					

Applicable Toolholders

Recommended Cutting Conditions **J32**

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

External Threading Inserts

30° Trapezoidal (Tr)

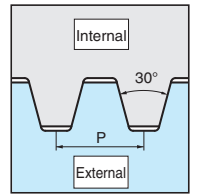
Partial Profile 30° (mm)					Classification of usage ● : 1st Choice	P	Carbon Steel / Alloy Steel		●		Ref. to Page for Depth of Cut & Number of Passes			
Description	Previous Description	A	T	φd		M	Stainless Steel		●					
16ER	TNN32ER	9.525	3.68	4.0	● : 1st Choice	K	Cast Iron			●				
22ER	TNN43ER	12.70	4.9	4.85		N	Non-ferrous Metals			●				
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide		Carbide		Ref. to Page for Depth of Cut & Number of Passes
			Tr	Pitch	r _e	S		θ	TC60M		PR1115		GW15	
			mm					R	L	R	L	R	L	
Partial Profile		16ER 200TR 300TR	TNN32ER 200TR 300TR	2.0	0.20	1.6	30°	○		●				J37
				3.0	0.20	1.6		○		●				
		22ER 400TR 500TR	TNN43ER 400TR 500TR	4.0	0.20	2.5	30°	○		●				
				5.0	0.20	2.5		○		●				

Applicable Toolholders

Recommended Cutting Conditions **J32**

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



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


TC60M (Threading) are sold in 10 piece boxes.

● : Std. Item
○ : Check Availability

Internal Threading Inserts

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

Partial Profile 55° (mm)

Description	Previous Description	A	T	φd	Classification of usage										Ref. to Page for Depth of Cut & Number of Passes	
06IR	TNN06IR	3.97	1.91	2.3	● : 1st Choice	P	Carbon Steel / Alloy Steel			●						
08IR	TNN08IR	4.76	2.38	2.3		M	Stainless Steel			●						
11IR	TNN22IR	6.35	3.18	3.0		K	Cast Iron							●		
16IR	TNN32IR	9.525	3.68	4.0		N	Non-ferrous Metals								●	
22IR	TNN43IR	12.70	4.9	4.85												
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)			Cermet		PVD Coated Carbide		Carbide		
			G(PF) Rc(PT)	W	r _ε	S	θ	TC60M		PR1115		GW15				
			Pitch					R	L	R	L	R	L			
			TPI													
Partial Profile 	11IR A55	-	28, 19	40~16	0.06	1.10	55°					●		●		
	16IR A55		28, 19	40~16	0.06	1.00						●		●		
	G55		14, 11	14~8	0.22	1.70						●		●		
	AG55		28~11	40~8	0.06	1.70						●		●		
	22IR N55	-	7~5	0.47	2.50						●		●			
	06IR 5501	TNN06IR 5501	28	24	0.10	0.60	55°						●			
	08IR 5501	TNN08IR 5501	28, 19	24, 20	0.10	0.80								●		
	11IR 55005	TNN22IR 55005	28~14	24~14	0.05	1.10		○								
	16IR 5501	TNN32IR 5501	28~11	24~11	0.10	1.50		○								
		5502	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	Previous Description	A	T	φd	Classification of usage										Ref. to Page for Depth of Cut & Number of Passes
16IR	TNN32IR	9.525	3.68	4.0	● : 1st Choice	P	Carbon Steel / Alloy Steel			●					
22IR	TNN43IR	12.70	4.9	4.85		M	Stainless Steel			●					
						K	Cast Iron								
						N	Non-ferrous Metals								
Insert Handed Insert shows Right-hand	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)			Cermet		PVD Coated Carbide		Carbide	
			Tr	Pitch	r _ε	S	θ	TC60M		PR1115		GW15			
			mm					R	L	R	L	R	L		
Partial Profile 	16IR 200TR	TNN32IR 200TR	2.0	0.20	1.6	30°						●			
	300TR	300TR	3.0	0.20	1.6								●		
	22IR 400TR	TNN43IR 400TR	4.0	0.20	2.5	30°							●		
	500TR	500TR	5.0	0.20	2.5									●	

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

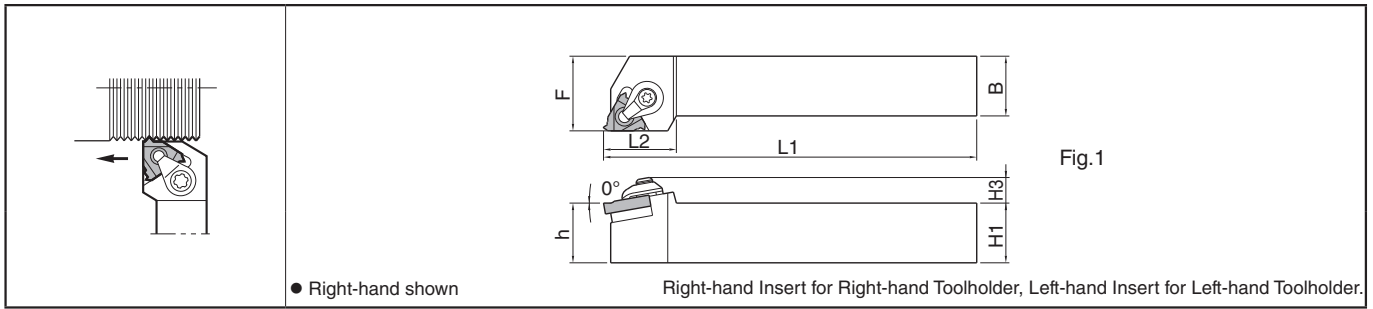
- : Std. Item
- : Check Availability

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

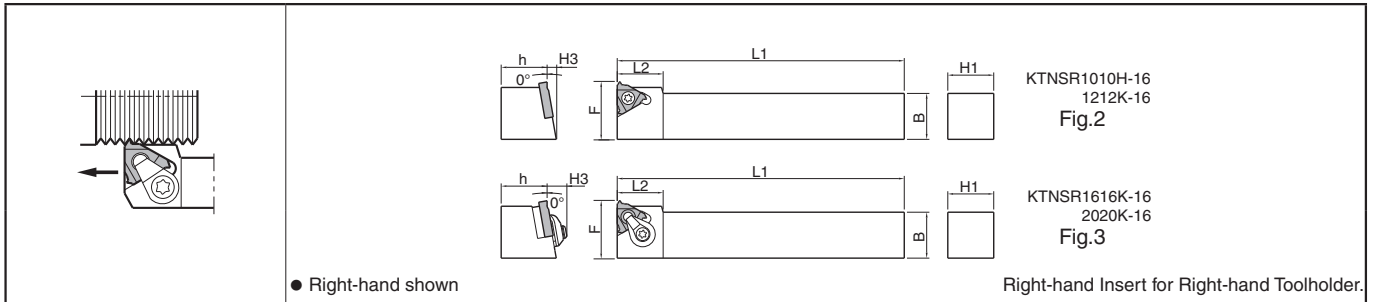
TC60M (Threading) are sold in 10 piece boxes.

External Threading Toolholders

KTN



KTNS (For Gang Type NC Lathe)



● Toolholder Dimensions

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		
KTN ^{PT}	1616H-16	●	●	16	8.5	16	100	25	20	Fig.1	CPS-5S	-	FT-15	TN-32	SP3X8	16E ^{PT} ...
	2020H-16*	●		20		25	25									
	2020K-16	●	●	20		125	30									
	2525M-16	●	●	25	25	150	29	32	CPS-6S		-	LW-3	TN-43	SP3X8		
	2525M-22	●		25	170	34										
3225P-22	●		32	10	25	170	34	32								
KTNSR	1010H-16	●		10	8.5	10	100	16	16	Fig.2	-	SB-3.5TR	-	-	SP3X8	16ER...
	1212K-16	●		12		12	18	18								
	1616K-16	●		16		16	125	22	22	Fig.3	CPS-5S	-	FT-15	TN-32		
	2020K-16	●		20		20	27.4	27.4								

*mark indicates short shank type.

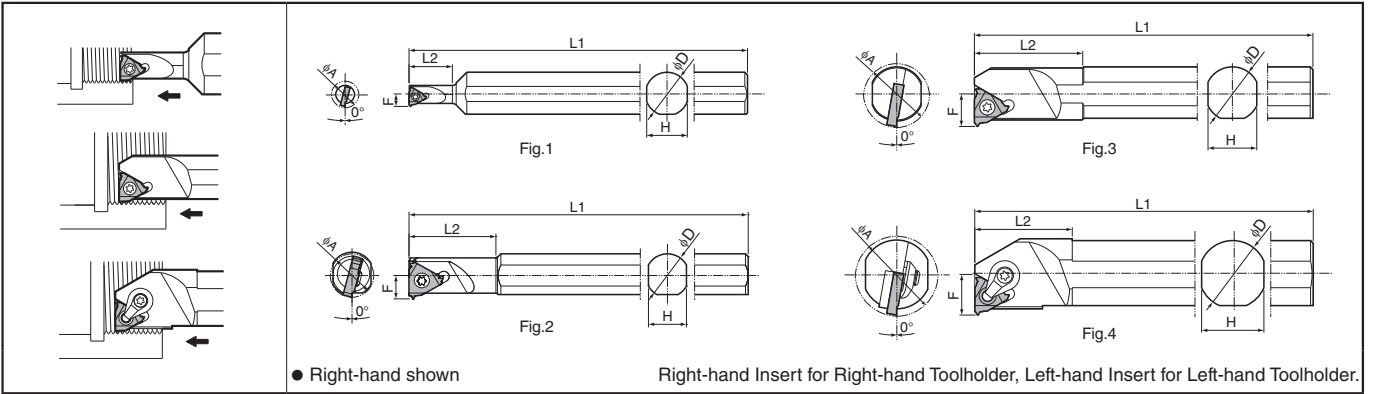
● Refer to page for applicable inserts

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 NPT American National Tapered Pipe	J8 J10	J14 -
G (PF): Parallel Pipe	J8	J14	Tr: 30° Trapezoidal	-	J14

● : Std. Item

Internal Threading Toolholders

SIN / CIN



Toolholder Dimensions

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 ^{1/2}															
0612S-06E	●		6.4	12	11	100	10	3.8	Fig.1	SB-2040TR	-	FT-6	-	-	06 IR...	
0816S-08E	●		7.8	16	15	125	16	4.0		SB-2050TR	-	FT-6	-	-	08 IR...	
1216S-11E	●	●	12	16	14	150	25	6.3		SB-2TR	-	FT-8	-	-	11 I^{1/2}...	
1516S-11	●	●	15				30	7.5								
1616S-16	●	●	16	16	14	150	32	8.6	Fig.2	SB-3.5TR	-	FT-15	-	-	16 I^{1/2}...	
2016S-16	●	●	20				37	10.0								
2420S-16	●	●	24	20	18	180	40	12.0	Fig.3	SB-4085TR	-	FT-15	-	-	22 IR...	
2420S-22	●		24	20	18	180	40	13.5								
CIN ^{1/2}									Fig.4	-	CPS-5S	FT-15	TN-32	SP3X8	16 I^{1/2}...	
3025S-16	●	●	30	25	23	200	36	15.0								
3732S-16	●		37	32	30	250	45	18.5								
3025S-22	●		30	25	23	200	40	16.5								
3732S-22	●		37	32	30	250	45	20							22 IR...	

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.

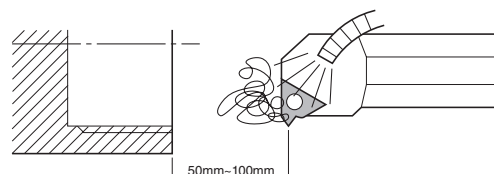
<When processing the first workpiece>

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.

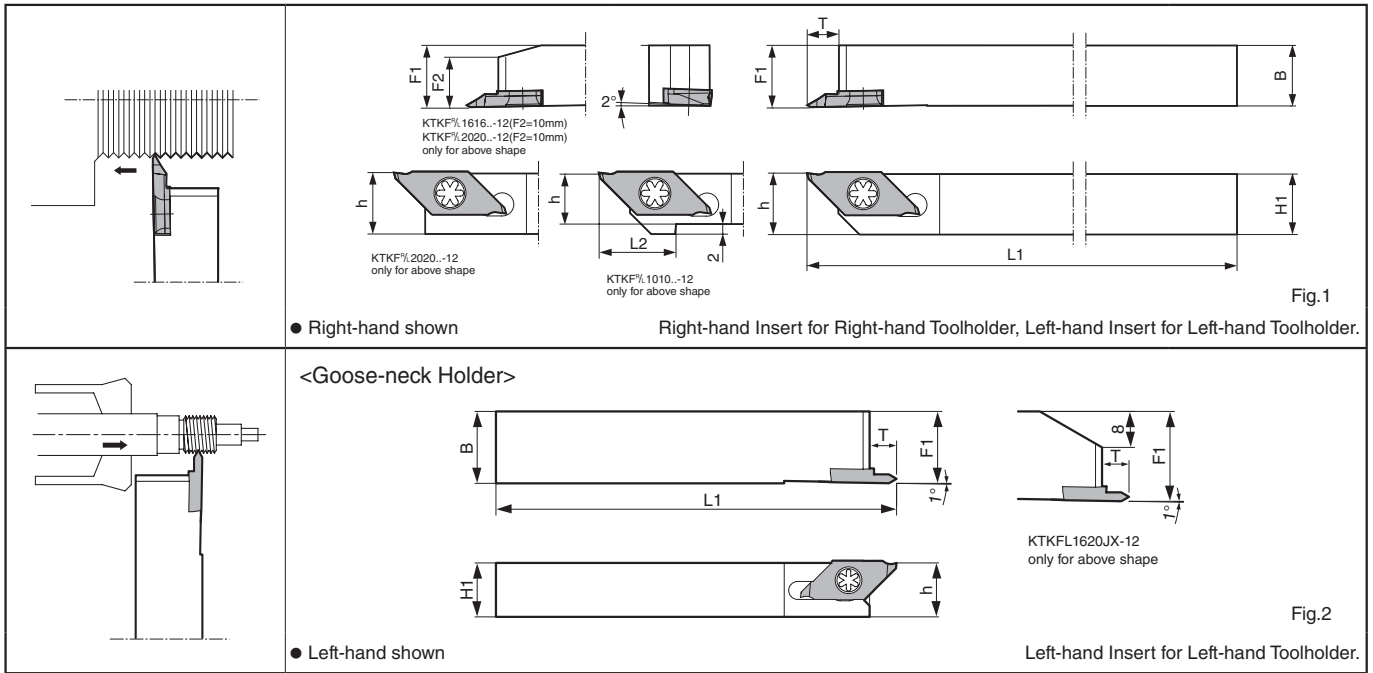


● : Std. Item



TKFT Threading

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					
NEW 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	6	6	SB-4590TRWN	LTW-10S	TKFT12L..

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

Applicable Inserts

Insert	Description	Applicable Thread	Pitch		Dimension (mm)						Angle (°)	MEGACOAT NANO		MEGA COAT	PVD Coated Carbide	Carbide	Applicable Toolholders	
			mm	TPI	T	W	H	φd	rε	S1		S2	PR1425	PR1535	PR1225	PR1025		KW10
			Classification of usage															
	TKFT 12RA6000 12RB6000 12RA60005 12RB60005 12RN6001 12RA55005 12RB55005	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	
													○	●	○	○		
			0.5-1.25	48-24									○	○	○	○		
													○	○	○	○		
			1-1.5	24-18									○	○	○	○		
													○	○	○	○		
	TKFT 12LA6000 12LB6000 12LA60005 12LB60005 12LN6001 12LA55005 12LB55005	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°	●	○	○	○	KTKFL ...12	
													○	●	○	○		
			0.5-1.25	48-24									○	○	○	○		
													○	○	○	○		
			1-1.5	24-18									○	○	○	○		
													○	○	○	○		
-	40-16	○	○	○	○													
		○	○	○	○													

● : Std. Item

Inserts are sold in 10 piece boxes

Inserts Identification System (Ref. to Table-1)

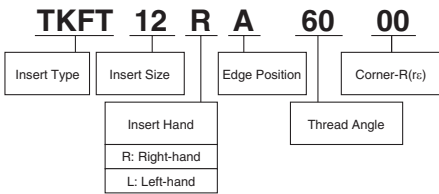


Table-1

Right-hand Insert		
A type	B type	N type
TKFT12RA..	TKFT12RB..	TKFT12RN..
Left-hand Insert		
A type	B type	N type
TKFT12LA..	TKFT12LB..	TKFT12LN..

Recommended Cutting Conditions

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

- 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

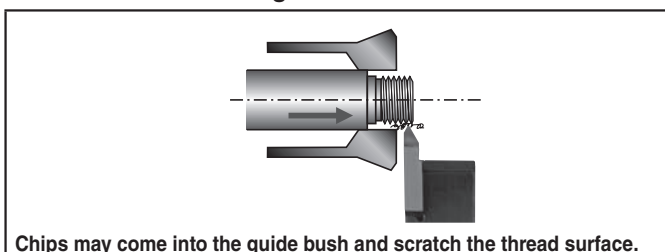
(ap shows the value of radial ap)

Type	Pitch	Description	Corner-R (r _c)	Total ap (mm)	No. of Passes	(ap shows the value of radial ap)																										
						1	2	3	4	5	6	7	8	9	10	11	12															
Metric	External Thread	TKFT 12R/L 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 12R/L A/B6000 12R/L A/B60005	0.50mm	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02																					
		TKFT 12R/L A/B6000 12R/L A/B60005	0.60mm	Max. 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02																			
														0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02										
														0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02										
														0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02									
														0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02									
		TKFT 12R/L A/B60005 12R/L N6001	1.00mm	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02																		
0.10	0.66														7	0.18	0.15	0.12	0.10	0.06	0.03	0.02										
0.05	0.90														9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02								
0.10	0.85														8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02									
TKFT 12R/L N6001	1.25mm	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02																		
Parallel Pipe	External Thread	28 TPI	TKFT 12R/L A/B55005	0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02																			
														0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02							
Whitworth	External Thread	24 TPI	TKFT 12R/L A/B55005	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02																		
															0.05	0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02						
															0.05	1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02					
															0.05	1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02				

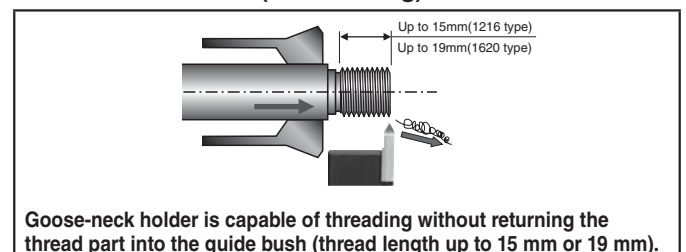
Swiss Tool Automatic Lathe (Guide Bush System)

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

Conventional Threading Tool

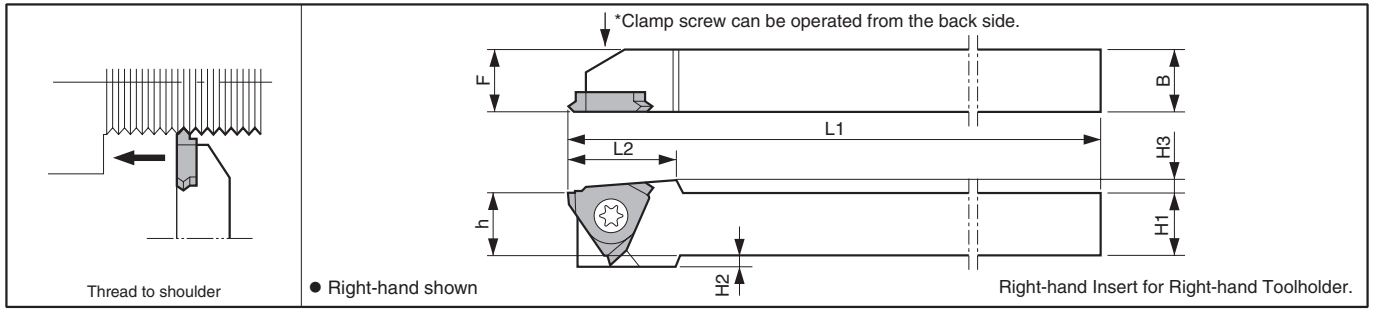


Goose-neck Holder (for threading)



External Threading Toolholders [TTX Insert]

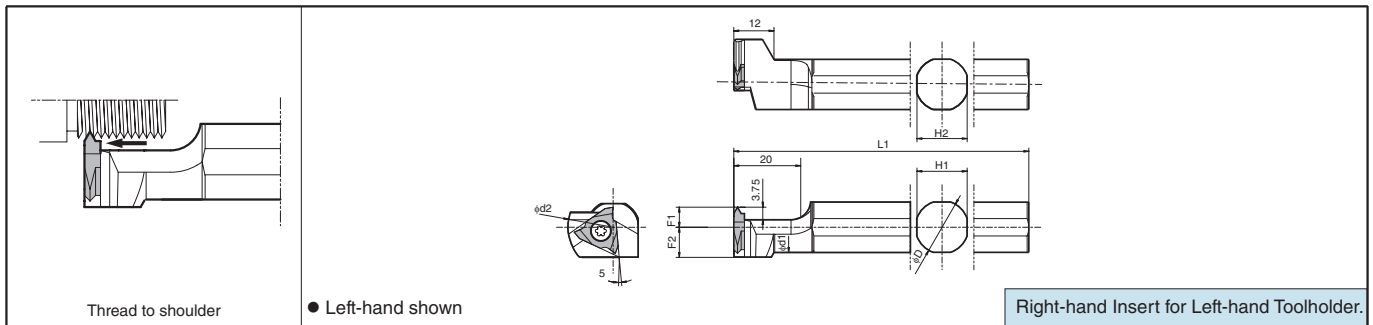
KTTX



Toolholder Dimensions

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

S...KTTX (External Sleeve Holder)



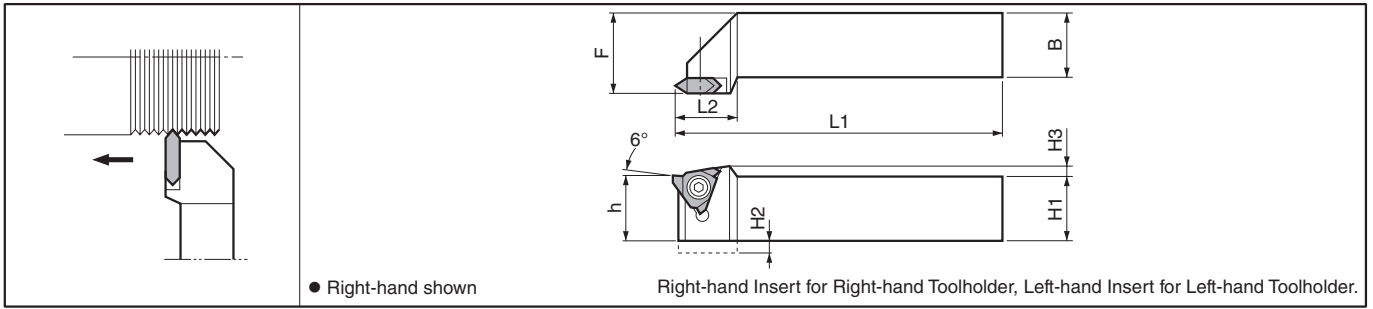
Toolholder Dimensions

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

● : Std. Item

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				
	2020K-16	●	●	20	-		20	125		25	SB-4TR	-	FT-15	-
	2525M-16	●	●	25			25	150		30				
	2020K-22	●	●	20		3.0	20	125	25	25	-	GS-50	-	LW-3
2525M-22	●	●	25			25	150	25	30					

Applicable Inserts

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

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

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 Handed Insert shows Right-hand	TT32 ^{R/L} 6000	M UN	0.5~2.5	-	56~10	0.0	60°	○	●	●	KTT ^{R/L}-16	J39	
		M UN	1.0~2.5	-	24~10	0.1		○	●	●			
		M UN	1.5~2.5	-	16~10	0.2		○	●	●			
	M UN	2.5	-	11~10	0.3	○	R	R					
	TT32 ^{R/L} 5501	G,PT W	-	28~11	24~10	0.1	55°	○	●	R			●
	TT32 ^{R/L} 5502	G,PT W	-	14~11	14~10	0.2		○	●	R			●
Full Profile	TT43ER 100M	M	1.00	-	0.12	0.8	60°	R	R	R	J40		
			1.25	-	0.15	0.9		R	R	R			
			1.50	-	0.19	1.0		R	R	R			
			2.00	-	0.25	1.7		R	R	R			
Partial Profile	TT43 ^{R/L} 6001	M UN	1.0~3.5	-	24~8	0.1	60°	○	●	●	KTT ^{R/L}-22	J39	
		M UN	1.5~3.5	-	16~8	0.2		○	●	●			
		M UN	2.5~3.5	-	11~8	0.3		○	●	R			
		M UN	3.0~3.5	-	8	0.4		○	●	R			
	TT43 ^{R/L} 5501	G,PT W	-	28~11	24~7	0.1	55°	○	R	R			●
	TT43 ^{R/L} 5502	G,PT W	-	14~11	16~7	0.2		○	R	R			●
	TT43 ^{R/L} 5503	G,PT W	-	11	10~7	0.3		○	R	R			
	TT43 ^{R/L} 5504	G,PT W	-	8~7	0.4	○							

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

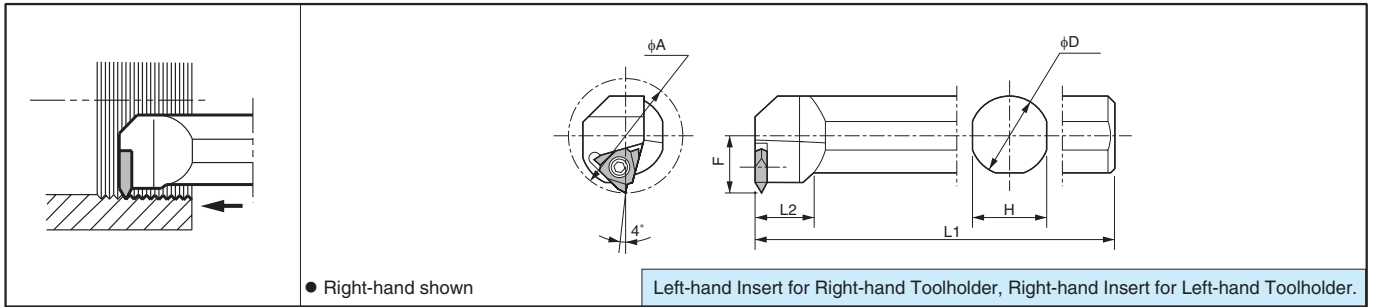
PR930 / PR1115 (Threading) are sold in 5 piece boxes.

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

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

Internal Threading Toolholders [TT Insert]

KITG



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)					Spare Parts			
	R	L		φA	φD	H	L1	L2	F	Clamp Screw		Wrench
	KITG^{R/L} 3525T-16 4532T-22	●	●	35	25	23	220	18	17.5	SB-4TR	-	FT-15
	●	●	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	P	M	K	N	Classification of usage			
								●	○	●	○
TT32^{R/L}	9.525	3.18	4.4	Carbon Steel / Alloy Steel				●	○	●	○
TT43^{R/L}	12.70	4.76	5.5	Stainless Steel				○	○	●	○
				Cast Iron				○	○	○	●
				Non-ferrous Metals				○	○	○	○

Insert Handed Insert shows Right-hand	Description	Applicable Thread	Pitch		Dimension (mm)		Angle (°)	Cermet	PVD Coated Carbide			Applicable Toolholders	Ref. to Page for Depth of Cut & Number of Passes	
			mm	TPI	rε	θ			TC60M	PR930	PR1115			KW10
	TT32^{R/L} 6000	M UN	0.5-2.5	-	48-10	0.0	60°		○	○	●	KITG^{R/L}....-16	J39 J40	
		M UN	1.5-2.5	-	16-10	0.1			○	●	●			●
	TT32^{R/L} 5501	G.PT W	-	-	28-11	0.1	55°		○	●	R			●
		G.PT W	-	-	16-18	0.2			○	●	R			●
	TT43^{R/L} 6001	M UN	1.5-3.0	-	14-11	0.1	60°		○	●	●			●
		M UN	3.0	-	16-10	0.2			○	●	●			●
	TT43^{R/L} 5501	G.PT W	-	-	28-11	0.1	55°		○	R	R			●
		G.PT W	-	-	24-8	0.2			○	R	R			●
		G.PT W	-	-	14-11	0.2			○	R	R			○
		G.PT W	-	-	16-8	0.2			○	R	R			○
		G.PT W	-	-	11-8	0.3			○	R	R			○
		G.PT W	-	-	8	0.4			○					

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

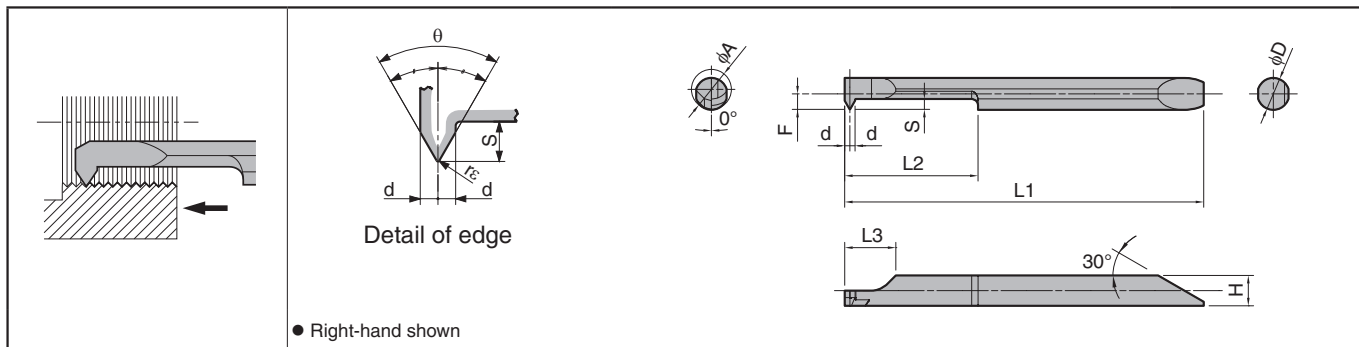
● : Std. Item
○ : Check Availability
R: Std. Item (Right-hand Only)

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 ^{±0.01}	60°	●	M4 and over (Fine Thread: M3.5 and over)	P0.5-P0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-	
035030-60-002	3.5	3.0	2.8	39.0	9.0	5.9	1.44	1.2	0.6			●	M4.5 and over (Fine Thread: M4.5 and over)	P0.5-P1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-	
040035-60-004	4.0	3.5	3.3	42.0	11.0	5.9	1.69	1.2	0.6			●	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 ^{±0.015}	55°	●	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-	
080070-55-008	8.0	7.0	6.8	64.2	25.0	8.9	3.44	2.0	1.0			●	W11 TPI20 and over	20~18	G1/8 and over R1/8 and over	28,19	-	-	

· For American National Pipe (NPT), use EZTR..-60-004. ● J27 Applicable Sleeves ● J25

J

Threading

EZ Bars are sold in 1 piece boxes.

● : Std. Item

Applicable sleeves

Sleeve Description				Applicable Inserts			Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) ⦿ F20	EZH-HP (Adjustable overhang length) ⦿ F22	EZH-ST ⦿ F24	Sleeve Shank Dia. φD1 (mm)	EZT	HPT	Shank Dia. φD (mm)	
-	-	EZH 02512ST-80	12	EZTR...025...	-	2.5	(General purpose)
		03012ST-80		EZTR...030...	-	3	
		03512ST-80		EZTR...035...	-	3.5	
		04012ST-80		EZTR...040...	HPTR..04...	4	
		05012ST-80		EZTR...050...	HPTR..05...	5	
		06012ST-80		EZTR...060...	-	6	
		07012ST-80		EZTR...070...	HPTR..07...	7	
-	EZH 02516HP-100	EZH 02516ST-100	16	EZTR...025...	-	2.5	(General purpose)
	03016HP-100	03016ST-100		EZTR...030...	-	3	
	03516HP-100	03516ST-100		EZTR...035...	-	3.5	
	04016HP-100	04016ST-100		EZTR...040...	HPTR..04...	4	
	05016HP-100	05016ST-100		EZTR...050...	HPTR..05...	5	
	06016HP-100	06016ST-100		EZTR...060...	-	6	
	07016HP-100	07016ST-100		EZTR...070...	HPTR..07...	7	
EZH 02519CT-120	EZH 02519HP-120	EZH 02519ST-120	19.05	EZTR...025...	-	2.5	Citizen Machinery
03019CT-120	03019HP-120	03019ST-120		EZTR...030...	-	3	
03519CT-120	03519HP-120	03519ST-120		EZTR...035...	-	3.5	
04019CT-120	04019HP-120	04019ST-120		EZTR...040...	HPTR..04...	4	
05019CT-120	05019HP-120	05019ST-120		EZTR...050...	HPTR..05...	5	
06019CT-120	06019HP-120	06019ST-120		EZTR...060...	-	6	
07019CT-120	07019HP-120	07019ST-120		EZTR...070...	HPTR..07...	7	
EZH 02520CT-120	EZH 02520HP-120	EZH 02520ST-120	20	EZTR...025...	-	2.5	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
03020CT-120	03020HP-120	03020ST-120		EZTR...030...	-	3	
03520CT-120	03520HP-120	03520ST-120		EZTR...035...	-	3.5	
04020CT-120	04020HP-120	04020ST-120		EZTR...040...	HPTR..04...	4	
05020CT-120	05020HP-120	05020ST-120		EZTR...050...	HPTR..05...	5	
06020CT-120	06020HP-120	06020ST-120		EZTR...060...	-	6	
07020CT-120	07020HP-120	07020ST-120		EZTR...070...	HPTR..07...	7	
EZH 02522CT-135	EZH 02522HP-135	EZH 02522ST-135	22	EZTR...025...	-	2.5	Star Micronics Nomura DS Tsugami
03022CT-135	03022HP-135	03022ST-135		EZTR...030...	-	3	
03522CT-135	03522HP-135	03522ST-135		EZTR...035...	-	3.5	
04022CT-135	04022HP-135	04022ST-135		EZTR...040...	HPTR..04...	4	
05022CT-135	05022HP-135	05022ST-135		EZTR...050...	HPTR..05...	5	
06022CT-135	06022HP-135	06022ST-135		EZTR...060...	-	6	
07022CT-135	07022HP-135	07022ST-135		EZTR...070...	HPTR..07...	7	
EZH 02525.0CT-135	EZH 02525.0HP-135	EZH 02525.0ST-135	25	EZTR...025...	-	2.5	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZTR...030...	-	3	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZTR...035...	-	3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZTR...040...	HPTR..04...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZTR...050...	HPTR..05...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZTR...060...	-	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZTR...070...	HPTR..07...	7	
EZH 02525.4CT-120	EZH 02525.4HP-120	EZH 02525.4ST-120	25.4	EZTR...025...	-	2.5	Citizen Machinery
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZTR...030...	-	3	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZTR...035...	-	3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZTR...040...	HPTR..04...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZTR...050...	HPTR..05...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZTR...060...	-	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZTR...070...	HPTR..07...	7	

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

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



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	-	

<Note>

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

★: 1st Recommendation

◆ Depth of Cut & Number of Passes (Metric : M)

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

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

TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass			
24	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03							
20	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03					
18	0.91	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	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	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)		Same Root's Radius
		Insert	Bore Dia.	
G 1/16 (-)	28	EZTR 060050-55-008	6.56	0.12
G 1/8 (PF 1/8)			8.57	
G 1/4 (PF 1/4)	19	EZTR 080070-55-008	11.45	0.18
G 3/8 (PF 3/8)			14.95	

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

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

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

Depth of Cut & Number of Passes (Parallel Pipe / G(PF), Tapered Pipe / BSPT (PT) (Rc))

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
1/16 NPT 1/8 NPT	27	No Tools Available		
1/4 NPT 3/8 NPT	18	EZH sleeve	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	EZH sleeve	EZTR070060-60-004	-
1/2 NPT 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.

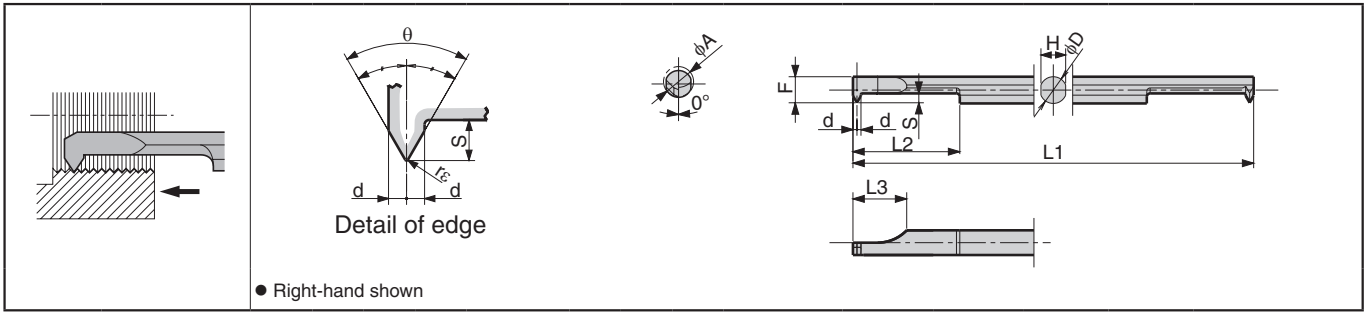
Thread symbol is similar to NPT but the Tolerance is different from that of NPT, therefore the above Inserts are not available for NPTF.

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



HPT (Micro Internal Threading)



Dimensions

Description	Min. Bore Dia.	Dimension (mm)										Insert Grades		Applicable Thread				
		φA	φD	H	L1	L2	L3	F	S	d	r _e	θ	PVD Coated Carbide	Carbide	Metric		Unified	
													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 TPI24 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.....
		05.....
		07.....
HPTR 06005-55-010	EZH	05.....
		07.....

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed V _c : 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 V_c=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

Tip-Bars are sold in 1 piece boxes.

● : 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 1/16 (-)	28	HPTR 06005-55-010	6.56	0.12
G 1/8 (PF 1/8)			8.57	
G 1/4 (PF 1/4)	19	HPTR 08007-55-010	11.45	0.18
G 3/8 (PF 3/8)			14.95	

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

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

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

Depth of Cut & Number of Passes (Parallel Pipe / G(PF), Tapered Pipe / BSPT (PT) (Rc))

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
1/16 NPT 1/8 NPT	27	No Tools Available		
1/4 NPT 3/8 NPT	18	EZH sleeve (Ref. to Page J25)	HPTR06005-60-005 HPTR07507-60-005	-
1/2 NPT 3/4 NPT	14	EZH sleeve (Ref. to Page J25)	HPTR07507-60-005	-
1/2 NPT 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.

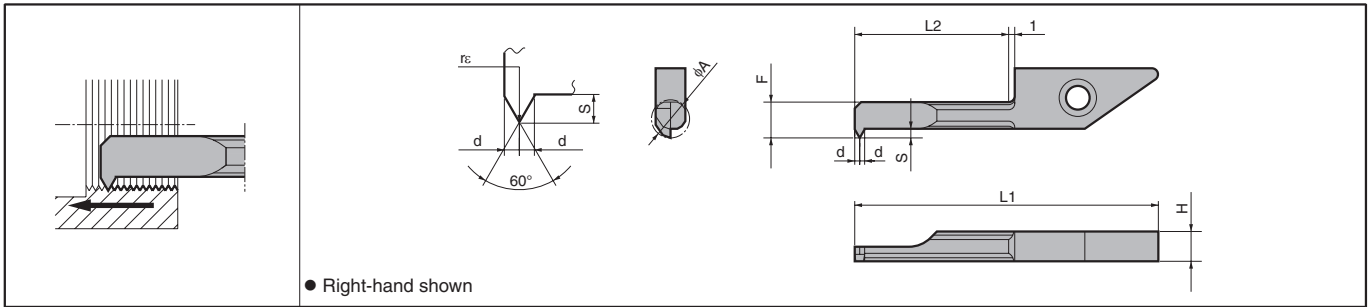
Depth of Cut & Number of Passes (American National Tapered Pipe)

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



Tip-Bars for Micro Threading

VNT (System Tip-Bars)



Dimensions

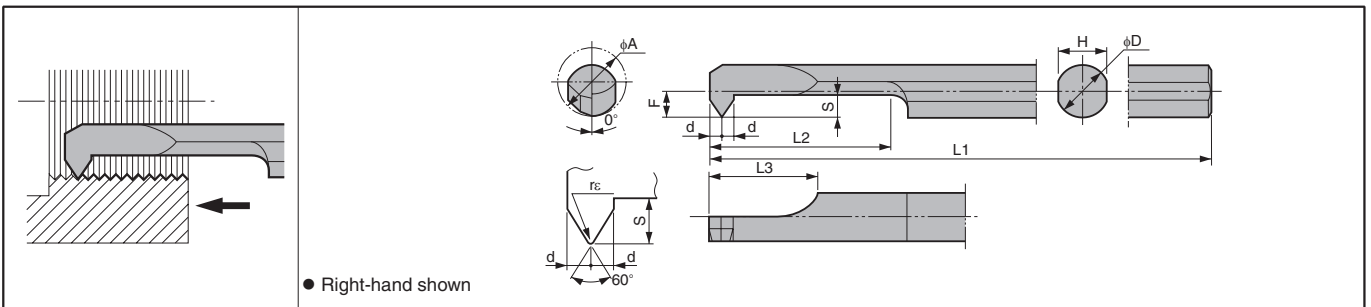
Description	Min. Bore Dia.	Dimension (mm)								Insert Grades			Applicable Thread			
		φA	H	L1	L2	F	S	d	rε	MEGA COAT	PVD Coated Carbide	Carbide	Metric		Unified	
										PR1225	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
VNTR	045-11	4.5	3.9	30.8	11	3.6	1.3	0.6	+0.02 -0.05	●	●	●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

● For applicable Toolholder, Ref. to Page F28~F29.

J

PST-S (Tip-Bars)

This insert will be switched to EZT ➔ J24



Dimensions

Description	Min. Bore Dia.	Dimension (mm)										Insert Grades			Applicable Thread			
		φA	φD	H	L1	L2	L3	F	S	d	rε	Cermet	PVD Coated Carbide	Carbide	Metric		Unified	
												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 -0.05			△	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 F82.

◆ 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 workpiece at high speeds.
2) Coolant is recommended.

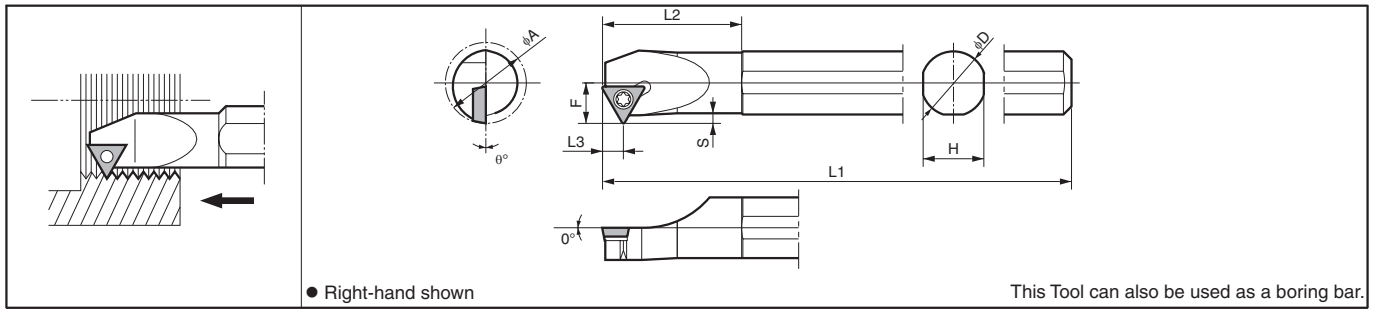
● : Std. Item
△ : Will be switched to new item (Check Availability)

Tip-Bars are sold in 1 piece boxes.

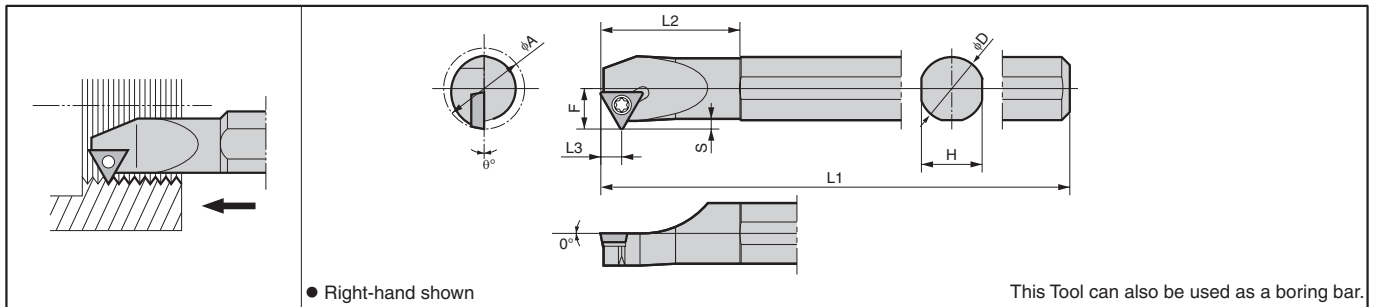
System Tip-Bars are sold in 5 piece boxes.

Internal Threading Toolholders [TPGB Insert]

S...STWP



S...STWP-E Excellent Bar



Toolholder Dimensions

Description	(Previous Description)	Std.		Min. Bore Dia.	Dimension (mm)							Available Pitch (mm)	Spare Parts	
		R	L		φA	φD	H	L1	L2	L3	F		S	Clamp Screw
S10M -STWPR11-12	SITR	1210-11	●	12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWPR11-16		1612-11	●	16	12	11	150	30		8	1.5	2.0 and under		
S16Q -STWPR11-20		2016-11	●	20	16	15	180	35		10	2.0	3.0 and under		
S20R -STWPR11-25		2520-11	●	25	20	19	200	40		12.5	2.5	3.5 and under		
S10M -STWP ^φ 11-12E	-		●●	12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWP ^φ 11-16E			●●	16	12	11	150	30		8	1.5	2.0 and under		
S16R -STWP ^φ 11-20E			●●	20	16	15	200	35		10	2.0	3.0 and under		
S20X -STWP ^φ 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
TPGB1102...	6.35	2.38	3.5
TPGB1103...	6.35	3.18	3.3

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

Insert	Description	Applicable Thread	Pitch		Dimension (mm)			Angle (°)	Cermet				Applicable Toolholders	Ref. to Page for Depth of Cut & Number of Passes
			mm	TPI	rε					TN6020	TN60	PV7020		
	TPGB 1102005	M UN	0.75-1.5	-	28~16	0.05								J41
	110201	M UN	1.5	-	16	0.10								
	TPGB 1103005	M UN	0.75-3.5	-	28~11	0.05								
	110301	M UN	1.5-3.5	-	16-8	0.10								
	110302	M UN	3.0-3.5	-	8	0.20								

Applicable Thread	M: Metric	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

Inserts are sold in 10 piece boxes

J
Threading

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 061R / 081R, 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

Indicates ★ : 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 <ap - passes>.

J



Threading

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

Depth of Cut & Number of Passes

S60° / 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			
	mm / TPI																										
Unified	Internal Thread	18 TPI	081R 60007	0.07	0.85	17	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	0.04	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	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03		
		48 TPI	111R A60	0.02	0.32	5	0.08	0.07	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	0.11	1.07	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.04												
		13 TPI	161R G60 AG60	0.11	1.16	10	0.20	0.18	0.16	0.14	0.12	0.11	0.08	0.07	0.06	0.04											
		12 TPI	161R G60 AG60	0.11	1.26	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.08	0.06	0.05	0.04										
		10 TPI	161R G60 AG60	0.11	1.54	14	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.04	0.02							
		9 TPI	161R G60 AG60	0.11	1.72	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.04	0.02						
		8 TPI	161R G60 AG60	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				
		7 TPI	221R N60	0.22	2.14	14	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.07	0.06	0.05							
		6 TPI	221R N60	0.22	2.53	17	0.28	0.26	0.23	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05				
5 TPI	221R N60	0.22	3.08	19	0.30	0.28	0.26	0.25	0.23	0.22	0.20	0.17	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.10	0.08	0.06	0.05				
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	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04												
		11 TPI	16ER G55-TF AG55-TF	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04									
		28 TPI	16ER A55 AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04														
		19 TPI	16ER A55 AG55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05													
		14 TPI	16ER G55 AG55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04												
		11 TPI	16ER G55 AG55	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04									
		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	111R A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04														
		14 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	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	0.04												
		11 TPI	161R G55 AG55	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04									
		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			0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	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	0.12	0.09	0.07	0.05											
11 TPI	16ER G55-TF AG55-TF			0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04									
10 TPI	16ER G55-TF AG55-TF			0.22	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.09	0.07	0.05									
9 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	0.12	0.11	0.10	0.08	0.07	0.05							
8 TPI	16ER G55-TF AG55-TF			0.22	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							
48 TPI	16ER A55 AG55			0.06	0.37	5	0.12	0.09	0.07	0.05	0.04																



Depth of Cut & Number of Passes

11 / 16 (60° / 55° Partial Profile) type

(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			
	mm / TPI																										
Metric (60°)	External Thread	1.00mm	16ER 6001	0.10	0.66	5	0.21	0.19	0.12	0.09	0.05																
		1.25mm	16ER 6001	0.10	0.85	6	0.25	0.21	0.15	0.12	0.07	0.05															
		1.50mm	16ER 6001	0.10	1.04	8	0.23	0.21	0.19	0.15	0.11	0.06	0.05	0.04													
			16ER 6002	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04														
		1.75mm	16ER 6001	0.10	1.23	9	0.25	0.22	0.20	0.17	0.14	0.09	0.07	0.05	0.04												
			16ER 6002	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04													
		2.00mm	16ER 6001	0.10	1.42	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04										
	16ER 6002		0.20	1.32	10	0.25	0.22	0.20	0.16	0.14	0.12	0.08	0.07	0.04	0.04												
	2.50mm	16ER 6001	0.10	1.79	13	0.25	0.22	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.09	0.08	0.05	0.04									
		16ER 6002	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.06	0.04										
	Internal Thread	0.75mm	11IR 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02																
		1.00mm	11IR 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04															
		1.25mm	11IR 60005	0.05	0.76	7	0.18	0.15	0.12	0.10	0.10	0.07	0.04														
			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												
1.50mm		16IR 6001	0.10	0.87	8	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05														
		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									
		16IR 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											
			16ER 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									
		16ER 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	16IR 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.05	0.03															
		11 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														
	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													
				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											
16 TPI			16ER 5502	0.20	1.04	8	0.24	0.20	0.16	0.14	0.10	0.08	0.07	0.05													
			16ER 5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05											
12 TPI		16ER 5501	0.10	1.58	12	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.08	0.08	0.07	0.05									
		16ER 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	0.10	0.07	0.05											
		16ER 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											
Internal Thread	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								
		16ER 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								
	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															
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														
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													
	16IR 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												
	16IR 5502	0.20	1.44	10	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05													

<Note>1) Select the insert with suitable corner-R(r_c) 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 prevent the insert cracking during the 1st pass.

5) Coolant is recommended.

Depth of Cut & Number of Passes

TT type (60° / 55° Partial Profile) Part 2

(ap shows the value of radial ap)

Type	Pitch / TPI mm / 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			
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											
		16 TPI TT32/43% 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										
		14 TPI TT32/43% 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										
		12 TPI TT32/43% 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	0.10	0.05	0.02								
		11 TPI TT43% 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									
		11 TPI 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								
		10 TPI TT32/43% 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									
		10 TPI 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							
9 TPI TT43% 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										
9 TPI TT43% 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							
8 TPI TT43% 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								
8 TPI TT43% 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									
8 TPI TT43% 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 type (60° 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 type (60° / 55° Partial Profile)

(ap shows the value of radial ap)

Type	Pitch / TPI mm / 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	
Metric (60°) External Thread	0.50mm	TTX32R 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02												
		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											
1.25mm	TTX32R 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02													
	6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02												
1.50mm	TTX32R 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02										
	6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02									
1.75mm	TTX32R 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02								
	6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02								
2.00mm	TTX32R 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02								
	6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02								
Parallel Pipe (55°) External Thread	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										
	14 TPI	TTX32R 5501S	0.15	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02											
	11 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								
Whitworth (55°) External Thread	24 TPI	TTX32R 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02												
	20 TPI	TTX32R 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02											
	20 TPI	TTX32R 5501S	0.15	0.84	7	0.20	0.18	0.16	0.12	0.10	0.06	0.02											
	18 TPI	TTX32R 5501S	0.15	0.95	8	0.20	0.18	0.15	0.14	0.12	0.10	0.04	0.02										
	16 TPI	TTX32R 5501S	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	TTX32R 5501S	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	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						

- <Note> 1) Select the insert with suitable corner-R (r_c) 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 prevent the insert from 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
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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 Symbol (Previous Symbol)	TPI	External Thread (G)			Internal Thread (G, Rp)			Bore Dia.	Same Root's Radius
		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile		Partial Profile	Full Profile		
G 1/16 (-) G 1/8 (PF 1/8)	28	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF 16ERAG55-TF 16ERA55 16ERAG55	-	SINR0612S-06E (EZT J24) (HPT J28)	06IR5501	-	6.56 8.57	0.12
G 1/4 (PF 1/4) G 3/8 (PF 3/8)	19	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF 16ERAG55-TF 16ERA55 16ERAG55	16ER19W-TF 16ER19W	SINR0816S-08E (EZT J24) (HPT J28) SINR1216S-11E (EZT J24) (HPT J28)	08IR5501 11IRA55 11IR55005	-	11.45 14.95	0.18
G 1/2 (PF 1/2) G 5/8 (PF 5/8) G 3/4 (PF 3/4) G 7/8 (PF 7/8)	14	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF 16ERG55-TF 16ERAG55 16ERG55	16ER14W-TF 16ER14W	SINR1516S-11 SINR1616S-16 SINR2016S-16 SINR2420S-16	11IR55005 16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF 16IR14W	18.63 20.59 24.12 27.88	0.25
G 1 (PF 1) G 1 1/8 (PF 1 1/8) G 1 1/4 (PF 1 1/4)	11	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF 16ERG55-TF 16ERAG55 16ERG55	16ER11W-TF 16ER11W	SINR2420S-16 CINR3025S-16 CINR3732S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF 16IR11W	30.29 34.94 38.95	0.32
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G1 1/4 is recommended.									

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

Nominal Thread Symbol (Previous Symbol)	TPI	External Thread (G)			Internal Thread (Rc)			Bore Dia.	Same Root's Radius
		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.

J



Threading

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	-	16IR14NPT
					SINR2016S-16		
1 NPT 1 1/4 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER11.5NPT	SINR2420S-16	-	16IR11.5NPT
					CINR3025S-16		
					CINR3732S-16		

• Application of NPTF Thread

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

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

30° Trapezoidal: Tr

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

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

• TM Thread

TM Thread (old JIS 30° Trapezoidal Thread) has been discontinued. But if the "Nominal Dia. X Pitch" is the same, the above Tr Thread can be used.

• TW Thread

TW Thread is 29° Trapezoidal Thread, therefore the above Inserts are not available.



Threading

Metric Coarse Thread: M

Nominal Thread	Pitch (mm)	Internal Thread			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	-	
			EZTR060050-60-004	-	
M8	1.25	-	HPTR06005-60 / VNTR060-11	-	6.65
		SINR0612S-06E	06IR60005	-	
M9	1.25	-	EZTR070060-60-004	-	7.65
		SINR0612S-06E	06IR60005	-	
M10	1.5	-	08IR60007	-	8.38
M11	1.5	SINR0816S-08E	08IR60007	-	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	-	22IR350ISO	26.21
M33	3.5	-	-	-	29.21
M36	4.0	CINR3025S-22	-	22IR400ISO	31.67
M39	4.0	-	-	-	34.67
M42	4.5	CINR3732S-22	-	22IR450ISO	37.13
M45	4.5	-	-	-	40.13
M48	5.0	CINR3732S-22	-	22IR500ISO	42.59
M52	5.0	-	-	-	46.59
M56	5.5	* Threading of M56 and over is not available due to too large pitch size.			50.05
• • •					• • •

Metric Fine Thread: M

Part 2

Nominal Thread	Pitch (mm)	Internal Thread			Bore Dia.
		Toolholder	Insert		
			Partial Profile	Full Profile	
M14x1.5 M14x1.25 M14x1.0	1.5 1.25 1.0	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR125ISO-□□ 11IR100ISO-□□	12.38 12.65 12.92
M15x1.5 M15x1.0	1.5 1.0	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	13.38 13.92
M16x1.5 M16x1.0	1.5 1.0	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	14.38 14.92
M17x1.5 M17x1.0	1.5 1.0	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	15.38 15.92
M18x2.0	2.0	SINR1516S-11	-	11IR200ISO	15.84
M18x1.5	1.5	SINR1616S-16	Table 2	16IR150ISO-□□	16.38
M18x1.0	1.0		Table 3	16IR100ISO-□□	16.92
M20x2.0	2.0	SINR1616S-16	Table 1	16IR200ISO-□□	17.84
M20x1.5	1.5		Table 2	16IR150ISO-□□	18.38
M20x1.0	1.0		Table 3	16IR100ISO-□□	18.92
M22x2.0	2.0	SINR1616S-16	Table 1	16IR200ISO-□□	19.84
M22x1.5	1.5	SINR2016S-16	Table 2	16IR150ISO-□□	20.38
M22x1.0	1.0		Table 3	16IR100ISO-□□	20.92
M24x2.0	2.0	SINR2016S-16	Table 1	16IR200ISO-□□	21.84
M24x1.5	1.5		Table 2	16IR150ISO-□□	22.38
M24x1.0	1.0		Table 3	16IR100ISO-□□	22.92
M25x2.0	2.0	SINR2016S-16	Table 1	16IR200ISO-□□	22.84
M25x1.5	1.5		Table 2	16IR150ISO-□□	23.38
M25x1.0	1.0		Table 3	16IR100ISO-□□	23.92
M26x1.5	1.5	SINR2420S-16	Table 2	16IR150ISO-□□	24.38
M27x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	24.84
M27x1.5	1.5		Table 2	16IR150ISO-□□	25.38
M27x1.0	1.0		Table 3	16IR100ISO-□□	25.92
M28x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	25.84
M28x1.5	1.5		Table 2	16IR150ISO-□□	26.38
M28x1.0	1.0		Table 3	16IR100ISO-□□	26.92
M30x3.0	3.0	SINR2420S-22	-	22IR300ISO	26.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M30x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	27.84
M30x1.5	1.5		Table 2	16IR150ISO-□□	28.38
M30x1.0	1.0		Table 3	16IR100ISO-□□	28.92
M32x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	29.84
M32x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	30.38
M33x3.0	3.0	SINR2420S-22	-	22IR300ISO	29.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M33x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	30.84
M33x1.5	1.5		Table 2	16IR150ISO-□□	31.38
M35x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	33.38
M36x3.0	3.0	CINR3025S-22	-	22IR300ISO	32.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M36x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	33.84
M36x1.5	1.5		Table 2	16IR150ISO-□□	34.38
M38x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	36.38
M39x3.0	3.0	CINR3025S-22	-	22IR300ISO	35.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M39x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	36.84
M39x1.5	1.5		Table 2	16IR150ISO-□□	37.38
M40x3.0	3.0	CINR3025S-22	-	22IR300ISO	36.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M40x2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	37.84
M40x1.5	1.5		Table 2	16IR150ISO-□□	38.38
M42x4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67
		-	-	22IR300ISO	
M42x3.0	3.0	CINR3732S-16	Table 4	16IR300ISO-□□	38.75
M42x2.0	2.0		Table 1	16IR200ISO-□□	39.84
M42x1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	40.38
M45x4.0	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=2mm)

16IRG60 16IRAG60 16IR6001

Table 2 (P=1.5mm)

16IRA60 16IRAG60 16IR6001

Table 3 (P=1.0mm)

16IRA60 16IRAG60

Table 4 (P=3mm)

16IRG60 16IRAG60

Table 5 (P=2.5mm)

16IRG60 16IRAG60 16IR6001 16IR60015
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Metric Fine Thread: M

Part 1

Nominal Thread	Pitch (mm)	Internal Thread			Bore Dia.
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1x0.2 • • • M3x0.35	0.2 0.35	No Tools Available	-	-	0.78 • • • 2.62
M3.5x0.35	0.35	-	EZTR030025-60-002	-	3.12
M4.5x0.5	0.5	-	EZTR035030-60-002	-	3.96
M5x0.5	0.5	-	EZTR040035-60-004	-	4.46
M6x0.75	0.75	-	HPTR04504-60 / VNTR045-11	-	5.19
M7x0.75	0.75	-	EZTR050040-60-004	-	6.20
			HPTR06005-60 / VNTR060-11	-	
M8x1.0	1.0	-	EZTR060050-60-004	-	6.92
			HPTR06005-60 / VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M8x0.75	0.75	-	EZTR060050-60-004	-	7.19
			HPTR06005-60 / VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M9x1.0	1.0	-	EZTR070060-60-004	-	7.92
			HPTR07507-60 / VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
		SINR0816S-08E	08IR60007	-	
M9x0.75	0.75	-	EZTR070060-60-004	-	8.19
			HPTR07507-60 / VNTR060-11	-	
		SINR0612S-06E	06IR60005	-	
M10x1.25	1.25	-	HPTR07507-60 / VNTR060-11	-	8.65
		SINR0816S-08E	08IR60007	-	
M10x1.0	1.0	-	HPTR07507-60 / VNTR060-11	-	8.92
		SINR0816S-08E	08IR60007	-	
M10x0.75	0.75	-	HPTR07507-60 / VNTR060-11	-	9.19
		SINR0612S-06E	06IR60005	-	
M11x1.0	1.0	-	HPTR07507-60 / VNTR060-11	-	9.92
		SINR0816S-08E	08IR60007	-	
M11x0.75	0.75	-	HPTR07507-60 / VNTR060-11	-	10.19
		SINR0612S-06E	06IR60005	-	
M12x1.5	1.5	-	-	-	10.38
M12x1.25	1.25	SINR0816S-08E	08IR60007	-	10.65
M12x1.0	1.0	-	-	-	10.92

• 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		EZTR030025-60-002	-	-	3.31
10-24 UNC	24		EZTR035030-60-002	-	-	3.68
12-24 UNC	24		EZTR040035-60-004	-	-	4.34
1/4-20 UNC	20	-	EZTR050040-60-004	-	4.98	
		-	HPTR04504-60 / VNTR045-11	-		
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41	
		-	HPTR06005-60 / VNTR060-11	-		
3/8-16 UNC	16	-	EZTR070060-60-004	-	7.81	
		-	HPTR07507-60-005	-		
7/16-14 UNC	14	No Tools Available			9.15	
1/2-13 UNC	13				10.58	
9/16-12 UNC	12				12.00	
5/8-11 UNC	11				13.38	
3/4-10 UNC	10				16.30	
7/8-9 UNC	9	SINR1616S-16	16IRAG60	16IR10UN-TF	19.17	
1-8 UNC	8	SINR2016S-16	16IRG60	16IR08UN-TF	21.96	
1 1/8-7 UNC	7	SINR2420S-22	22IRN60	-	24.65	
1 1/4-7 UNC	7	SINR2420S-22		-	-	27.82
1 3/8-6 UNC	6	CINR3025S-22		-	-	30.34
1 1/2-6 UNC	6	CINR3025S-22		-	-	33.52
1 3/4-5 UNC	5	CINR3732S-22		-	-	38.95
2-4 1/2 UNC	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.			44.69	

Unified Fine Thread: UNF

Nominal Thread	TPI	Internal Thread			Bore Dia.	
		Toolholder	Insert			
			Partial Profile	Full Profile		
0-80 UNF	80	No Tools Available	-	-	1.18	
6-40 UNF	40		-	-	2.82	
8-36 UNF	36		EZTR030025-60-002	-	-	3.40
10-32 UNF	32		EZTR035030-60-002	-	-	3.97
12-28 UNF	28		EZTR040035-60-004	-	-	4.50
1/4-28 UNF	28	-	EZTR050040-60-004	-	5.37	
		-	HPTR04504-60 / VNTR045-11	-		
5/16-24 UNF	24	-	EZTR060050-60-004	-	6.79	
		-	HPTR06005-60 / VNTR060-11	-		
		SINR0612S-06E	06IR60005	-		
3/8-24 UNF	24	-	EZTR070060-60-004	-	8.38	
		-	HPTR07507-60-005	-		
		SINR0612S-06E	06IR60005	-		
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74	
1/2-20 UNF	20	SINR0816S-08E	08IR60007	-	11.33	
9/16-18 UNF	18	SINR1216S-11E	11IRA60	-	12.76	
5/8-18 UNF	18	SINR1216S-11E	11IR60005	-	14.35	
3/4-16 UNF	16	SINR1516S-11	11IRA60	-	17.33	
		SINR1616S-16	11IR60005	-		
7/8-14 UNF	14	SINR2016S-16	16IRAG60	16IR16UN (-TF)	20.26	
		SINR2016S-16	16IRG60	16IR14UN (-TF)		
1-12 UNF	12	SINR2016S-16	16IR6001	16IR12UN (-TF)	23.10	
1 1/8-12 UNF	12	SINR2420S-16	16IRAG60	-	26.28	
1 1/4-12 UNF	12	SINR2420S-16	16IRG60	-	29.46	
1 3/8-12 UNF	12	CINR3025S-16	16IR6001	-	32.63	
1 1/2-12 UNF	12	CINR3025S-16	16IR6001	-	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		-	-	7.73
W 7/16	14		-	-	9.06
W 1/2	12		-	-	10.30
W 9/16	12	-	-	11.89	
W 5/8	11	-	-	13.26	
W 3/4	10	-	-	16.17	
W 7/8	9	SINR1616S-16	16IRAG55	-	19.03
		-	16IRG55	-	
W 1	8	SINR2016S-16	-	-	21.80
W 1 1/8	7	SINR2420S-22	22IRN55	-	24.47
W 1 1/4	7	SINR2420S-22	22IRN55	-	27.64
W 1 3/8	6	CINR3025S-22	22IRN55	-	30.13
W 1 1/2	6	CINR3025S-22	22IRN55	-	33.30
W 1 5/8	5	-	-	-	35.52
W 1 3/4	5	CINR3732S-22	22IRN55	-	38.69
W 1 7/8	4 1/2	No Tools Available			41.23
W 2	4				44.41
W 2 1/4	4				49.96

Whitworth Fine Thread: W

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

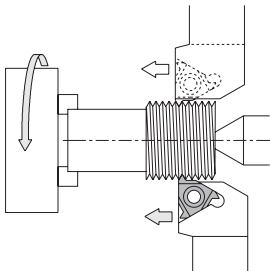
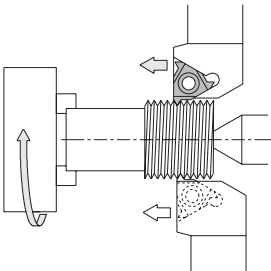
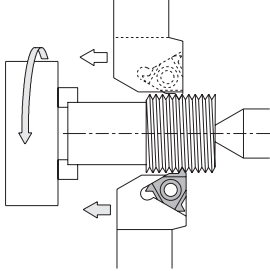
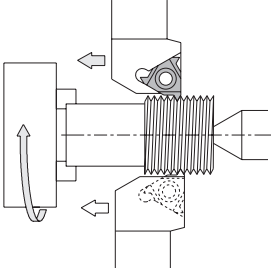
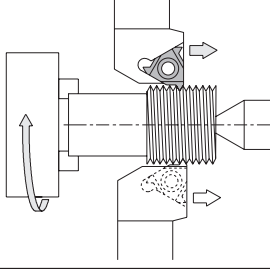
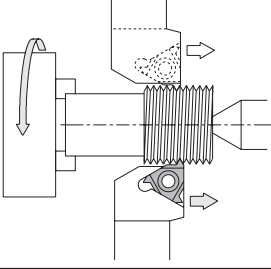
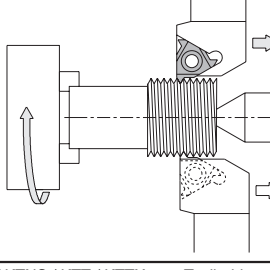
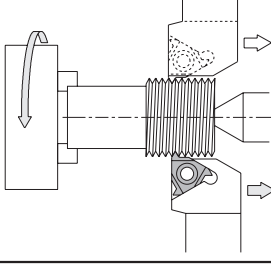
● Above shows the usage example of applicable Toolholder / Insert.



Threading

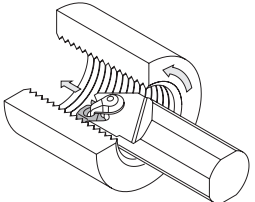
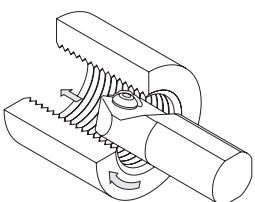
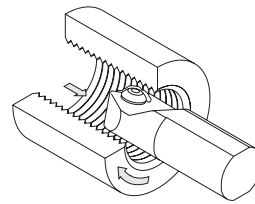
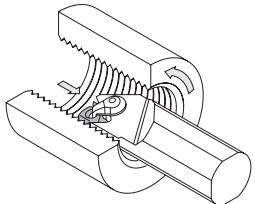
Threading Methods

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

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

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

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

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

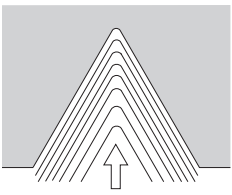
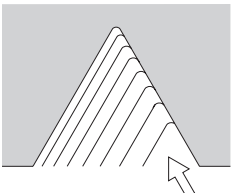
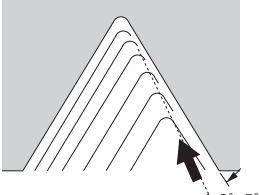
* These tables are based on SIN / CIN type Toolholder.

For KITG type (for large internal threading), Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

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Threading

Infeed Methods

Infeed Methods	Features
 <p data-bbox="233 454 376 483">Radial Infeed</p>	<ul data-bbox="523 304 1442 416" style="list-style-type: none"> • 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.
 <p data-bbox="236 719 373 748">Flank Infeed</p>	<ul data-bbox="523 584 1254 667" style="list-style-type: none"> • 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.
 <p data-bbox="172 981 432 1010">Flank Compound Infeed</p>	<ul data-bbox="523 848 1114 931" style="list-style-type: none"> • Revised compound methods of the above flank infeed method. • No "No ap." condition. • Chips flow to one side.



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 ⁹ ○○ISO(-TF) ○○ER□□60(-TF) 16ER60○○	KTN ⁹ ○○○○□-○○ KTNRS○○○○□-16
			Internal	TT43E ⁹ ○○○○M TT○○ ⁹ 60○○ TTX32R60○○	KTT ⁹ ○○○○□-○○ KTTXRO○○□-16F, SO○□-KTTXL16
Unified		UN UNC UNF UNEF e.g.) 3/4 -16 UNF	External	○○ERO○UN(-TF) ○○ER□□60(-TF) 16ER60○○	KTNRO○○○□-○○ KTNRS○○○○□-16
			Internal	TT○○ ⁹ 60○○ TTX32R60○○ ○○IRO○UN(-TF) ○○IR□□60 ○○IR60○○(○) TT○○ ⁹ 60○○ TPGB11○○○○(○)	KTT ⁹ ○○○○□-○○ KTTXRO○○□-16F, SO○□-KTTXL16 SINRO○○○S-○○(E) CINRO○○○S-○○ KITG ⁹ ○○○○T-○○ SO○□-STWP ⁹ 11-○○(E)
Parallel Pipe		External : G(PF) Internal : G(PF) Rp(PS) e.g.) G3/4 (PF3/4)	External	○○ERO○W(-TF) ○○ER□□55 16ER55○○	KTNRO○○○□-○○ KTNRS○○○○□-16
			Internal	TT○○ ⁹ 55○○ TTX32R55○○ ○○IRO○W(-TF) ○○IR□□55 ○○IR55○○(○) TT○○ ⁹ 55○○	KTT ⁹ ○○○○□-○○ KTTXRO○○□-16F, SO○□-KTTXL16 SINRO○○○S-○○(E) CINRO○○○S-○○ KITG ⁹ ○○○○T-○○
Whitworth		W e.g.) W3/8	External	○○ERO○W(-TF) ○○ER□□55 16ER55○○	KTNRO○○○□-○○ KTNRS○○○○□-16
			Internal	TT○○ ⁹ 55○○ TTX32R55○○ ○○IRO○W(-TF) ○○IR□□55 ○○IR55○○(○) TT○○ ⁹ 55○○	KTT ⁹ ○○○○□-○○ KTTXRO○○□-16F, SO○□-KTTXL16 SINRO○○○S-○○(E) CINRO○○○S-○○ KITG ⁹ ○○○○T-○○
Tapered Pipe		External : R(PT) (BSPT) Internal : Rc(PT) (BSPT) e.g.) R1/2 (PT1/2)	External	16ERO○BSPT(-TF)	KTNRO○○○□-○○ KTNRS○○○○□-16
			Internal	TT○○ ⁹ 55○○* TTX32R55○○* ○○IRO○BSPT(-TF) TT○○ ⁹ 55○○*	KTT ⁹ ○○○○□-○○ KTTXRO○○□-16F, SO○□-KTTXL16 SINRO○○○S-○○(E) CINRO○○○S-○○ KITG ⁹ ○○○○T-○○
American National Tapered Pipe		NPT e.g.) 3/8 -18 NPT	External	16ERO○(.○)NPT	KTNRO○○○□-○○ KTNRS○○○○□-16
30° Trapezoidal		Tr e.g.) Tr 26x3	External	○○ERO○OTR	KTNRO○○○□-○○ KTNRS○○○○□-16
			Internal	○○IRO○OTR	SINRO○○○S-○○ CINRO○○○S-○○

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

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