

Threading

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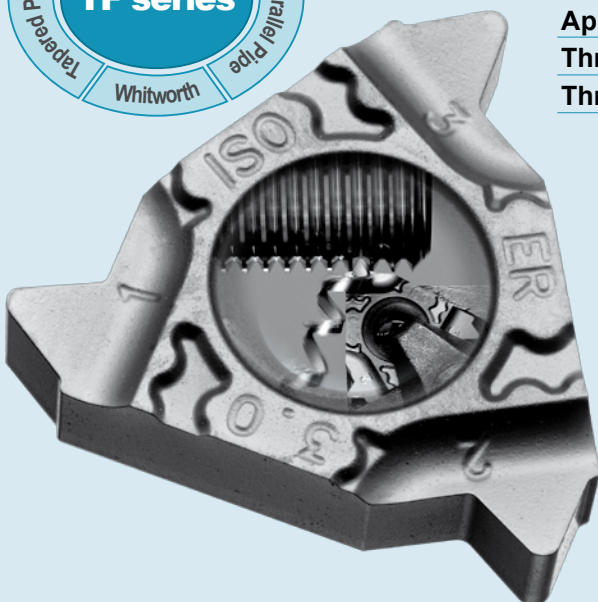
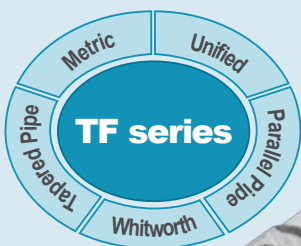
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Summary of External Threading

Tooling Application Table (External Threading)

Thread Type		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	28~8 ➡ 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	0.5~1.5 ➡ J18	64~18 ➡ J18	28~19 ➡ J18	40~16 ➡ J18	28~19 ➡ J18	-	-
 KTKF ➡ J18 (Goose-neck Holder)								

• Threading Inserts Identification System

Full Profile ➡ **Please see J6**

Partial Profile ➡ **Please see J12**

Summary of Internal Threading

Tooling Application Table (Internal Threading)

Thread Type	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							
VNT → J27 	Partial Profile	0.75~1.5 → J27	28~18 → J27	-	-	-	-
HPT → J24 (PST) → J27 	Partial Profile	0.75~1.5 (0.75~1.5) → J24 (→ J27)	28~16 (28~18) → J24 (→ J27)	28~19 → J24	24~18 → J24	28~19 → J24	-
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	48~8 → J13	28~11 → J15	40~5 → J15	28~11 → 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	-
KITG → J23 	Partial Profile	0.5~3.0 → J23	48~8 → J23	28~11 → J23	24~8 → J23	28~11 → J23	-
STWP → J28 	Partial Profile	0.75~3.5 → J28	28~8 → J28	-	-	-	-

• For parallel pipe and tapered pipe which is not suitable for bottom diameter, it is considered to be outside of recommendation.

• Pitch inside () indicates PST.

Product Introduction

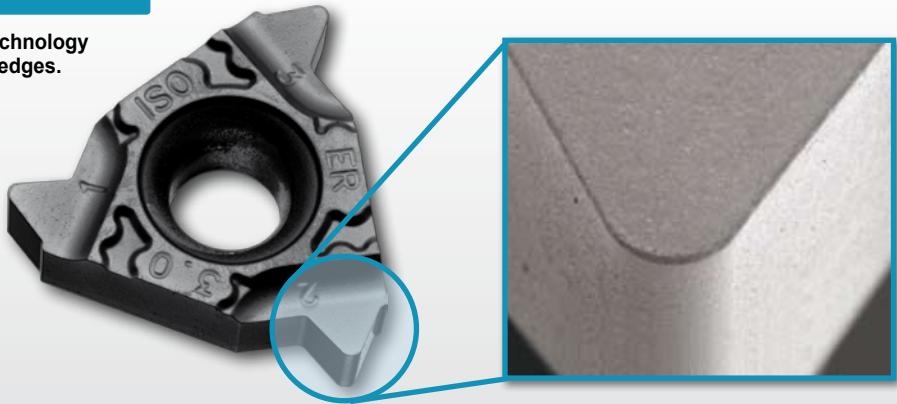
TF Series Threading Inserts

High quality edge and new grade insert PR1115 achieve long tool life. In addition, its molding specification makes it economical.

High Quality Cutting Edge

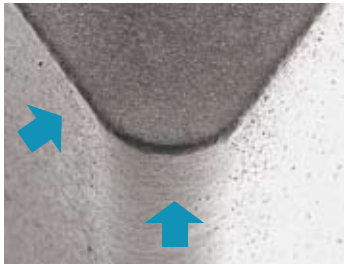
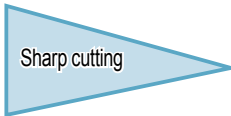
TF series

- 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.

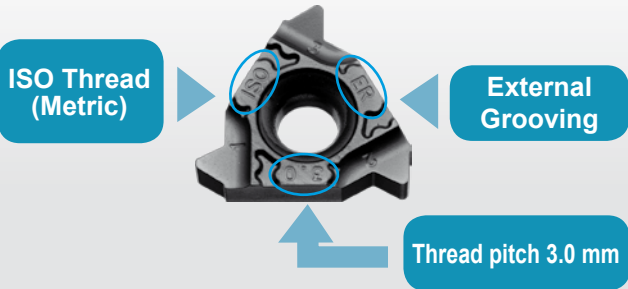


Competitor

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.



• 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

15CrMo4 (SCM415)	
• Machine Part • Vc=65m/min • WET	
16ER150ISO-TF(PR1115)	1800 pcs/edge
Competitor A	600 pcs/edge
New TF Series extended the tool life 3 times compared to Competitor A. (Evaluation by the user)	

C25 (S25C)	
• Nut • Vc=262m/min • WET	
16IR150ISO-TF(PR1115)	500 pcs/edge
Competitor B	300 pcs/edge
New TF Series extended the tool life 1.7 times compared to Competitor B. (Evaluation by the user)	

Outlines of Threading Inserts

KTKF  J18

“Threading” is added to Small Tools special tool series.

Total toolholder length 120 mm series is now available (referred to as JX in the part number).

Threading

For Threading

TKFT



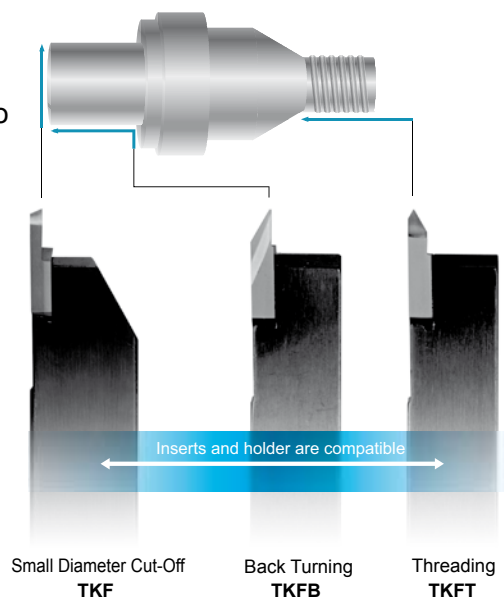
- Applicable for various type of threading

Metric (M)

Parallel Pipe [G (PF)]

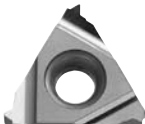
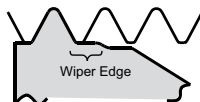
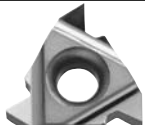

Unified (UN)

Tapered Pipe
[R (PT) (BSPT)]



Threading Insert Features

- Full Profile and Partial Profile

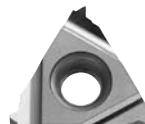





	Shape	Function	Features
Full Profile		 Wiper Edge	<ol style="list-style-type: none"> ① Burr-free thread surface; high quality (Smooth feeling) ② Additional stock must be left on the part diameter for full topping ③ Every pitch size requires a specific insert
Partial Profile			<ol style="list-style-type: none"> 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

Type of Thread		Thread Precision		
		Strict		Loose
M	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 Full Profile Insert		×	○	○

* Not recommended if strict thread precision is required.

- With and Without Chipbreaker

	Shape	Condition	Cutting Force	Chip Length
Without Chipbreaker		<ul style="list-style-type: none"> • When less cutting force is needed for small or thin part machining 	Small	
1-Thread, With Chipbreaker	-TS 	<ul style="list-style-type: none"> • When Better Chip Control is needed 	Smaller	
2-Thread, With Chipbreaker	-M02 	<ol style="list-style-type: none"> ① Fewer passes and less machining time ② For rigid workpiece ③ Wider dead space 	Large (2 Edges engage in threading)	

J



Threading

A diagram of a triangular indenter. The indenter has a base width labeled P and a vertex angle labeled 60° . The region above the indenter is labeled "Internal" and the region below is labeled "External".

Full Profile 60°

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


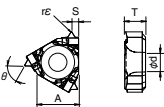

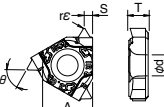
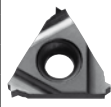
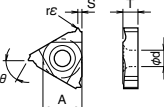

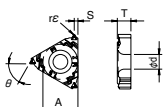
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□ : Deleted from the next catalogue

Internal Threading Inserts

- Metric (M)

Full Profile 60°

(mm)

Description		Previous Description		A	T	ød	Classification of usage		P	Carbon Steel / Alloy Steel						Ref. Page for Depth of Cut & Number of Passes		
11I°/L		TNN22I°/L		6.35	3.18	3.0	● : 1st Choice ○ : 2nd Choice	M	Stainless Steel		●	○						
16I°/L		TNN32I°/L		9.525	3.68	4.0		K	Cast Iron				●					
22I°/L		TNN43I°/L		12.70	4.9	4.85		N	Non-ferrous Metals				●					
Insert		Description		Previous Description		Applicable Thread	Dimension (mm)		Angle (°)	Cermet	PVD Coated Carbide				Carbide			
Handed Insert shows Right-hand						M	rε	S	θ	TC60	PR1115		PR930		GW15		KW10	
						Pitch					R	L	R	L	R	L	R	L
						mm												
Full Profile			11I°/L 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			●								
			16I°/L 100ISO-TF	-	1.0	0.07	0.8	60°		●								
			125ISO-TF		1.25	0.08	1.1			●								
			150ISO-TF		1.5	0.11	1.1			●								
			175ISO-TF		1.75	0.12	1.1			●								
			200ISO-TF		2.0	0.14	1.5			●								
			250ISO-TF		2.5	0.17	1.5			●								
			300ISO-TF		3.0	0.19	1.6			●								
						11I°/L 050ISO	TNN22I°/L 050M		0.5	0.03	0.55	60°	○	●		□		●
	075ISO	0.75		0.05		0.68		○	●		□			●				
	100ISO	1.0		0.07		0.8		○	●	●	□		□	●		□		
	125ISO	1.25		0.08		1.1		○	●		□			●				
	150ISO	1.5		0.11		1.1		○	●	●	□		□	●		□		
	175ISO	1.75		0.12		1.1		○	●		□							
	200ISO	2.0		0.14		0.9			●									
	16I°/L 100ISO	TNN32I°/L 100M		1.0		0.07		0.8	60°	○	●		●	□		●		□
	125ISO			1.25		0.08	1.1			●		□						
	150ISO			1.5		0.11	1.1	○		●	●	□	□	●		□		
	175ISO			1.75		0.12	1.1	○		●		□						
	200ISO			2.0		0.14	1.5	○		●	●	□	□	●		□		
	250ISO			2.5		0.16	1.5	○		●		□		●				
	300ISO			3.0		0.19	1.6			●				●				
	22I°/L 300ISO			TNN43I°/L 300M		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	○	●		□									
1-Thread, With Chipbreaker			16I°/L 100ISO-TS		TNN32I°/L 100M-TS	1.0	0.07	0.8	60°					□				
			150ISO-TS	1.5		0.11	1.1					□						
			200ISO-TS	2.0		0.14	1.5					□						

For recommended cutting conditions, see page **J29**

● Applicable Toolholder

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

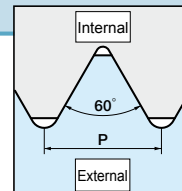
Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

● : Std. Item ○ : Check Availability
□ : Deleted from the next catalogue

PR930 / PR1115 / GW15
(Threading Insert) is sold in 5 piece boxes.

Inserts are sold
in 10 piece boxes.


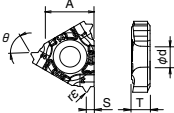
Threading Inserts



External Threading Inserts

Unified (UN)

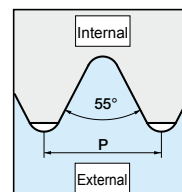
Full Profile 60°

Full Profile 60°					(mm)		Classification of usage		P	Carbon Steel / Alloy Steel		●	○			Ref. Page for Depth of Cut & Number of Passes		
Description	Previous Description	A	T	ød			● : 1st Choice ○ : 2nd Choice	M	Stainless Steel		●	○						
16E ^{R/L}	TNN32E ^{R/L}	9.525	3.68	4.0				K	Cast Iron									
22E ^{R/L}	TNN43E ^{R/L}	12.70	4.9	4.85				N	Non-ferrous Metals									
Insert		Description		Previous Description		Applicable Thread	Dimension (mm)	Angle (°)	Cermert	PVD Coated Carbide				Carbide				
Handed Insert shows Right-hand						UN, UNF	rε	S	θ	TC60	PR1115		PR930		GW15		KW10	
						Pitch					R	L	R	L	R	L	R	L
						TPI					R	L	R	L	R	L	R	L
Full Profile	 	16E ^{R/L} 24UN-TF	-	24	0.12	0.80	60°			●								
		20UN-TF		20	0.15	1.00				●								
		18UN-TF		18	0.18	1.00				●								
		16UN-TF		16	0.20	1.10				●								
		14UN-TF		14	0.23	1.50				●								
		13UN-TF		13	0.25	1.50				●								
		12UN-TF		12	0.27	1.50				●								
		10UN-TF		10	0.34	1.50				●								
		08UN-TF		8	0.43	1.75				●								
	16E ^{R/L} 24UN	TNN32E ^{R/L} 24UN	24	0.13	0.8	60°	○		●		□							
	20UN	20UN	20	0.16	1.0		○		●		□							
	18UN	18UN	18	0.18	1.0		○		●		□							
	16UN	16UN	16	0.20	1.1		○		●		□							
	14UN	14UN	14	0.23	1.5		○		●		□							
	12UN	12UN	12	0.27	1.5		○		●		□							
	22E ^{R/L} 08UN	TNN43E ^{R/L} 08UN	8	0.43	2.1		○		●		□							

Applicable Toolholder

For recommended cutting conditions, see page [J29](#)


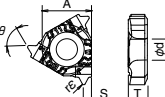

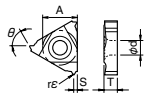

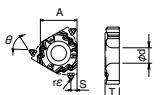
Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ...	KTNR--16	J16
22ER ...	KTNSR--16	
	KTNR--22	



External Threading Inserts

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


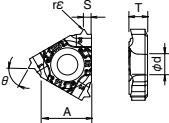

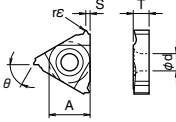
Full Profile 55°

● Parallel Pipe [G (PF)]		Whitworth (W)					Classification of usage		P		Carbon Steel / Alloy Steel		●		○				Ref. Page for Depth of Cut & Number of Passes						
Full Profile 55°					(mm)		● : 1st Choice ○ : 2nd Choice		M		Stainless Steel		●		○										
Description		Previous Description		A		T		ød		K		Cast Iron													
16E ^{R/L}		TNN32E ^{R/L}		9.525		3.68		4.0		N		Non-ferrous Metals													
Insert		Description		Previous Description		Applicable Thread		Dimension (mm)		Angle (°)		Cermet		PVD Coated Carbide				Carbide							
						G (PF)		W		rε		S		θ		TC60		PR1115		PR930		GW15		KW10	
						Pitch		TPI																	
Handed Insert shows Right-hand														R		L		R		L		R		L	
Full Profile			16E ^{R/L} 19W-TF		-		19	-	0.16	1.0	55°			●											
			16W-TF				-	16	0.19	1.1				●											
			14W-TF				14	14	0.23	1.5				●											
			11W-TF				11	11	0.30	1.5				●											
			16E ^{R/L} 19W		TNN32E ^{R/L} 19W		19	-	0.16	1.0				○	●		□								
			14W		14W		14	14	0.23	1.5				○	●		□								
			11W		11W		11	11	0.30	1.5				○	●		□								
	1-Thread, With Chipbreaker			16E ^{R/L} 19W-TS		TNN32E ^{R/L} 19W-TS		19	-	0.16		1.0					□								
				14W-TS		14W-TS		14	14	0.23		1.5					□								
				11W-TS		11W-TS		11	11	0.30		1.5					□								

Internal Threading Inserts

Unified (UN)

Full Profile 60°

Full Profile 60°					(mm)	Classification of usage		P	Carbon Steel / Alloy Steel		●	○				Ref. Page for Depth of Cut & Number of Passes				
Description	Previous Description	A	T	ød	● : 1st Choice	○ : 2nd Choice	M	Stainless Steel		●	○									
16I [®] /L	TNN32I [®] /L	9.525	3.68	4.0			K	Cast Iron												
22I [®] /L	TNN43I [®] /L	12.70	4.9	4.85			N	Non-ferrous Metals												
Insert		Description		Previous Description		Applicable Thread	Dimension (mm)	Angle (°)	Cermet	PVD Coated Carbide				Carbide						
Handed Insert shows Right-hand						UN, UNF	rε	S	θ	TC60		PR1115		PR930		GW15			KW10	
						Pitch				R	L	R	L	R	L	R	L		R	L
						TPI														
		16I [®] /L	24UN-TF	-	24	0.06	0.8	60°			●									
		20UN-TF	20		0.08	1.0				●										
		18UN-TF	18		0.09	1.0				●										
		16UN-TF	16		0.10	1.1				●										
		14UN-TF	14		0.12	1.5				●										
		13UN-TF	13		0.13	1.5				●										
		12UN-TF	12		0.14	1.5				●										
		10UN-TF	10		0.17	1.5				●										
		08UN-TF	8		0.21	1.8				●										
					16I [®] /L	24UN	TNN32I [®] /L		24UN	24	0.05	0.8	60°	○	●		□			
20UN				20UN	20	0.07	1.0	○	●		□									
18UN				18UN	18	0.09	1.0	○	●		□									
16UN				16UN	16	0.10	1.1	○	●		□									
14UN				14UN	14	0.12	1.5	○	●		□									
12UN				12UN	12	0.14	1.5	○	●		□									
22I [®] /L	08UN			TNN43I [®] /L	08UN	8	0.20	1.8	60°	○	●			□						

Applicable Toolholder


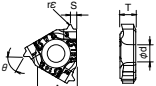

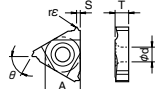

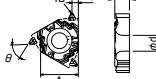
For recommended cutting conditions, see page [J29](#)

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ...	SINR...-16 CINR...-16	J17
22IR ...	SINR...-22 CINR...-22	

Internal Threading Inserts

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

Full Profile 55°

Full Profile 55°					(mm)		Classification of usage		M		K		N		●		○				Ref. Page for Depth of Cut & Number of Passes	
Description		Previous Description		A	T	ød	● : 1st Choice ○ : 2nd Choice		Stainless Steel		Cast Iron											
16I [®] /L		TNN32I [®] /L		9.525	3.68	4.0																
Insert		Description		Previous Description		Applicable Thread		Dimension (mm)		Angle (°)		Cermet		PVD Coated Carbide				Carbide				
Handed Insert shows Right-hand						G (PF) W		r _e S		θ		TC60		PR1115		PR930		GW15		KW10		
						Pitch						R L		R L		R L		R L		R L		
						TPI																
Full Profile			16I [®] /L 19W-TF		-	19	-	0.16	1.0	55°			●								J31	
			16W-TF			-	16	0.19	1.1				●									
			14W-TF			14	14	0.23	1.5				●									
			11W-TF			11	11	0.30	1.5				●									
				16I [®] /L 14W		TNN32I [®] /L 14W	14	14	0.23	1.5	55°	○		●		□						
		11W		11W	11	11	0.30	1.5	○			●		□								
1-Thread, With Chipbreaker			16I [®] /L 14W-TS		TNN32I [®] /L 14W-TS	14	14	0.23	1.5	55°					□							
			11W-TS		11W-TS	11	11	0.30	1.5						□							

Applicable Toolholder

For recommended cutting conditions, see page [J29](#)

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

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ...	SINR...-16 CINR...-16	J17
16IL ...	SINL...-16 CINL...-16	

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

- : Std. Item ○ : Check Availability
- : Deleted from the next catalogue

PR930 / PR1115 / GW15
(Threading Insert) is sold in 5 piece boxes.

Inserts are sold
in 10 piece boxes.

J


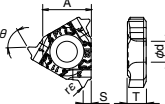

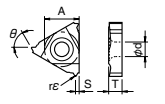
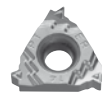
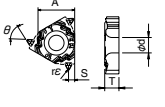


Threading

J9

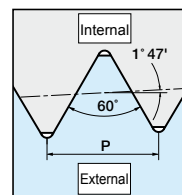
The diagram shows a sine wave with a peak labeled 'Internal' and a trough labeled 'External'. The angle between the horizontal dashed line and the slope of the peak is $1^\circ 47'$. The angle between the two slopes of the peak is 55° . The horizontal distance between the two points where the slopes meet the horizontal line is labeled 'P'.

Full Profile 55°


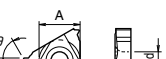
Full Profile 55°					Classification of usage		M		Stainless Steel										Ref. Page for Depth of Cut & Number of Passes									
Description		Previous Description		A		T		ød		K		Cast Iron				●												
16I ^{R/L}		TNN32E ^{R/L}		9.525		3.68		4.0		N		Non-ferrous Metals				●												
Insert			Description		Previous Description		Applicable Thread		Dimension (mm)		Angle (°)		Cermet		PVD Coated Carbide				Carbide									
Handed Insert shows Right-hand							R (PT) (BSPT)		rε		S		θ		TC60		PR1115		PR930		GW15		KW10					
							Pitch																					
							TPI																					
Full Profile							16E ^{R/L} 28BSPT-TF		28		0.10		0.8		55°				●									
							19BSPT-TF																					
							14BSPT-TF																					
							11BSPT-TF																					
							16E ^{R/L} 28BSPT		TNN32E ^{R/L} 28PT		28		0.10		0.8				○		●		□		●		□	
							19BSPT		19PT		19		0.16		1.0													
							14BSPT		14PT		14		0.22		1.6													
							11BSPT		11PT		11		0.29		1.6													
			1-Thread, With Chipbreaker						16E ^{R/L} 19BSPT-TS		TNN32E ^{R/L} 19PT-TS		19		0.16		1.0						□					
									14BSPT-TS		14PT-TS		14		0.22		1.6											
									11BSPT-TS		11PT-TS		11		0.29		1.6											
																										J31		
																							J35					

For recommended cutting conditions, see page **J29**

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ...	KTNR--16 KTNSR--16	J16



Full Profile 60°

Full Profile 60°					(mm)	Classification of usage		M	Stainless Steel			●	○							
Description	Previous Description	A	T	ød		● : 1st Choice	○ : 2nd Choice	K	Cast Iron					●						
16E ^{R/L}	TNN32E ^{R/L}	9.525	3.68	4.0				N	Non-ferrous Metals					●						
Insert		Description		Previous Description		Applicable Thread	Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide				Carbide				
						NPT	rε	S	θ	TC60		PR1115		PR930		GW15		KW10		
						Pitch														
						TPI														
Handed Insert shows Right-hand										R	L	R	L	R	L	R	L	R	L	
Full Profile			16E ^{R/L}	18NPT	TNN32E ^{R/L}	18NPT	18	0.04	0.9	60°	○		●		□		●			
				14NPT		14NPT	14	0.05	1.5		○		●		□		●			
				11.5NPT		11.5NPT	11.5	0.06	1.5		○		●		□		●			
Ref. Page for Depth of Cut & Number of Passes																				
J31																				

For recommended cutting conditions, see page **J29**


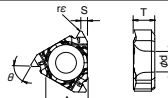

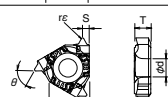

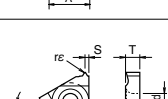

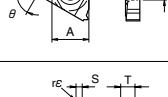
Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ...	KTNR--16 KTNSR--16	J16

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

● : Std. Item ○ : Check Availability
□ : Deleted from the next catalogue

Internal Threading Inserts

Tapered Pipe [Rc (PT) (BSPT)]

Full Profile 55°					(mm)		Classification of usage ● : 1st Choice ○ : 2nd Choice		P		Carbon Steel / Alloy Steel								Ref. Page for Depth of Cut & Number of Passes
Description	Previous Description	A	T	ød	M	Stainless Steel													
11I ¹ / _L	TNN22I ¹ / _L	6.35	3.18	3.0	K	Cast Iron													
16I ¹ / _L	TNN32I ¹ / _L	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) Pitch TPI	re	S	θ	TC60	PR1115		PR930		GW15		KW10				
									R	L	R	L	R	L	R	L	R	L	
Full Profile			11I ¹ / _L 28BSPT-TF	-	28	0.10	0.6	55°			●								J31
			19BSPT-TF		19	0.16	0.78				●								
			14BSPT-TF		14	0.22	0.97				●								
			16I ¹ / _L 14BSPT-TF	-	14	0.22	0.97			●								J31	
			11BSPT-TF		11	0.29	1.5			●									
			11I ¹ / _L 28BSPT	TNN22I ¹ / _L 28PT	28	0.10	0.6	55°	○		●		□		●				J35
			19BSPT		19	0.16	0.78		○		●		□		●		□		
			14BSPT		14	0.22	0.97		○		●		□		●		□		
			16I ¹ / _L 14BSPT	TNN32I ¹ / _L 14PT	14	0.22	0.97		○		●		□		●		□		
			11BSPT		11	0.29	1.5		○		●		□		●		□		
			11I ¹ / _L 19BSPT-TS	TNN22I ¹ / _L 19PT-TS	19	0.16	0.78	55°					□						J35
			14BSPT-TS		14	0.22	0.97						□						
			16I ¹ / _L 14BSPT-TS	TNN32I ¹ / _L 14PT-TS	14	0.22	0.97						□						
			11BSPT-TS		11	0.29	1.5						□						

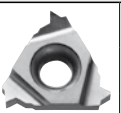
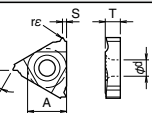
Applicable Toolholder

For recommended cutting conditions, see page J29

Description	Applicable Toolholder	Ref. Page for Toolholder
11IR ..	SINR...11E SINR...11	J17
11IL ..	SINL...11E SINL...11	
16IR ..	SINR...16 CINR...16	

Internal Threading Inserts

American National Tapered Pipe (NPT60°)

Full Profile 60°					(mm)	Classification of usage ● : 1st Choice ○ : 2nd Choice		M	Stainless Steel		●	○					Ref. Page for Depth of Cut & Number of Passes			
Description	Previous Description	A	T	ød	K			Cast Iron			●									
16I ¹ / _L	TNN32I ¹ / _L	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				
						NPT	rε	S	θ	TC60		PR1115		PR930		GW15		KW10		
						Pitch														
						TPI														
Full Profile			16I ¹ / _L	18NPT	TNN32I ¹ / _L	18NPT	18	0.04	0.9	60°	○		●		□		●			
				14NPT		14NPT	14	0.05	1.5		○		●		□		●			
				11.5NPT		11.5NPT	11.5	0.06	1.5		○		●		□		●			
																			J31	

Applicable Toolholder

For recommended cutting conditions, see page J29

Description	Applicable Toolholder	Ref. Page for Toolholder
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
□ : Deleted from the next catalogue

PR930 / PR1115 / GW15
(Threading Insert) is sold in 5 piece boxes.

Inserts are sold
in 10 piece boxes.

● 60°Type [Partial Profile / M, UN]

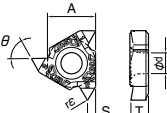

(mm)

Description		Previous Description		A	T	∅d	Applicable Thread		Dimension (mm)	Angle (°)	Cermet		PVD Coated Carbide			Carbide					
16E ^{R/L}		TNN32E ^{R/L}		9.525	3.68	4.0	M	UN	rε	S	θ	TC60		PR1115		PR930		GW15		KW10	
22E ^{R/L}		TNN43E ^{R/L}		12.70	4.9	4.85 <th>Stainless Steel</th> <th>Cast Iron</th> <th>R</th> <th>L</th> <th>R</th> <th>L</th> <th>R</th> <th>L</th> <th>R</th> <th>L</th> <th>R</th> <th>L</th>	Stainless Steel	Cast Iron				R	L	R	L	R	L	R	L	R	L
							N	Non-ferrous Metals													

● : 1st Choice
○ : 2nd Choice

M	Stainless Steel				
K	Cast Iron			●	○
N	Non-ferrous Metals			●	○

Insert	Description	Previous Description	Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide			Carbide					
			M	UN UNF	rε	S		θ	TC60		PR1115		PR930		GW15		KW10	
			Pitch				R		L	R	L	R	L	R	L	R	L	
			Handed Insert shows Right-hand		mm	TPI												

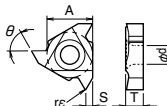



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

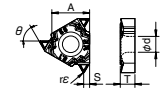

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



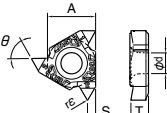

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

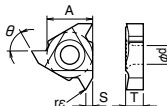



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

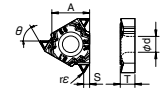

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



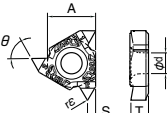

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

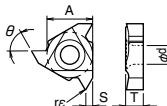



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

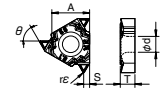

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



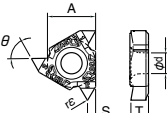

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

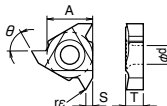



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

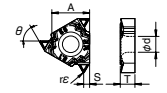

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



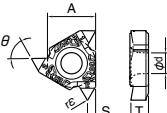

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

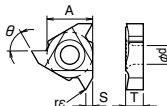



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

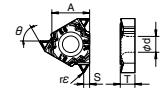

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



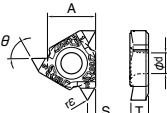

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

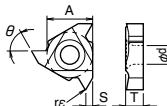



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

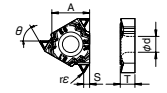

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



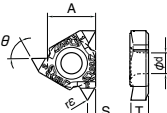

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

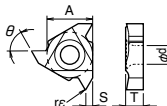



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

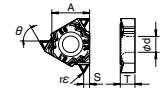

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



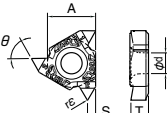

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

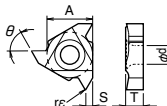



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

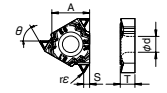

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



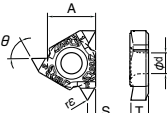

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

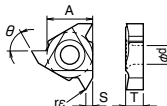



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

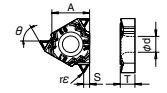

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



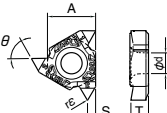

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

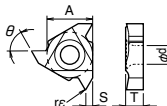



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

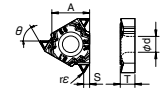

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



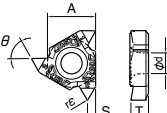

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

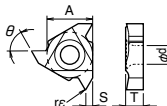



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

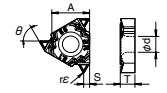

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



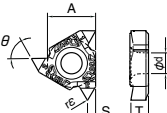

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

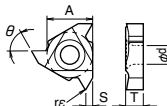



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

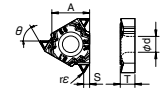

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



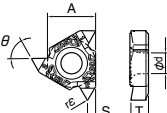

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

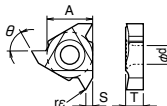



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

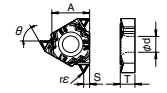

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



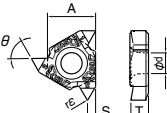

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

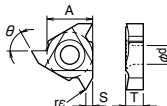



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

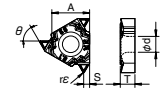

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



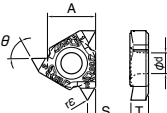

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

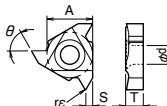



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

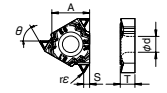

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



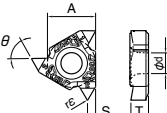

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

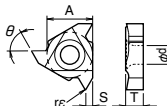



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

6002

TNN32E^{R/L} 6001

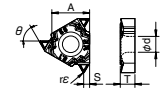

6002

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS



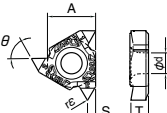

16E^{R/L} 6001-TS

6002-TS

TNN32E^{R/L} 6001-TS

6002-TS

1-Thread, With Chipbreaker

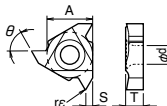



16E^{R/L} A60-TF

G60-TF

AG60-TF

-



16E^{R/L} A60

G60

AG60

22E^{R/L} N60

16E^{R/L} 6001

<

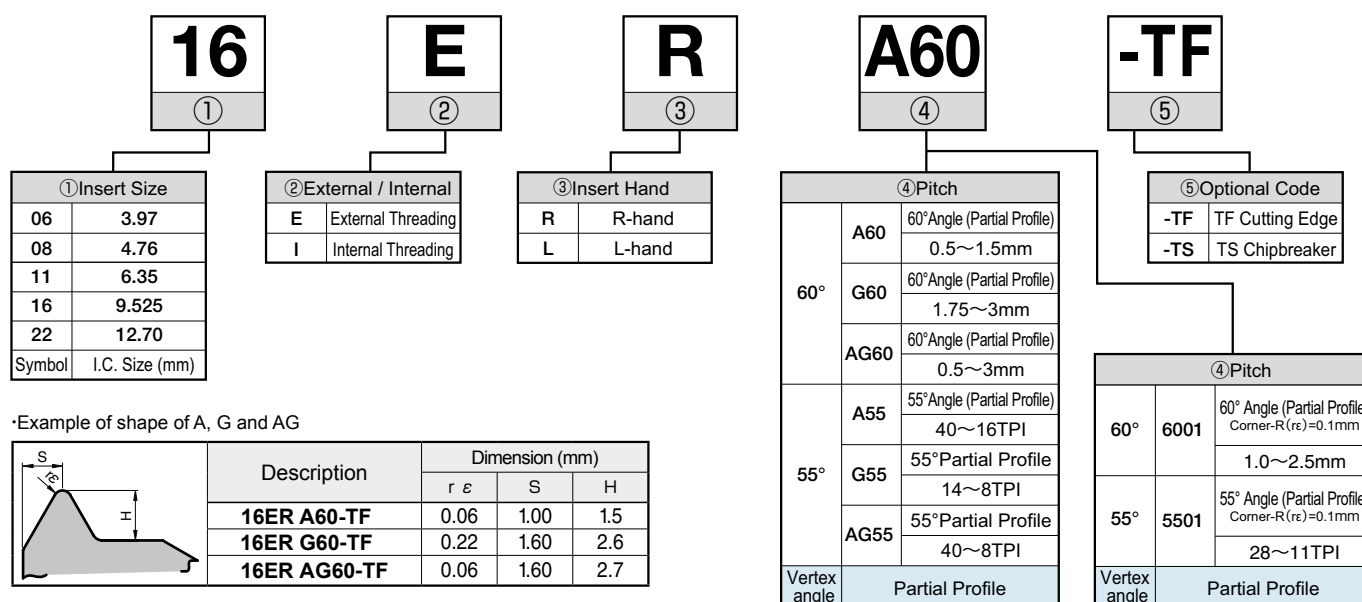
For recommended cutting conditions, see page [➡ J29](#)

● Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
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



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

◆ Corner-R(r_ϵ) Selection for Partial Profiling Insert

	External Threading	Internal Threading
Metric Unified	$r\varepsilon \leq 0.1443P$	$r\varepsilon \leq 0.0720P$
Parallel Pipe (Whitworth) Tapered Pipe	(For Both External and Internal Thread) $r\varepsilon \leq 0.1373P$	

$$r\epsilon: \text{Corner-R} \quad P: \text{Pitch} (= \frac{25.4}{n}) \quad n: \text{TPI}$$

- | | |
|--|--|
| <ul style="list-style-type: none"> • Metric, Unified Thread | Corner-R(ϵ) at Internal Threading is almost half of that of External. |
|--|--|


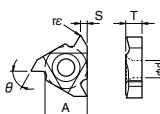

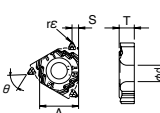

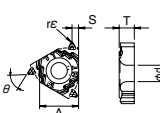
- Parallel Pipe, Tapered Pipe, Whitworth Tread
- Same Corner-R(r_c) for both External and Internal Threading

● : Std. Item ○ : Check Availability
□ : Deleted from the next catalogue

Internal Threading Inserts

60°Type [Partial Profile / M, UN]

Partial Profile 60° (mm)

Description		Previous Description		A	T	ød	Classification of usage ● : 1st Choice ○ : 2nd Choice		P	Carbon Steel / Alloy Steel		●	○			Ref. Page for Depth of Cut & Number of Passes			
06I [®] /L		TNN06I [®] /L		3.97	1.91	2.3			M	Stainless Steel		●	○						
08I [®] /L		TNN08I [®] /L		4.76	2.38	2.3			K	Cast Iron				●	○				
11I [®] /L		TNN22I [®] /L		6.35	3.18	3.0			N	Non-ferrous Metals				●	○				
16I [®] /L		TNN32I [®] /L		9.525	3.68	4.0													
22I [®] /L		TNN43I [®] /L		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	UN UNF	rε	S	θ	TC60	PR1115	PR930	GW15	KW10					
															Pitch				
															mm	TPI			
										R	L	R	L	R	L	R	L		
Partial Profile			11I [®] /L A60	-		0.5~1.5	48~16	0.02	1.00	60°			●			●			
			16I [®] /L 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				●			●			
			22I [®] /L N60			3.5~5	7~5	0.22	2.50				●			●			
			06I [®] /L 60005	TNN06I [®] /L 60005	0.75~1.25	28~20	0.05	0.60	60°			●		□					
			08I [®] /L 60007	TNN08I [®] /L 60007	1.0~1.75	20~16	0.07	0.80				●		□					
			11I [®] /L 60005	TNN22I [®] /L 60005	0.75~1.5	32~16	0.05	1.00		○				□	□			●	
			16I [®] /L 6001	TNN32I [®] /L 6001	1.5~2.5	16~10	0.10	1.50		○				□				●	
			60015	60015	2.5	11~10	0.15	1.50		○				□				●	
			16I [®] /L 6001-TS	TNN32I [®] /L 6001-TS		1.5~2.5	16~11	0.09	1.50	60°					□				
			60015-TS	60015-TS		2.5	11~10	0.14	1.50						□				

Applicable Toolholder

For recommended cutting conditions, see page J29

Description	Applicable Toolholder	Ref. Page for Toolholder
06IR ..	SINR---06E	J17
08IR ..	SINR---08E	
11IR ..	SINR---11E SINR---11	
11IL ..	SINL---11E SINL---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
□ : Deleted from the next catalogue

PR930 / PR1115 / GW15
(Threading Insert) is sold in 5 piece boxes.

Inserts are sold
in 10 piece boxes.

A diagram illustrating the contact angle of a liquid meniscus. The meniscus is shown as a blue shape within a container. The top surface is labeled 'Internal' and the bottom surface is labeled 'External'. The contact angle is marked as 55° . The pressure difference across the meniscus is labeled P .

Partial Profile 55°

For recommended cutting conditions, see page **J29**

Partial Profile 30°

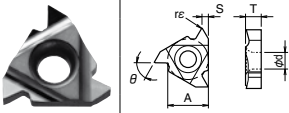
For recommended cutting conditions, see page **J29**

Inserts are sold
in 10 piece boxes.

Internal Threading Inserts

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

Partial Profile 55° (mm)

Partial Profile 55 (mm)																	Ref. Page for Depth of Cut & Number of Passes	
Description	Previous Description	A	T	ød	Classification of usage ● : 1st Choice ○ : 2nd Choice				P	Carbon Steel / Alloy Steel		●	○					
06I ¹ / _L	TNN06I ¹ / _L	3.97	1.91	2.3					M	Stainless Steel		●	○					
08I ¹ / _L	TNN08I ¹ / _L	4.76	2.38	2.3					K	Cast Iron				●	○			
11I ¹ / _L	TNN22I ¹ / _L	6.35	3.18	3.0					N	Non-ferrous Metals				●	○			
16I ¹ / _L	TNN32I ¹ / _L	9.525	3.68	4.0														
22I ¹ / _L	TNN43I ¹ / _L	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	rε	S	θ	TC60		PR1115		PR930		GW15		KW10	
				Pitch					R	L	R	L	R	L	R	L		
				TPI														
Partial Profile		11I ¹ / _L A55	-	28, 19	48~16	0.06	1.00	55°			●			●				
		16I ¹ / _L A55		28, 19	48~16	0.06	1.00				●			●				
		G55		14, 11	14~8	0.22	1.70				●			●				
		AG55		28~11	48~8	0.06	1.70				●			●				
		22I ¹ / _L N55	TNN06I ¹ / _L 5501	-	7~5	0.47	2.50				●			●				
		06I ¹ / _L 5501		28	24	0.10	0.60				●	□						
		08I ¹ / _L 5501		28, 19	24. 20	0.10	0.80				●	□						
		11I ¹ / _L 55005		28~14	24~14	0.05	1.10		○			□			●			
		16I ¹ / _L 5501		28~11	24~11	0.10	1.50		○			□			●			
		5502	5502	14, 11	16~11	0.20	1.50		○			□			●			

Applicable Toolholder

For recommended cutting conditions, see page J29


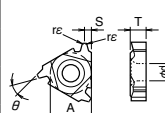
Description	Applicable Toolholder	Ref. Page for Toolholder
06IR ...	SINR...06E	J17
08IR ...	SINR...08E	
11IR ...	SINR...11E SINR...11	

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ...	SINR...16 CINR...16	J17
22IR ...	SINR...22 CINR...22	

Internal Threading Inserts

30°Trapezoidal (Tr)

Partial Profile 30° (mm)

Partial Profile		Handed Insert shows Right-hand		Description		Previous Description		Applicable Thread		Dimension (mm)		Angle (°)	Cermet		PVD Coated Carbide				Carbide				Ref. Page for Depth of Cut & Number of Passes
								Tr		r _e S		θ	TC60		PR1115		PR930		GW15		KW10		
								Pitch															
								mm						R	L	R	L	R	L	R	L	R	
Partial Profile			16I ^R / _L	200TR	TNN32I ^R / _L	200TR	2.0	0.20	1.6	30°	○	●	□									J34	
				300TR		300TR	3.0	0.20	1.6		○	●	□										
			22I ^R / _L	400TR	TNN43I ^R / _L	400TR	4.0	0.20	2.5		○	●	□										
				500TR		500TR	5.0	0.20	2.5		○	●	□										

Applicable Toolholder

For recommended cutting conditions, see page J29

Description	Applicable Toolholder	Ref. Page for Toolholder
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

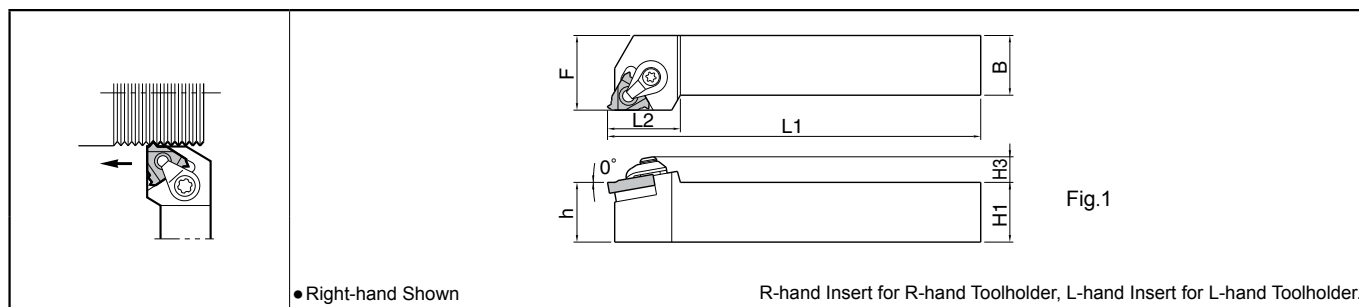
● : Std. Item ○ : Check Availability
□ : Deleted from the next catalogue

PR930 / PR1115 / GW15
(Threading Insert) is sold in 5 piece boxes.

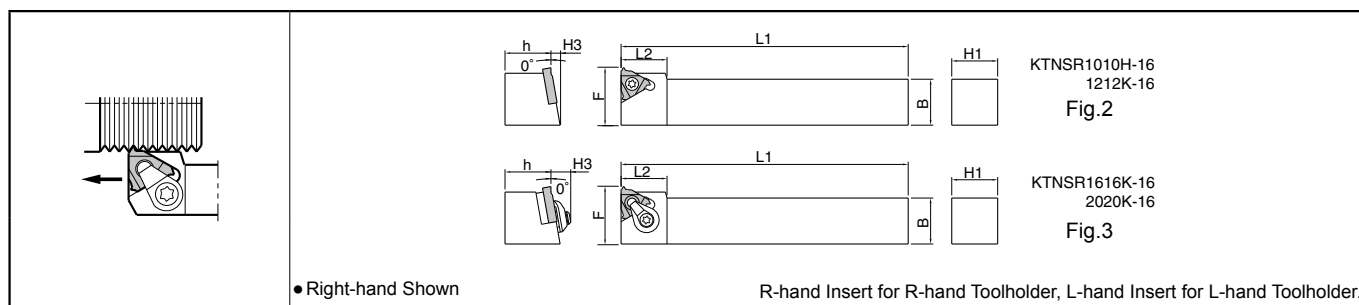
Inserts are sold
in 10 piece boxes.

External Threading Toolholders

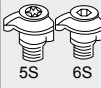

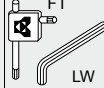


KTN



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

* mark indicates short shank type.

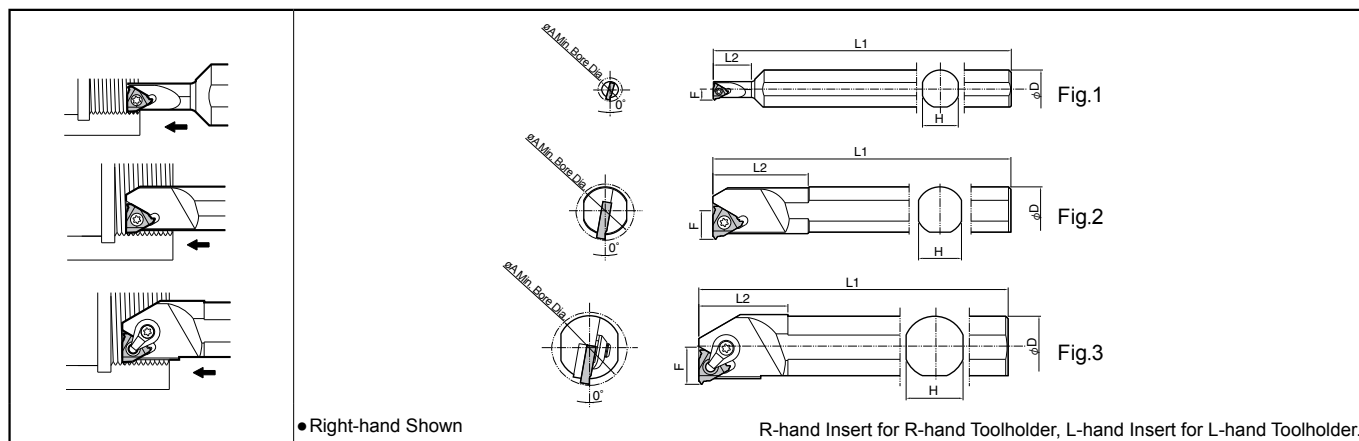
• Shim (TNW-32), when using 2-Thread Insert such as 16ER100ISO-M02, TNN32ER100M02. Purchase separately as necessary.

Reference page for applicable inserts






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

Internal Threading Toolholders

SIN / CIN



Toolholder Dimensions

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

Reference page for applicable inserts

Type of Thread	Full Profile	Partial Profile	Type of 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(re), there is variation in the Bore Dia. which may greatly influence the tool life of an insert. In order to eliminate the variation in the Bore Dia., "0" cutting (zero cutting) should be performed as the zero pass, before the first pass in threading. The Bore Dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2 "Chip evacuation"

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

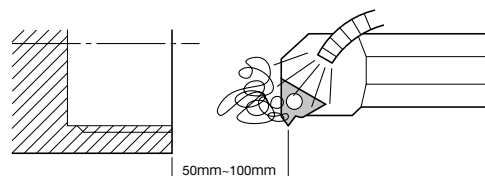
<When processing the first work piece>

Move 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.

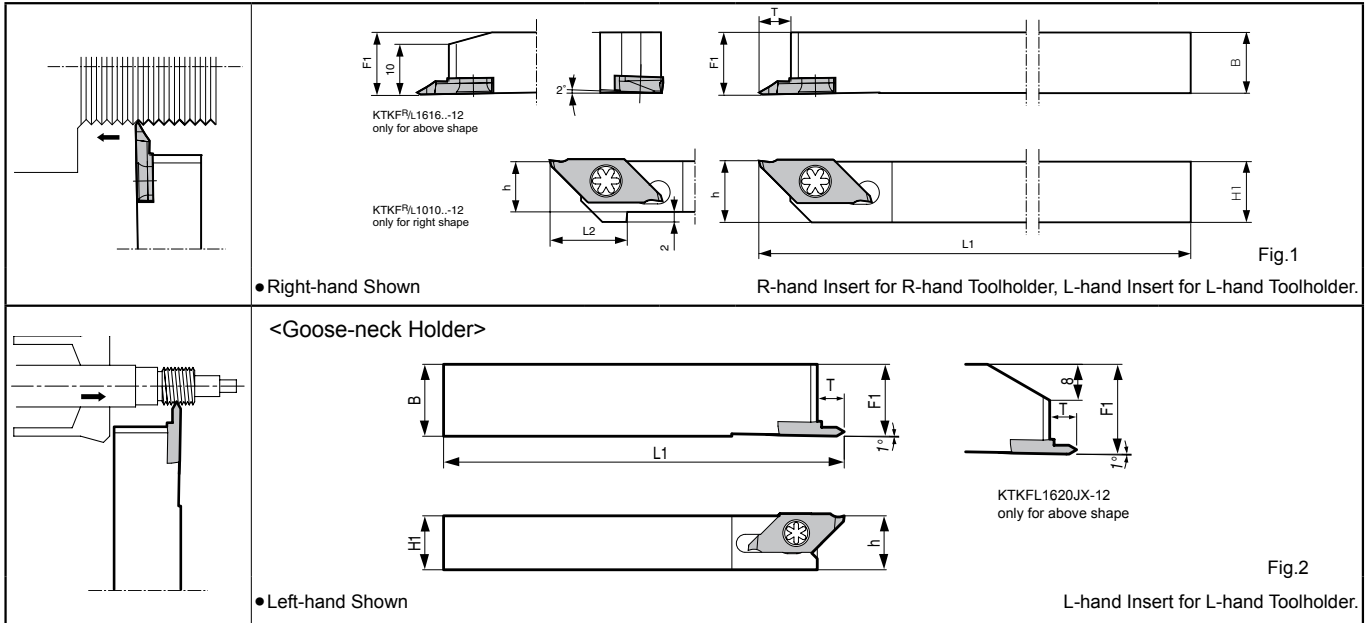
<When processing the second workpiece and later>

Confirm that chips are not tangled; then, execute continuous run.





TKFT Threading

KTKF / KTKF Goose-neck Holder


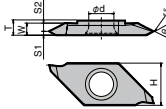


Toolholder Dimensions

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					
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				
NEW 1620JX-12		●	16	20			20					

*Dimension T: shows the distance from the Toolholder to the cutting edge.

Applicable Inserts

Insert			Description	Applicable Thread	Pitch		Dimension (mm)							Angle (°)	Insert Grade		Applicable Toolholder	
					mm	TPI	T	W	H	ød	R(rε)	S1	S2		θ	PVD Coated Carbide		Carbide
																PR1025		KW10
Photo shows Right-hand																		
<div>Partial Profile</div> <div></div>	<div></div> <div>● Right-hand Shown</div>	TKFT	12RA6000	M UN	0.2~0.6	64~48 TPI	3.0	2.5	8.7	5.2	Max 0.05 Flat	0.4	2.1	60°	●	●	KTKFR ...12	
			12RB6000									2.1	0.4		●	●		
			12RA6000S									0.8	1.7		●	●		
			12RB6000S									1.7	0.8		●	●		
			12RN6001									0.1	1.25		1.25	●		●
			12RA5500S									0.8	1.7		●	●		
		12RB5500S	G, R W	-	40~16 TPI	0.05	1.7	0.8	55°	●	●							
		TKFT	12LA6000	M UN	0.2~0.6	64~48 TPI	3.0	2.5	8.7	5.2	Max 0.05 Flat	2.1	0.4	60°	●	●	KTKFL ...12	
			12LB6000									0.4	2.1		●	●		
			12LA6000S									1.7	0.8		●	●		
			12LB6000S									0.8	1.7		●	●		
			12LN6001									0.1	1.25		1.25	●		●
			12LA5500S									1.7	0.8		●	●		
			12LB5500S	G, R W	-	40~16 TPI	0.05	0.8	1.7	55°	●	●						

Insert Description (See Table-1)

TKFT	12	R	A	60	00
Name of Insert	Insert Size	Edge position	Corner-R (r _e)	Thread angle	
	Insert Hand				
	R : Right-hand				
	L : Left-hand				

Table-1

R-hand Insert		
A type	B type	N type
TKFT12RA..	TKFT12RB..	TKFT12RN..
L-hand Insert		
A type	B type	N type
TKFT12LA..	TKFT12LB..	TKFT12LN..

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade	
	PVD Coated Carbide	Carbide
	PR1025	KW10
Carbon Steel	Vc = 60~150 m/mim	
	First ap (Radial)	under 0.2mm
Alloy Steel	Vc = 60~150 m/mim	
	First ap (Radial)	under 0.2mm
Stainless Steel	Vc = 50~80 m/mim	
	First ap (Radial)	under 0.15mm
Cast Iron	—	
	Vc = 100 m/mim	
Non-ferrous Metals	—	
	Vc = 150~400 m/mim	
	First ap (Radial)	under 0.2mm

• 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

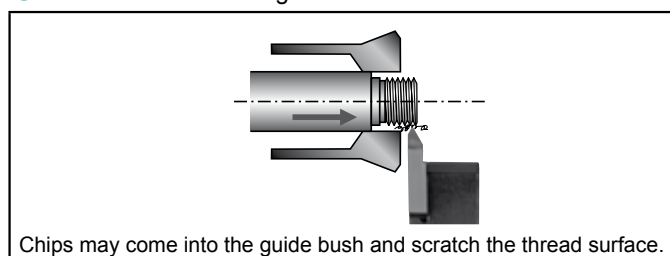
(ap shows the value of radial ap)

Type	Pitch	Description	R(r _e)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12
	mm · TPI																
External Thread	Metric	TKFT 12R/L A/B6000	Max 0.05 Flat	0.20mm	4	0.06	0.04	0.03	0.02								
				0.25mm	4	0.07	0.06	0.04	0.02								
				0.30mm	4	0.08	0.07	0.06	0.02								
				0.35mm	5	0.08	0.07	0.06	0.04	0.02							
				0.40mm	5	0.10	0.08	0.06	0.04	0.02							
				0.45mm	6	0.10	0.08	0.06	0.04	0.04	0.02						
		TKFT 12R/L A/B6000 12R/L A/B60005	0.05	0.50mm	6	0.10	0.10	0.07	0.05	0.04	0.02						
				0.60mm	5	0.10	0.10	0.07	0.04	0.02							
		TKFT 12R/L A/B6000 12R/L A/B60005	Max 0.05 Flat	0.60mm	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
				0.70mm	6	0.10	0.10	0.08	0.06	0.04	0.02						
		TKFT 12R/L A/B60005	0.05	0.75mm	6	0.10	0.10	0.10	0.10	0.06	0.02						
				0.80mm	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		TKFT 12R/L A/B60005 12R/L N6001	0.05	1.00mm	7	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				1.25mm	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
				1.25mm	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
		TKFT 12R/L N6001	0.10	1.50mm	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
				1.50mm	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
	Parallel Pipe	TKFT 12R/L A/B55005	0.05	28 TPI	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02					
				19 TPI	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02			
	Whitworth	TKFT 12R/L A/B55005	0.05	24 TPI	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02				
				20 TPI	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02			
				18 TPI	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
				16 TPI	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02	

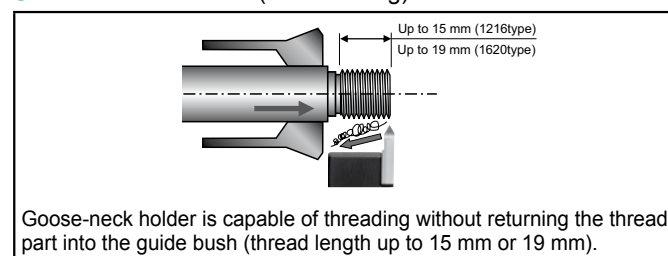
Swiss Tool Automatic Lathe (Guide Bush System)

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

Conventional Threading Tool

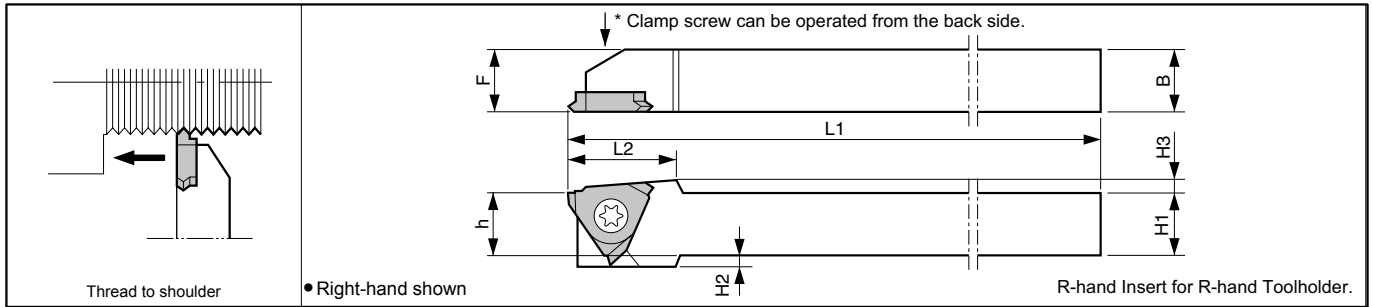


Goose-neck Holder (for threading)





External Threading Toolholders [TTX Insert]

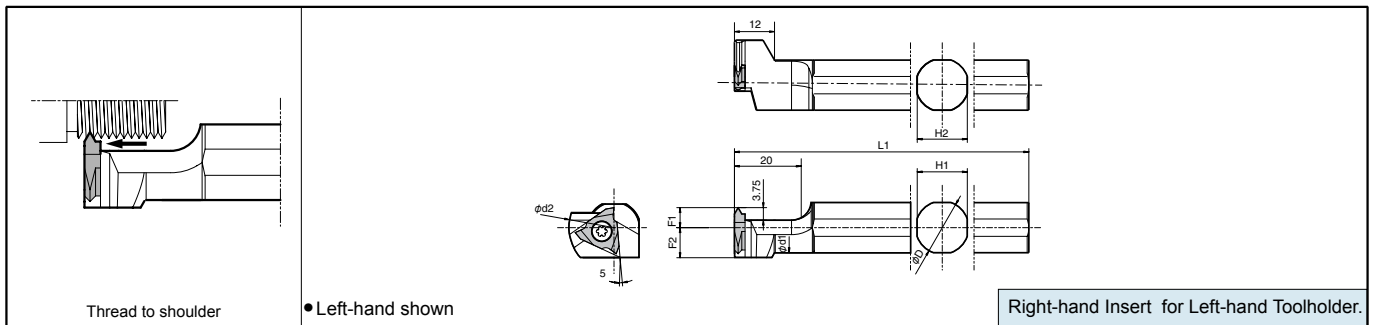
KTTX




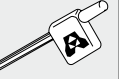
Toolholder Dimensions

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

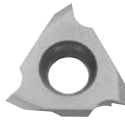
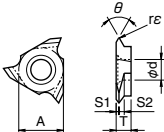
S...KTTX (External Sleeve Holder)



Toolholder Dimensions

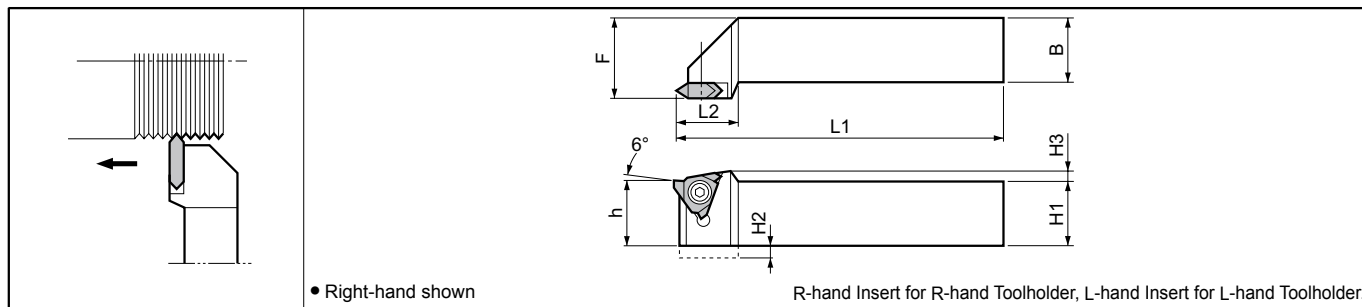
Description	Std.	Dimension (mm)							Spare Parts				
									Clamp Screw	Wrench			
		øD	L1	F1	F2	ød1	ød2	H1=H2					
S12F-KTTXL16	●	12.0	80	6.0	9.0	11.0	27	11	SB-4070TRW	FT-8			
S14H-KTTXL16	●	14.0	100			13.0		13					
S15F-KTTXL16	●	15.875	85			14.6		15					
S16F-KTTXL16	●	16.0	90		10.5	17.6		17					
S19G-KTTXL16	●	19.05											
S19K-KTTXL16	●	120											
S20G-KTTXL16	●	20.0	90	11.0	18.6	18							
S20K-KTTXL16	●		120										
S25.0H-KTTXL16	●	25.0	100	10.0	14.0	23.6	32	23					
S25K-KTTXL16	●	25.4	120										

● Applicable Inserts

Applicable Inserts				(mm)							Classification of usage					
Description	A	T	ød					P	Carbon Steel / Alloy Steel					● : 1st Choice ○ : 2nd Choice		
TTX32R	9.525	3.18	4.4					M	Stainless Steel							
								K	Cast Iron							
								N	Non-ferrous Metals							
Insert			Description		Applicable Thread	Pitch		Dimension (mm)			Angle (°)	Carbide	PVD Coated Carbide	Carbide	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes
Right-hand Shown						mm	TPI	ℓ	S1	S2	θ	TC60	PR930	PR1115		
<div>Partial Profile</div>  	TTX32R		6000	M UN	0.5~1.0 -	56~32	0.00	0.6	1.12	60°				●	KTTXR.....16 S...KTTXL16	J38
			60005	M UN	0.5~1.0 -	48~32	0.05	0.6	1.12		○	●	●	●		
			6001	M UN	1.0~2.0 -	28~14	0.10	1.1	1.62		○	●	●	●		
	TTX32R		6000S	M UN	0.5 -	56~48	0.00	0.3	1.12	60°		●	●	●		
			60005S	M UN	0.5 -	48	0.05	0.3	1.12			●	●	●		
	TTX32R		5501	G, R W	-	28~19 24~20	0.10	0.75	1.01	55°	○	●	●	●		
		55015	G, R W	-	19~11 20~11	0.15	1.20	1.46	○				●			

External Threading Toolholders [TT Insert]

KTT



Toolholder Dimensions

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

Applicable Inserts

Description					A	T	ød											Classification of usage				Ref. Page for Depth of Cut & No. of Passes
TT32 ^{R/L}					9.525	3.18	4.4											● : 1st Choice ○ : 2nd Choice				
TT43 ^{R/L}					12.70	4.76	5.5															
Insert					Description			Applicable Thread	Pitch		Dimension (mm)			Angle (°)	Cermet	PVD Coated Carbide	Carbide	Applicable Toolholder				
Right-hand Shown									mm	TPI	rε	S1	S2	θ	TC60	PR930	PR1115		KW10			
Partial Profile				TT32 ^{R/L} 6000	M UN	0.5~2.5	-	56~10	0.0				60°	○	●	●	KTT ^{R/L} ---16	J37				
				6001	M UN	1.0~2.5	-	24~10	0.1				60°	○	●	●			●			
				6002	M UN	1.5~2.5	-	16~10	0.2		-	-	60°	○	●	●			●			
				6003	M UN	2.5	-	11~10	0.3				60°	○	R	R						
				TT32 ^{R/L} 5501	G _i PT W	-	28~11	24~10	0.1				55°	○	●	R	●	J37 J38				
5502	G _i PT W	-	14~11	14~10	0.2		-	-	55°	○	●	R	●									
Full Profile				TT43E ^{R/L} 100M	M	1.00			0.12	0.8		60°	R	R	R		J38					
				125M		1.25			0.15	0.9		60°	R	R	R							
				150M		1.50			0.19	1.0		60°	R	R	R							
				200M		2.00			0.25	1.7		60°	R	R	R							
Partial Profile				TT43 ^{R/L} 6001	M UN	1.0~3.5	-	24~8	0.1				60°	○	●	●	●	KTT ^{R/L} ---22	J37			
				6002	M UN	1.5~3.5	-	16~8	0.2				60°	○	●	●	●					
				6003	M UN	2.5~3.5	-	11~8	0.3				60°	○	●	R						
				6004	M UN	3.0~3.5	-	8	0.4				60°	○	●	R						
				TT43 ^{R/L} 5501	G _i PT W	-	28~11	24~7	0.1				55°	○	R	R	●	J31 J38				
				5502	G _i PT W	-	14~11	16~7	0.2				55°	○	R	R	●					
				5503	G _i PT W	-	11	10~7	0.3				55°	○	R	R						
				5504	G _i PT W	-	8~7	0.4				55°	○									

For recommended cutting conditions, see page **J29**

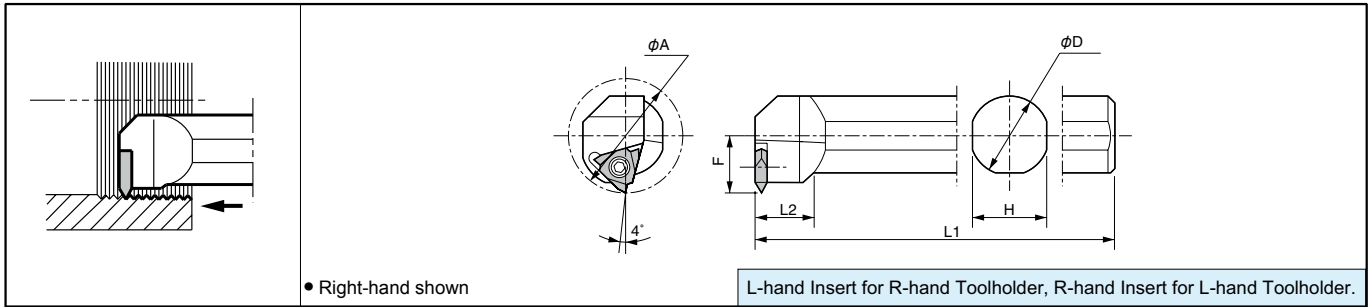
Applicable Thread	M: Metric	R, Rc(PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

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

Inserts are sold in 10 piece boxes.

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

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	●	●	35	25	23	220	18	17.5		SB-4TR	-	FT-15
4532T-22	●	●	45	32	30	250	20	22.5		-	GS-50	LW-3

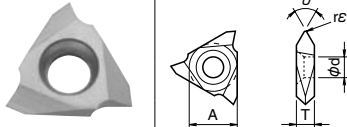
• Max. available Pitch: KITG^{R/L}3525T-16...P2.5 or 10 TPI, KITG^{R/L}4532T-22...P3.0 or 8 TPI.

Applicable Inserts

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

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

Insert Right-hand Shown			Description	Applicable Thread	Pitch		Dimension (mm)		Angle (°)	Cermet	PVD Coated Carbide		Carbide	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes
					mm	TPI	rε	θ			TC60	PR930			

Partial Profile		TT32 ^{R/L}	6000	M UN	0.5~2.5 -	- 48~10	0.0		60°		○	●	●		KITG ^{R/L}-16	J37 J38	
			6001	M UN	1.5~2.5 -	- 16~10	0.1		60°		○	●	●	●			
		TT32 ^{R/L}	5501	G PT W	-	28~11 24~10	0.1		55°		○	●	R	●			KITG ^{R/L}-16
			5502	G PT W	-	- 16~18	0.2		55°		○	●	R	●	●		
		TT43 ^{R/L}	6001	M UN	1.5~3.0 -	14~11 16~10	0.1		60°		○	●	●	●	●		KITG ^{R/L}-22
			6002	M UN	3.0 -	- 8	0.2		60°		○	●	●	●	●		
		TT43 ^{R/L}	5501	G PT W	-	28~11 24~8	0.1		55°		○	R	R	●			
			5502	G PT W	-	14~11 16~8	0.2		55°		○	R	R	●	●		
			5503	G PT W	-	11 11~8	0.3		55°		○	R	R				
			5504	G PT W	-	- 8	0.4		55°		○						

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

For recommended cutting conditions, see page [J29](#)

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

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

Inserts are sold in 10 piece boxes.

Details of Edge

- Right-hand shown

Description	Min. Bore Dia.	Dimension (mm)										Insert Grade		Applicable Thread			
												PVD Coated Carbide	Carbide	Metric		Unified	
		øA	øD	H	L1	L2	L3	F	S	d	rε	θ	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread
HPTR 04504-60-005	4.5	4	3.7	60	16	8	3.9	1.3	0.6	0.05	60°	●	●	M6 and over	P0.75 ~P1.25	1/4-20UNC 1/4-28UNF and over	28~20
	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
	7.5	7	6.4	80	26		10	6.9	2			1	●	●	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	55°	●	●	W10 TPI 20 W10 TPI 24 and over	24~20	G1/16 and over R1/16 and over	28
	8	7	6.4	80	26	10	6.9	2.0	1.0			●	●	W11 TPI 18 W11 TPI 20 and over	20~18	G1/8 and over R1/8 and over	28~19

Description		Applicable Sleeve ➡ J26	
HPTR	04504-60-005	PSH	04····
	06005-60-005		05····
	07507-60-005		07····
HPTR	06005-55-010	PSH	05····
	08007-55-010		07····

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

- 1) The standard cutting speed is $V_c=30\sim50\text{m/min}$. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
- 2) Coolant is recommended.

★: 1st Recommendation ☆: 2nd Recommendation

Pitch (mm)	Total ap (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
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	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03

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

TPI	Total ap (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.54	12	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03						
24	0.64	12	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03						
20	0.77	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03				
18	0.87	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	
16	0.98	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03

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

Application of Parallel Pipe / Tapered Pipe Thread

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

Nominal Thread Symbol (Previous Symbol)	TPI (TPI)	Internal (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 (TPI)	Internal (G,Rp)		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)			-	
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	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03						
19	0.95	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03

Application of ANSI 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	PSH Sleeve (See J26)	HPTR06005-60-005 HPTR07507-60-005	-
¹ / ₂ NPT ³ / ₄ NPT	14	PSH Sleeve (See J26)	HPTR07507-60-005	-
¹ / ₂ NPT ³ / ₄ NPT	14	SINR2016S-16 cannot pass through the processing diameter.		
		SINR2016S-16	-	16IR14NPT

• Application of NPTF Thread

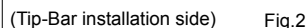
NPTF is the thread for sealing pipes without using any sealing material.

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

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

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

Threading



Applicable Tip-Bar
 (Ref. Page for
 Other Applicable
 Tip-Bar)

Threading
Tip-Bar
(HPT)⇒**J24**

Boring
Tip-Bar
(HPB)⇒**F22**

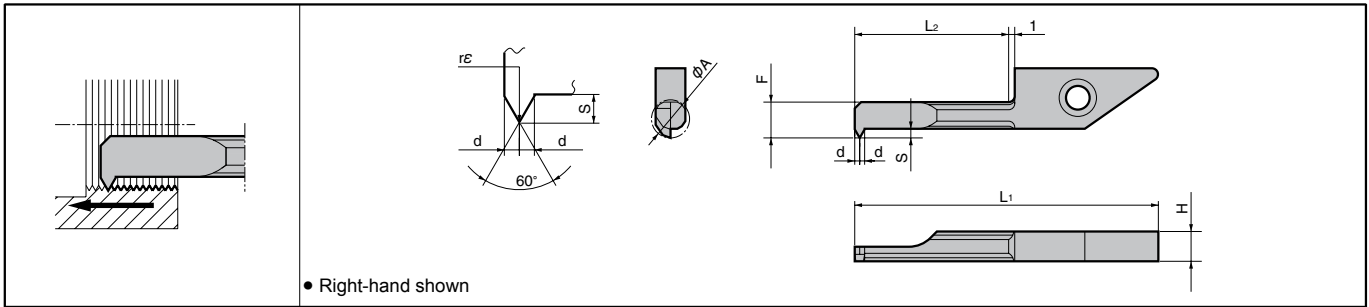
Back Boring
Tip-Bar
(HPBT)⇒**F22**

Grooving Tip-Bar
(HPG)⇒**G44**

Face Grooving
Tip-Bar
(HPFG)⇒**G65**

System Tip-Bar for Micro Threading

VNT (System Tip-Bar)



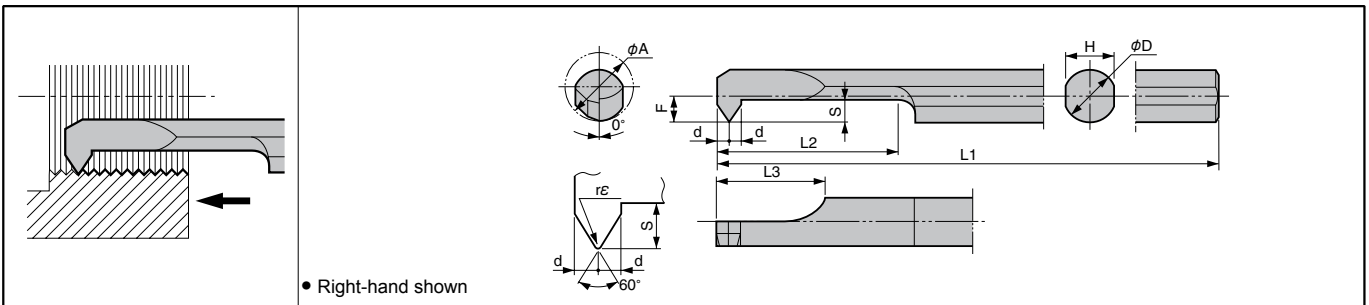
Insert Dimensions

Description		Min. Bore Dia.	Dimension (mm)								Insert Grade			Applicable Thread			
											Cerm ^{et}	PVD Coated Carbide	Carbide	Metric		Unified	
		øA	H	L1	L2	F	S	d	rε						TC60	PR930	KW10
VNTR	045-11	4.5	3.9	30.8	11	3.6	1.3	0.6	0.05			●	●	M6 and over	P0.75 ~P1.25	1/4-20UNC, 1/4-28UNF and over	28~20
	060-11	6.0													●	●	M8 and over

● For applicable Toolholder, see page **F16~F18**.

PST-S (Tip-Bar)

This insert will be switched to **HPT** (2-Edge See Page **J24**).



Insert Dimensions

Description		Min. Bore Dia.	Dimension (mm)									Insert Grade			Applicable Thread			
												Cermet	PVD Coated Carbide	Carbide	Metric		Unified	
		øA	øD	H	L1	L2	L3	F	S	d	rε	TC60	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	0.05			<input type="checkbox"/>	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				<input type="checkbox"/>	M8 and over	P0.75 ~P1.50	5/16-18UNC, 5/16-24UNF and over	24~18

● For applicable Toolholder, see page **F80**.

Depth of Cut & Number of Passes (Metric)

Pitch (mm)	Total ap (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
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	0.06	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 $V_c=30\sim50\text{m/min}$. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.

2) Coolant is recommended.

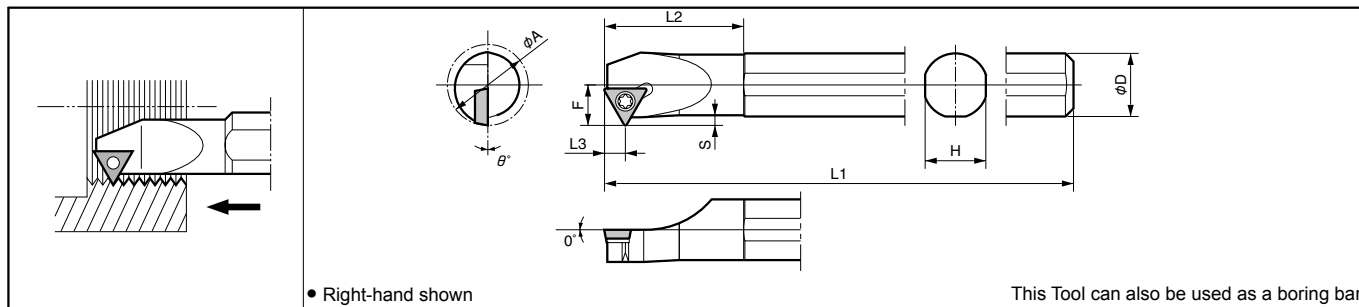
● : Std. Item ○ : Check Availability □ : Deleted from the next catalogue

Tip-Bars are sold
in 1 piece boxes.

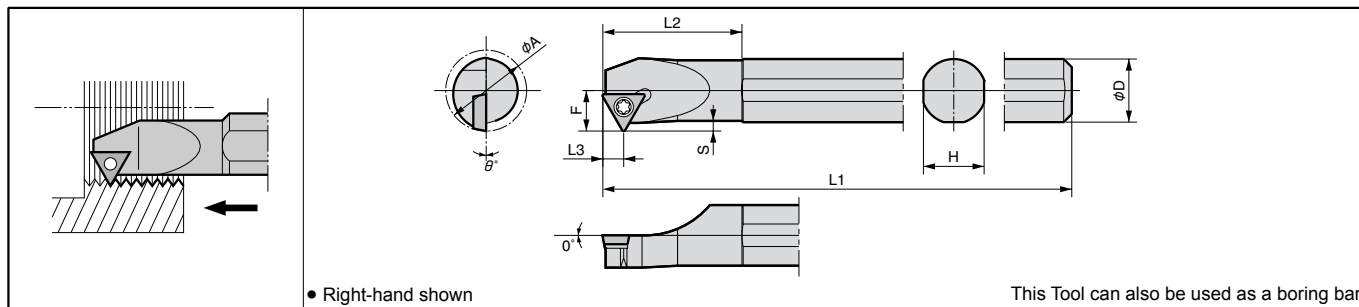
System Tip-Bars are sold
in 5 piece boxes.

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	
					øA	øD	H	L1	L2	L3	F		S	Clamp Screw
														
S10M -STWP $\frac{1}{16}$ 11-12	SIT $\frac{1}{16}$ 1210-11	●		12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWP $\frac{1}{16}$ 11-16		●		16	12	11	150	30		8	1.5	2.0 and under		
S16Q -STWP $\frac{1}{16}$ 11-20		●		20	16	15	180	35		10	2.0	3.0 and under	SB-3TR	
S20R -STWP $\frac{1}{16}$ 11-25		●		25	20	19	200	40		12.5	2.5	3.5 and under		
S10M -STWP $\frac{1}{16}$ 11-12E	-	●	●	12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWP $\frac{1}{16}$ 11-16E		●	●	16	12	11	150	30		8	1.5	2.0 and under		
S16R -STWP $\frac{1}{16}$ 11-20E		●	●	20	16	15	200	35		10	2.0	3.0 and under	SB-3TR	
S20X -STWP $\frac{1}{16}$ 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	ød	P Carbon Steel / Alloy Steel				Classification of usage			
TPGB1102...				6.35 (11)	2.38	3.5	M Stainless Steel				● : 1st Choice			
TPGB1103...				6.35 (11)	3.18	3.3	K Cast Iron				○ : 2nd Choice			
				N Non-ferrous Metals										

Insert	Description	Applicable Thread	Pitch		Dimension (mm)			Angle (°)	Cermet	PVD Coated Carbide	Carbide	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes		
			mm	TPI	re										
	TPGB 1102005	M UN	0.75~1.5	-	28~16	0.05	60°	TN6020	TN60	PV7020	PV60	KW10	...STWP %11-12(E)	J39	
		M UN	1.5	-	16	0.10									
	TPGB 1103005	M UN	0.75~3.5	-	28~11	0.05									...STWP %11-16(E)
		M UN	1.5~3.5	-	16~8	0.10									
	TPGB 110301	M UN	3.0~3.5	-	8	0.20									...STWP %11-25(E)
		TPGB 110302	M UN												

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

For recommended cutting conditions, see page J29

Inserts are sold in 10 piece boxes.

● : Std. Item ○ : Check Availability
□ : Deleted from the next catalogue

Recommended Cutting Conditions

KTN / KTNS

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	GW15 (KW10)
Carbon Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	60~80 ☆	60~80 ☆	60~80 ★	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 100
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 150~400
First ap (Radial)				under 0.3mm

SIN / CIN

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	GW15 (KW10)
Carbon Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	60~80 ☆	60~80 ☆	60~80 ★	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 100
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 150~400
First ap (Radial)				under 0.3mm

• For TNN06IR / 08IR, please lower it to a figure under 40% of above condition list

KTT

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	KW10
Carbon Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	60~80 ☆	60~80 ☆	60~80 ★	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 100
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 150~400
First ap (Radial)				under 0.3mm

S...STWP (-E)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)				
	Cermet		PVD Coated Cermet	Carbide	
	TN6020	TN60	PV7020	PV60	KW10
Carbon Steel	100~150 ☆	100~150 ☆	100~150 ★	100~150 ☆	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	under 0.25mm	
Alloy Steel	100~150 ☆	100~150 ☆	100~150 ★	100~150 ☆	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	under 0.25mm	
Stainless Steel	-	-	-	-	-
First ap (Radial)					
Cast Iron	-	-	-	-	★ 100
First ap (Radial)					under 0.25mm
Non-ferrous Metals	-	-	-	-	★ 150~400
First ap (Radial)					under 0.25mm

KTTX / S-KTTX

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	KW10
Carbon Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	60~80 ☆	60~80 ☆	60~80 ★	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 100
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 150~400
First ap (Radial)				under 0.3mm

KITG

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	KW10
Carbon Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	100~150 ☆	100~150 ☆	100~150 ★	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	60~80 ☆	60~80 ☆	60~80 ★	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 100
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 150~400
First ap (Radial)				under 0.3mm

Indicates

★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- In case of using cermet insert, honing edge with hand rapper slightly makes more stability.
- In case of threading stainless steel, please set two to three passes more than previous description of <ap - passes>.

J

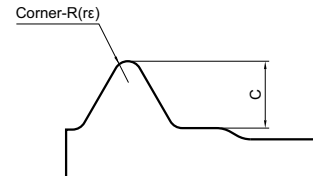


Threading

Depth of Cut & Number of Passes

◆ Cautions for Usage of Full Profile Insert.

- 1) Max. ap is based on the Value of 0.05~0.08mm
- 2) Final ap for Finishing shall be 0.02~0.05mm
- 3) Prepare chamfering for C0.3~C0.5 to the Workpiece to prevent the Insert Crack at the 1st Pass.
- 4) Coolant is recommended.



(ap shows the value of radial ap)

11 / 16 / 22 (Full Profile) type

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

(ap shows the value of radial ap)



Threading

(ap shows the value of radial ap)

Depth of Cut & Number of Passes

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type		Pitch/TPI	Description	Corner-R(1/ε)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		mm/TPI																							
Metric	External Thread	3.50mm	22ER N60	0.48	2.17	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.05				
		4.00mm			2.55	17	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05		
		4.50mm			2.93	18	0.30	0.28	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05	
		5.00mm			3.31	19	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05
Metric	Internal Thread	0.75mm	06IR 60005	0.05	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03									
		1.00mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03					
			08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03						
		1.25mm	06IR 60005	0.05	0.76	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03				
			08IR 60007	0.07	0.74	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03					
		1.5mm	08IR 60007	0.07	0.90	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03		
		1.75mm		0.07	1.07	19	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	
		0.50mm	11IR A60		0.30	5	0.08	0.07	0.06	0.05	0.04														
		1.00mm			0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.50mm			0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		0.5 mm	16IR A60 AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
				0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		0.75 mm	16IR A60 AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
				0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
		1.00 mm	16IR A60 AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
				0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.25 mm	16IR A60 AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
				0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
		1.50 mm	16IR A60 AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
				0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		1.75 mm	16IR G60 AG60	0.02	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04										
				0.02	1.12	10	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.06	0.05	0.04									
		2.00 mm	16IR G60 AG60	0.02	1.19	10	0.20	0.18	0.17	0.15	0.13	0.11	0.08	0.07	0.06	0.04									
				0.02	1.28	12	0.20	0.17	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04	0.04						
		2.50 mm	16IR G60 AG60	0.02	1.51	14	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04									
				0.02	1.6	16	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02	0.04	0.02			
		3.00 mm	16IR G60 AG60	0.02	1.84	16	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.10	0.08	0.07	0.06	0.04	0.02	0.04	0.02	
				0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02	
		3.50mm	22IR N60	0.22	2.05	14	0.26	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.08	0.06	0.05					
		4.00mm			2.38	16	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05				
		4.50mm			2.7	18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05		
		5.00mm			3.03	19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	
Unified	External Thread	48 TPI	16ER A60-TF AG60-TF	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
			0.06	0.35	5	0.10	0.08	0.07	0.06	0.04															
		24 TPI	16ER A60-TF AG60-TF	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
			0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04													
		20 TPI	16ER A60-TF AG60-TF	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
			0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05												
		18 TPI	16ER A60-TF AG60-TF	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
			0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05												
		16 TPI	16ER A60-TF AG60-TF	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
			0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04										
		14 TPI	16ER G60-TF AG60-TF	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05										
			0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04	0.04								
		13 TPI	16ER G60-TF AG60-TF	0.22	1.26	9	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
			0.06	1.43	11	0.25	0.23	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.05	0.04								
		12 TPI	16ER G60-TF AG60-TF	0.22	1.38	10	0.25	0.22	0.20	0.17	0.15	0.12	0.10	0.07	0.06	0.04									
			0.06	1.55	12	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.09	0.07	0.06	0.04	0.04							
		10 TPI	16ER G60-TF AG60-TF	0.22	1.71	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.05							
			0.06	1.87	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04	0.04						
		9 TPI	16ER G60-TF AG60-TF	0.22	1.92	13	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
			0.06	2.08	14	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05						
		8 TPI	16ER G60-TF AG60-TF	0.22	2.19	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.10	0.09	0.08	0.05					
			0.06	2.35	16	0.30	0.25	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05				
		48 TPI	16ER A60 AG60	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
			0.06	0.35	5	0.10	0.08	0.07	0.06	0.04															
		24 TPI	16ER A60 AG60	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
			0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04													
		20 TPI	16ER A60 AG60	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											

(ap shows the value of radial ap)

Threading

Depth of Cut & Number of Passes

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type	Pitch/TPI	Description	Corner-R(ε)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Whitworth	External Thread	24 TPI 16ER A55 AG55	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI 16ER A55 AG55	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
		18 TPI 16ER A55 AG55	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		16 TPI 16ER A55 AG55	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
		14 TPI 16ER G55 AG55	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 AG55	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 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							
		10 TPI 16ER G55 AG55	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	0.08	0.05					
		9 TPI 16ER G55 AG55	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 AG55	0.22	2.29	15	0.28	0.26	0.24	0.22	0.19	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05				
		7 TPI 16ER G55 AG55	0.22	2.49	16	0.30	0.28	0.26	0.24	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.06	0.05			
		6 TPI 22ER N55	0.47	2.92	18	0.30	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	
		5 TPI 22ER N55	0.47	3.6	21	0.30	0.28	0.27	0.26	0.25	0.24	0.22	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.11	0.10	0.09	0.07
	Internal Thread	28 TPI 06IR 5501 08IR 5501	0.10	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03						
		19 TPI 08IR 5501	0.10	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03				
		48 TPI 11IR A55	0.06	0.33	5	0.08	0.08	0.07	0.06	0.04														
		24 TPI 11IR A55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI 11IR A55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI 11IR A55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16 TPI 11IR A55	0.06	1.1	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		48 TPI 16IR A55 AG55	0.06	0.33	5	0.08	0.08	0.07	0.06	0.04														
		24 TPI 16IR A55 AG55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI 16IR A55 AG55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI 16IR A55 AG55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16 TPI 16IR A55 AG55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		14 TPI 16IR G55 AG55	0.22	1.06	8	0.21	0.19	0.17	0.15	0.12	0.10	0.07	0.05											
		12 TPI 16IR G55 AG55	0.22	1.28	9	0.22	0.20	0.19	0.17	0.15	0.13	0.10	0.08	0.04										
		11 TPI 16IR G55 AG55	0.22	1.42	10	0.24	0.22	0.20	0.18	0.15	0.12	0.10	0.09	0.07	0.05									
		10 TPI 16IR G55 AG55	0.22	1.59	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
		9 TPI 16IR G55 AG55	0.22	1.79	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.10	0.09	0.08	0.05	0.05					
		8 TPI 16IR G55 AG55	0.22	2.05	14	0.24	0.23	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05	0.05				
		7 TPI 22IR N55	0.47	2.09	14	0.24	0.23	0.22	0.20	0.19	0.17	0.15	0.14	0.13	0.12	0.10	0.08	0.07	0.05					
		6 TPI 22IR N55	0.47	2.53	16	0.30	0.28	0.25	0.23	0.21	0.20	0.18	0.16	0.13	0.11	0.10	0.10	0.09	0.08	0.06	0.05			
		5 TPI 22IR N55	0.47	3.14	19	0.30	0.28	0.27	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.11	0.10	0.10	0.08	0.06	0.05
30°Trapezoidal	External Thread	2.0mm 16ER 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.0mm 16ER 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.07	0.05	0.03						
		4.0mm 22ER 400TR	-	2.24	15	0.26	0.24	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
		5.0mm 22ER 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		
		2.0mm 16IR 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
	Internal Thread	3.0mm 16IR 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.07	0.05	0.03						
		4.0mm 22IR 400TR	-	2.24	15	0.26	0.24	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
		5.0mm 22IR 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		
		2.0mm 16IR 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.0mm 16IR 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.07	0.05	0.03						

◆ Corner-R Selection for Partial Profiling Insert(ε)

	External Thread	Internal Thread
Metric Unified	$\epsilon \leq 0.1443P$	$\epsilon \leq 0.0720P$
Parallel Pipe (Whitworth) Tapered Pipe	(For Both External and Internal Thread) $\epsilon \leq 0.1373P$	

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

• Metric, Unified Thread

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

• Parallel Pipe, Tapered Pipe, Whitworth Thread

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

11 / 16 (Full Profile) type

1-Thread, With Chipbreaker (TS Chipbreaker)

(ap shows the value of radial ap)

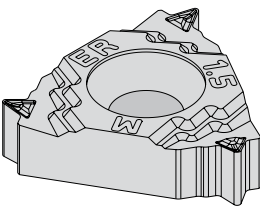
Type	Pitch/TPI	Description	(Previous Description)	C (mm)	*Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric	External Thread	1.00 mm	16E [®] /L 100ISO-TS	TNN32E [®] /L 100M-TS	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05													
	External Thread	1.25 mm	125ISO-TS	125M-TS	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05												
	External Thread	1.50 mm	150ISO-TS	150M-TS	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05												
	External Thread	2.00 mm	200ISO-TS	200M-TS	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								
Metric	Internal Thread	1.00 mm	16I [®] /L 100ISO-TS	TNN32I [®] /L 100M-TS	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04													
	Internal Thread	1.50 mm	150ISO-TS	150M-TS	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05										
	Internal Thread	2.00 mm	200ISO-TS	200M-TS	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05								
	Internal Thread	2.00 mm	200ISO-TS	200M-TS	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05								
Parallel Pipe	External Thread	19 TPI	16E [®] /L 19W-TS	TNN32E [®] /L 19W-TS	0.89	0.97	6	0.28	0.20	0.18	0.16	0.10	0.05												
	External Thread	14 TPI	14W-TS	14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05									
	External Thread	11 TPI	11W-TS	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05						
	Internal Thread	14 TPI	16I [®] /L 14W-TS	TNN32I [®] /L 14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05									
Parallel Pipe	Internal Thread	11 TPI	11W-TS	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05						
	Internal Thread	14 TPI	16E [®] /L 14W-TS	TNN32E [®] /L 14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05									
	Internal Thread	11 TPI	11W-TS	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05						
	Internal Thread	11 TPI	11W-TS	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05						
Tapered Pipe	External Thread	19 TPI	16E [®] /L 19BSPT-TS	TNN32E [®] /L 19PT-TS	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05												
	External Thread	14 TPI	14BSPT-TS	14PT-TS	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04									
	External Thread	11 TPI	11BSPT-TS	11PT-TS	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05						
	Internal Thread	19 TPI	11I [®] /L 19BSPT-TS	TNN22I [®] /L 19PT-TS	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04											
Tapered Pipe	Internal Thread	14 TPI	14BSPT-TS	14PT-TS	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04									
	Internal Thread	14 TPI	16I [®] /L 14BSPT-TS	TNN32I [®] /L 14PT-TS	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04									
	Internal Thread	11 TPI	11BSPT-TS	11PT-TS	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05						
	Internal Thread	11 TPI	11BSPT-TS	11PT-TS	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						

2-Thread, With Chipbreaker

(ap shows the value of radial ap)

Type	Pitch/TPI	Description	(Previous Description)	C (mm)	*Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric	External Thread	1.00 mm	16E [®] /L 100ISO-M02	TNN32E [®] /L 100M02	0.64	0.69	3	0.25	0.23	0.21															
	External Thread	1.50 mm	150ISO-M02	150M02	0.95	1.00	3	0.36	0.34	0.30															
	External Thread	2.00 mm	200ISO-M02	200M02	1.27	1.32	4	0.38	0.36	0.30	0.28														

Chip Control of Threading Insert with Chipbreaker



Insert with TS Chipbreaker

- Insert with TS Chipbreaker improves Chip Control.

• Features

1. "TS" breaks chips into small pieces and shows good chip evacuation.
2. Economical high precision molded insert.

• Cutting Conditions: Vc=100m/min, P=1.5 pitch, No. of Passes: 6, SCM435, WET, Flank Infeed (External Threading)

Pass	1st Pass	2nd Pass	3rd Pass	5th Pass	6th Pass
Insert with TS Chipbreaker					
Conventional					

J



Threading

Depth of Cut & Number of Passes

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

(ap shows the value of radial ap)

Type	Pitch/TPI	Description	(Previous Description)	Corner-R(°)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric	External Thread	1.00 mm	16E ^{1/2} 6001(-TS)	TNN32E ^{1/2} 6001(-TS)	0.10	0.66	5	0.20	0.18	0.12	0.09	0.05													
		1.25 mm	16E ^{1/2} 6001(-TS)	TNN32E ^{1/2} 6001(-TS)	0.10	0.85	6	0.23	0.20	0.14	0.12	0.07	0.05												
		1.50 mm	16E ^{1/2} 6001(-TS) 6002(-TS)	TNN32E ^{1/2} 6001(-TS) 6002(-TS)	0.10 0.20	1.04 0.94	8 7	0.23 0.23	0.21 0.20	0.19 0.18	0.15 0.14	0.11 0.10	0.06 0.05	0.04											
		1.75 mm	16E ^{1/2} 6001(-TS) 6002(-TS)	TNN32E ^{1/2} 6001(-TS) 6002(-TS)	0.10 0.20	1.23 1.13	9 8	0.25 0.25	0.22 0.22	0.20 0.20	0.17 0.16	0.14 0.14	0.09 0.07	0.05 0.04	0.04										
		2.00 mm	16E ^{1/2} 6001(-TS) 6002(-TS)	TNN32E ^{1/2} 6001(-TS) 6002(-TS)	0.10 0.20	1.42 1.32	11 10	0.25 0.25	0.22 0.22	0.20 0.20	0.16 0.16	0.14 0.14	0.12 0.10	0.08 0.07	0.06 0.04	0.05 0.04	0.04								
		2.50 mm	16E ^{1/2} 6001(-TS) 6002(-TS)	TNN32E ^{1/2} 6001(-TS) 6002(-TS)	0.10 0.20	1.79 1.69	13 12	0.25 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.16 0.16	0.16 0.12	0.14 0.12	0.10 0.10	0.09 0.08	0.08 0.06	0.05 0.04	0.04						
	Internal Thread	0.75 mm	11I ^{1/2} 60005	TNN22I ^{1/2} 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02													
		1.00 mm	11I ^{1/2} 60005	TNN22I ^{1/2} 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04												
		1.25 mm	11I ^{1/2} 60005	TNN22I ^{1/2} 60005	0.05	0.76	7	0.18	0.15	0.12	0.10	0.10	0.07	0.04											
		1.50 mm	11I ^{1/2} 60005 16I ^{1/2} 6001(-TS)	TNN22I ^{1/2} 60005 TNN32I ^{1/2} 6001(-TS)	0.05 0.10	0.92 0.87	9 8	0.18 0.18	0.16 0.16	0.12 0.12	0.10 0.10	0.08 0.08	0.08 0.05	0.06 0.05	0.04										
		1.75 mm	16I ^{1/2} 6001(-TS)	TNN32I ^{1/2} 6001(-TS)	0.10	1.04	9	0.20	0.18	0.15	0.12	0.12	0.10	0.08	0.05	0.04									
		2.00 mm	16I ^{1/2} 6001(-TS)	TNN32I ^{1/2} 6001(-TS)	0.10	1.20	11	0.20	0.18	0.15	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04							
		2.50 mm	16I ^{1/2} 6001(-TS) 60015(-TS)	TNN32I ^{1/2} 6001(-TS) 60015(-TS)	0.10 0.15	1.52 1.47	14 13	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.15	0.14 0.14	0.12 0.12	0.10 0.10	0.10 0.08	0.08 0.06	0.06 0.04	0.04 0.02							
(60°)	External Thread	28 TPI	16E ^{1/2} 5501	TNN32E ^{1/2} 5501	0.10	0.61	5	0.20	0.16	0.12	0.08	0.05													
		19 TPI	16E ^{1/2} 5501	TNN32E ^{1/2} 5501	0.10	0.95	7	0.22	0.20	0.16	0.14	0.10	0.08	0.05											
		14 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.34 1.22	10 9	0.24 0.24	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.11	0.10 0.10	0.10 0.08	0.05										
		11 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.73 1.62	13 12	0.25 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.05	0.05 0.04	0.05 0.02								
	Internal Thread	28 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501	0.05 0.10	0.67 0.61	7 6	0.18 0.18	0.15 0.15	0.12 0.12	0.08 0.08	0.06 0.05	0.05 0.03												
		19 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501	0.05 0.10	1.01 0.95	8 7	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.08 0.10	0.08 0.05	0.05										
		14 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501 5502	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501 5502	0.05 0.10 0.20	1.39 1.34 1.22	11 10 9	0.20 0.20 0.20	0.18 0.18 0.18	0.16 0.16 0.16	0.14 0.14 0.15	0.14 0.14 0.12	0.12 0.14 0.10	0.10 0.10 0.08	0.08 0.05	0.05									
		11 TPI	16I ^{1/2} 5501 5502	TNN32I ^{1/2} 5501 5502	0.10 0.20	1.73 1.62	12 11	0.25 0.25	0.20 0.20	0.18 0.18	0.18 0.16	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.08	0.07 0.05	0.05								
		24 TPI	16E ^{1/2} 5501	TNN32E ^{1/2} 5501	0.10	0.73	6	0.22	0.18	0.12	0.09	0.07	0.05												
		20 TPI	16E ^{1/2} 5501	TNN32E ^{1/2} 5501	0.10	0.90	6	0.22	0.18	0.17	0.16	0.12	0.05												
		18 TPI	16E ^{1/2} 5501	TNN32E ^{1/2} 5501	0.10	1.01	7	0.24	0.20	0.18	0.16	0.10	0.08	0.05											
(55°)	External Thread	16 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.15 1.04	9 8	0.24 0.24	0.20 0.20	0.16 0.16	0.14 0.14	0.12 0.10	0.10 0.08	0.06 0.07	0.05										
		14 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.34 1.22	10 9	0.24 0.24	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.11	0.10 0.10	0.10 0.08	0.05										
		12 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.58 1.46	12 11	0.25 0.25	0.20 0.20	0.18 0.18	0.16 0.15	0.14 0.14	0.12 0.10	0.10 0.08	0.08 0.07	0.05									
		11 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.73 1.62	12 11	0.25 0.25	0.20 0.20	0.18 0.18	0.18 0.16	0.16 0.16	0.14 0.14	0.12 0.10	0.10 0.08	0.07 0.05	0.05								
		10 TPI	16E ^{1/2} 5501 5502	TNN32E ^{1/2} 5501 5502	0.10 0.20	1.92 1.80	14 13	0.25 0.25	0.23 0.23	0.23 0.20	0.20 0.18	0.18 0.16	0.16 0.12	0.12 0.10	0.10 0.08	0.08 0.05	0.05 0.02								
		9 TPI	16E ^{1/2} 5502	TNN32E ^{1/2} 5502	0.20	2.03	14	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.08	0.06	0.02				
	Internal Thread	24 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501	0.05 0.10	0.71 0.65	7 6	0.18 0.18	0.15 0.15	0.12 0.12	0.10 0.10	0.08 0.07	0.05 0.03												
		20 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501	0.05 0.10	0.87 0.81	8 7	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.06 0.06	0.06 0.05	0.05										
		18 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501	0.05 0.10	0.97 0.91	8 7	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.10 0.10	0.08 0.08	0.06 0.05	0.05										
		16 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501 5502	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501 5502	0.05 0.10 0.20	1.09 1.04 0.92	9 8 7	0.20 0.20 0.20	0.18 0.18 0.18	0.16 0.16 0.15	0.14 0.14 0.10	0.10 0.10 0.08	0.08 0.08 0.05	0.05											
		14 TPI	11I ^{1/2} 55005 16I ^{1/2} 5501 5502	TNN22I ^{1/2} 55005 TNN32I ^{1/2} 5501 5502	0.05 0.10 0.20	1.26 1.20 1.08	10 9 8	0.20 0.20 0.20	0.18 0.18 0.18	0.16 0.16 0.16	0.14 0.14 0.13	0.12 0.12 0.10	0.10 0.10 0.08	0.08 0.05	0.05										
		12 TPI	16I ^{1/2} 5501 5502	TNN32I ^{1/2} 5501 5502	0.10 0.20	1.42 1.30	10 9	0.25 0.25	0.20 0.22	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.10	0.10 0.08	0.05										
	11 TPI	16I ^{1/2} 5501 5502	TNN32I ^{1/2} 5501 5502	0.10 0.20	1.56 1.44	11 10	0.25 0.25	0.20 0.20	0.18 0.18	0.16 0.16	0.16 0.16	0.14 0.14	0.12 0.10	0.12 0.10	0.08 0.05	0.05									

<Note> 1) Select the insert with suitable corner-R(°) 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 cracking the insert at the 1st pass.

5) Coolant is recommended.

TT type (60° / 55° Partial Profile) Part 1

(ap shows the value of radial ap)

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

Depth of Cut & Number of Passes

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

(ap shows the value of radial ap)

Type	Pitch mm/TPI	Description	Corner-R (re)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Whitworth 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 5502	0.10 0.20	1.04 0.92	9 8	0.20 0.20	0.18 0.16	0.15 0.13	0.12 0.10	0.08 0.05	0.05 0.02	0.08 0.05	0.05 0.02	0.02								
	14 TPI	TT32 / 43% 5501 5502	0.10 0.20	1.20 1.08	10 9	0.20 0.20	0.18 0.16	0.15 0.14	0.12 0.10	0.08 0.05	0.05 0.02	0.10 0.08	0.08 0.05	0.05 0.02	0.02							
	12 TPI	TT32 / 43% 5501 5502	0.10 0.20	1.42 1.30	10 9	0.23 0.25	0.22 0.20	0.20 0.18	0.16 0.12	0.14 0.10	0.12 0.05	0.10 0.05	0.10 0.02	0.05 0.02	0.02							
	11 TPI	T32 / 43% 5501 5502 TT43% 5503	0.10 0.20 0.30	1.56 1.44 1.33	11 10 9	0.25 0.25 0.25	0.22 0.22 0.20	0.22 0.18 0.16	0.18 0.16 0.14	0.14 0.12 0.10	0.12 0.10 0.06	0.10 0.10 0.10	0.10 0.05 0.02	0.05 0.02	0.02							
	10 TPI	TT32 / 43% 5501 5502 TT43% 5503	0.10 0.20 0.30	1.73 1.61 1.50	12 11 10	0.25 0.25 0.25	0.22 0.22 0.20	0.20 0.18 0.17	0.18 0.16 0.14	0.15 0.12 0.10	0.14 0.12 0.10	0.14 0.12 0.10	0.12 0.10 0.05	0.10 0.05 0.02	0.05 0.02	0.02						
	9 TPI	TT43% 5501 5502 5503	0.10 0.20 0.30	1.93 1.82 1.70	13 12 11	0.25 0.25 0.25	0.23 0.23 0.22	0.22 0.20 0.18	0.20 0.18 0.16	0.18 0.16 0.15	0.16 0.14 0.12	0.14 0.12 0.10	0.12 0.10 0.05	0.10 0.05 0.02	0.08 0.05 0.02	0.05 0.02	0.02					
	8 TPI	TT43% 5501 5502 5503 5504	0.10 0.20 0.30 0.40	2.19 2.07 1.96 1.84	15 14 13 12	0.27 0.27 0.30 0.30	0.25 0.25 0.25 0.23	0.23 0.21 0.20 0.20	0.21 0.20 0.18 0.16	0.20 0.18 0.15 0.12	0.18 0.16 0.14 0.12	0.16 0.14 0.12 0.10	0.14 0.12 0.10 0.08	0.12 0.10 0.08 0.05	0.10 0.08 0.06 0.05	0.08 0.06 0.05 0.02	0.06 0.05 0.05 0.02	0.05 0.02	0.02			

TT type (60° Full Profile)

(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
Metric External Thread	1.00 mm	TT43E% 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05												
	1.25 mm	125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05											
	1.50 mm	150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05											
	2.00 mm	200M	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05							

TTX type (60° / 55° Partial Profile)

(ap shows the value of radial ap)

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

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

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

TPGB type (60° Partial Profile)

(ap shows the value of radial ap)

Type	Pitch mm/TPI	Description	Corner-R (re)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (55°)	Internal Thread	TPGB1102005 1103005	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02												
		TPGB1102005 1103005	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02												
		TPGB1102005 1103005	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02											
		TPGB1102005 1103005	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02										
		TPGB1102005 1103005	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02									
		110201 110301	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		TPGB1102005 1103005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.04	0.02								
		110301	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02								
		TPGB1102005 1103005	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02						
		110301	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02						
		TPGB1102005 1103005	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02				
		110301	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
Metric (55°)	Internal Thread	TPGB1102005 1103005	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.02				
		110301	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02		
		110302	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05				
		TPGB1102005 1103005	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.05	0.02		
		110301	0.10	2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02	
		110302	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02		

Lead Angle of Thread

Thread's Lead Angle β as shown in Fig.1 decides from the Workpiece Diameter. (Pitch Dia.)

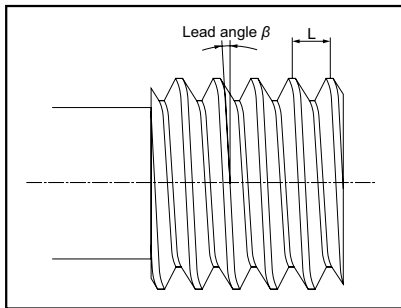
"D" and Lead "L" (in case of Single-start Thread, it is the same as Pitch "P").

Rolling a right-angled Triangle around a Cylinder and the Angle ACB in Fig.2 becomes the Lead Angle β .

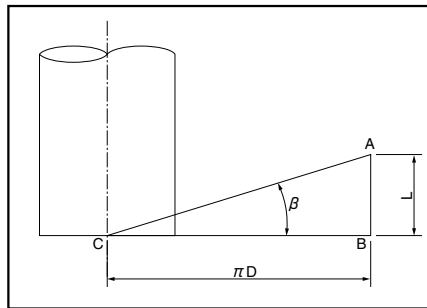
The Calculation Formula is shown as follows.

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

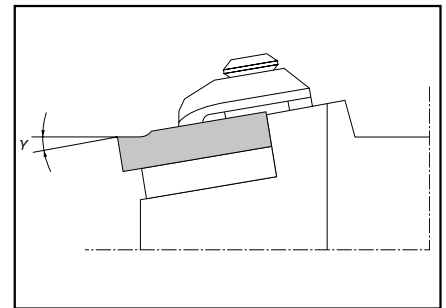
β : Lead Angle D: Pitch Dia. n: Number of Thread (Such as double-start thread) P: Pitch
L: Lead (In case of single-start thread, it is equal to P. In case of n-start thread, it is equal to $n \times P$.)



(Fig.1)



(Fig.2)

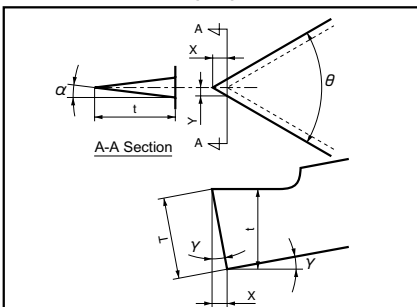


(Fig.3)

Relief Angle of Thread

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

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



(Fig.4)

Symbol	e.g.)
α : Side Relief Angle	
γ : Inclination Angle after Installing Insert	External Insert : 10° Internal Insert : 15°
θ : Insert's Thread Angle	Metric : 60° Tapered Pipe : 55° 30° Trapezoidal : 30°
T: Insert Thickness	

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

(Table1)

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

See table 1 for the Side Relief Angle depending on the insert type.

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

J



Threading

Applicable Toolholders & Inserts

The standard specification of the inch size thread is based on the dimension of 1/8 inch.

In Applicable Toolholder / Insert Lists on **J40~J43**, 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 **J46**.

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

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

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

Nominal Thread	TPI	External Thread (G)			Internal Thread (G, Rp)				Same Root's Radius
Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile		Partial Profile	Full Profile		
R ¹ / ₁₆ , Rc ¹ / ₁₆ (-)	28	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	(16ERA55-TF) (16ERAG55-TF) (16ERA55) (16ERAG55)	16ER28BSPT-TF 16ER28BSPT	SINR0612S-06E (HPT ⚡J24)	06IR5501	-		0.12
R ¹ / ₈ , Rc ¹ / ₈ (PT ¹ / ₈)									
R ¹ / ₄ , Rc ¹ / ₄ (PT ¹ / ₄)	19	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	(16ERA55-TF) (16ERAG55-TF) (16ERA55) (16ERAG55)	16ER19BSPT-TF 16ER19BSPT 16ER19BSPT-TS	SINR0816S-08E (HPT ⚡J24)	08IR5501	-		0.18
R ³ / ₈ , Rc ³ / ₈ (PT ³ / ₈)			SINR1216S-11E (HPT ⚡J24)	(11IRA55) (11IRA55005)	11IR19BSPT-TF 11IR19BSPT 11IR19BSPT-TS				
R ¹ / ₂ , Rc ¹ / ₂ (PT ¹ / ₂)	14	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	(16ERAG55-TF) (16ERG55-TF) (16ERAG55) (16ERG55)	16ER14BSPT-TF 16ER14BSPT 16ER14BSPT-TS	SINR1516S-11	(11IR55005)	11IR14BSPT-TF 11IR14BSPT-TS		0.25
R ³ / ₄ , Rc ³ / ₄ (PT ³ / ₄)			SINR2016S-16		16IR14BSPT-TF 16IR14BSPT 16IR14BSPT-TS				
R 1, Rc 1 (PT 1)	11	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	(16ERAG55-TF) (16ERG55-TF) (16ERAG55) (16ERG55)	16ER11BSPT-TF 16ER11BSPT 16ER11BSPT-TS	SINR2420S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR11BSPT-TF 16IR11BSPT 16IR11BSPT-TS		0.32
R 1¼, Rc 1¼ (PT 1¼)					CINR3025S-16				
R 1½, Rc 1½ (PT 1½)					CINR3732S-16				
		Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for R1 ½ is recommended.			Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for Rc1 ½ is recommended.				

1) The largest size of minimum diameter holder is recommended for internal threading holders.

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

(ex.) SINR2420S-16 (Min. Bore Dia.: ø24mm) is recommended for the Tool of G7/8 Internal Threading from the above Table, but SINR2016S-16 can also be used.

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

American National Tapered Pipe: NPT

Nominal Thread	TPI	External Thread			Internal Thread				
		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile		Partial Profile	Full Profile		
$\frac{1}{16}$ NPT $\frac{1}{8}$ NPT	27	KTTR ○○○○□ -16 KTTRX ○○○○□ -16F	TT32R6000 TTX32R6000	-	No Tools Available				
$\frac{1}{4}$ NPT $\frac{3}{8}$ NPT	18	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	-	16ER18NPT	PSH Sleeve (See J26)	HPTR06005-60-005 HPTR07507-60-005	-		
$\frac{1}{2}$ NPT $\frac{3}{4}$ NPT	14	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	-	16ER14NPT	PSH Sleeve (See J26)	HPTR07507-60-005	-		
$\frac{1}{2}$ NPT	14	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	-	16ER14NPT	No Tools Available				
$\frac{3}{4}$ NPT					SINR2016S-16	-	16IR14NPT		
1 NPT	11.5	KTNR ○○○○□ -16 KTNSR ○○○○□ -16	-	16ER11.5NPT	SINR2420S-16	-	16IR11.5NPT		
1 $\frac{1}{4}$ NPT					CINR3025S-16				
1 $\frac{1}{2}$ NPT 2 NPT					CINR3732S-16				

• Application of NPTF Thread

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

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

30°Trapezoidal: Tr

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

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

• TM Thread

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

• TW Thread

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

J



Threading

Applicable Toolholders & Inserts (Internal)

Metric Coarse Thread: M

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
M1 • • • M3	0.25	No Tools Available	—	—	0.73 • • • 2.46
M4	0.5				3.24
M5	0.7				4.13
M6	0.8				4.92
M7	1.0	—	HPTR04504-60 / VNTR045-11		5.92
M8	1.25	—	HPTR06005-60 / VNTR060-11		6.65
		SINR0612S-06E	06IR60005	—	
M9	1.25	SINR0612S-06E	06IR60005	—	7.65
M10	1.5	SINR0816S-08E	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				17.29
M22	2.5				19.29
M24	3.0	SINR2016S-16	Table 4	16IR300ISO-○○	20.75
M27	3.0				23.75
M30	3.5	SINR2420S-22	22IRN60	22IR350ISO	26.21
M33	3.5			22IR400ISO	29.21
M36	4.0	CINR3025S-22		22IR450ISO	31.67
M39	4.0				34.67
M42	4.5	CINR3732S-22			37.19
M45	4.5				40.19
M48	5.0	CINR3732S-22		22IR500ISO	42.59
M52	5.0				46.59
M56 • • •	5.5	* Threading of M56 and over is not available due to too large pitch size.			50.05 • • •

Metric Fine Thread: M

Part 2

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
M17X1.5 M17X1.0	1.5 1.0	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-○○ 11IR100ISO-○○	15.38 15.92
M18X2.0	2.0	SINR1216S-11E	—	11IR200ISO	15.84
M18X1.5 M18X1.0	1.5 1.0	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-○○ 11IR100ISO-○○	16.38 16.92
M20X2.0	2.0	—	—	11IR200ISO	17.84
M20X1.5 M20X1.0	1.5 1.0	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-○○ 11IR100ISO-○○	18.38 18.92
M22X2.0	2.0	SINR2016S-16 (Additional machining required)	Table1	16IR200ISO-○○	19.84
M22X1.5	1.5	SINR2016S-16	Table2	16IR150ISO-○○	20.38
M22X1.0	1.0		Table3	16IR100ISO-○○	20.92
M24X2.0	2.0	SINR2016S-16	Table1	16IR200ISO-○○	21.84
M24X1.5	1.5		Table2	16IR150ISO-○○	22.38
M24X1.0	1.0		Table3	16IR100ISO-○○	22.92
M25X2.0	2.0	SINR2016S-16	Table1	16IR200ISO-○○	22.84
M25X1.5	1.5		Table2	16IR150ISO-○○	23.38
M25X1.0	1.0		Table3	16IR100ISO-○○	23.92
M26X1.5	1.5	SINR2420S-16	Table2	16IR150ISO-○○	24.38
M27X2.0	2.0	SINR2420S-16	Table1	16IR200ISO-○○	24.84
M27X1.5	1.5		Table2	16IR150ISO-○○	25.38
M27X1.0	1.0		Table3	16IR100ISO-○○	25.92
M28X2.0	2.0	SINR2420S-16	Table1	16IR200ISO-○○	25.84
M28X1.5	1.5		Table2	16IR150ISO-○○	26.38
M28X1.0	1.0		Table3	16IR100ISO-○○	26.92
M30X3.0	3.0	SINR2420S-22	—	22IR300ISO	26.75
M30X2.0	2.0	SINR2420S-16	Table4	16IR300ISO-○○	27.84
M30X1.5	1.5	SINR2420S-16	Table1	16IR200ISO-○○	27.84
M30X1.0	1.0		Table2	16IR150ISO-○○	28.38
M32X2.0	2.0	SINR2420S-16	Table3	16IR100ISO-○○	28.92
M32X1.5	1.5	SINR2420S-16	Table1	16IR200ISO-○○	29.84
M32X1.0	1.0	CINR3025S-16	Table2	16IR150ISO-○○	30.38
M33X3.0	3.0	SINR2420S-22	—	22IR300ISO	29.75
M33X2.0	2.0	SINR2420S-16	Table4	16IR300ISO-○○	30.84
M33X1.5	1.5	CINR3025S-16	Table1	16IR200ISO-○○	30.84
M35X1.5	1.5	CINR3025S-16	Table2	16IR150ISO-○○	31.38
M36X3.0	3.0	CINR3025S-22	—	22IR300ISO	32.75
M36X2.0	2.0	CINR3025S-16	Table4	16IR300ISO-○○	32.75
M36X1.5	1.5	CINR3025S-16	Table1	16IR200ISO-○○	33.84
M38X1.5	1.5	CINR3025S-16	Table2	16IR150ISO-○○	34.38
M39X3.0	3.0	CINR3025S-22	—	22IR300ISO	35.75
M39X2.0	2.0	CINR3025S-16	Table4	16IR300ISO-○○	36.84
M39X1.5	1.5	CINR3025S-16	Table1	16IR200ISO-○○	36.84
M40X3.0	3.0	CINR3025S-22	—	22IR300ISO	37.38
M40X2.0	2.0	CINR3025S-16	Table2	16IR150ISO-○○	37.38
M40X1.5	1.5	CINR3732S-16	Table1	16IR200ISO-○○	37.84
M42X4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	38.38
M42X3.0	3.0	CINR3732S-16	—	22IR300ISO	37.67
M42X2.0	2.0	CINR3732S-16	Table4	16IR300ISO-○○	38.75
M42X1.5	1.5	CINR3732S-16	Table1	16IR200ISO-○○	39.84
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)			40.38 • • •

Table1 (P=2mm)

16IRG60 16IRAG60 16IR6001(-TS)

Table2 (P=1.5mm)

16IRA60 16IRAG60 16IR6001(-TS)

Table3 (P=1.0mm)

16IRA60 16IRAG60

Table4 (P=3mm)

16IRG60 16IRAG60

Metric Fine Thread: M

Part 1

Nominal Thread	Pitch (mm)	Internal Thread			Bore Dia.		
		Toolholder	Insert				
			Partial Profile	Full Profile			
M 1×0.2 • • • M 5.5×0.5	0.2 0.5	No Tools Available	—	—	0.78 • • • 4.96		
M 6×0.75	0.75				—	HPTR04504-60 / VNTR045-11	5.19
M 7×0.75	0.75				—	HPTR06005-60 / VNTR045-11	6.20
M 8×1.0	1.0				—	HPTR06005-60 / VNTR060-11	6.92
M 8×0.75	0.75	—	HPTR06005-60 / VNTR060-11		7.19		
		SINR0612S-06E	06IR60005	—			
M 9×1.0	1.0	—	HPTR07507-60 / VNTR060-11		7.92		
		SINR0612S-06E	06IR60005	—			
		SINR0816S-08E	08IR60007				
M 9×0.75	0.75	—	HPTR07507-60 / VNTR060-11		8.19		
		SINR0612S-06E	06IR60005	—			
M10×1.25	1.25	—	HPTR07507-60 / VNTR060-11		8.65		
M10×1.0	1.0	SINR0816S-08E	08IR60007	—	8.92		
		—	HPTR07507-60 / VNTR060-11	—			
M10×0.75	0.75	SINR0816S-08E	08IR60007	—	9.19		
		—	HPTR07507-60 / VNTR060-11	—			
M11×1.0	1.0	SINR0612S-06E	06IR60005	—	9.92		
		—	HPTR07507-60 / VNTR060-11	—			
		SINR0816S-08E	08IR60007	—			
M11×0.75	0.75	—	HPTR07507-60 / VNTR060-11		10.19		
		SINR0612S-06E	06IR60005	—			
M12×1.5	1.5	SINR0816S-08E	08IR60007	—	10.38		
M12×1.25	1.25				10.65		
M12×1.0	1.0				10.92		
M14×1.5	1.5	SINR1216S-11E	11IRA60	11IR150ISO- OO	12.38		
M14×1.25	1.25		11IR60005	11IR125ISO- OO	12.65		
M14×1.0	1.0		—	11IR100ISO- OO	12.92		
M15×1.5	1.5	SINR1216S-11E	11IRA60	11IR150ISO- OO	13.38		
	1.0		11IR60005	11IR100ISO- OO	13.92		
M16×1.5	1.5	SINR1216S-11E	11IRA60	11IR150ISO- OO	14.38		
	1.0		11IR60005	11IR100ISO- OO	14.92		

•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 • • • 10-24 UNC	56 24	No Tools Available	—	—	1.69 • • • 3.68
1/4-20 UNC	20	—	HPTR04504-60 / VNTR045-11		4.98
5/16-18 UNC	18	—	HPTR06005-60 / VNTR060-11		6.41
3/8-16 UNC	16	—	HPTR07507-60-005		7.81
7/16-14 UNC	14	No Tools Available			9.15
1/2-13 UNC	13				10.58
9/16-12 UNC	12				12.00
5/8-11 UNC	11				13.38
3/4-10 UNC	10				16.30
7/8- 9 UNC • • •	9	* 3/8-16 UNC and over cannot be machined, because no inserts are available for the TPI.			19.17

Unified Fine Thread: UNF

Nominal Thread	TPI	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
0-80 UNF • • • 10-32 UNF	80 32	No Tools Available	—	—	1.18 • • • 3.97
1/4-28 UNF	28				—
5/16-24 UNF	24	—	HPTR06005-60 / VNTR060-11		6.79
		SINR0612S-06E	06IR60005		
3/8-24 UNF	24	—	HPTR06005-60 / VNTR060-11		8.38
		SINR0612S-06E	06IR60005		
7/16-20 UNF	20	SINR0816S-08E	08IR60007	—	9.74
1/2-20 UNF	20				11.33
9/16-18 UNF	18	SINR1216S-11E	11IRA60	—	12.76
5/8-18 UNF	18		11IR60005		14.35
3/4-16 UNF	16	SINR1516S-11	11IRA60 11IR60005	—	17.33
7/8-14 UNF	14	SINR2016S-16		16IR14UN(-TF)	20.26
1 -12 UNF	12	SINR2016S-16	16IRAG60 16IRG60 16IR6001(-TS)	16IR12UN(-TF)	23.10
1 1/8-12 UNF	12	SINR2420S-16			26.28
1 1/4-12 UNF	12				29.46
1 3/8-12 UNF	12	CINR3025S-16			32.63
1 1/2-12 UNF	12				36.81

Whitworth Coarse Thread: W

Nominal Thread	TPI	Internal Thread			Bore Dia.
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4 W 5/16	20 18	No Tools Available	—	—	4.91 6.34
W 3/8	16	No Tools Available			7.73
W 7/16	14				9.06
W 1/2	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				19.03
W 1	8	SINR2016S-16	16IRAG55 16IRG55	—	21.80
W 1 1/8 W 1 1/4	7 7	SINR2420S-22	22IRN55	—	24.47 27.64
W 1 3/8 W 1 1/2	6 6	CINR3025S-22	22IRN55	—	30.13 33.30
W 1 5/8	5				35.52
W 1 3/4	5	CINR3732S-22	22IRN55	—	38.69
W 1 7/8	4 1/2	* Because the toolholder does not fit to the pre-drilled hole or the insert does not match to the TPI, machining is not possible.			41.23
W 2					44.41
W 2 1/4	4				

Whitworth Fine Thread: W

Nominal Thread	TPI	Internal Thread				
		Toolholder	Insert		Bore Dia.	
			Partial Profile	Full Profile		
W9.5 TPI 24 W10 TPI 24 W10.5 TPI 24	24	SINR0816S-08E	08IR5501	—	8.30 8.80 9.30	
—		HPTR06005-55				
W9.5 TPI 20 W10 TPI 20 W10.5 TPI 20 W11 TPI 20 W11.5 TPI 20 W12 TPI 20 W12.5 TPI 20 W13 TPI 20 W13.5 TPI 20		SINR0816S-08E	08IR5501		—	8.06 8.56 9.06 9.56 10.06 10.56 11.06 11.56
—	HPTR06005-55 HPTR08007-55					
20	SINR1216S-11E	11IR55005	—	12.06		
W11 TPI 18 W11.5 TPI 18 W12 TPI 18 W12.5 TPI 18 W14 TPI 18 W14.5 TPI 18 W15 TPI 18 W16 TPI 18	18	—	HPTR08007-55-010		9.40 9.90 10.40 10.90	
—	18	SINR1216S-11E	11IRA55 11IR55005	—	12.40 12.90 13.40 14.40	
W13 TPI 16 W13.5 TPI 16 W14 TPI 16 W14.5 TPI 16 W15 TPI 16 W17 TPI 16 W18 TPI 16 W19 TPI 16 W20 TPI 16	16	No Tools Available				11.20 11.70
—	16	SINR1216S-11E	11IRA55 11IR55005	—	12.20 12.70 13.20 15.20 16.20 17.20 18.20	
W16 TPI 14 W17 TPI 14 W18 TPI 14 W21 TPI 14 W22 TPI 14 W23 TPI 14 W24 TPI 14 W25 TPI 14 W26 TPI 14	14	SINR1216S-11E	11IR55005	—	13.94 14.94	
—	14	SINR1516S-11	11IR55005		15.94 18.94 19.94	
—	14	SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502		(16IR14W-TF) (16IR14W-TS) (16IR14W) 20.94 21.94 22.94 23.94	
W19 TPI 12 W20 TPI 12 W21 TPI 12 W22 TPI 12 W28 TPI 12 W30 TPI 12 W32 TPI 12 W34 TPI 12 W35 TPI 12 W36 TPI 12 W38 TPI 12 W40 TPI 12 W42 TPI 12 W44 TPI 12 W45 TPI 12 W46 TPI 12 W48 TPI 12 W50 TPI 12 • •	12	No Tools Available				16.60 17.60 18.60 19.60
—	12	SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502	—	25.60 27.60 29.60	
—	12	CINR3025S-16		—	31.60 32.60 33.60 35.60	
—	12	CINR3732S-16		—	37.60 39.60 41.60 42.60 43.60 45.60 47.60	
* Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.						• •
W23 TPI 10 W24 TPI 10 W25 TPI 10 W26 TPI 10	10	SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502	—	20.12 21.12 22.12 23.12	
W28 TPI 9 W30 TPI 9 W32 TPI 9	9	SINR2420S-16		—	24.80 26.80 28.80	
W34 TPI 8 W35 TPI 8 W36 TPI 8 W38 TPI 8 W40 TPI 8 W42 TPI 8	8	CINR3025S-16		—	30.40 31.40 32.40 34.40 36.40 38.40	
W44 TPI 7 W45 TPI 7 W46 TPI 7 W48 TPI 7 W50 TPI 7 W52 TPI 7	7	CINR3732S-22	22IRN55	—	39.89 40.89 41.89 43.89 45.89 47.89	
W55 TPI 6 W58 TPI 6 W60 TPI 6 W62 TPI 6 • W72 TPI 6	6	CINR3732S-22	22IRN55	—	50.20 53.20 55.20 57.20 • 67.20	
W75 TPI 5 • • W105 TPI 5	5	CINR3732S-22	22IRN55	—	69.24 • • 99.24	
W110 TPI 4 • •	4	* For 4 and more TPI Whitworth Fine Thread cannot be machined because the insert does not match to the TPI.				102.8 • •

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

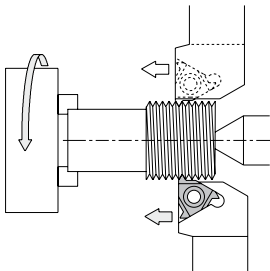
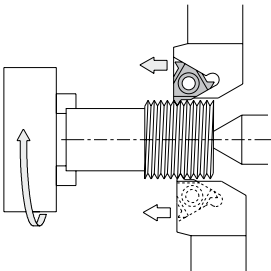
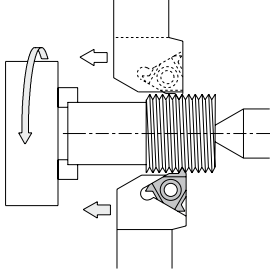
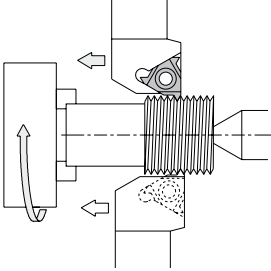
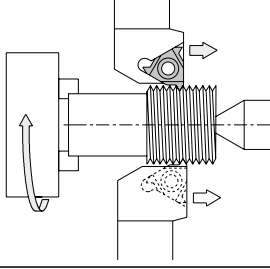
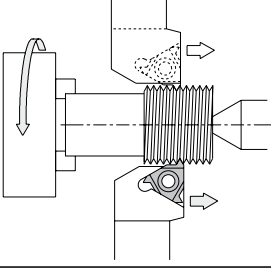
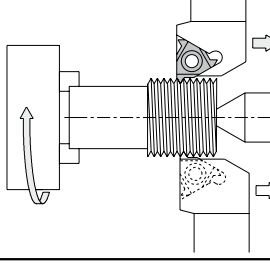
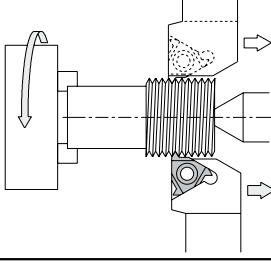
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Threading

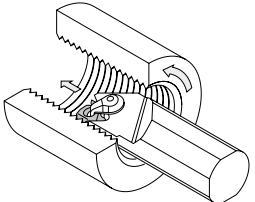
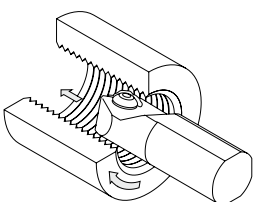
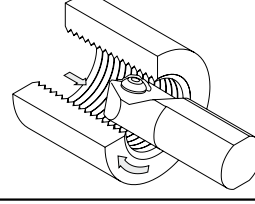
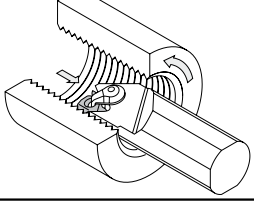
Threading Methods

External Threading (R-hand Thread / L-hand Thread)

External Threading					
R-hand Thread			L-hand Thread		
Toolholder	R-hand		Toolholder	L-hand	
Insert	R-hand		Insert	L-hand	
The direction of spindle revolution	M03		The direction of spindle revolution	M04	
Toolholder	L-hand		Toolholder	R-hand	
Insert	L-hand		Insert	R-hand	
The direction of spindle revolution	M03		The direction of spindle revolution	M04	
Toolholder	R-hand		Toolholder	L-hand	
Insert	R-hand		Insert	L-hand	
The direction of spindle revolution	M04		The direction of spindle revolution	M03	
Toolholder	L-hand		Toolholder	R-hand	
Insert	L-hand		Insert	R-hand	
The direction of spindle revolution	M04		The direction of spindle revolution	M03	

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

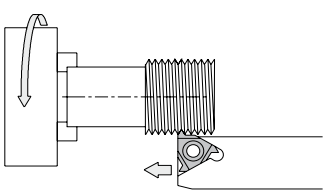
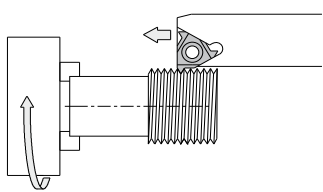
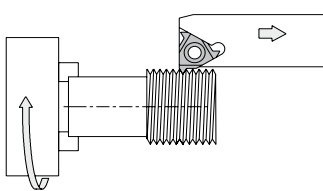
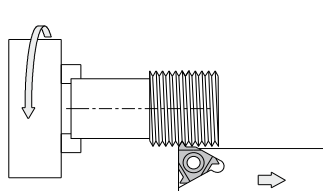
Internal Threading (R-hand Thread / L-hand Thread)

Internal Threading					
R-hand Thread			L-hand Thread		
	Toolholder	R-hand		Toolholder	L-hand
	Insert	R-hand		Insert	L-hand
	The direction of spindle revolution	M03		The direction of spindle revolution	M04
	Toolholder	L-hand		Toolholder	R-hand
	Insert	L-hand		Insert	R-hand
	The direction of spindle revolution	M04		The direction of spindle revolution	M03

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

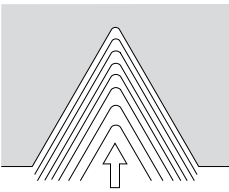
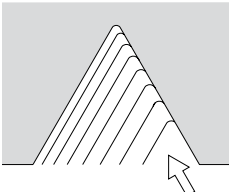
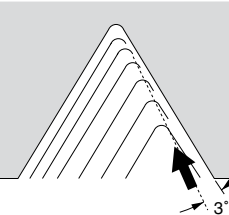
For KITG type (for large internal threading), L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Internal threading tool holder and the method of cutting “External Thread”

External Threading					
R-hand Thread			L-hand Thread		
Toolholder	L-hand		Toolholder	R-hand	
Insert	L-hand		Insert	R-hand	
The direction of spindle revolution	M03		The direction of spindle revolution	M04	
Toolholder	R-hand		Toolholder	L-hand	
Insert	R-hand		Insert	L-hand	
The direction of spindle revolution	M04		The direction of spindle revolution	M03	

• Use Inserts with Partial Profile.

Infeed Methods

Infeed Methods	Features
 <p>Radial Infeed</p>	<ul 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>Flank Infeed</p>	<ul 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>Flank Compound Infeed</p>	<ul style="list-style-type: none"> • Revised compound methods of the above flank infeed method. • No “No ap.” condition. • Chips flow to one side. • This method is recommended to threading by 2-thread insert.

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Threading

Thread Types & Basic Profile

Thread Types & Basic Profile / Applicable Toolholders & Inserts

	Basic Profile	Symbol (Previous Symbol)	Type	Applicable Insert	Applicable Toolholder
Metric		M e.g.) M30	External	○○ E% $\frac{1}{4}$ ○○○ ISO 16E% $\frac{1}{4}$ ○○○ ISO-TF 16E% $\frac{1}{4}$ ○○○ M02 16E% $\frac{1}{4}$.60 ○○ (-TS) TT 43E% $\frac{1}{4}$ ○○○ M TT ○○ % $\frac{1}{4}$.60 ○○ TTX32% $\frac{1}{4}$.60 ○○	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNSR ○○○○□-16 KTT% $\frac{1}{4}$ ○○○○□-○○ KTTX% $\frac{1}{4}$ ○○○○□-16F, S ○○□-KTTX% $\frac{1}{4}$.16
Unified		UN UNC UNF UNE F e.g.) $\frac{3}{4}$-16 UNF	External	○○ E% $\frac{1}{4}$ ○○○ UN-TF 16E% $\frac{1}{4}$.60 ○○ (-TS) TT ○○ % $\frac{1}{4}$.60 ○○ TTX32% $\frac{1}{4}$.60 ○○	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNS% $\frac{1}{4}$ ○○○○□-16 KTT% $\frac{1}{4}$ ○○○○□-○○ KTTX% $\frac{1}{4}$ ○○○○□-16F, S ○○□-KTTX% $\frac{1}{4}$.16
Parallel Pipe		External: G (PF) Internal: G (PF) Rp (PS) e.g.) G$\frac{3}{4}$ (PF$\frac{3}{4}$)	External	○○ E% $\frac{1}{4}$ ○○○ W 16E% $\frac{1}{4}$ ○○○ W-TF 16E% $\frac{1}{4}$.55 ○○ TT ○○ % $\frac{1}{4}$.55 ○○ TTX32% $\frac{1}{4}$.55 ○○	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNSR ○○○○□-16 KTT% $\frac{1}{4}$ ○○○○□-○○ KTTX% $\frac{1}{4}$ ○○○○□-16F, S ○○□-KTTX% $\frac{1}{4}$.16
Whitworth		W e.g.) W$\frac{3}{8}$	External	○○ E% $\frac{1}{4}$ ○○○ W 16E% $\frac{1}{4}$ ○○○ W-TF 16E% $\frac{1}{4}$.55 ○○ TT ○○ % $\frac{1}{4}$.55 ○○ TTX32% $\frac{1}{4}$.55 ○○	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNS% $\frac{1}{4}$ ○○○○□-16 KTT% $\frac{1}{4}$ ○○○○□-○○ KTTX% $\frac{1}{4}$ ○○○○□-16F, S ○○□-KTTX% $\frac{1}{4}$.16
Tapered Pipe		External: R (PT) (BSPT) Internal: Rc (PT) (BSPT) e.g.) R$\frac{1}{2}$ (PT$\frac{1}{2}$)	External	○○ E% $\frac{1}{4}$ ○○○ PT 16E% $\frac{1}{4}$ ○○○ PT-TS TT ○○ % $\frac{1}{4}$.55 ○○ * TTX32% $\frac{1}{4}$.55 ○○ *	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNS% $\frac{1}{4}$ ○○○○□-16 KTT% $\frac{1}{4}$ ○○○○□-○○ KTTX% $\frac{1}{4}$ ○○○○□-16F, S ○○□-KTTX% $\frac{1}{4}$.16
American National Tapered Pipe		NPT e.g.) $\frac{3}{8}$-18 NPT	External	○○ E% $\frac{1}{4}$ ○○○ NPT	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNS% $\frac{1}{4}$ ○○○○□-16
Trapezoidal 30°		Tr e.g.) Tr 26×3	External	○○ E% $\frac{1}{4}$ ○○○ Tr	KTN% $\frac{1}{4}$ ○○○○□-○○ KTNS% $\frac{1}{4}$ ○○○○□-16
			Internal	○○ I% $\frac{1}{4}$ ○○○ Tr	SIN% $\frac{1}{4}$ ○○○○ S-○○ CIN% $\frac{1}{4}$ ○○○○ S-○○

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