

# Threading

**J1~J54**

**Summary of External Threading / Summary of Internal Threading** J2

**Product Introduction** J4

**Summary of Threading Inserts** J5

**Threading Inserts (External / Internal)** J6~J19

Metric (M)	J6
Unified (UN)	J8
Parallel Pipe [G (PF)] Whitworth (W)	J10
Tapered Pipe [R, Rc(PT) (BSPT)]	J12
American National Tapered Pipe (NPT)	J14
60° Type (Partial Profile / M, UN)	J16
55° Type [Partial Profile / G(PF), R, Rc(PT) (BSPT), W]	J18
30° Trapezoidal	J18

**Threading Toolholders (External / Internal)** J20~J37

KTN / KTNS	J20	
KTN-JCT	Coolant-through Holders	J21
S-KTN	Sleeve Holder	J22
SIN / CIN	J23	
KTKF	Small Parts Machining	J24
KTKF (Goose-neck Holder)	Small Parts Machining	J24
KTKF-Y Y-axis Toolholder	Small Parts Machining	J24
KTTX	Small Parts Machining	J28
S-KTTX	Sleeve Holder	J28
KTT	J30	
KITG	J31	
EZT	EZ Bars	J32
VNT	System Tip-Bars	J36
S-STWP / S-STWP-E	J37	

**Technical Information** J38~J54

Recommended Cutting Conditions	J38
Applicable Toolholders & Inserts	J48
Threading Methods	J52
Lead Angle & Relief Angle of Thread	J53
Thread Types & Basic Profile	J54



# Summary of External Threading

## Tooling Application Table (External Thread)

Thread Types	Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal	
	M	UN, UNC UNF, UNEF	G(PF)	W	R(PT) (BSPT)	NPT	Tr	
Thread shape								
Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm	
<b>KTN</b> ⚡ <b>J20</b> <b>(KTN-JCT)</b> ⚡ <b>J21</b> 	Full Profile	0.5~5.0 (0.5~3.0) ⚡ <b>J6</b>	24~8 (24~8) ⚡ <b>J8</b>	19~11 (19~11) ⚡ <b>J10</b>	16~11 (16~11) ⚡ <b>J10</b>	28~11 (28~11) ⚡ <b>J12</b>	18~11.5 (18~11.5) ⚡ <b>J14</b>	-
	Partial Profile	0.5~5.0 (0.5~3.0) ⚡ <b>J16</b>	48~5 (48~8) ⚡ <b>J16</b>	28~11 (28~11) ⚡ <b>J18</b>	40~5 (40~8) ⚡ <b>J18</b>	28~11 (28~11) ⚡ <b>J18</b>	-	2.0~5.0 (2.0~3.0) ⚡ <b>J18</b>
<b>KTNS</b> ⚡ <b>J20</b> 	Full Profile	0.5~3.0 ⚡ <b>J6</b>	24~8 ⚡ <b>J8</b>	19~11 ⚡ <b>J10</b>	16~11 ⚡ <b>J10</b>	28~11 ⚡ <b>J12</b>	18~11.5 ⚡ <b>J14</b>	-
	Partial Profile	0.5~3.0 ⚡ <b>J16</b>	48~8 ⚡ <b>J16</b>	28~11 ⚡ <b>J18</b>	40~8 ⚡ <b>J18</b>	28~11 ⚡ <b>J18</b>	-	2.0~3.0 ⚡ <b>J18</b>
<b>S-KTN</b> ⚡ <b>J22</b> Sleeve Holder 	Full Profile	1.0~2.0 ⚡ <b>J30</b>	-	-	-	-	-	-
	Partial Profile	0.5~3.5 ⚡ <b>J30</b>	56~8 ⚡ <b>J30</b>	28~11 ⚡ <b>J30</b>	24~7 ⚡ <b>J30</b>	28~11 ⚡ <b>J30</b>	-	-
<b>KTT</b> ⚡ <b>J30</b> 	Full Profile	0.5~2.0 ⚡ <b>J29</b>	56~14 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	24~11 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	-	-
	Partial Profile	0.5~2.0 ⚡ <b>J29</b>	56~14 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	24~11 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	-	-
<b>KTTX</b> ⚡ <b>J28</b> 	Full Profile	0.5~2.0 ⚡ <b>J29</b>	56~14 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	24~11 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	-	-
	Partial Profile	0.5~2.0 ⚡ <b>J29</b>	56~14 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	24~11 ⚡ <b>J29</b>	28~11 ⚡ <b>J29</b>	-	-
<b>S-KTTX</b> ⚡ <b>J28</b> 	Full Profile	0.2~1.5 ⚡ <b>J25</b>	64~18 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	40~16 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	-	-
	Partial Profile	0.2~1.5 ⚡ <b>J25</b>	64~18 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	40~16 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	-	-
<b>KTTF</b> ⚡ <b>J24</b> 	Full Profile	0.2~1.5 ⚡ <b>J25</b>	64~18 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	40~16 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	-	-
	Partial Profile	0.2~1.5 ⚡ <b>J25</b>	64~18 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	40~16 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	-	-
<b>KTTF / KTTF-Y</b> ⚡ <b>J24</b> (Goose-neck Holder / Y-axis Toolholder) 	Full Profile	0.2~1.5 ⚡ <b>J25</b>	64~18 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	40~16 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	-	-
	Partial Profile	0.2~1.5 ⚡ <b>J25</b>	64~18 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	40~16 ⚡ <b>J25</b>	28~19 ⚡ <b>J25</b>	-	-

· Threading Inserts Identification System

Full Profile ⚡ **J6**

Partial Profile ⚡ **J16**

· Pitch inside ( ) indicates KTN-JCT(Coolant-through Holders).

# Summary of Internal Threading

## Tooling Application Table (Internal Thread)

Thread Types	Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal
	M	UN, UNC UNF, UNEF	G(PF) Rp(PS)	W	Rc(PT) (BSPT)	NPT	Tr
Thread shape							
Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm
Toolholder Shape							
<b>EZT</b> ⚙️ <b>J32</b> 	Partial Profile 0.5~1.75 ⚙️ <b>J32</b>	36~16 ⚙️ <b>J32</b>	28~19 ⚙️ <b>J32</b>	24~18 ⚙️ <b>J32</b>	28~19 ⚙️ <b>J32</b>	18~14 ⚙️ <b>J32</b>	-
<b>VNT</b> ⚙️ <b>J36</b> 	Partial Profile 0.75~1.5 ⚙️ <b>J36</b>	28~18 ⚙️ <b>J36</b>	-	-	-	-	-
<b>SIN</b> ⚙️ <b>J23</b> 	Full Profile 0.5~5.0 ⚙️ <b>J7</b>	24~8 ⚙️ <b>J9</b>	19~11 ⚙️ <b>J11</b>	16~11 ⚙️ <b>J11</b>	28~11 ⚙️ <b>J13</b>	18~11.5 ⚙️ <b>J15</b>	-
	Partial Profile 0.5~5.0 ⚙️ <b>J17</b>	48~5 ⚙️ <b>J17</b>	28~11 ⚙️ <b>J19</b>	40~5 ⚙️ <b>J19</b>	28~11 ⚙️ <b>J19</b>	-	2.0~5.0 ⚙️ <b>J19</b>
<b>CIN</b> ⚙️ <b>J23</b> 	Full Profile 1.0~5.0 ⚙️ <b>J7</b>	24~8 ⚙️ <b>J9</b>	19~11 ⚙️ <b>J11</b>	16~11 ⚙️ <b>J11</b>	14~11 ⚙️ <b>J13</b>	18~11.5 ⚙️ <b>J15</b>	-
	Partial Profile 0.5~5.0 ⚙️ <b>J17</b>	48~5 ⚙️ <b>J17</b>	28~11 ⚙️ <b>J19</b>	40~5 ⚙️ <b>J19</b>	28~11 ⚙️ <b>J19</b>	-	2.0~5.0 ⚙️ <b>J19</b>
<b>KITG</b> ⚙️ <b>J31</b> 	Partial Profile 0.5~3.0 ⚙️ <b>J31</b>	48~8 ⚙️ <b>J31</b>	28~11 ⚙️ <b>J31</b>	24~8 ⚙️ <b>J31</b>	28~11 ⚙️ <b>J31</b>	-	-
<b>STWP</b> ⚙️ <b>J37</b> 	Partial Profile 0.75~3.5 ⚙️ <b>J37</b>	28~8 ⚙️ <b>J37</b>	-	-	-	-	-

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

Insert Grades  
Turnings  
Indexable Inserts  
CNC & PCO Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for  
Turning Mill  
Spare Parts  
Technical  
Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

Threading Insert with Molded Chipbreaker

## TQ Chipbreaker

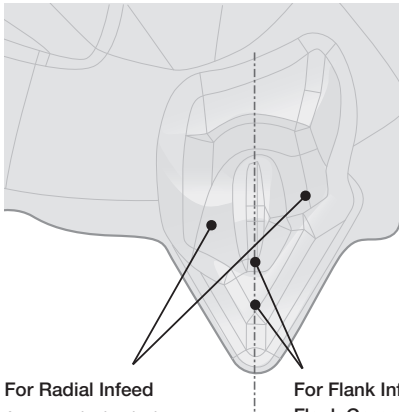
Advanced Productivity with Chip Control Improvement  
Improved Tool Life with Newly Added Grades

### 1 Stable Chip Control

Stable Chip Control with Asymmetric Chipbreaker Design

#### Chipbreaker Geometry

Stable chip control regardless of cutting direction



For Radial Infeed

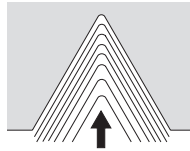
Asymmetric dot design controls chip-flow direction

For Flank Infeed / Flank Compound Infeed

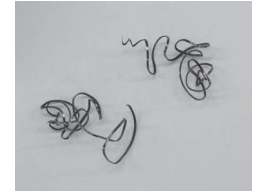
Breaks chips easily with shallow chipbreaker depth

#### Chip Control Comparison (Internal evaluation)

##### Radial Infeed

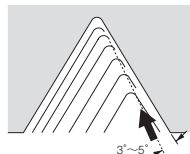


TQ Chipbreaker



Competitor A

##### Flank Compound Infeed



TQ Chipbreaker



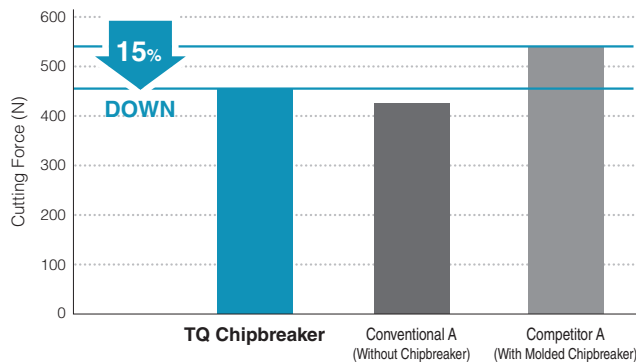
Competitor A

Cutting Conditions :  $V_c = 150\text{m/min}$ ,  $a_p = 0.12\text{ mm}$  (4th Pass),  $L = 25\text{ mm}$ , Wet, 16ER150ISO type, M45 x TP1.5 Workpiece Material : SCM415

### 2 Low Cutting Force and Resists Vibration

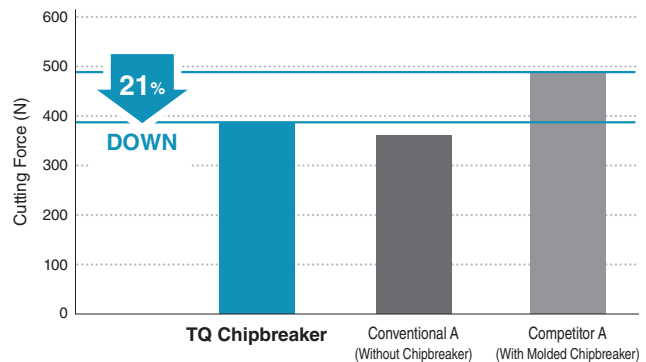
Strong Edge and Low Cutting Force

#### Cutting Force Comparison Radial Infeed (Internal evaluation)



Cutting Conditions :  $V_c = 150\text{ m/min}$ , Wet, 16ER150ISO type  
Cutting force is average in total passes (6 passes), M35 x TP1.5 Workpiece Material : SCM415

#### Cutting Force Comparison Flank Compound Infeed (Internal evaluation)



Cutting Conditions :  $V_c = 150\text{ m/min}$ , Adjusted Angle :  $5^\circ$ , Wet, 16ER150ISO type  
Cutting force is average in total passes (6 passes), M35 x TP1.5 Workpiece Material : SCM415

# 3

## Improved Tool Life with Newly Added Grades

For Steel Machining

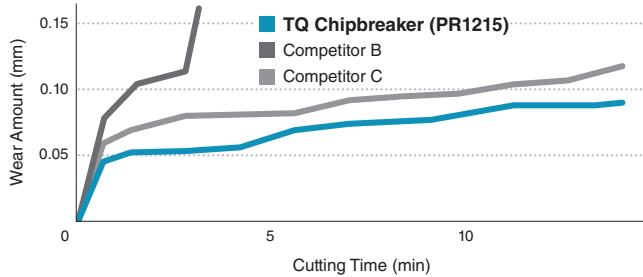
PR1215

For Stainless Steel Machining

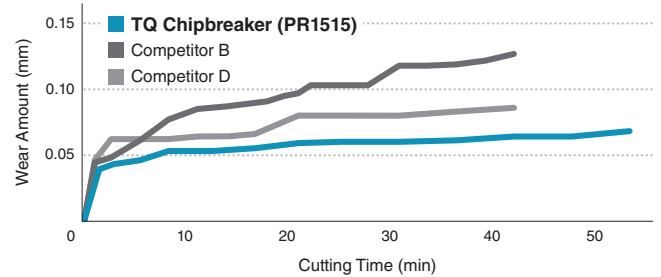
PR1515 PR1535 (Stability Oriented)

Wear Resistance Comparison (Internal evaluation)

Workpiece Material : SCM435



Workpiece Material : SUS304



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

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

**KTKF**

J24, J25

Threading

For Threading

**TKFT**



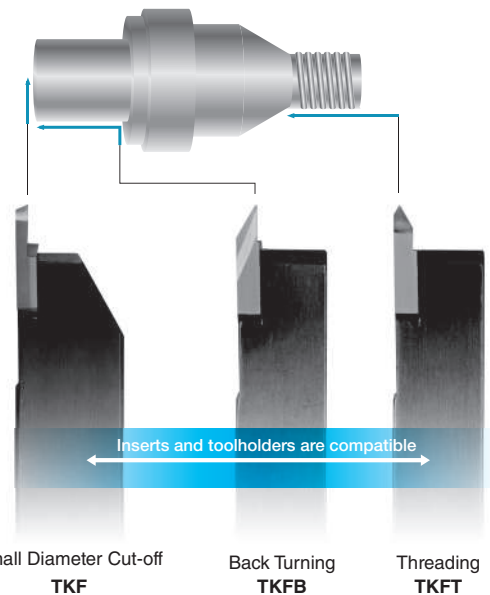
Applicable for various type of threading

Metric (M)

Parallel Pipe [G (PF)]

Unified (UN)

Tapered Pipe [R(PT) (BSPT)]



### Threading Insert Features

Full Profile and Partial Profile

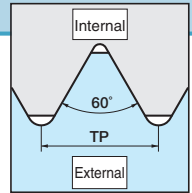
	Insert shape	Function	Features
Full Profile		Wiper edge	(1) Burr-free thread surface; high quality (Smooth feeling) (2) Leave the workpiece diameter slightly oversized for full topping (3) Every pitch size requires a specific insert
Partial Profile			(1) Thread's corner tends to be sharp edged (2) Thread's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

Thread Precision

Thread Types		Thread Precision		
		Strict ←	→ Loose	
Metric	External	4h (1st Class)	6g (2nd Class)	8g (3rd Class)
	Internal	5H (1st Class)	6H (2nd Class)	7H (3rd Class)
Unified	External	3A	2A	1A
	Internal	3B	2B	1B
Applicable precision with		*⊖	✓	✓

\* Not recommended if strict thread precision is required.

# Threading Inserts



## External Threading Inserts

### Metric (M)

Full Profile 60°

Description (mm)				Classification of usage		P								See Page for Depth of Cut & Number of Passes			
Description	IC	S	D1	● : 1st Choice	○ : 2nd Choice	Carbon Steel / Alloy Steel	○			●							
16E <sup>R/L</sup>	9.525	3.68	4.0			M	Stainless Steel			●							
22ER	12.70	4.9	4.85			K	Cast Iron					●					
						N	Non-ferrous Metals					●					
Insert	Description	Applicable Thread	Dimension (mm)	Angle	Cermet		MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide				
					TC60M	PR1215	PR1515	PR1535	PR1115	GW15	R	L	R	L	R	L	
Handed Insert shows Right-hand		M	RE	PDX	PNA	R	L	R	L	R	L	R	L	R	L		
Pitch mm																	
Full Profile		16ER 100ISO-TF	1.0	0.12	0.80	60°			●								
		125ISO-TF	1.25	0.15	0.90				●								
		150ISO-TF	1.5	0.19	1.00				●								
		175ISO-TF	1.75	0.22	1.60				●								
		200ISO-TF	2.0	0.25	1.50				●								
		250ISO-TF	2.5	0.33	1.60				●								
		300ISO-TF	3.0	0.41	1.60			●									
	Full Profile		16E <sup>R/L</sup> 050ISO	0.5	0.06	0.40	60°	●						●	●	●	
			075ISO	0.75	0.09	0.53		●							●	●	●
			100ISO	1.0	0.12	0.80		●							●	●	●
			125ISO	1.25	0.15	0.90		●							●	●	●
			150ISO	1.5	0.19	1.00		●							●	●	●
175ISO			1.75	0.22	1.50	●								●	●	●	
200ISO			2.0	0.25	1.50	●								●	●	●	
250ISO			2.5	0.32	1.60	●								●	●	●	
			22ER 300ISO	3.0	0.41	2.10		60°	●						●	●	●
			350ISO	3.5	0.48	2.10			●							●	●
	400ISO	4.0	0.55	2.80	●								●	●	●		
	450ISO	4.5	0.62	2.80	●							●	●	●			
	500ISO	5.0	0.70	2.80	●							●	●	●			
Full Profile		16ER 100ISO-TQ	1.0	0.12	0.80	60°			●								
		125ISO-TQ	1.25	0.15	0.90				●								
		150ISO-TQ	1.5	0.19	1.00				●								
		175ISO-TQ	1.75	0.22	1.60				●								
		200ISO-TQ	2.0	0.25	1.50				●								
		250ISO-TQ	2.5	0.33	1.60				●								
	300ISO-TQ	3.0	0.41	1.60			●										

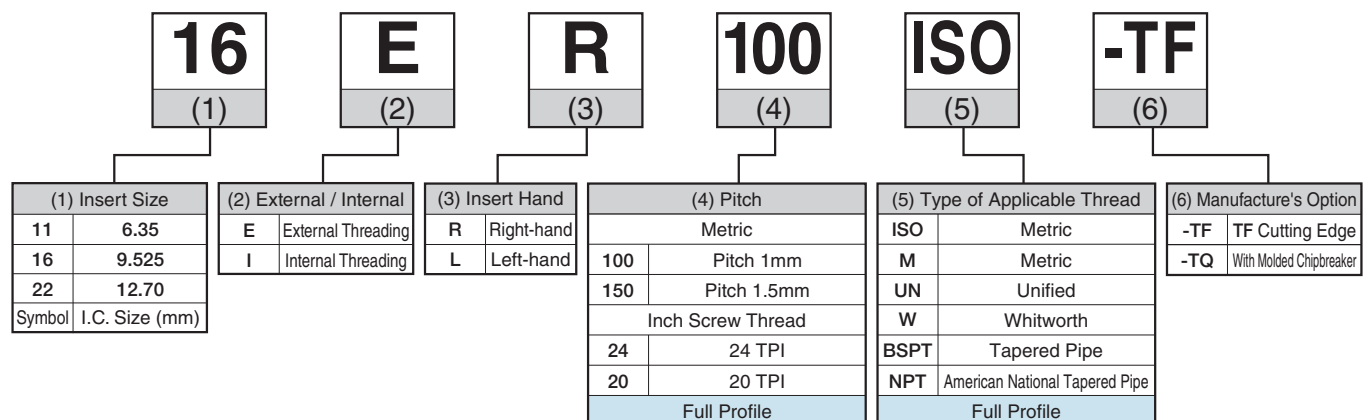
Recommended Cutting Conditions J39

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR...-16(JCT) / KTNSR...-16 S.-KTNL16	J20~J22
16EL...	KTNL...-16	
22ER...	KTNR...-22	

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

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



Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

● : Std. Item

# Internal Threading Inserts

● Metric (M)  
Full Profile 60°

(mm)

Description	IC	S	D1	Classification of usage ● : 1st Choice ○ : 2nd Choice	P	○		●		●		See Page for Depth of Cut & Number of Passes	
					Carbon Steel / Alloy Steel								
11I <sup>3</sup> / <sub>L</sub>	6.35	3.18	3.0		M	Stainless Steel							
16I <sup>3</sup> / <sub>L</sub>	9.525	3.68	4.0		K	Cast Iron							
22IR	12.70	4.9	4.85		N	Non-ferrous Metals							
Insert	Description	Applicable Thread	Dimension (mm)	Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide	
						TC60M	PR1215	PR1515	PR1535	PR1115	GW15		
Handed Insert shows Right-hand	Description	M	RE	PDX	PNA	R	L	R	L	R	L	R	L
		Pitch mm											
Full Profile		11IR 100ISO-TF	1.0	0.07	0.80			●		●			
		125ISO-TF	1.25	0.08	1.10			●		●			
		150ISO-TF	1.5	0.11	1.10			●		●			
		175ISO-TF	1.75	0.12	1.10			●		●			
		16IR 100ISO-TF	1.0	0.07	0.80			●		●			
		125ISO-TF	1.25	0.08	1.10			●		●			
		150ISO-TF	1.5	0.11	1.10			●		●			
		175ISO-TF	1.75	0.12	1.10			●		●			
		11I <sup>3</sup> / <sub>L</sub> 050ISO	0.5	0.03	0.55	●					●		●
		075ISO	0.75	0.05	0.68	●					●		●
		100ISO	1.0	0.07	0.80	●					●		●
		125ISO	1.25	0.08	1.10	●					●		●
		150ISO	1.5	0.11	1.10	●					●		●
		175ISO	1.75	0.12	1.10	●					●		●
		200ISO	2.0	0.14	0.90	●					●		●
		16I <sup>3</sup> / <sub>L</sub> 100ISO	1.0	0.07	0.80	●					●	●	●
		125ISO	1.25	0.08	1.10	●					●	●	●
		150ISO	1.5	0.11	1.10	●					●	●	●
		175ISO	1.75	0.12	1.10	●					●	●	●
		200ISO	2.0	0.14	1.50	●					●	●	●
	22IR	300ISO	3.0	0.19	1.60	●					●		●
		350ISO	3.5	0.23	2.10	●					●		●
		400ISO	4.0	0.26	2.80	●					●		●
		450ISO	4.5	0.30	2.80	●					●		●
		500ISO	5.0	0.34	2.80	●					●		●
		11IR 100ISO-TQ	1.0	0.07	0.80			●		●			
		125ISO-TQ	1.25	0.08	1.10			●		●			
		150ISO-TQ	1.5	0.11	1.10			●		●			
		175ISO-TQ	1.75	0.12	1.10			●		●			
		16IR 100ISO-TQ	1.0	0.07	0.80			●		●			
125ISO-TQ		1.25	0.08	1.10			●		●				
150ISO-TQ		1.5	0.11	1.10			●		●				
175ISO-TQ		1.75	0.12	1.10			●		●				
	200ISO-TQ	2.0	0.14	1.50			●		●				
	250ISO-TQ	2.5	0.17	1.50			●		●				
	300ISO-TQ	3.0	0.19	1.60			●		●				

J39

## ● Applicable Toolholders

Recommended Cutting Conditions ● J38

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
11IR...	SINR...-11E SINR...-11	J23
11IL...	SINL...-11E SINL...-11	

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR...	SINR...-16 CINR...-16	J23
16IL...	SINL...-16 CINL...-16	
22IR...	SINR...-22 CINR...-22	

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

● : Std. Item

Threading inserts are sold in 5 piece boxes

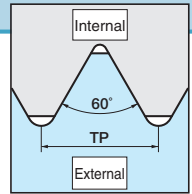
TC60M (Threading) are sold in 10 piece boxes

Insert Grades  
Turnable Inserts  
CNM & PCD Tools  
External  
Small Parts  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Turning Mill  
Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T



# Threading Inserts



## External Threading Inserts

### Unified (UN)

Full Profile 60°

Description	IC	S	D1
16ER	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Insert	Description	Applicable Thread	Dimension (mm)		Angle	Cermet	MEGACOAT				PVD Coated Carbide		Carbide		See Page for Depth of Cut & Number of Passes			
			UN, UNF	RE			PDX	PNA	TC60M		PR1215		PR1515			PR1115		GW15
									R	L	R	L	R	L		R	L	
	16ER 24UN-TF	24	0.12	0.80	60°			●	●	●	●	●			J39			
	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				●	●	●	●	●						
	16ER 24UN	24	0.13	0.80	60°	●						●		J39				
	20UN	20	0.16	1.00		●							●					
	18UN	18	0.18	1.00		●							●					
	16UN	16	0.20	1.10		●							●					
	14UN	14	0.23	1.50		●							●					
	16ER 24UN-TQ	24	0.12	0.80	60°			●	●	●				J39				
	20UN-TQ	20	0.15	1.00				●	●	●								
	18UN-TQ	18	0.18	1.00				●	●	●								
	16UN-TQ	16	0.20	1.10				●	●	●								
	14UN-TQ	14	0.23	1.50				●	●	●								
	13UN-TQ	13	0.25	1.50				●	●	●								
	12UN-TQ	12	0.27	1.50				●	●	●								
	10UN-TQ	10	0.34	1.50				●	●	●								
	22ER 08UN	8	0.43	2.10								●		J39				

Recommended Cutting Conditions → J38

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR...-16(JCT) KTNSR...-16 S...-KTNL16	J20~J22
22ER...	KTNR...-22	

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

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

● : Std. Item



# Internal Threading Inserts

## Unified (UN)

Full Profile 60° (mm)				Classification of usage		P	Carbon Steel / Alloy Steel	○	●	●	●	●	●	●	See Page for Depth of Cut & Number of Passes				
Description	IC	S	D1	● : 1st Choice ○ : 2nd Choice		M	Stainless Steel			●									
16IR	9.525	3.68	4.0			K	Cast Iron												
22IR	12.70	4.9	4.85			N	Non-ferrous Metals												
Insert		Description			Applicable Thread	Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide				
Handed Insert shows Right-hand					UN, UNF	RE	PDX	PNA	TC60M	PR1215		PR1515		PR1115		GW15			
					Pitch				R	L	R	L	R	L	R	L			
					TPI				R	L	R	L	R	L	R	L			
Full Profile		16IR	24UN-TF	24	0.06	0.80	60°			●	●	●	●						
			20UN-TF	20	0.08	1.00				●	●	●	●						
			18UN-TF	18	0.09	1.00				●	●	●	●						
			16UN-TF	16	0.10	1.10				●	●	●	●						
			14UN-TF	14	0.12	1.50				●	●	●	●						
			13UN-TF	13	0.13	1.50				●	●	●	●						
			12UN-TF	12	0.14	1.50				●	●	●	●						
			10UN-TF	10	0.17	1.50				●	●	●	●						
			08UN-TF	8	0.21	1.80				●	●	●	●						
		16IR	24UN	24	0.05	0.80	60°	●						●					
			20UN	20	0.07	1.00		●							●				
			18UN	18	0.09	1.00		●							●				
			16UN	16	0.10	1.10		●							●				
			14UN	14	0.12	1.50		●							●				
			12UN	12	0.14	1.50		●							●				
		22IR	08UN	8	0.20	1.80	60°	●							●				
			16IR	24UN-TQ	24	0.06		0.80			●	●	●						
				20UN-TQ	20	0.08		1.00			●	●	●						
				18UN-TQ	18	0.09		1.00			●	●	●						
				16UN-TQ	16	0.10		1.10			●	●	●						
				14UN-TQ	14	0.12		1.50			●	●	●						
				13UN-TQ	13	0.13		1.50			●	●	●						
				12UN-TQ	12	0.14		1.50			●	●	●						
	10UN-TQ	10		0.17	1.50			●	●	●									
08UN-TQ	8	0.21	1.80			●	●	●											

Recommended Cutting Conditions → J38

## Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR...	SINR..-16 CINR..-16	J23
22IR...	SINR..-22 CINR..-22	

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

● : Std. Item

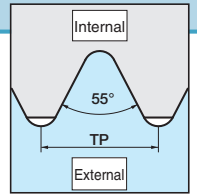
Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

Insert Grades  
Turnable Inserts  
Indexable Inserts  
CNM & PCD Tools  
External  
Small Parts  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for  
Spare Parts  
Technical  
Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

# Threading Inserts



## External Threading Inserts

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

Full Profile 55° (mm)

Description	IC	S	D1
16ER	9.525	3.68	4.0

Classification of usage ● : 1st Choice ○ : 2nd Choice				P	Carbon Steel / Alloy Steel		○			●					See Page for Depth of Cut & Number of Passes	
				M	Stainless Steel				●							
K	Cast Iron															
N	Non-ferrous Metals															
Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide					
G (PF)	W	RE	PDX	PNA	TC60M	PR1215		PR1515		PR1535		PR1115		GW15		
						R	L	R	L	R	L	R	L	R	L	
						Pitch		Pitch		Pitch		Pitch		Pitch		
TPI		TPI		TPI		TPI		TPI		TPI		TPI		TPI		
Full Profile			16ER 19W-TF	19	-	0.16	1.00	55°			●	●	●	●		
			16W-TF	-	16	0.19	1.10				●	●	●	●		
			14W-TF	14	14	0.23	1.50				●	●	●	●		
			11W-TF	11	11	0.30	1.50				●	●	●	●		
			16ER 19W	19	-	0.16	1.00	55°	●					●		
			14W	14	14	0.23	1.50		●					●		
			11W	11	11	0.30	1.50		●					●		
			16ER 19W-TQ	19	-	0.16	1.00	55°			●	●	●			
			16W-TQ	-	16	0.19	1.10				●	●	●			
			14W-TQ	14	14	0.23	1.50				●	●	●			
			11W-TQ	11	11	0.30	1.50				●	●	●			

Recommended Cutting Conditions ● J38

### ● Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR...-16(JCT) KTNSR...-16 S...-KTNL16	J20~J22

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

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

● : Std. Item

# Internal Threading Inserts

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

Full Profile 55° (mm)				Classification of usage		P		M		K		N		See Page for Depth of Cut & Number of Passes									
Description				● : 1st Choice ○ : 2nd Choice		Carbon Steel / Alloy Steel		Stainless Steel		Cast Iron		Non-ferrous Metals											
16IR																							
IC				S		D1																	
16IR				9.525		3.68		4.0															
Insert	Description	Applicable Thread		Dimension (mm)		Angle	Cermet				MEGACOAT				PVD Coated Carbide				Carbide				
		G (PF)	W	RE	PDX		PNA	TC60M		MEGACOAT NANO		PR1215		PR1515		PR1535		PR1115		GW15			
								Pitch															
								TPI															
Handed Insert shows Right-hand																							
Full Profile		RE PDX S PNA IC	16IR	19W-TF	-	0.16	1.00	55°	TC60M		MEGACOAT NANO		PR1215		PR1515		PR1535		PR1115		GW15		
				16W-TF	16	0.19	1.10		R	L	R	L	R	L	R	L	R	L	R	L	R	L	
				14W-TF	14	0.23	1.50		R	L	R	L	R	L	R	L	R	L	R	L	R	L	
				11W-TF	11	0.30	1.50		R	L	R	L	R	L	R	L	R	L	R	L	R	L	
		RE PDX S PNA IC	16IR	14W	14	0.23	1.50	55°	TC60M		MEGACOAT NANO		PR1215		PR1515		PR1535		PR1115		GW15		
				11W	11	0.30	1.50		R	L	R	L	R	L	R	L	R	L	R	L			
		RE PDX S PNA IC	16IR	19W-TQ	-	0.16	1.00	55°	TC60M		MEGACOAT NANO		PR1215		PR1515		PR1535		PR1115		GW15		
				16W-TQ	16	0.19	1.10		R	L	R	L	R	L	R	L	R	L	R	L			
				14W-TQ	14	0.23	1.50		R	L	R	L	R	L	R	L	R	L	R	L			
				11W-TQ	11	0.30	1.50		R	L	R	L	R	L	R	L	R	L	R	L			

Recommended Cutting Conditions **J38**

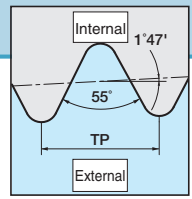
## Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR...	SINR...-16 CINR...-16	J23

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

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

# Threading Inserts



## External Threading Inserts

### Tapered Pipe [R(PT) (BSPT)]

Full Profile 55° (mm)			
Description	IC	S	D1
16ER	9.525	3.68	4.0

Classification of usage		P	M	K	N	Cermet		MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide	See Page for Depth of Cut & Number of Passes										
		Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	TC60M	PR1215	PR1515	PR1535	PR1115	GW15														
● : 1st Choice ○ : 2nd Choice		Applicable Thread		Dimension (mm)		Angle	R(PT) (BSPT)		Pitch		TPI		RE		PDX		PNA								
Insert		Description		RE		PDX		PNA		TC60M		PR1215		PR1515		PR1535		PR1115		GW15					
Handed Insert shows Right-hand										R L		R L		R L		R L		R L		R L					
Full Profile			16ER 28BSPT-TF	28	0.10	0.80	55°																		
			19BSPT-TF	19	0.16	1.00																			
			14BSPT-TF	14	0.22	1.60																			
			11BSPT-TF	11	0.29	1.60																			
			16ER 28BSPT	28	0.10	0.80	55°	●																	
			19BSPT	19	0.16	1.00		●																	
			14BSPT	14	0.22	1.60		●																	
			11BSPT	11	0.29	1.60		●																	
			16ER 28BSPT-TQ	28	0.10	0.80	55°																		
			19BSPT-TQ	19	0.16	1.00																			
			14BSPT-TQ	14	0.22	1.60																			
			11BSPT-TQ	11	0.29	1.60																			

Recommended Cutting Conditions **J38**

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR...-16(JCT) KTNSR...-16 S.-KTNL16	J20~J22

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

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

● : Std. Item

# Internal Threading Inserts

## ● Tapered Pipe [Rc (PT) (BSPT)]

Full Profile 55° (mm)				Classification of usage ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel		○		●		See Page for Depth of Cut & Number of Passes		
Description	IC	S	D1		M	Stainless Steel				●				
11IR	6.35	3.18	3.0	K	Cast Iron					●				
16IR	9.525	3.68	4.0	N	Non-ferrous Metals					●				
Insert	Description	Applicable Thread	Dimension (mm)		Angle	Cermet	MEGACOAT				PVD Coated Carbide	Carbide		
			RE	PDX			TC60M	PR1215	PR1515	PR1535			PR1115	GW15
Handed Insert shows Right-hand		Rc(PT) (BSPT)	Pitch			TPI	R	L	R	L	R	L	R	L
Full Profile		11IR 28BSPT-TF	28	0.10	0.60	55°			●	●	●	●		
		19BSPT-TF	19	0.16	0.78				●	●	●	●		
		14BSPT-TF	14	0.22	0.97				●	●	●	●		
	16IR 14BSPT-TF	14	0.22	0.97				●	●	●	●			
	11BSPT-TF	11	0.29	1.50				●	●	●	●			
	11IR 28BSPT	28	0.10	0.60	55°		●				●	●		
	19BSPT	19	0.16	0.78		●				●	●			
	14BSPT	14	0.22	0.97		●				●	●			
	16IR 14BSPT	14	0.22	0.97		●				●	●			
	11BSPT	11	0.29	1.50		●				●	●			
		11IR 28BSPT-TQ	28	0.10	0.60	55°			●	●	●			
		19BSPT-TQ	19	0.16	0.78				●	●	●			
14BSPT-TQ		14	0.22	0.97				●	●	●				
	16IR 14BSPT-TQ	14	0.22	0.97	55°			●	●	●				
	11BSPT-TQ	11	0.29	1.50				●	●	●				

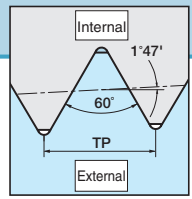
## ● Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
11IR..	SINR..-11E SINR..-11	J23
16IR..	SINR..-16 CINR..-16	

## Recommended Cutting Conditions J38

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



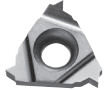
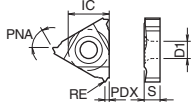
## External Threading Inserts

### American National Tapered Pipe (NPT)

Full Profile 60° (mm)

Description	IC	S	D1
16ER	9.525	3.68	4.0

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

Insert  Handed Insert shows Right-hand	Description	Applicable Thread	Dimension (mm)			Angle	CERMET				MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide	See Page for Depth of Cut & Number of Passes
		NPT	RE	PDX	PNA	60°	TC60M		PR1215		PR1515		PR1535		PR1115		GW15	
		Pitch					R	L	R	L	R	L	R	L	R	L		
		TPI					R	L	R	L	R	L	R	L	R	L		
Full Profile  	16ER	18NPT	18	0.04	0.9	●									●	●	J40	
		14NPT	14	0.05	1.5	●									●	●		
		11.5NPT	11.5	0.06	1.5	●									●	●		

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR...-16(JCT) KTNSR...-16 S...-KTNL16	J20~J22

### Recommended Cutting Conditions J38

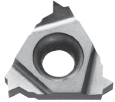
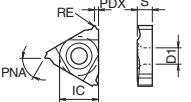
Applicable Thread	M : Metric	R, Rc (PT) (BSPT) : Tapered Pipe
	UN : Unified	W : Whitworth
	UNF : Unified Fine Thread	NPT : American National Tapered Pipe
	G (PF) : Parallel Pipe	Tr : 30° Trapezoidal

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

# Internal Threading Inserts

## American National Tapered Pipe (NPT)

Full Profile 60° (mm)				Classification of usage		Dimension (mm)		Angle	MEGACOAT				PVD	Carbide	See Page for Depth of Cut & Number of Passes		
Description	IC	S	D1	● : 1st Choice		RE	PDX	PNA	MEGACOAT NANO		Coated Carbide						
16IR	9.525	3.68	4.0														
Insert		Description		Applicable Thread													
Full Profile			16IR	18NPT	18	0.04	0.9	60°	TC60M	PR1215	PR1515	PR1535	PR1115	GW15	J40		
				14NPT	14	0.05	1.5		R	L	R	L	R	L		R	L
				11.5NPT	11.5	0.06	1.5		R	L	R	L	R	L		R	L
				Handed Insert shows Right-hand													

## Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR...	SINR.-16 CINR.-16	J23

## Recommended Cutting Conditions J38

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

● : Std. Item

Threading inserts are sold in 5 piece boxes

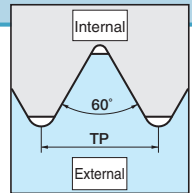
TC60M (Threading) are sold in 10 piece boxes

Insert Grades  
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External  
Small Parts  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Turning Mill  
Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T



# Threading Inserts



## External Threading Inserts

### 60° Type [Partial Profile / M, UN]

Partial Profile 60° (mm)				Classification of usage ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel	○	●	●	●	See Page for Depth of Cut & Number of Passes					
Description	IC	S	D1		M	Stainless Steel		●								
<b>16ER</b>	9.525	3.68	4.0		K	Cast Iron				●						
<b>22ER</b>	12.70	4.9	4.85		N	Non-ferrous Metals				●						
Insert	Description	Applicable Thread		Dimension (mm)			Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide		
		M	UN UNF	RE	PDX	PNA	TC60M	PR1215	PR1515	PR1535	PR1115	GW15				
Handed Insert shows Right-hand		Pitch														
		mm	TPI													
Partial Profile		<b>16ER A60-TF</b>	0.5~1.5	48~16	0.06	1.00	60°		●	●	●	●			J40 J41	
		<b>G60-TF</b>	1.75~3	14~8	0.22	1.60			●	●	●	●				
		<b>AG60-TF</b>	0.5~3	48~8	0.06	1.60			●	●	●	●				
		<b>16ER A60</b>	0.5~1.5	48~16	0.06	1.00	60°							●	J44	
		<b>G60</b>	1.75~3	14~8	0.22	1.70										●
		<b>AG60</b>	0.5~3	48~8	0.06	1.70										●
		<b>22ER N60</b>	3.5~5	7~5	0.48	2.50										●
		<b>16ER 6001</b>	1.0~2.5	24~11	0.10	1.50	60°	●						●	J40 J41	
		<b>6002</b>	1.5~2.5	16~11	0.20	1.50		●								
<b>16ER A60-TQ</b>		0.5~1.5	48~16	0.06	1.00			●	●	●						
With Molded Chipbreaker		<b>G60-TQ</b>	1.75~3	14~8	0.22	1.60	60°		●	●	●					
		<b>AG60-TQ</b>	0.5~3	48~8	0.06	1.60			●	●	●					

Recommended Cutting Conditions J38

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
<b>16ER...</b>	<b>KTNR...-16(JCT)</b> <b>KTNSR...-16</b> <b>S...-KTNL16</b>	<b>J20~J22</b>
<b>22ER...</b>	<b>KTNR ...-22</b>	

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

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

**16**  
(1)

**E**  
(2)

**R**  
(3)

**A60**  
(4)

**-TF**  
(5)

(1) Insert Size

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

(2) External / Internal

E	External Threading
I	Internal Threading

(3) Insert Hand

R	Right-hand
L	Left-hand

(4) Pitch

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

(5) Manufacture's Option

-TF	TF Cutting Edge
-TQ	With Molded Chipbreaker

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

Example of shape of A, G and AG

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

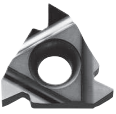
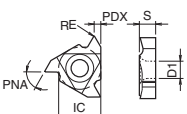
Note) Pitch and threads per inch of an insert without wiper depend on the size of insert.

# Internal Threading Inserts

## 60° Type (Partial Profile / M, UN)

Partial Profile 60° (mm)

Description	IC	S	D1
06IR	3.97	1.91	2.3
08IR	4.76	2.38	2.3
11IR	6.35	3.18	3.0
16IR	9.525	3.68	4.0
22IR	12.70	4.9	4.85

Insert Handed Insert shows Right-hand		Description		Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide	See Page for Depth of Cut & Number of Passes						
				M	UN UNF	RE	PDX			PNA	TC60M		PR1215		PR1515			PR1535		PR1115		GW15	
											Pitch	R	L	R	L			R	L	R	L		R
				mm	TPI																		
Partial Profile 		11IR	A60	0.5~1.5	48~16	0.02	1.00	60°								●	●	J41 J42					
		16IR	A60	0.5~1.5	48~16	0.02	1.00										●		●				
			G60	1.75~3	14~8	0.11	1.70										●		●				
			AG60	0.5~3	48~8	0.02	1.70										●		●				
			22IR	N60	3.5~5	7~5	0.22	2.50	60°								●	●	J44				
			06IR	60005	0.75~1.25	28~20	0.05	0.60									●	●					
			08IR	60007	1.0~1.75	20~16	0.07	0.80									●	●					
			11IR	60005	0.75~1.5	32~16	0.05	1.00		●													
			16IR	6001	1.5~2.5	16~10	0.10	1.50		●													
				60015	2.5	11~10	0.15	1.50		●													

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
06IR..	SINR..-06E	J23
08IR..	SINR..-08E	
11IR..	SINR..-11E SINR..-11	
16IR..	SINR..-16 CINR..-16	
22IR..	SINR..-22 CINR..-22	

### Recommended Cutting Conditions J38

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

### Corner-R(RE) Selection for Partial Profiling Insert

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

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

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

● : Std. Item

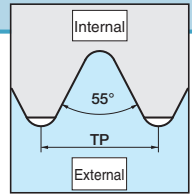
Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

Insert Grades  
Turnable Inserts  
Indexable Inserts  
CN & PCD Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Turning Mill  
Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

# Threading Inserts



## External Threading Inserts

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

Partial Profile 55° (mm)				Classification of usage		P								See Page for Depth of Cut & Number of Passes	
Description	IC	S	D1	● : 1st Choice ○ : 2nd Choice		Carbon Steel / Alloy Steel									
16ER	9.525	3.68	4.0			M	Stainless Steel								
22ER	12.70	4.9	4.85			K	Cast Iron								
Insert	Description	Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide		
		G(PF) R(PT)	W	RE	PDX			PNA	TC60M	PR1215	PR1515			PR1535	PR1115
Handed Insert shows Right-hand		Pitch													
		TPI													
Partial Profile		16ER A55-TF	28, 19	40-16	0.06	1.00	55°								J42
		G55-TF	14, 11	14-8	0.22	1.60									
		AG55-TF	28-11	40-8	0.06	1.60									
		16ER A55	28, 19	40-16	0.06	1.00	55°								J43
		G55	14, 11	14-8	0.22	1.70									
		AG55	28-11	40-8	0.06	1.65									
		22ER N55	-	7~5	0.47	2.50	55°								J44
		16ER 5501	28-11	24~10	0.10	1.50									
		16ER A55-TQ	28, 19	40-16	0.06	1.00	55°								J42
		G55-TQ	14, 11	14-8	0.22	1.60									
		AG55-TQ	28-11	40-8	0.06	1.60									

Recommended Cutting Conditions → J38

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR..-16(JCT) KTNSR..-16 S..-KTNL16	J20~J22
22ER...	KTNR..-22	

## External Threading Inserts

### 30° Trapezoidal (Tr)

Partial Profile 30° (mm)				Classification of usage		P								See Page for Depth of Cut & Number of Passes
Description	IC	S	D1	● : 1st Choice		Carbon Steel / Alloy Steel								
16ER	9.525	3.68	4.0			M	Stainless Steel							
22ER	12.70	4.9	4.85			K	Cast Iron							
Insert	Description	Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide	Carbide	
		Tr	Pitch	RE	PDX			PNA	TC60M	PR1215	PR1515			PR1535
Handed Insert shows Right-hand		mm												
Partial Profile		16ER 200TR	2.0	0.20	1.6	30°								J43
		300TR	3.0	0.20	1.6									
		22ER 400TR	4.0	0.20	2.5	30°								
		500TR	5.0	0.20	2.5									

Recommended Cutting Conditions → J38

### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR..-16(JCT) KTNSR..-16 S..-KTNL16	J20~J22
22ER...	KTNR ..-22	

Applicable Thread	M : Metric UN : Unified UNF : Unified Fine Thread G (PF) : Parallel Pipe	R, Rc (PT) (BSPT) : Tapered Pipe W : Whitworth NPT : American National Tapered Pipe Tr : 30° Trapezoidal
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Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

● : Std. Item

## Internal Threading Inserts

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

Partial Profile 55° (mm)

Description		IC	S	D1	Classification of usage										See Page for Depth of Cut & Number of Passes					
Handed Insert shows Right-hand 					P	Carbon Steel / Alloy Steel										●				
					M	Stainless Steel													●	
					K	Cast Iron														●
					N	Non-ferrous Metals										●				
Insert	Description	Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide						
		G(PF) Rc(PT)	W	RE	PDX			PNA	TC60M	PR1215	PR1515	PR1535	PR1115	GW15	R	L				
		Pitch																		
		TPI																		
Partial Profile		11IR	A55	28, 19	40~16	0.06	1.10											J42 J43		
		16IR	A55	28, 19	40~16	0.06	1.00												J44	
			G55	14, 11	14~8	0.22	1.70	55°												
			AG55	28~11	40~8	0.06	1.70													
			22IR	N55	-	7~5	0.47	2.50												
			06IR	5501	28	24	0.10	0.60												
			08IR	5501	28, 19	24, 20	0.10	0.80												
			11IR	55005	28~14	24~14	0.05	1.10	55°	●										
			16IR	5501	28~11	24~11	0.10	1.50		●										
				5502	14~11	16~11	0.20	1.50		●										

#### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
06IR...	SINR..-06E	J23
08IR...	SINR..-08E	
11IR...	SINR..-11E SINR..-11	

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR...	SINR..-16 CINR..-16	J23
22IR...	SINR..-22 CINR..-22	

Recommended Cutting Conditions [J38](#)

## Internal Threading Inserts

### 30° Trapezoidal (Tr)

Partial Profile 30° (mm)

Description		IC	S	D1	Classification of usage										See Page for Depth of Cut & Number of Passes					
Handed Insert shows Right-hand 					P	Carbon Steel / Alloy Steel											●			
					M	Stainless Steel														●
					K	Cast Iron														
					N	Non-ferrous Metals														
Insert	Description	Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide						
		Tr	Pitch	RE	PDX			PNA	TC60M	PR1215	PR1515	PR1535	PR1115	GW15	R	L				
		mm																		
Partial Profile		16IR	200TR	2.0	0.20	1.6	30°											J43		
			300TR	3.0	0.20	1.6														
		22IR	400TR	4.0	0.20	2.5	30°													
			500TR	5.0	0.20	2.5														

#### Applicable Toolholders

Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16IR...	SINR..-16 CINR..-16	J23
22IR...	SINR..-22 CINR..-22	

Recommended Cutting Conditions [J38](#)

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

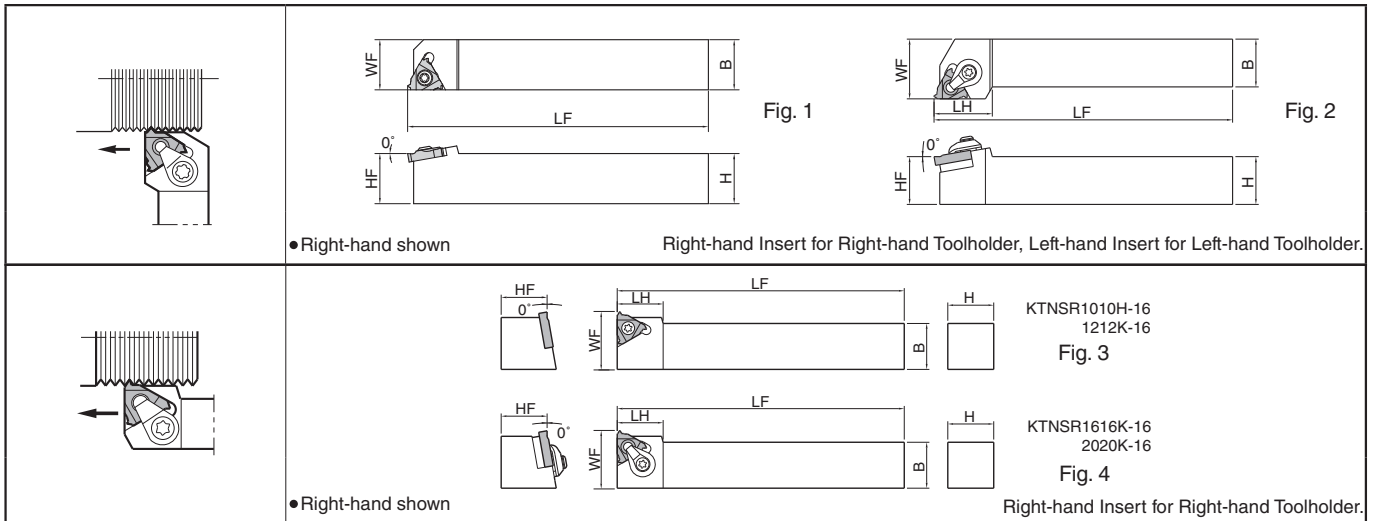
● : Std. Item

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

# External Threading Toolholders

## KTN / KTNS



### Toolholder Dimensions

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

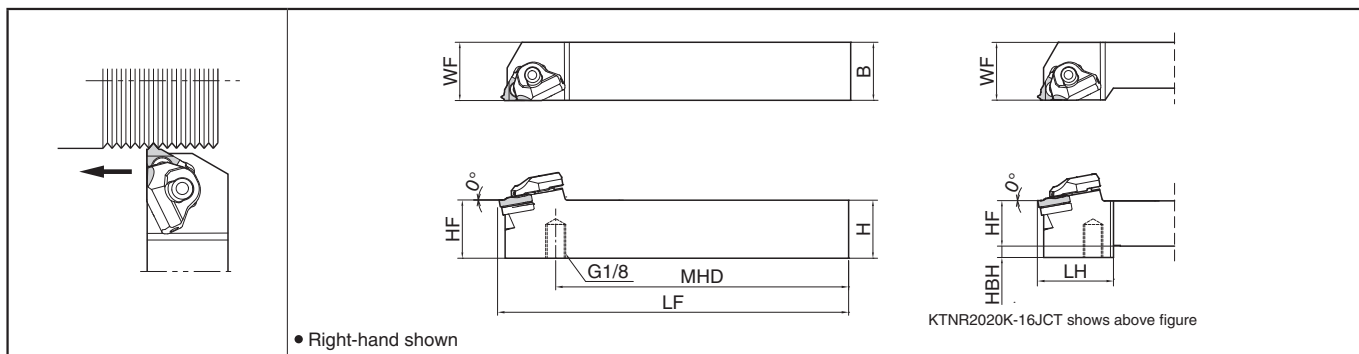
\*mark indicates short shank type.

### See page for applicable inserts

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

● : Std. Item

## KTN-JCT (Coolant-through Holders)



### Toolholder Dimensions

Pressure Resistance : ~15MPa

Description	Stock		Dimension (mm)								Spare Parts					Applicable Inserts
	R	L	H	HF	HBH	B	WF	LF	LH	MHD	Clamp Set	Pipe Connection (*1 with O-ring)	Wrench	Shim	Shim Screw	
<b>KTNR 2020K-16JCT</b>	●		20	20	5	20	25	125	33.3	100.7						16ER...
<b>2525M-16JCT</b>	●		25	25	-	25	25	150	-	125.7	CPS-5S-R-JCT	FP-12	FT-15	TN-32	SP3X8	16ER...

Please see page D10 and D11 for piping parts of coolant-through holders.

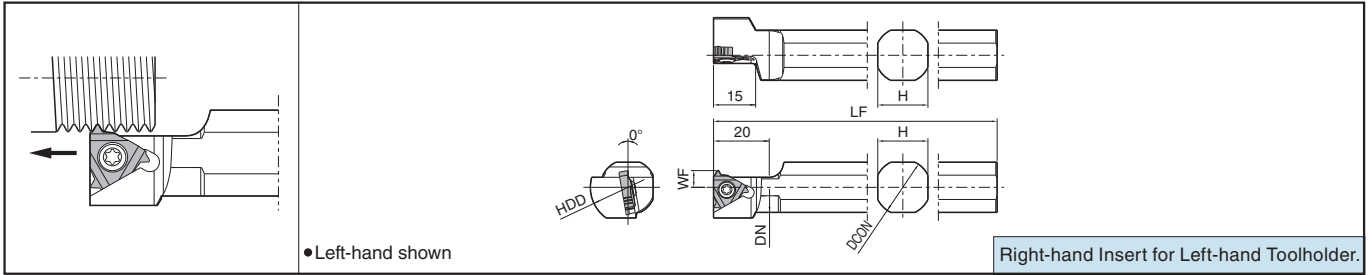
\*1 It is possible to order just an O-ring (SS-035).

### See page for applicable inserts



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

# External Threading Toolholders

## S-KTN (Sleeve Holder)



### Toolholder Dimensions

Description	Stock	Dimension (mm)						Spare Parts		Applicable Inserts			
		DCON	LF	WF	DN	HDD	H	Clamp Screw 	Wrench 				
<b>S16F-KTNL16</b>	●	16	85	6	15	27	15	SB-3.5TR	LTW-15S	16ER...			
<b>S19K-KTNL16</b>	●	19.05	120		18		17						
<b>S20K-KTNL16</b>	●	20			19		18						
<b>S22K-KTNL16</b>	●	22			21		20						
<b>S25.0H-KTNL16</b>	●	25	100	10	24	32	23						
<b>S25K-KTNL16</b>	●	25.4	120										

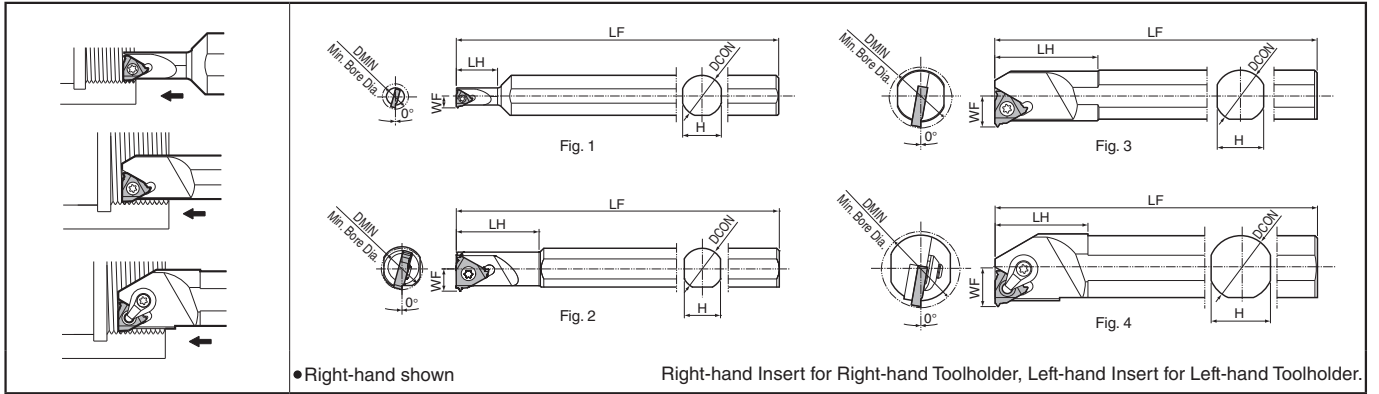
### See page for applicable inserts

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



# Internal Threading Toolholders

## SIN / CIN



### Toolholder Dimensions

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

### See page for applicable inserts

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

## Guide for Internal Threading

For the internal threading, pay extra attention to "Stabilizing Bore Dia." and "Chip evacuation".

### 1 "Stabilizing Bore Dia."

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

### 2 "Chip evacuation"

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

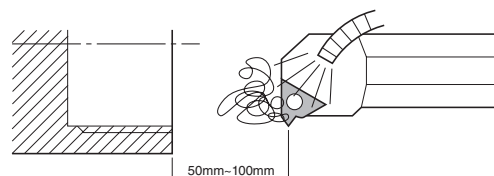
<When processing the first workpiece>

Set the program with the "single block"

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

<When processing the second workpiece and later>

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

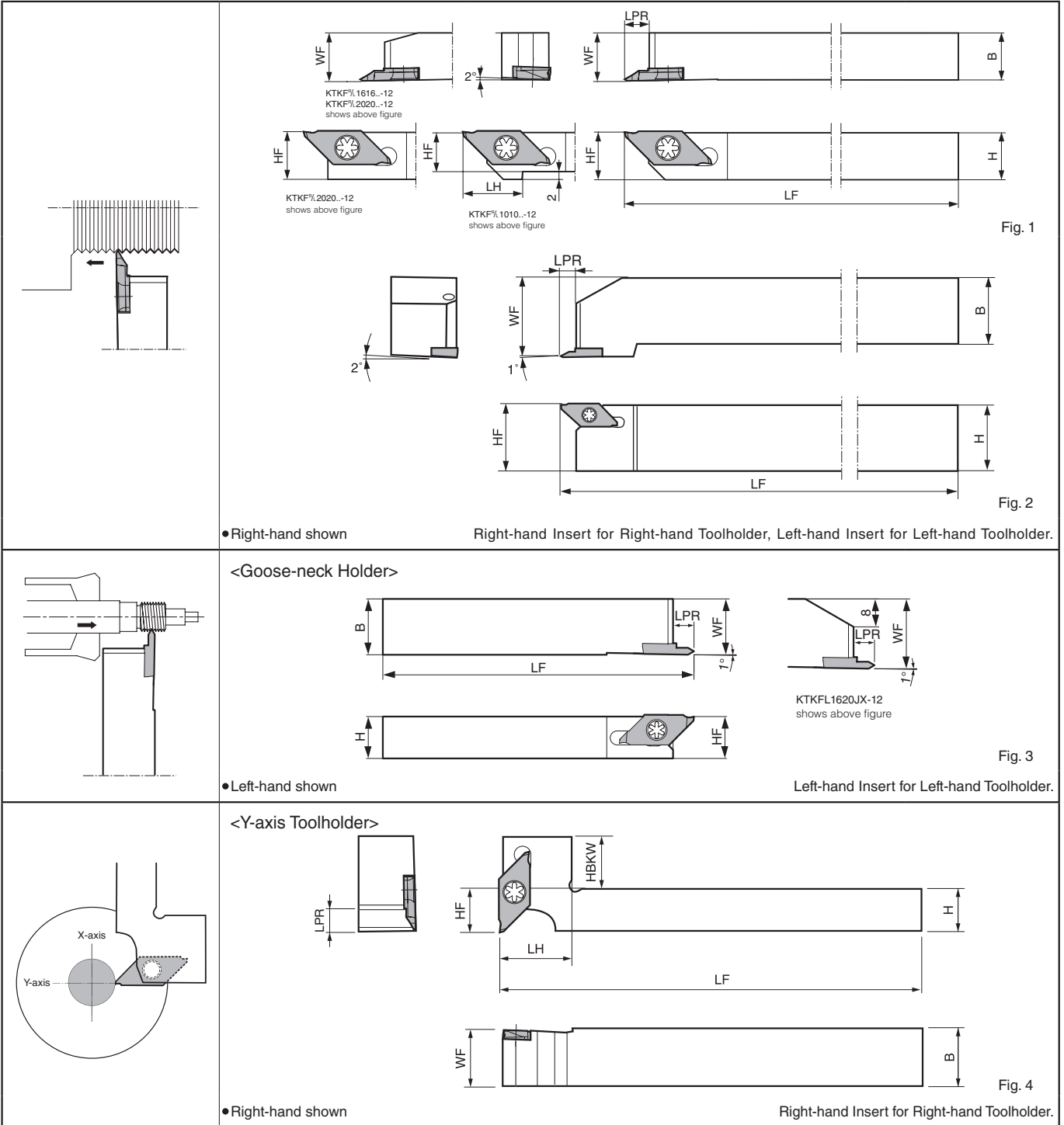


● : Std. Item



Insert Grades  
Turnable Inserts  
CNC & CDD Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for  
Turning Mill  
Spare Parts  
Technical  
Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

## KTKF / KTKF Goose-neck Holder / KTKF Y-axis Toolholder NEW


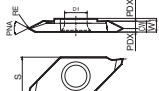


● Toolholder Dimensions

Description	Stock		Dimension (mm)									Drawing	Spare Parts		Applicable Inserts
	R	L	H	HF	B	LF	LH	WF	LPR	HBKW	Clamp Screw		Wrench		
															
<b>KTKF<sup>R/L</sup></b> 1010JX-12	●	●	10	10	10	120	-	15	10	6	-	Fig. 1	SB-4590TRWN	FT-10	TKFT12 <sup>R/L</sup> ...
	●	●	12	12	12			12							
	●	●	16	16	16			16							
	●	●	20	20	20			20							
<b>KTKFR</b> 2525M-12	●		25	25	25	150	-	30	6	-	Fig. 2	SB-4590TRWN	FT-10	TKFT12R..	
<b>KTKF<sup>R/L</sup></b> 1212F-12	●	●	12	12	12	85	-	12	6	-	Fig. 1	SB-4590TRWN	FT-10	TKFT12 <sup>R/L</sup> ...	
<b>KTKFL</b> 1216JX-12		●	12	12	16	120	-	16	6	-	Fig. 3	SB-4590TRWN	FT-10	TKFT12L..	
		●	16	16	20			20							
<b>KTKFR</b> 1216JX-12-Y	●		12	12	16	120	-	20	16	15	Fig. 4	SB-4590TRWN	FT-10	TKFT12R..	
	●		16	16	16			25	16	11					

- LPR shows the distance from the toolholder to the cutting edge.
- See page H13 for internal coolant type (coolant-through holders)
- Please see the precautions in J27 when using Y-axis toolholder.

● Applicable Inserts

Insert	Description	Applicable Thread	Pitch		Dimension (mm)								Angle	MEGACOAT NANO PLUS	MEGACOAT NANO	MEGA COAT	Carbide	Applicable Toolholders	
			mm	TPI	W1	CW	S	D1	RE	PDX	PDX1	PNA							
			Classification of usage		● : 1st Choice		○ : 2nd Choice		P Carbon Steel / Alloy Steel		M Stainless Steel								K Cast Iron
 Photo shows Right-hand	<b>TKFT 12RA6000</b>	M UN	0.2~0.6	64~48	3.0	2.5	8.7	5.2	Max. 0.05 Flat	0.4	2.1	60°	●	○	○	○	<b>KTKFR</b> ...12(-Y)		
	<b>12RB6000</b>									2.1	0.4		○	●	○	○			
	<b>12RA60005</b>		0.8	1.7						○	●		○	○					
	<b>12RB60005</b>		1.7	0.8						○	●		○	○					
	<b>12RN6001</b>	1~1.5	24~18	-	40~16	0.05	0.8	1.7	55°	1.25	1.25	60°	○	○	○	○			
	<b>12RA55005</b>	1.7	0.8							○	●		○	○					
	<b>12RB55005</b>	1.7	0.8	○	●					○	○								
		0.8	1.7	○	●					○	○								
	 · Left-hand shown	<b>TKFT 12LA6000</b>	M UN	0.2~0.6	64~48	3.0	2.5	8.7	5.2	Max. 0.05 Flat	2.1	0.4	60°	○	○	○		○	<b>KTKFL</b> ...12
		<b>12LB6000</b>									0.4	2.1		○	●	○		○	
		<b>12LA60005</b>		1.7	0.8						○	●		○	○				
		<b>12LB60005</b>		0.8	1.7						○	●		○	○				
<b>12LN6001</b>		1~1.5	24~18	-	40~16	0.05	1.7	0.8	55°	1.25	1.25	60°	○	○	○	○			
<b>12LA55005</b>		0.8	1.7							○	●		○	○					
<b>12LB55005</b>		0.8	1.7	○	●					○	○								
		1.7	0.8	○	●					○	○								

● : Std. Item

Inserts are sold in 10 piece boxes

Insert Grades  
Turnable Inserts  
CNC & PC Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

# TKFT Threading

## Inserts Identification System (Ref. to Table 1)

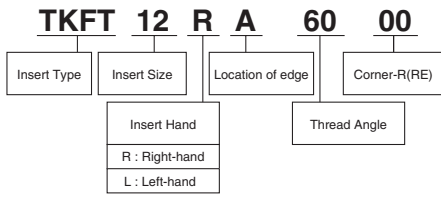
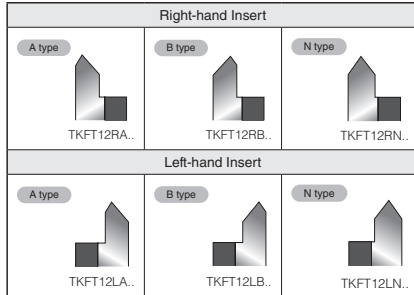


Table 1



## Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades			
	MEGACOAT NANO PLUS	MEGACOAT NANO	MEGACOAT	Carbide
	PR1725	PR1535	PR1225	KW10
Carbon Steel	Vc = 70 ~170 m/mim			-
	First ap (Radial) : 0.2mm and under			
Alloy Steel	Vc = 70 ~170 m/mim			-
	First ap (Radial) : 0.2mm and under			
Stainless Steel	Vc = 60 ~100 m/mim			-
	First ap (Radial) : 0.15mm and under			
Cast Iron	-			Vc = 100 m/mim
				First ap (Radial) : 0.2mm and under
Aluminum Alloys	-			Vc = 150 ~400 m/mim
				First ap (Radial) : 0.2mm and under
Brass	-			Vc = 150 ~300 m/mim
				First ap (Radial) : 0.15mm and under

- Coolant is recommended.

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

## Depth of Cut & Number of Passes

### TKFT 60° / 55° Partial Profile

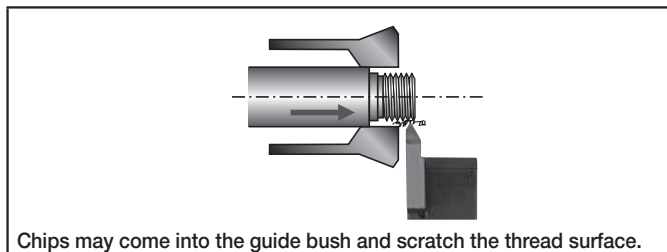
(ap shows the value of radial ap)

Type	Pitch mm / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12			
						ap	ap	ap	ap	ap	ap	ap	ap	ap	ap	ap	ap	ap	ap	ap
Metric	External Thread	TKFT 12R/L A/B6000	Max. 0.05 Flat	0.15	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									
				0.50mm	6	0.10	0.10	0.07	0.05	0.04	0.02									
		TKFT 12R/L A/B6000 12R/L A/B60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02										
			TKFT 12R/L A/B6000 12R/L A/B60005	Max. 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02							
		0.05		0.40	6	0.10	0.10	0.08	0.06	0.04	0.02									
		TKFT 12R/L A/B60005	0.70mm	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02								
			TKFT 12R/L A/B60005	0.75mm	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02						
		0.80mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02							
		TKFT 12R/L A/B60005 12R/L N6001	1.00mm	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02						
				0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02							
0.05	0.90			9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02							
TKFT 12R/L N6001	1.25mm	0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02								
		0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02								
TKFT 12R/L N6001	1.50mm	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02						
		0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02									
Parallel Pipe	External Thread	TKFT 12R/L A/B55005	0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02						
				0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02					
Whitworth	External Thread	TKFT 12R/L A/B55005	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02							
				0.05	0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02					
				0.05	1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02				
				0.05	1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02			

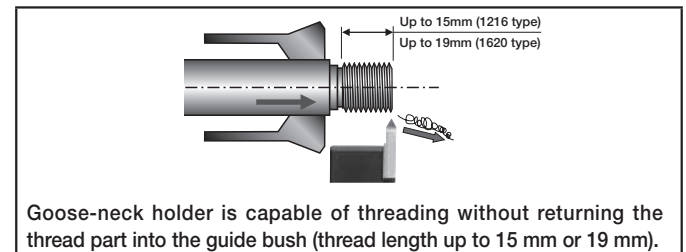
## Swiss Tool Automatic Lathe (Guide Bush System)

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

### Conventional Tool



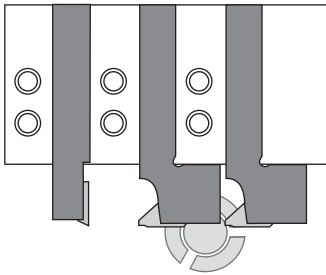
### Goose-neck Holder



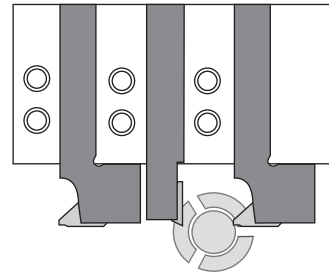
# Precautions for using Y-axis toolholder

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

With interference

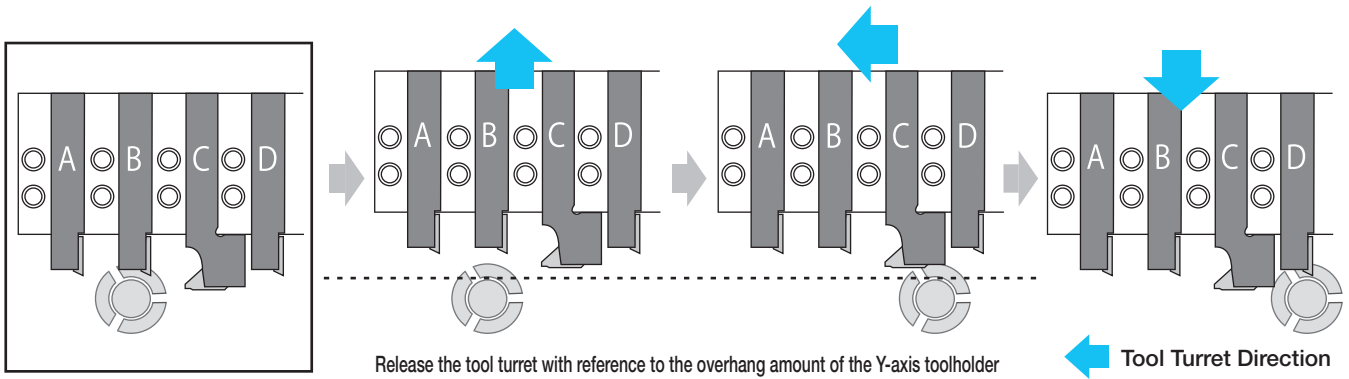


Without interference



Standard toolholders may be mounted between two Y-axis toolholders

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



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

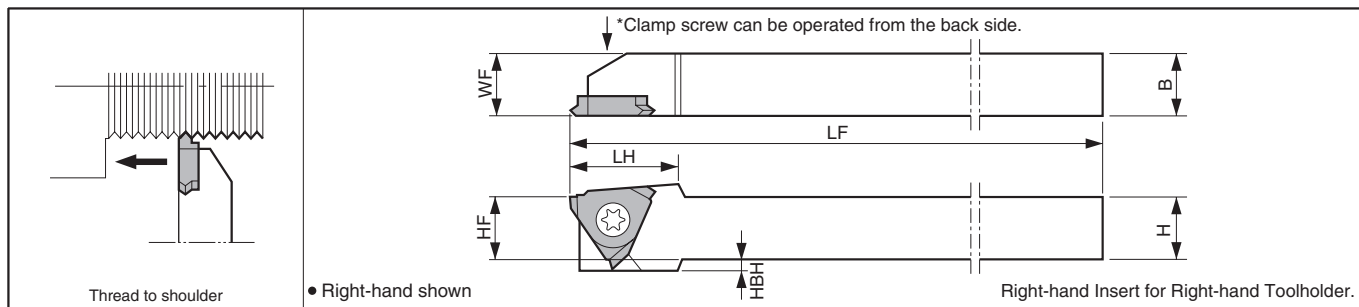
(Unit : mm)

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

- Insert Grades **A**
- Turning Indexable Inserts **B**
- CBN & PCD Tools **C**
- External **D**
- Small Parts Machining **E**
- Boring **F**
- Grooving **G**
- Cut-off **H**
- Threading **J**
- Drilling **K**
- Milling **M**
- Tools for Turning Mill **N**
- Spare Parts **P**
- Technical Information **R**
- Index **T**

# External Threading Toolholders [TTX Insert]

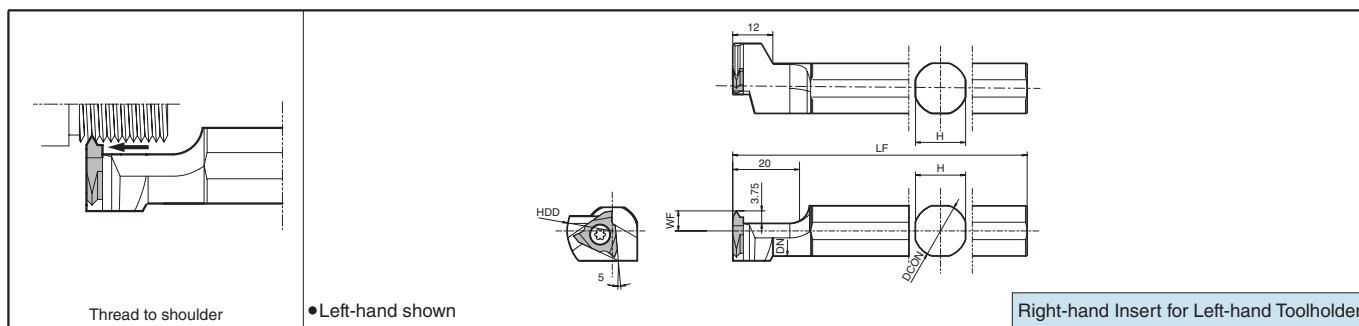
## KTTX



### Toolholder Dimensions

Description	Stock	Dimension (mm)							Spare Parts			
		H	HF	HBH	B	LF	LH	WF	Clamp Screw	Wrench		
KTTXR 1010JX-16F	●	10	10	2	10	120	17.6	10	SB-4070TRW	FT-8		
	●	12	12	-	12			12				
	●	16	16	-	16			16				
KTTXR 1212F -16F	●	12	12	-	12	85	17.6	12	SB-4070TRW	FT-8		
	●	20	20	-	20	125		20				

## S-KTTX (External Sleeve Holder)



### Toolholder Dimensions

Description	Stock	Dimension (mm)						Spare Parts			
		DCON	LF	WF	DN	HDD	H	Clamp Screw	Wrench		
S12F-KTTXL16	●	12	80	6.0	11.0	27	11	SB-4070TRW	FT-8		
S14H-KTTXL16	●	14	100		13.0		13				
S15F-KTTXL16	●	15.875	85		14.6		15				
S16F-KTTXL16	●	16			17.6		17				
S19G-KTTXL16	●	19.05	90		18.6		18				
S19K-KTTXL16	●		120								
S20G-KTTXL16	●	20	90								
S20K-KTTXL16	●	20	120								
S25.0H-KTTXL16	●	25	100	10.0	23.6	32	23				
S25K-KTTXL16	●	25.4	120								

● Applicable Inserts

(mm)

Description	IC	S	D1
<b>TTX32R</b>	9.525	3.18	4.4

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

Insert	Description	Applicable Thread	Pitch		Dimension (mm)			Angle	TC60M Cermet	PR930 PVD Coated Carbide	PR1115 PVD Coated Carbide	KW10 Carbide	Applicable Toolholders	See Page for Depth of Cut & Number of Passes				
			mm	TPI	RE	PDX	PDX1											
Partial Profile 	Handed Insert shows Right-hand 	TTX32R 6000 60005 6001 TTX32R 6000S 60005S TTX32R 5501 55015	M UN	0.5-1.0 -	- 56-32	0.00	0.6	1.12	60°	●	●	●	KTTXR...-16 S...KTTXL16	J46				
			M UN	0.5-1.0 -	- 48-32	0.05	0.6	1.12		●	●	●						
			M UN	1.0-2.0 -	- 28-14	0.10	1.1	1.62	●	●	●	60°			●	●	KTTXR...-16 S...KTTXL16	J46
			M UN	0.5 -	- 56-48	0.00	0.3	1.12	●	●	●							
			M UN	0.5 -	- 48	0.05	0.3	1.12	●	●	●	55°			●	●	KTTXR...-16 S...KTTXL16	J46
			G, R W	-	28-19 24-20	0.10	0.75	1.01	●	●	●							
G, R W	-	19-11 20-11	0.15	1.20	1.46	●	●	●										

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

Recommended Cutting Conditions ● J38

■ TT and TTX

Type	Shape	Features		
		Rake Angle after Installation	Condition	Dead Space
TT		<p>6°</p>	<ul style="list-style-type: none"> <li>One insert can machine various pitch sizes</li> </ul>	<p>Large</p>
TTX		<p>15°</p>	<ul style="list-style-type: none"> <li>The Least Cutting Force</li> <li>Thread to shoulder (Less dead space)</li> <li>One Insert can machine various pitch sizes (less than TT)</li> </ul>	<p>Small</p>

● : Std. Item

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

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

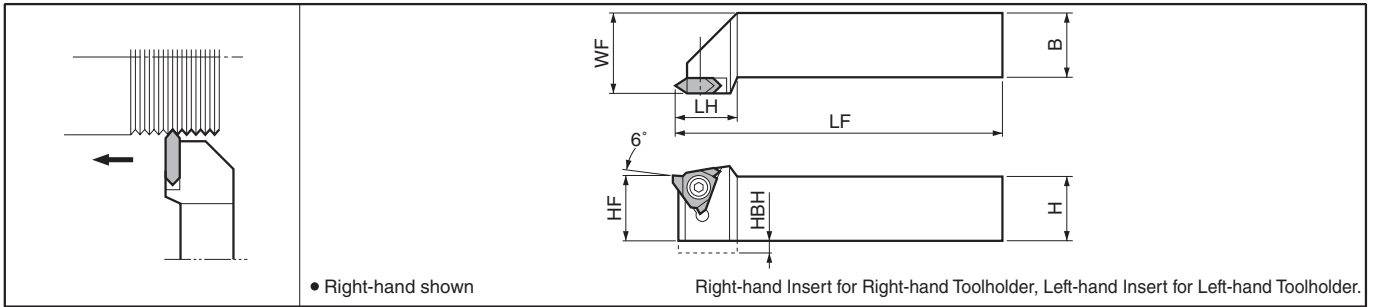
Insert Grades  
Turnable Inserts  
Indexable Inserts  
CNC & PCO Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Turning Mill  
Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T



# External Threading Toolholders [TT Insert]

## KTT



### Toolholder Dimensions

Description	Stock		Dimension (mm)								Spare Parts			
	R	L	H	HF	HBH	B	LF	LH	WF	Clamp Screw		Wrench		
KTT <sup>R/L</sup>	●	●	10	10	4	10	80	18	12	SB-4070TRS	-	FT-10	-	
	●	●	12	12	2	12	100		16					
	●	●	16	16	-	16	100		20					
	●	●	20	20	-	20	125	25	25	SB-4TR	-	FT-15	-	
	●	●	25	25	-	25	150		30					
	●	●	20	20	-	20	125		25					
●	●	25	25	-	25	150	25	-	GS-50	-	LW-3			

### Applicable Inserts

Description	IC	S	D1	P	M	K	N	Classification of usage	
								●	○
TT32 <sup>R/L</sup>	9.525	3.18	4.4	○	○	●	●	●	○
TT43 <sup>R/L</sup>	12.70	4.76	5.5	○	○	●	●	●	○

Insert	Description	Applicable Thread	Pitch		Dimension (mm)		Angle	Cement			PVD Coated Carbide			Carbide	Applicable Toolholders	See Page for Depth of Cut & Number of Passes
			mm	TPI	RE	PDX		PNA	TC60M	PR930	PR1115	KW10				
			Handed Insert shows Right-hand		R	L		R	L	R	L	R	L			
Partial Profile	TT32 <sup>R/L</sup>	6000	M UN	0.5-2.5	-	56-10	0.0	-	-	60°	●	●	●	●	KTT <sup>R/L</sup> ....-16	J45
			M UN	1.0-2.5	-	24-10	0.1	-	-	60°	●	●	●	●		
			M UN	1.5-2.5	-	16-10	0.2	-	-	60°	●	●	●	●		
	M UN	2.5	-	11-10	0.3	-	-	60°	●	●	●	●				
	TT32 <sup>R/L</sup>	5501	G,PT W	-	28-11	24-10	0.1	-	55°	●	●	●	●			
			G,PT W	-	14-11	14-10	0.2	-	55°	●	●	●	●			
M			1.00	-	0.12	0.8	●	●	●	●	●					
Full Profile	TT43ER	100M	M	1.25	-	0.15	0.9	60°	●	●	●	●	J46			
				150M	1.50	-	0.19	1.0	60°	●	●	●		●		
				200M	2.00	-	0.25	1.7	60°	●	●	●		●		
				125M	1.25	-	0.15	0.9	60°	●	●	●		●		
Partial Profile	TT43 <sup>R/L</sup>	6001	M UN	1.0-3.5	-	24-8	0.1	-	60°	●	●	●	●	KTT <sup>R/L</sup> ....-22	J45	
			M UN	1.5-3.5	-	16-8	0.2	-	60°	●	●	●	●			
			M UN	2.5-3.5	-	11-8	0.3	-	60°	●	●	●	●			
			M UN	3.0-3.5	-	8	0.4	-	60°	●	●	●	●			
	TT43 <sup>R/L</sup>	5501	G,PT W	-	28-11	24-7	0.1	-	55°	●	●	●	●			
			G,PT W	-	14-11	16-7	0.2	-	55°	●	●	●	●			
			G,PT W	-	11	10-7	0.3	-	55°	●	●	●	●			
			G,PT W	-	8-7	0.4	-	55°	●	●	●	●				

Recommended Cutting Conditions **J38**

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

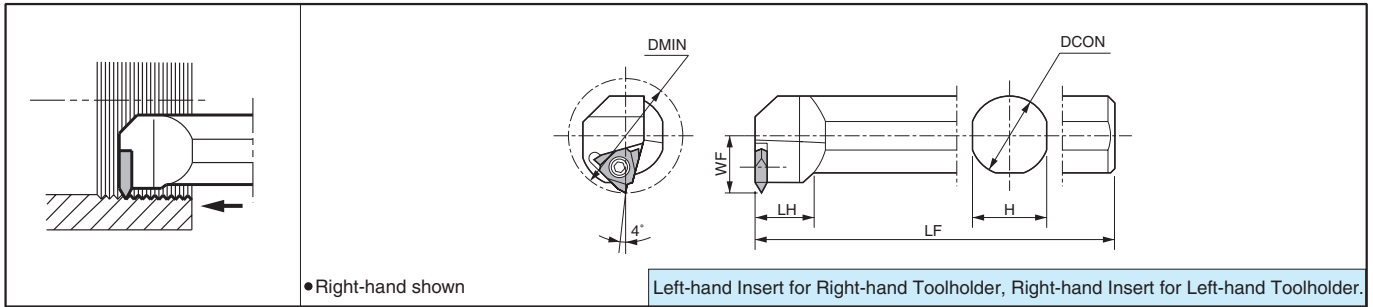
PR930 / PR1115 (Threading) are sold in 5 piece boxes

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

● : Std. Item

# Internal Threading Toolholders [TT Insert]

## KITG



### Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)					Spare Parts			
	R	L		DMIN	DCON	H	LF	LH	WF	Clamp Screw		Wrench
	<b>KITG<sup>R/L</sup></b> <b>3525T-16</b> <b>4532T-22</b>	●	●	35	25	23	220	18	17.5	SB-4TR	-	FT-15
	●	●	45	32	30	250	20	22.5	-	GS-50	-	LW-3

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

### Applicable Inserts

Description	IC	S	D1	Classification of usage			
				P	M	K	N
				●	○	●	○
<b>TT32<sup>R/L</sup></b>	9.525	3.18	4.4	●	○	●	○
<b>TT43<sup>R/L</sup></b>	12.70	4.76	5.5	○	○	○	●

Insert	Description	Applicable Thread	Pitch		Dimension (mm)		Angle	Cermet	PVD Coated Carbide				Carbide	Applicable Toolholders	See Page for Depth of Cut & Number of Passes				
			mm	TPI	RE	PNA			TC60M		PR930					PR1115		KW10	
									R	L	R	L				R	L	R	L
Partial Profile 	<b>TT32<sup>R/L</sup></b>	6000	M UN	0.5-2.5	-	48-10	0.0	60°	●	●	●	●	●	●	KITG <sup>R/L</sup> ...-16  KITG <sup>R/L</sup> ...-22				
			M UN	1.5-2.5	-	16-10	0.1	55°	●	●	●	●	●	●					
	<b>TT32<sup>R/L</sup></b>	5501	G.PT W	-	28-11	24-10	0.1	55°	●	●	●	●	●	●					
			G.PT W	-	16-18	0.2	60°	●	●	●	●	●	●	●					
	<b>TT43<sup>R/L</sup></b>	6001	M UN	1.5-3.0	-	16-10	0.1	60°	●	●	●	●	●	●					
			M UN	3.0	-	8	0.2	55°	●	●	●	●	●	●					
	<b>TT43<sup>R/L</sup></b>	5501	G.PT W	-	28-11	24-8	0.1	55°	●	●	●	●	●	●					
			G.PT W	-	14-11	16-8	0.2	55°	●	●	●	●	●	●					
		G.PT W	-	11	11-8	0.3	55°	●	●	●	●	●	●						
		G.PT W	-	8	0.4	55°	●	●	●	●	●	●	●						

Recommended Cutting Conditions **J38**

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

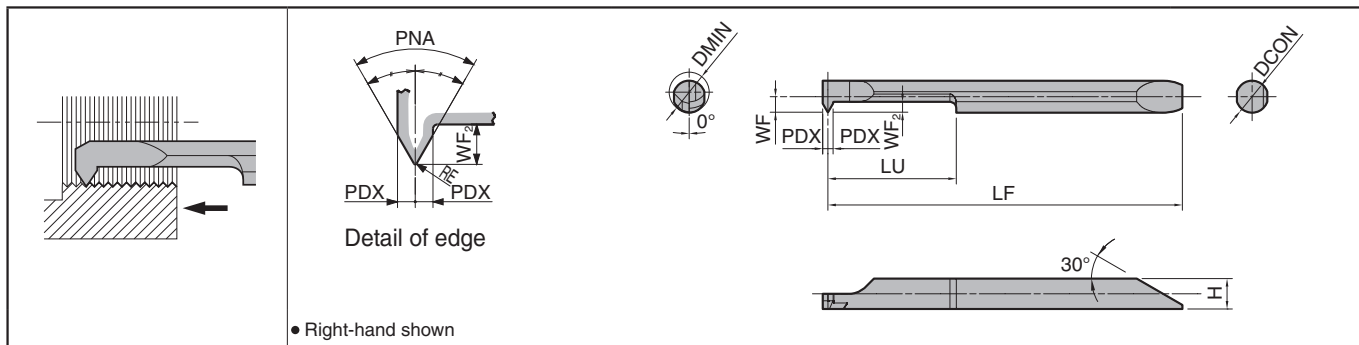
● : Std. Item

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

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

Insert Grades  
Turnable Inserts  
CNC & PCD Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Turning Mill  
Spare Parts  
Technical Information  
Index

## EZT



### Dimensions

Description	Min. Bore Dia.	Dimension (mm)										MEGA COAT	Carbide	Applicable Thread					
		DMIN	DCON	H	LF	LU	WF	WF <sub>2</sub>	PDX	RE	PNA			Metric		Unified		American National Tapered Pipe	
														Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	Nominal Thread	Pitch (TPI)
<b>EZTR 030025-60-002</b>	3.0	2.5	2.3	34.5	6.0	1.19	1.0	0.5	0.02 <sup>+0.01</sup>	60°	PR1225	GW05	M4 and over <small>(Fine Thread: M3.5 and over)</small>	0.35~0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-	
<b>035030-60-002</b>	3.5	3.0	2.8	38.4	8.4	1.44	1.2	0.6					M4.5 and over <small>(Fine Thread: M4.5 and over)</small>	0.5~1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-	
<b>040035-60-004</b>	4.0	3.5	3.3	41.4	10.4	1.69	1.2	0.6					M5 and over <small>(Fine Thread: M6 and over)</small>	0.75~1.25	No.12-24UNC No.12-28UNF and over	28~20	-	-	
<b>050040-60-004</b>	5.0	4.0	3.8	44.35	15.35	1.94	1.3	0.65					M7 and over <small>(Fine Thread: M6 and over)</small>	0.75~1.5	1/4-20UNC 1/4-28UNF and over	28~18	-	-	
<b>060050-60-004</b>	6.0	5.0	4.8	52.4	19.2	2.44	1.6	0.8					M8 and over <small>(Fine Thread: M7 and over)</small>	0.75~1.5	5/16-18UNC 5/16-24UNF and over	24~16	1/4NPT 3/8NPT	18	
<b>070060-60-004</b>	7.0	6.0	5.8	60.2	24.0	2.94	2.0	1.0					M9 and over <small>(Fine Thread: M8 and over)</small>	0.75~1.75	3/8-16UNC 3/8-24UNF and over	24~16	1/4NPT and over	18,14	
													Whitworth		Parallel Pipe / Tapered Pipe				
<b>EZTR 060050-55-008</b>	6.0	5.0	4.8	52.4	19.2	2.44	1.6	0.8	0.085 <sup>+0.015</sup>	55°	PR1225	GW05	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-	
<b>080070-55-008</b>	8.0	7.0	6.8	63.2	24.0	3.44	2.0	1.0					W11 TPI20 and over	20~18	G1/8 and over R1/8 and over	28,19	-	-	

• For American National Tapered Pipe (NPT), use EZTR..-60-004 **J35**  
Applicable Sleeves **J33**

## Applicable Sleeves

Sleeve Description				Applicable Inserts		Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) F26	EZH-HP (Adjustable overhang length) F28	EZH-ST F30	Sleeve Shank Dia.	EZT	Shank Dia.	
			DCON(mm)		DCON(mm)	
		EZH 02512ST-80	12	EZTR030025-...	2.5	(General purpose)
		03012ST-80		EZTR035030-...	3	
		03512ST-80		EZTR040035-...	3.5	
		04012ST-80		EZTR050040-...	4	
		05012ST-80		EZTR060050-...	5	
		06012ST-80		EZTR070060-...	6	
		07012ST-80		EZTR080070-...	7	
	EZH 02516HP-100	EZH 02516ST-100	16	EZTR030025-...	2.5	(General purpose)
	03016HP-100	03016ST-100		EZTR035030-...	3	
	03516HP-100	03516ST-100		EZTR040035-...	3.5	
	04016HP-100	04016ST-100		EZTR050040-...	4	
	05016HP-100	05016ST-100		EZTR060050-...	5	
	06016HP-100	06016ST-100		EZTR070060-...	6	
	07016HP-100	07016ST-100		EZTR080070-...	7	
EZH 02519CT-120	EZH 02519HP-120	EZH 02519ST-120	19.05	EZTR030025-...	2.5	Citizen Machinery
03019CT-120	03019HP-120	03019ST-120		EZTR035030-...	3	
03519CT-120	03519HP-120	03519ST-120		EZTR040035-...	3.5	
04019CT-120	04019HP-120	04019ST-120		EZTR050040-...	4	
05019CT-120	05019HP-120	05019ST-120		EZTR060050-...	5	
06019CT-120	06019HP-120	06019ST-120		EZTR070060-...	6	
07019CT-120	07019HP-120	07019ST-120		EZTR080070-...	7	
EZH 02520CT-120	EZH 02520HP-120	EZH 02520ST-120	20	EZTR030025-...	2.5	Eguro Tsugami Citizen Machinery (General purpose)
03020CT-120	03020HP-120	03020ST-120		EZTR035030-...	3	
03520CT-120	03520HP-120	03520ST-120		EZTR040035-...	3.5	
04020CT-120	04020HP-120	04020ST-120		EZTR050040-...	4	
05020CT-120	05020HP-120	05020ST-120		EZTR060050-...	5	
06020CT-120	06020HP-120	06020ST-120		EZTR070060-...	6	
07020CT-120	07020HP-120	07020ST-120		EZTR080070-...	7	
EZH 02522CT-135	EZH 02522HP-135	EZH 02522ST-135	22	EZTR030025-...	2.5	Star Micronics Nomura DS Tsugami
03022CT-135	03022HP-135	03022ST-135		EZTR035030-...	3	
03522CT-135	03522HP-135	03522ST-135		EZTR040035-...	3.5	
04022CT-135	04022HP-135	04022ST-135		EZTR050040-...	4	
05022CT-135	05022HP-135	05022ST-135		EZTR060050-...	5	
06022CT-135	06022HP-135	06022ST-135		EZTR070060-...	6	
07022CT-135	07022HP-135	07022ST-135		EZTR080070-...	7	
EZH 02525.0CT-135	EZH 02525.0HP-135	EZH 02525.0ST-135	25	EZTR030025-...	2.5	Eguro Tsugami Citizen Machinery (General purpose)
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZTR035030-...	3	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZTR040035-...	3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZTR050040-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZTR060050-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZTR070060-...	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZTR080070-...	7	
EZH 02525.4CT-120	EZH 02525.4HP-120	EZH 02525.4ST-120	25.4	EZTR030025-...	2.5	Citizen Machinery
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZTR035030-...	3	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZTR040035-...	3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZTR050040-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZTR060050-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZTR070060-...	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZTR080070-...	7	

- Choose sleeves (DCB) to meet with DCON dimension of bar.
- Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.
- Machine manufacturers in random order.

Insert Grades  
 Turnable Inserts  
 CNV & PCD Tools  
 External  
 Small Parts  
 Machining  
 Boring  
 Grooving  
 Cut-off  
 Threading  
 Drilling  
 Milling  
 Tools for  
 Turning Mill  
 Spare Parts  
 Technical  
 Information  
 Index

A  
 B  
 C  
 D  
 E  
 F  
 G  
 H  
 J  
 K  
 M  
 N  
 P  
 R  
 T

# Recommended Cutting Conditions (EZT)

## ◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)	
	MEGACOAT	Carbide
	PR1225	GW05
Carbon Steel / Alloy Steel	★ 30-50	-
Stainless Steel	★ 30-50	-
Non-ferrous Metals	-	★ 30-50

★ : 1st Recommendation

<Note>

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

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

Pitch (mm)	Total ap (mm)	No. of Passes	1Pass	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	20 Pass
0.5	0.3	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.7	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.8	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03			
1.75	1.1	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03

## ◆ Depth of Cut & Number of Passes (Whitworth)

TPI	Total ap (mm)	No. of Passes	1Pass	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

## ◆ Depth of Cut & Number of Passes (Unified : UN, UNC, UNF, UNEF)

TPI	Total ap (mm)	No. of Passes	1Pass	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
36	0.44	10	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.02								
32	0.5	11	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
28	0.55	12	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03						
24	0.65	12	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03						
20	0.78	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03				
18	0.88	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	
16	0.99	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03

## Application of Parallel Pipe / Tapered Pipe Thread

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

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

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

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

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

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

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

## Application of American National Tapered Pipe Thread (NPT)

Nominal Thread	TPI	Internal Thread		
		Toolholder	Insert	
			Partial Profile	Full Profile
<sup>1</sup> / <sub>16</sub> NPT <sup>1</sup> / <sub>8</sub> NPT	27	No Tools Available		
<sup>1</sup> / <sub>4</sub> NPT <sup>3</sup> / <sub>8</sub> NPT	18	<b>EZH Sleeves</b>	<b>EZTR060050-60-004</b> <b>EZTR070060-60-004</b>	-
<sup>1</sup> / <sub>2</sub> NPT <sup>3</sup> / <sub>4</sub> NPT	14	<b>EZH Sleeves</b>	<b>EZTR070060-60-004</b>	-
<sup>1</sup> / <sub>2</sub> NPT <sup>3</sup> / <sub>4</sub> NPT	14	<b>SINR1616S-16</b> <b>SINR2016S-16</b>	-	<b>16IR14NPT</b>

• Application of NPTF Thread

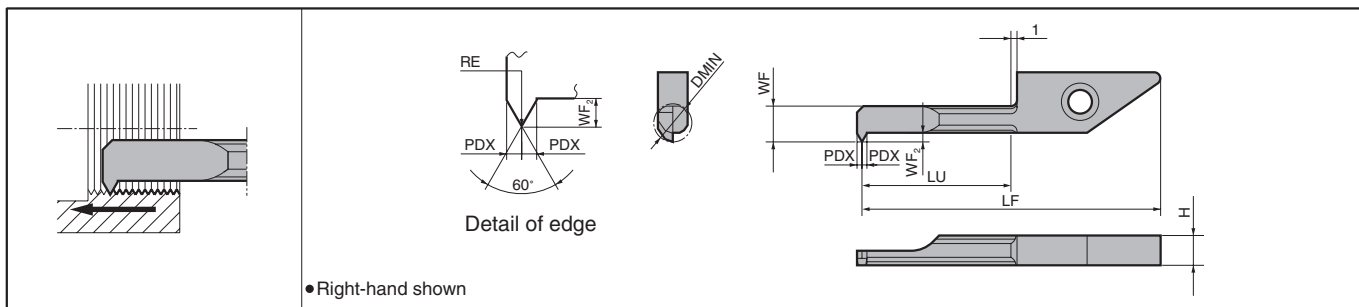
NPTF is the thread for sealing pipes without using any sealing material.

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

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

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

## VNT (System Tip-Bars)



### Dimensions

Description	Min. Bore Dia.	Dimension (mm)								Insert Grades			Applicable Thread			
		DMIN	H	LF	LU	WF	WF <sub>2</sub>	PDX	RE	MEGA COAT	PVD Coated Carbide	Carbide	Metric		Unified	
										PR1225	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
<b>VNTR</b> <b>045-11</b>	4.5	3.9	30.2	10.4	3.6	1.3	0.6	+0 -0.02 0.05	●	●	●	M6 and over	0.75 ~1.25	1/4-20UNC, 1/4-28UNF and over	28~20	
	<b>060-11</b>		6.0	30.0	10.2	4.6	1.6		0.8	●	●	●	M8 and over	0.75 ~1.50	5/16-18UNC, 5/16-24UNF and over	24~18

● For applicable Toolholder, See Page F34 ~ F35 .

### Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		
	MEGACOAT	PVD Coated Carbide	Carbide
	PR1225	PR930	KW10
Carbon Steel / Alloy Steel	★ 30~50	☆ 30~50	
Stainless Steel	★ 30~50	☆ 30~50	
Non-ferrous Metals			★ 30~50

<Note>

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

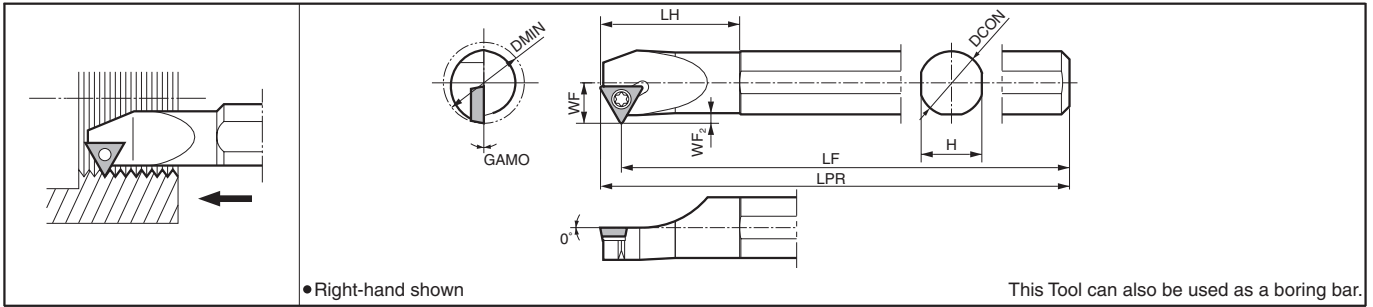
★ : 1st Recommendation ☆ : 2nd Recommendation

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

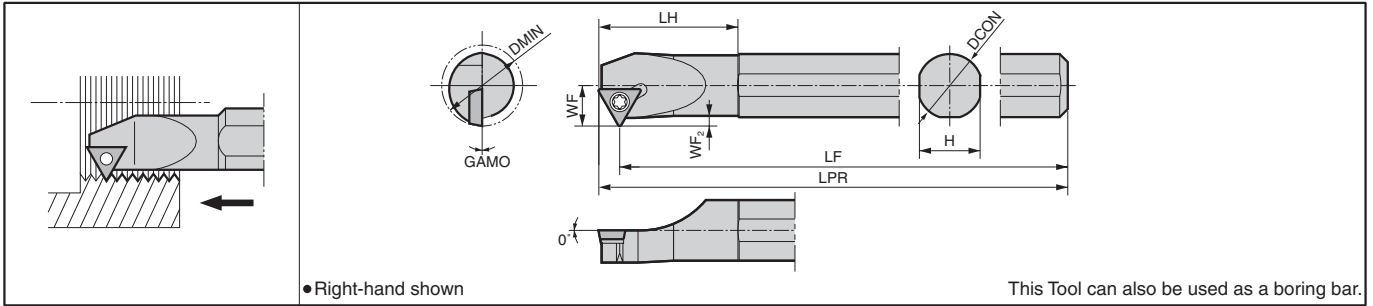
Pitch (mm)	Total ap (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03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

# Internal Threading Toolholders [TPGB Insert]

## S-STWP



## S-STWP-E Excellent Bar



### Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)								Available Pitch (mm)	Spare Parts	
	R	L		DMIN	DCON	H	LPR	LF	LH	WF	WF <sub>2</sub>		GAMO	Clamp Screw
S10M -STWPR11-12	●		12	10	9.2	150	144.5	23	6	1.0	0°	1.5 or less	SB-3STR	FT-10
S12M -STWPR11-16	●		16	12	11	150	144.5	30	8	1.5		2.0 or less		
S16Q -STWPR11-20	●		20	16	15	180	174.5	35	10	2.0		3.0 or less	SB-3TR	
S20R -STWPR11-25	●		25	20	19	200	194.5	40	12.5	2.5		3.5 or less		
S10M -STWP <sup>1/2</sup> L11-12E	●	●	12	10	9.2	150	144.5	23	6	1.0	0°	1.5 or less	SB-3STR	FT-10
S12M -STWP <sup>1/2</sup> L11-16E	●	●	16	12	11	150	144.5	30	8	1.5		2.0 or less		
S16R -STWP <sup>1/2</sup> L11-20E	●	●	20	16	15	200	194.5	35	10	2.0		3.0 or less	SB-3TR	
S20X -STWP <sup>1/2</sup> L11-25E	●	●	25	20	19	220	214.5	40	12.5	2.5		3.5 or less		

WF<sub>2</sub> : shows the Max. available ap.

### Applicable Inserts

Description	IC	S	D1	P	M	K	N	Classification of usage					
								● : 1st Choice	○ : 2nd Choice				
TPGB1102...	6.35	2.38	3.5	Carbon Steel / Alloy Steel		○	●	○					
TPGB1103...	6.35	3.18	3.3	Stainless Steel									
				Cast Iron									
				Non-ferrous Metals									

Insert	Description	Applicable Thread	Pitch		Dimension (mm)	Angle	Cermet					Applicable Toolholders	See Page for Depth of Cut & Number of Passes		
			mm	TPI			RE	PNA	TN620	TN60	PV720			PV730	KW10
	TPGB 1102005	M UN	0.75-1.5	-	28-16	0.05					●		●	...STWP <sup>1/2</sup> L11-12(E)	
	110201	M UN	1.5	-	16	0.10					●		●		
	TPGB 1103005	M UN	0.75-3.5	-	28-11	0.05					●		●		...STWP <sup>1/2</sup> L11-16(E) ...STWP <sup>1/2</sup> L11-20(E) ...STWP <sup>1/2</sup> L11-25(E)
	110301	M UN	1.5-3.5	-	16-8	0.10					●		●		
	110302	M UN	3.0-3.5	-	8	0.20					●	●	●		

Recommended Cutting Conditions **J38**

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

● : Std. Item

Inserts are sold in 10 piece boxes

Insert Grades  
 Turnable Inserts  
 CN & PCD Tools  
 External  
 Small Parts  
 Machining  
 Boring  
 Grooving  
 Cut-off  
 Threading  
 Drilling  
 Milling  
 Tools for Turning Mill  
 Spare Parts  
 Technical Information  
 Index

A  
 B  
 C  
 D  
 E  
 F  
 G  
 H  
 J  
 K  
 M  
 N  
 P  
 R  
 T



# Recommended Cutting Conditions

## KTN / KTNS / SIN / CIN / S-KTN

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)					
	Cermet	MEGACOAT	MEGACOAT NANO		PVD Coated Carbide	Carbide
	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
Carbon Steel	☆ 100~150	★ 100~150	-	-	☆ 100~150	-
First ap (Radial)	0.3mm or less	0.3mm or less			0.3mm or less	
Alloy Steel	☆ 100~150	★ 100~150	-	-	☆ 100~150	-
First ap (Radial)	0.3mm or less	0.3mm or less			0.3mm or less	
Stainless Steel	☆ 60~80	-	★ 60~100	☆ 40~80	☆ 60~80	-
First ap (Radial)	0.25mm or less		0.25mm or less	0.25mm or less	0.25mm or less	
Cast Iron	-	-	-	-	-	★ 100
First ap (Radial)						0.3mm or less
Aluminum Alloys	-	-	-	-	-	★ 150~400
First ap (Radial)						0.3mm or less
Brass	-	-	-	-	-	★ 150~300
First ap (Radial)						0.3mm or less

• For O6IR / O8IR, please lower it to a figure under 40% of above condition list

## KTT

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

## S-STWP(-E)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)			
	Cermet		PVD Coated Cermet	Carbide
	TN620	TN60	PV720	KW10
Carbon Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.25mm or less	0.25mm or less	0.25mm or less	
Alloy Steel	☆ 100~150	☆ 100~150	★ 100~150	-
First ap (Radial)	0.25mm or less	0.25mm or less	0.25mm or less	
Stainless Steel	-	-	-	-
First ap (Radial)				
Cast Iron	-	-	-	★ 100
First ap (Radial)				0.25mm or less
Aluminum Alloys	-	-	-	★ 150~400
First ap (Radial)				0.25mm or less
Brass	-	-	-	★ 150~300
First ap (Radial)				0.25mm or less

## KTTX / S-KTTX

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

## KITG

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

★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- In case of using cermet insert, honing the edge with hand lapper enables higher stability.
- In case of threading stainless steel, please set two to three passes more than previous description of <Depth of Cut & Number of Passes>.



# Depth of Cut & Number of Passes

**11/16** (Full Profile)

(ap shows the value of radial ap)

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

**60° / 55°** (Partial Profile)

(ap shows the value of radial ap)

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

# 60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type	Pitch / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
	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	0.05					
		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		
		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									
	Internal Thread	1.00mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03								
			08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.03	0.03									
		1.25mm	06IR 60005	0.05	0.76	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03							
			08IR 60007	0.07	0.74	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03						
		1.5mm	08IR 60007	0.07	0.90	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03					
		1.75mm		0.07	1.07	19	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03			
		0.50mm	11IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04																
		1.00mm		0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04															
		1.50mm		0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04												
		0.5mm	16IR A60 AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04																
		Internal Thread	0.75mm	16IR A60 AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04														
				16IR A60 AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04														
			1.00mm	16IR A60 AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04														
				16IR A60 AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04														
			1.25mm	16IR A60 AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04													
			1.50mm	16IR A60 AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04											
				16IR G60 AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04											
			1.75mm	16IR G60 AG60	0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04											
			2.00mm	16IR G60 AG60	0.11	1.19	10	0.20	0.18	0.17	0.15	0.13	0.11	0.08	0.07	0.06	0.04										
				16IR G60 AG60	0.02	1.28	12	0.20	0.17	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04	0.04							
	2.50mm		16IR G60 AG60	0.11	1.51	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.05	0.04	0.02						
	3.00mm		16IR G60 AG60	0.11	1.84	16	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.08	0.07	0.06	0.04	0.02					
			16IR G60 AG60	0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.02	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			0.22	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	0.22	2.70		18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.06	0.05						
5.00mm	0.22	3.03		19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05				
Unified	External Thread	48 TPI	16ER A60-TF/TQ AG60-TF/TQ	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04																
		24 TPI	16ER A60-TF/TQ AG60-TF/TQ	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04														
		20 TPI	16ER A60-TF/TQ AG60-TF/TQ	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05													
		18 TPI	16ER A60-TF/TQ AG60-TF/TQ	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05													
			16 TPI	16ER A60-TF/TQ AG60-TF/TQ	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.06	0.04											
		14 TPI	16ER G60-TF/TQ AG60-TF/TQ	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05												
			16ER G60-TF/TQ AG60-TF/TQ	0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04										
		13 TPI	16ER G60-TF/TQ AG60-TF/TQ	0.22	1.26	9	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05												
			16ER G60-TF/TQ AG60-TF/TQ	0.06	1.43	11	0.25	0.23	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04										
		12 TPI	16ER G60-TF/TQ AG60-TF/TQ	0.22	1.38	10	0.25	0.22	0.20	0.17	0.15	0.12	0.10	0.07	0.06	0.04											
		10 TPI	16ER G60-TF/TQ AG60-TF/TQ	0.22	1.71	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.05									
			16ER G60-TF/TQ AG60-TF/TQ	0.06	1.87	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04								
		9 TPI	16ER G60-TF/TQ AG60-TF/TQ	0.22	1.92	13	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04								
			16ER G60-TF/TQ AG60-TF/TQ	0.06	2.08	14	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05							
		8 TPI	16ER G60-TF/TQ AG60-TF/TQ	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							
			16ER G60-TF/TQ AG60-TF/TQ	0.06	2.35	16	0.30	0.25	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05					
		Internal Thread	48 TPI	16ER A60 AG60	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04															
				16ER A60 AG60	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												
				16ER A60 AG60	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05												
	18 TPI		16ER A60 AG60	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05													
			16ER A60 AG60	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05													
	16 TPI		16ER A60 AG60	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.06	0.04												
			16ER G60 AG60	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05												
	14 TPI		16ER G60 AG60	0.22	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										
			16ER G																								

# Depth of Cut & Number of Passes

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

Type	Pitch / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	mm - TPI																								
Unified	28 TPI	061R 60005	0.05	0.54	12	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03								
	24 TPI			0.64	12	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03							
	20 TPI	061R 60005 081R 60007	0.05 0.07	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	0.03					
	18 TPI			0.85	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03			
	16 TPI	081R 60007	0.07	0.96	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	
	48 TPI			0.32	5	0.08	0.07	0.07	0.06	0.04															
	24 TPI	111R A60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04													
	20 TPI			0.8	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04												
	18 TPI			0.9	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04											
	16 TPI			1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04										
	48 TPI	161R A60 AG60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04															
	24 TPI			0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04													
	20 TPI	161R A60 AG60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04												
	18 TPI			0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04												
	16 TPI	161R A60 AG60	0.02	0.90	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04											
	14 TPI			0.90	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04											
	13 TPI	161R G60 AG60	0.11	1.07	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.04											
	12 TPI			1.16	11	0.15	0.14	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.06	0.04									
	10 TPI	161R G60 AG60	0.11	1.16	10	0.20	0.18	0.16	0.14	0.12	0.11	0.08	0.07	0.06	0.04										
	9 TPI			1.26	11	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04	0.04					
	8 TPI	161R G60 AG60	0.11	1.35	13	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.04								
	7 TPI			1.54	14	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.05	0.04	0.02	0.02				
	6 TPI	221R N60	0.22	1.63	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02	0.02			
	5 TPI			1.72	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02	0.02			
	8 TPI	221R N60	0.11	1.81	17	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02	0.02			
	7 TPI			1.95	17	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02	0.02	
	6 TPI	221R N60	0.11	2.04	19	0.20	0.19	0.18	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02	0.02		
	5 TPI			2.14	14	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.07	0.06	0.05	0.05	0.04	0.04	0.03	0.02
4 TPI	221R N60	0.22	2.53	17	0.28	0.26	0.23	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05				
3 TPI			3.08	19	0.30	0.28	0.26	0.25	0.23	0.22	0.20	0.17	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.08	0.06	0.05			
Parallel Pipe / Tapered Pipe	28 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04													
	19 TPI			1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05												
	14 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04											
	11 TPI			1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04									
	28 TPI	16ER A55 AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04													
	19 TPI			1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05												
	14 TPI	16ER G55 AG55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04											
	11 TPI			1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04									
	28 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								
	11 TPI			1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03							
	Whitworth	48 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
		24 TPI			0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
		18 TPI			0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
		16 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		14 TPI			1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
12 TPI		16ER G55-TF/TQ AG55-TF/TQ	0.22	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									
10 TPI				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									
9 TPI		16ER G55-TF/TQ AG55-TF/TQ	0.22	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04									
8 TPI				1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.12	0.09	0.07	0.05										
8 TPI		16ER G55-TF/TQ AG55-TF/TQ	0.22	1.64	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.05	0.04							
8 TPI				1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03							
8 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.22	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.09	0.07	0.05									
8 TPI			1.98	14	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05							
8 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.22	2.01	14	0.24	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05							
8 TPI			2.29	15	0.28	0.26	0.24	0.22	0.19	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05						
8 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.06	2.49	16	0.30	0.28	0.26	0.24	0.22	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.06	0.05					
8 TPI			2.49	16	0.30	0.28	0.26	0.24	0.22	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08							



**60° / 55° (Partial Profile)**

(ap shows the value of radial ap)

Type	Pitch / TPI	Description	Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19				
	mm · TPI																											
Whitworth	External Thread	48 TPI	16ER A55 AG55	0.06 0.06	0.37 0.37	5 5	0.12 0.12	0.09 0.09	0.07 0.07	0.05 0.05	0.04 0.04																	
		24 TPI	16ER A55 AG55	0.06 0.06	0.79 0.79	7 7	0.18 0.18	0.16 0.16	0.14 0.14	0.11 0.11	0.08 0.08	0.07 0.07	0.05 0.05															
		20 TPI	16ER A55 AG55	0.06 0.06	0.96 0.96	8 8	0.20 0.20	0.18 0.18	0.15 0.15	0.13 0.13	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05														
		18 TPI	16ER A55 AG55	0.06 0.06	1.07 1.07	9 9	0.20 0.20	0.17 0.17	0.16 0.16	0.14 0.14	0.11 0.11	0.09 0.09	0.08 0.08	0.07 0.07	0.05 0.05													
		16 TPI	16ER A55 AG55	0.06 0.06	1.22 1.22	11 11	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.11 0.11	0.10 0.10	0.09 0.09	0.08 0.08	0.07 0.07	0.06 0.06	0.04 0.04											
		14 TPI	16ER G55 AG55	0.22 0.06	1.20 1.40	9 11	0.22 0.24	0.19 0.22	0.17 0.19	0.15 0.16	0.13 0.14	0.10 0.12	0.09 0.10	0.08 0.08	0.07 0.06	0.04 0.05												
		12 TPI	16ER G55 AG55	0.22 0.06	1.44 1.64	10 12	0.24 0.24	0.22 0.22	0.20 0.20	0.18 0.18	0.15 0.16	0.12 0.12	0.12 0.10	0.09 0.09	0.07 0.07	0.05 0.05	0.06 0.06	0.05 0.05										
		11 TPI	16ER G55 AG55	0.22 0.06	1.60 1.79	12 13	0.24 0.25	0.22 0.22	0.20 0.21	0.18 0.20	0.16 0.18	0.14 0.16	0.13 0.14	0.10 0.12	0.08 0.10	0.06 0.08	0.05 0.05	0.04 0.03										
		10 TPI	16ER G55 AG55	0.22 0.06	1.78 1.98	12 14	0.24 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.17 0.16	0.15 0.15	0.13 0.14	0.12 0.13	0.11 0.12	0.10 0.11	0.09 0.10	0.07 0.09	0.05 0.08	0.05 0.05								
		9 TPI	16ER G55 AG55	0.22 0.06	2.01 2.20	14 15	0.24 0.27	0.22 0.22	0.20 0.20	0.19 0.20	0.18 0.18	0.16 0.16	0.15 0.14	0.14 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.09	0.07 0.08	0.05 0.08	0.05 0.05							
	8 TPI	16ER G55 AG55	0.22 0.06	2.29 2.49	15 16	0.28 0.30	0.26 0.28	0.24 0.26	0.22 0.24	0.19 0.20	0.16 0.18	0.14 0.16	0.13 0.14	0.12 0.12	0.11 0.11	0.10 0.10	0.09 0.09	0.08 0.08	0.06 0.06	0.05 0.05								
	7 TPI			2.43	16	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.10	0.09	0.08	0.06	0.05							
	6 TPI			2.92	18	0.30	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05					
	5 TPI	22ER N55	0.47	3.60	21	0.30	0.28	0.27	0.26	0.25	0.24	0.22	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.11	0.10	0.09	0.07				
	Whitworth	Internal Thread	28 TPI	06IR 5501 08IR 5501	0.10	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03								
			19 TPI	08IR 5501	0.10	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03						
			24 TPI			0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05														
			20 TPI			0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04													
			18 TPI	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			1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
24 TPI			16IR A55 AG55	0.06 0.06	0.72 0.72	7 7	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05															
20 TPI			16IR A55 AG55	0.06 0.06	0.87 0.87	8 8	0.16 0.16	0.15 0.15	0.14 0.14	0.13 0.13	0.11 0.11	0.08 0.08	0.06 0.06	0.04 0.04														
18 TPI			16IR A55 AG55	0.06 0.06	0.97 0.97	8 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.10 0.10	0.08 0.08	0.06 0.06	0.05 0.05														
16 TPI			16IR A55 AG55	0.06 0.06	1.10 1.10	9 9	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.10	0.08 0.08	0.07 0.07	0.05 0.05													
14 TPI		16IR G55 AG55	0.22 0.06	1.06 1.27	8 11	0.21 0.20	0.19 0.18	0.17 0.17	0.15 0.15	0.12 0.13	0.10 0.10	0.09 0.09	0.08 0.08	0.07 0.07	0.06 0.06	0.04 0.04												
12 TPI		16IR G55 AG55	0.22 0.06	1.28 1.48	9 11	0.22 0.24	0.20 0.22	0.19 0.20	0.17 0.18	0.15 0.16	0.13 0.13	0.10 0.11	0.08 0.09	0.06 0.06	0.05 0.05	0.04 0.04												
11 TPI		16IR G55 AG55	0.22 0.06	1.42 1.62	10 12	0.24 0.24	0.22 0.22	0.20 0.20	0.18 0.16	0.15 0.14	0.12 0.12	0.10 0.10	0.09 0.08	0.07 0.07	0.05 0.05	0.04 0.06	0.05 0.04											
10 TPI		16IR G55 AG55	0.22 0.06	1.59 1.79	12 13	0.24 0.25	0.22 0.22	0.20 0.21	0.18 0.20	0.16 0.18	0.14 0.16	0.12 0.14	0.10 0.12	0.08 0.10	0.06 0.08	0.05 0.05	0.04 0.03											
9 TPI		16IR G55 AG55	0.22 0.06	1.79 1.99	12 14	0.24 0.25	0.22 0.23	0.20 0.20	0.18 0.16	0.17 0.15	0.15 0.14	0.13 0.13	0.12 0.12	0.10 0.11	0.09 0.10	0.07 0.09	0.05 0.08	0.05 0.05	0.04 0.08	0.04 0.05								
8 TPI		16IR G55 AG55	0.22 0.06	2.05 2.25	14 15	0.24 0.28	0.23 0.26	0.22 0.24	0.20 0.21	0.18 0.18	0.16 0.16	0.15 0.14	0.14 0.13	0.12 0.12	0.11 0.11	0.10 0.10	0.08 0.09	0.07 0.08	0.05 0.05	0.05 0.05								
7 TPI				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				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	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03							
	5.0mm		22ER 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03					
	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	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03							
		5.0mm	22IR 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03					
		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	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03							

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T  
 Insert Grades  
Turning  
Indexable Inserts  
CNC & CDD Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for  
Turning Mill  
Spare Parts  
Technical  
Information

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

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

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

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

# Depth of Cut & Number of Passes

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

(ap shows the value of radial ap)

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

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

(ap shows the value of radial ap)

Type	Pitch / TPI mm · TPI	Description	Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17				
Metric (60°)	External Thread	0.50mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02															
		0.70mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02														
		0.75mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02													
		0.80mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02													
		1.00mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.76	8	0.15	0.12	0.12	0.11	0.10	0.08	0.06	0.02													
		TT32/43 <sup>9</sup> / <sub>32</sub> % 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02															
		1.25mm TT32 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02														
		1.50mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	1.14	10	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.02											
		TT32/43 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02												
	6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02														
	1.75mm TT32 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.10	0.08	0.07	0.05	0.02											
	6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02													
	2.00mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	1.52	12	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02										
	TT32/43 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02											
	6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.08	0.05	0.02												
	2.50mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	1.89	13	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.14	0.13	0.10	0.08	0.06	0.02									
	TT32/43 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.79	12	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.06	0.02										
	6002	0.20	1.69	11	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.10	0.08	0.02											
6003	0.30	1.59	11	0.27	0.25	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.05	0.02												
3.00mm TT43 <sup>9</sup> / <sub>32</sub> % 6001	0.10	2.17	14	0.30	0.25	0.23	0.20	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02									
6002	0.20	2.07	13	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.13	0.12	0.10	0.05	0.02										
6003	0.30	1.97	12	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.02											
6004	0.40	1.87	12	0.30	0.25	0.23	0.20	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.02											
3.50mm TT43 <sup>9</sup> / <sub>32</sub> % 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	0.16	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	0.16	0.14	0.12	0.10	0.08	0.05	0.02								
Internal Thread	0.50mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02																	
	0.70mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02																
	0.75mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02																
	0.80mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02																
	1.00mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02															
	1.25mm TT32 <sup>9</sup> / <sub>32</sub> % 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02														
	1.50mm TT32 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02														
	1.75mm TT32 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02													
	2.00mm TT32 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02											
2.50mm TT32 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 6001	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02										
3.00mm TT43 <sup>9</sup> / <sub>32</sub> % 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	0.02									
6002	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.02									
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI TT32 <sup>9</sup> / <sub>32</sub> % 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02																
		19 TPI TT32/43 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 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 <sup>9</sup> / <sub>32</sub> % 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	0.02										
	5502	0.20	1.62	12	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									
5503	0.30	1.50	11	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.04	0.02										
Internal Thread	28 TPI TT32/43 <sup>9</sup> / <sub>32</sub> % 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.06	0.02																
	19 TPI TT32/43 <sup>9</sup> / <sub>32</sub> % 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05															
	14 TPI TT32/43 <sup>9</sup> / <sub>32</sub> % 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	0.02											
5502	0.20	1.22	9	0.20	0.18	0.18	0.16	0.15	0.12	0.10	0.08	0.05	0.02													
11 TPI TT32/43 <sup>9</sup> / <sub>32</sub> % 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</											



# Depth of Cut & Number of Passes

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

(ap shows the value of radial ap)

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

## TT (60°, Full Profile)

(ap shows the value of radial ap)

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

## TTX (60° / 55°, Partial Profile)

(ap shows the value of radial ap)

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

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

### TTX

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

# TPGB (60°, Partial Profile)

(ap shows the value of radial ap)

Type	Pitch / TPI mm · TPI	Description	Corner-R (RE)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
Metric (60°)	Internal Thread	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												
		TPGB1102005 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											
		TPGB1102005 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									
		TPGB1102005 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							
		TPGB1102005 110301	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02							
3.00mm	TPGB1102005 1103005	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.02							
	TPGB1102005 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						
	TPGB1102005 110302	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02							
3.50mm	TPGB1102005 1103005	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02					
	TPGB1102005 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					
	TPGB1102005 110302	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02						

## Guide for Internal Threading

For the internal threading, pay extra attention to “Stabilizing Bore Dia.” and “Chip evacuation”.

### 1. “Stabilizing Bore Dia.”

Because small pitch internal threading has small corner-R(RE), there is variation in the Bore Dia. which may greatly influence the tool life of an insert.

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

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

### 2. “Chip evacuation”

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

Therefore, please ensure that there are no tangled chips in the machine by the following method.

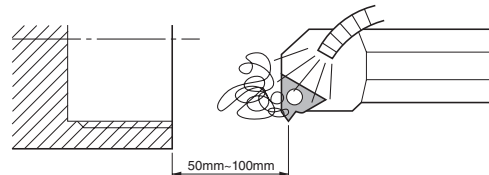
<When processing the first workpiece>

Set the program with the “single block”

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

<When processing the second workpiece and later>

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



Insert Grades  
Turnings  
Indexable Inserts  
CNC & PC Tools  
External  
Small Parts  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Turning Mill  
Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

# Applicable Toolholders & Inserts

In Applicable Toolholder / Insert Lists on **J48-J51**, 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 **J54**.

## Parallel Pipe [G(PF), Rp(PS)]

Nominal Thread Symbol (Previous Symbol)	TPI	External Thread (G)			Internal Thread (G, Rp)			Bore Dia.	Same Root's Radius
		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile			Partial Profile	Full Profile	
G 1/16 (-)	28	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ	-	SINR0612S-06E (EZT J32)	06IR5501	-	6.56	0.12
G 1/8 (PF 1/8)			16ERAG55-TF/TQ 16ERA55 16ERAG55					8.57	
G 1/4 (PF 1/4)	19	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ	16ER19W-TF/TQ 16ER19W	SINR0816S-08E (EZT J32)	08IR5501	-	11.45	0.18
G 3/8 (PF 3/8)			16ERAG55-TF/TQ 16ERA55 16ERAG55					14.95	
G 1/2 (PF 1/2)	14	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER14W-TF/TQ 16ER14W	SINR1516S-11	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W	18.63	0.25
G 5/8 (PF 5/8)					SINR1616S-16			20.59	
G 3/4 (PF 3/4)					SINR2016S-16			24.12	
G 7/8 (PF 7/8)					SINR2420S-16			27.88	
G 1 (PF 1)	11	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF/TQ 16IR11W	30.29	0.32
G 1 1/8 (PF 1 1/8)					CINR3025S-16			34.94	
G 1 1/4 (PF 1 1/4)					CINR3732S-16			38.95	
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G 1 1/4 is recommended.									

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

Nominal Thread Symbol (Previous Symbol)	TPI	External Thread (R)			Internal Thread (Rc)			Bore Dia.	Same Root's Radius
		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile			Partial Profile	Full Profile	
R 1/16, Rc 1/16 (-)	28	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	(16ERA55-TF/TQ)	16ER28BSPT-TF/TQ 16ER28BSPT	SINR0612S-06E (EZT J32)	06IR5501	-	6.56	0.12
R 1/8, Rc 1/8 (PT 1/8)			(16ERAG55-TF/TQ) (16ERA55) (16ERAG55)					8.57	
R 1/4, Rc 1/4 (PT 1/4)	19	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	(16ERA55-TF/TQ)	16ER19BSPT-TF/TQ 16ER19BSPT	SINR0816S-08E (EZT J32)	08IR5501	-	11.45	0.18
R 3/8, Rc 3/8 (PT 3/8)			(16ERAG55-TF/TQ) (16ERA55) (16ERAG55)					14.95	
R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	(16ERAG55-TF/TQ)	16ER14BSPT-TF/TQ 16ER14BSPT	SINR1516S-11	16IRAG55 16IRG55 16IR5501 16IR5502	11IR14BSPT-TF/TQ 11IR14BSPT	18.63	0.25
R 3/4, Rc 3/4 (PT 3/4)			(16ERG55-TF/TQ) (16ERAG55) (16ERG55)		20.59				
R 1, Rc 1 (PT 1)	11	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	(16ERAG55-TF/TQ)	16ER11BSPT-TF/TQ 16ER11BSPT	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11BSPT-TF/TQ 16IR11BSPT	30.29	0.32
R 1 1/4, Rc 1 1/4 (PT 1 1/4)			(16ERG55-TF/TQ) (16ERAG55) (16ERG55)		34.94				
R 1 1/2, Rc 1 1/2 (PT 1 1/2)			(16ERG55)		38.95				
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for R 1 1/2 is recommended.									
					Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for Rc 1 1/2 is recommended.				

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

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

(e.g.) SINR2420S-16 (Min. Bore Dia.: ø24mm) is recommended for the Tool of G 7/8 Internal Threading from the above Table, but SINR2016S-16 can also be used.

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

J

Threading

## American National Tapered Pipe (NPT)

Nominal Thread	TPI	External Thread			Internal Thread		
		Toolholder	Insert		Toolholder	Insert	
			Partial Profile	Full Profile		Partial Profile	Full Profile
1/16 NPT 1/8 NPT	27	KTRR○○○○○□-16 KTTRR○○○○○□-16F	TT32R6000 TTX32R6000	-		No Tools Available	
1/4 NPT 3/8 NPT	18	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	-	16ER18NPT	EZH Sleeves (See Page J33)	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	-	16ER14NPT	EZH Sleeves (See Page J33)	EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	-	16ER14NPT	SINR1616S-16 SINR2016S-16	-	16IR14NPT
1 NPT 1 1/4 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	-	16ER11.5NPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	-	16IR11.5NPT

• Application of NPTF Thread

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

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

## 30° Trapezoidal (Tr)

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

Nominal Thread	Pitch (mm)	External Thread			Internal Thread						
		Toolholder	Insert		Toolholder	Insert		Bore Dia.			
			Partial Profile	Full Profile		Partial Profile	Full Profile				
Tr 16X2 Tr 18X2 Tr 20X2	2	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	16ER200TR	-	SINR1616S-16	16IR200TR	-	16.00 18.00			
Tr 22X3 Tr 24X3 Tr 26X3	3	KTNR○○○○○□-16 KTNSR○○○○○□-16 S○○□-KTNL16	16ER300TR	-	SINR1616S-16	16IR300TR	-	19.00			
Tr 28X3 Tr 30X3 Tr 32X3 Tr 34X3 Tr 36X3 Tr 38X3 Tr 40X3	3				SINR2016S-16	16IR300TR	-	21.00 23.00			
Tr 42X3 Tr 44X3 Tr 46X3 Tr 48X3 Tr 50X3 Tr 52X3 Tr 55X3 Tr 60X3 Tr 65X3	3				CINR3025S-16	16IR300TR	-	25.00 27.00 29.00 31.00 33.00 35.00 37.00			
Tr 70X4 Tr 75X4 Tr 80X4 Tr 90X4 Tr 95X4 Tr 100X4 Tr 105X4 Tr 110X4	4				KTNR○○○○○□-22	22ER400TR	-	CINR3732S-22	22IR400TR	-	39.00 41.00 43.00 45.00 47.00 49.00 52.00 57.00 62.00 66.00 71.00 76.00 86.00 91.00 96.00 101.00 106.00

• TM Thread

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

• TW Thread

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

• Pitch 5 is not listed in the table above because there is no designation of screws specified in the Japanese Industrial Standards (JIS).

Insert Grades  
Indexable Inserts  
Turning  
CNC & PCO Tools  
External  
Small Parts  
Machining  
Boring  
Grooving  
Cut-off  
Threading  
Drilling  
Milling  
Tools for Spare Parts  
Technical Information  
Index

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
M  
N  
P  
R  
T

## Metric Coarse Thread : M

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

## Metric Fine Thread : M

Part 2

Nominal Thread	Pitch (mm)	Internal Thread			Bore Dia.	
		Toolholder	Insert			
			Partial Profile	Full Profile		
M14x1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	12.38	
M14x1.25	1.25			11IR125ISO-□□	12.65	
M14x1.0	1.0			11IR100ISO-□□	12.92	
M15x1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	13.38	
M15x1.0	1.0			11IR100ISO-□□	13.92	
M16x1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□	14.38	
M16x1.0	1.0			11IR100ISO-□□	14.92	
M17x1.5	1.5	SINR1516S-11	11IRA60 11IR60005	11IR150ISO-□□	15.38	
M17x1.0	1.0			11IR100ISO-□□	15.92	
M18x2.0	2.0	SINR1516S-11	-	11IR200ISO	15.84	
M18x1.5	1.5	SINR1616S-16	Table 2	16IR150ISO-□□	16.38	
M18x1.0	1.0			Table 3	16IR100ISO-□□	16.92
M20x2.0	2.0	SINR1616S-16	Table 1	16IR200ISO-□□	17.84	
M20x1.5	1.5			Table 2	16IR150ISO-□□	18.38
M20x1.0	1.0			Table 3	16IR100ISO-□□	18.92
M22x2.0	2.0	SINR1616S-16	Table 1	16IR200ISO-□□	19.84	
M22x1.5	1.5	SINR2016S-16	Table 2	16IR150ISO-□□	20.38	
M22x1.0	1.0			Table 3	16IR100ISO-□□	20.92
M24x2.0	2.0	SINR2016S-16	Table 1	16IR200ISO-□□	21.84	
M24x1.5	1.5			Table 2	16IR150ISO-□□	22.38
M24x1.0	1.0			Table 3	16IR100ISO-□□	22.92
M25x2.0	2.0	SINR2016S-16	Table 1	16IR200ISO-□□	22.84	
M25x1.5	1.5			Table 2	16IR150ISO-□□	23.38
M25x1.0	1.0			Table 3	16IR100ISO-□□	23.92
M26x1.5	1.5	SINR2420S-16	Table 2	16IR150ISO-□□	24.38	
M27x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	24.84	
M27x1.5	1.5			Table 2	16IR150ISO-□□	25.38
M27x1.0	1.0			Table 3	16IR100ISO-□□	25.92
M28x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	25.84	
M28x1.5	1.5			Table 2	16IR150ISO-□□	26.38
M28x1.0	1.0			Table 3	16IR100ISO-□□	26.92
M30x3.0	3.0	SINR2420S-22	-	22IR300ISO	26.75	
		SINR2420S-16	Table 4	16IR300ISO-□□		
M30x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	27.84	
M30x1.5	1.5			Table 2	16IR150ISO-□□	28.38
M30x1.0	1.0			Table 3	16IR100ISO-□□	28.92
M32x2.0	2.0	SINR2420S-16	Table 1	16IR200ISO-□□	29.84	
M32x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	30.38	
M33x3.0	3.0	SINR2420S-22	-	22IR300ISO	29.75	
		SINR2420S-16	Table 4	16IR300ISO-□□		
M33x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	30.84	
M33x1.5	1.5			Table 2	16IR150ISO-□□	31.38
M35x1.5	1.5			Table 2	16IR150ISO-□□	33.38
M36x3.0	3.0	CINR3025S-22	-	22IR300ISO	32.75	
		CINR3025S-16	Table 4	16IR300ISO-□□		
M36x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	33.84	
M36x1.5	1.5			Table 2	16IR150ISO-□□	34.38
M38x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	36.38	
M39x3.0	3.0	CINR3025S-22	-	22IR300ISO	35.75	
		CINR3025S-16	Table 4	16IR300ISO-□□		
M39x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	36.84	
M39x1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	37.38	
M40x3.0	3.0	CINR3025S-22	-	22IR300ISO	36.75	
		CINR3025S-16	Table 4	16IR300ISO-□□		
M40x2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	37.84	
M40x1.5	1.5			Table 2	16IR150ISO-□□	38.38
M42x4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67	
M42x3.0	3.0	CINR3732S-16	Table 4	22IR300ISO	38.75	
				16IR300ISO-□□		
M42x2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	39.84	
M42x1.5	1.5			Table 2	16IR150ISO-□□	40.38
M45x4.0	4.0	* Threading of M45 and over can be machined by the same tool for M42. (P=4.0, 3.0, 2.0, 1.5)			40.67	

Table 1(P=2.0mm)

16IRG60
16IRAG60
16IR6001

Table 2(P=1.5mm)

16IRA60
16IRAG60
16IR6001

Table 3(P=1.0mm)

16IRA60
16IRAG60

Table 4(P=3.0mm)

16IRG60
16IRAG60

Table 5(P=2.5mm)

16IRG60
16IRAG60
16IR6001
16IR60015

## Metric Fine Thread : M

Part 1

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

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



## Unified Coarse Thread : UNC

Nominal Thread	TPI	Internal Thread				Bore Dia.
		Toolholder	Insert			
			Partial Profile	Full Profile		
2-56 UNC	56	No Tools Available	-	-	1.69	
6-32 UNC	32		-	-	2.65	
8-32 UNC	32		-	-	3.31	
10-24 UNC	24	-	EZTR035030-60-002	-	3.68	
12-24 UNC	24	-	EZTR040035-60-004	-	4.34	
1/4-20 UNC	20	-	EZTR050040-60-004	-	4.98	
		-	VNTR045-11	-		
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41	
		-	VNTR060-11	-		
3/8-16 UNC	16	-	EZTR070060-60-004	-	7.81	
7/16-14 UNC	14	No Tools Available				9.15
1/2-13 UNC	13					10.58
9/16-12 UNC	12					12.00
5/8-11 UNC	11	No Tools Available				13.38
3/4-10 UNC	10					16.30
7/8-9 UNC	9					19.17
1-8 UNC	8	SINR2016S-16	16IRAG60	16IR10UN-□□	21.96	
1 1/8-7 UNC	7	SINR2420S-22	22IRN60	-	24.65	
1 1/4-7 UNC	7	SINR2420S-22		-	27.82	
1 3/8-6 UNC	6	CINR3025S-22		-	30.34	
1 1/2-6 UNC	6	CINR3025S-22	-	33.52		
1 3/4-5 UNC	5	CINR3732S-22	-	38.95		
2-4 1/2 UNC	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.				44.69

## Unified Fine Thread : UNF

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

## Whitworth Coarse Thread : W

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

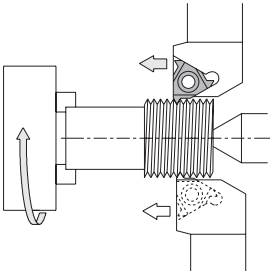
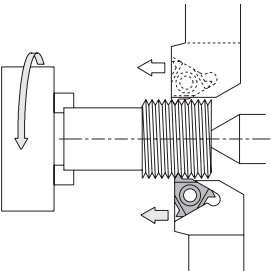
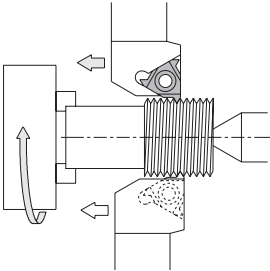
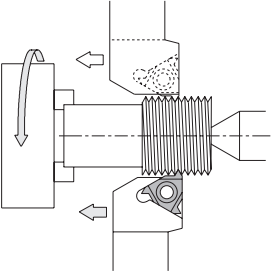
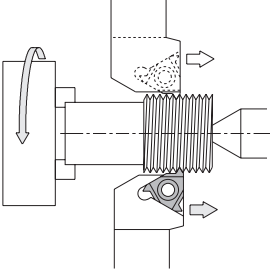
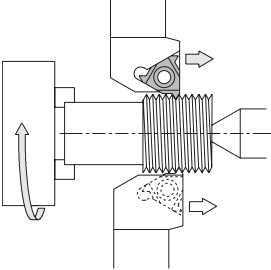
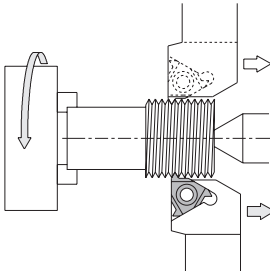
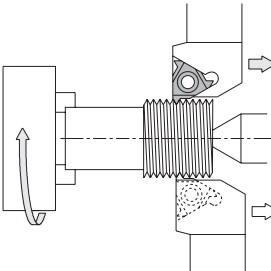
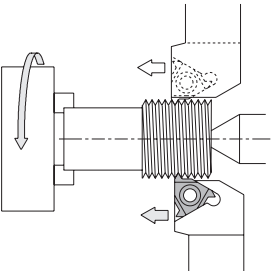
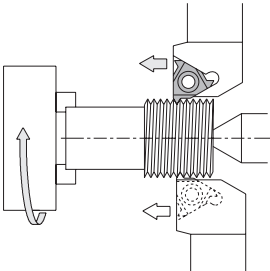
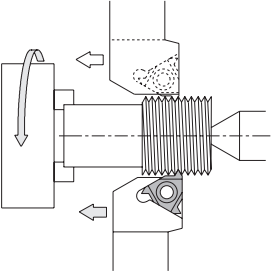
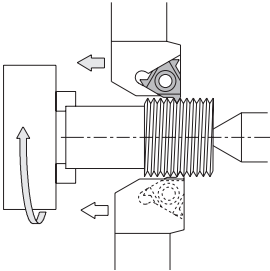
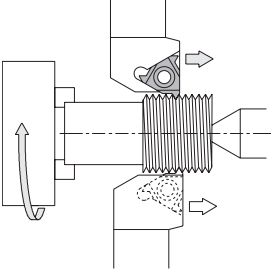
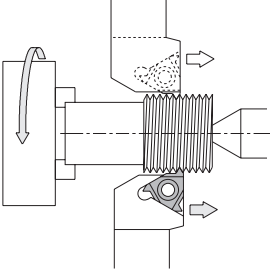
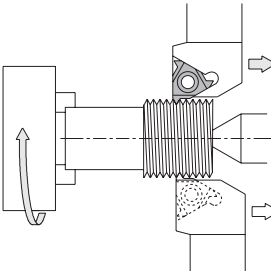
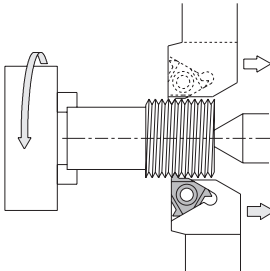
## Whitworth Fine Thread : W

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

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

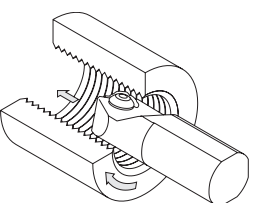
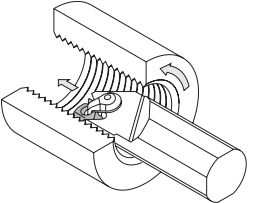
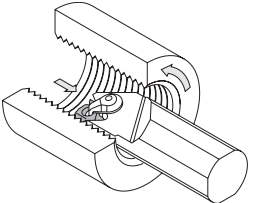
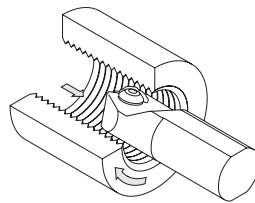
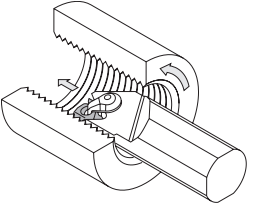
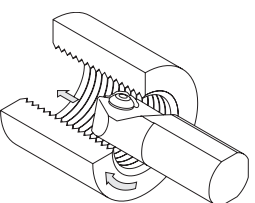
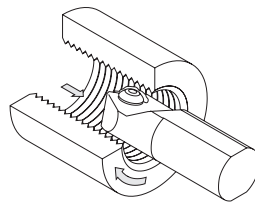
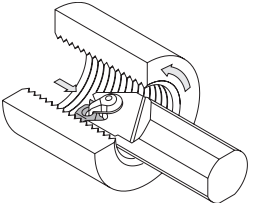
# Threading Methods

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

		External Thread													
Left-hand Thread	<table border="1"> <tr><td>Toolholder</td><td>Left-hand</td></tr> <tr><td>Insert</td><td>Left-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M04</td></tr> </table> 	Toolholder	Left-hand	Insert	Left-hand	The direction of spindle revolution	M04	<table border="1"> <tr><td>Toolholder</td><td>Right-hand</td></tr> <tr><td>Insert</td><td>Right-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M03</td></tr> </table> 	Toolholder	Right-hand	Insert	Right-hand	The direction of spindle revolution	M03	
	Toolholder	Left-hand													
	Insert	Left-hand													
	The direction of spindle revolution	M04													
Toolholder	Right-hand														
Insert	Right-hand														
The direction of spindle revolution	M03														
<table border="1"> <tr><td>Toolholder</td><td>Right-hand</td></tr> <tr><td>Insert</td><td>Right-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M04</td></tr> </table> 	Toolholder	Right-hand	Insert	Right-hand	The direction of spindle revolution	M04	<table border="1"> <tr><td>Toolholder</td><td>Left-hand</td></tr> <tr><td>Insert</td><td>Left-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M03</td></tr> </table> 	Toolholder	Left-hand	Insert	Left-hand	The direction of spindle revolution	M03		
Toolholder	Right-hand														
Insert	Right-hand														
The direction of spindle revolution	M04														
Toolholder	Left-hand														
Insert	Left-hand														
The direction of spindle revolution	M03														
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Toolholder	Left-hand														
Insert	Left-hand														
The direction of spindle revolution	M03														
Toolholder	Right-hand														
Insert	Right-hand														
The direction of spindle revolution	M04														
<table border="1"> <tr><td>Toolholder</td><td>Right-hand</td></tr> <tr><td>Insert</td><td>Right-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M03</td></tr> </table> 	Toolholder	Right-hand	Insert	Right-hand	The direction of spindle revolution	M03	<table border="1"> <tr><td>Toolholder</td><td>Left-hand</td></tr> <tr><td>Insert</td><td>Left-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M04</td></tr> </table> 	Toolholder	Left-hand	Insert	Left-hand	The direction of spindle revolution	M04		
Toolholder	Right-hand														
Insert	Right-hand														
The direction of spindle revolution	M03														
Toolholder	Left-hand														
Insert	Left-hand														
The direction of spindle revolution	M04														
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\* These tables are based on KTN / KTNS / KTT / KTTX Toolholder.

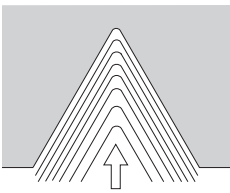
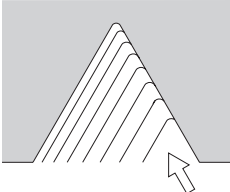
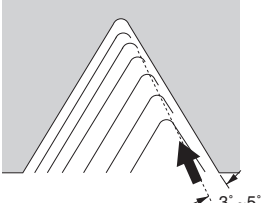
## Internal Threading (Left-hand Thread / Right-hand Thread)

		Internal Thread													
Left-hand Thread	<table border="1"> <tr><td>Toolholder</td><td>Left-hand</td></tr> <tr><td>Insert</td><td>Left-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M04</td></tr> </table> 	Toolholder	Left-hand	Insert	Left-hand	The direction of spindle revolution	M04	<table border="1"> <tr><td>Toolholder</td><td>Right-hand</td></tr> <tr><td>Insert</td><td>Right-hand</td></tr> <tr><td>The direction of spindle revolution</td><td>M03</td></tr> </table> 	Toolholder	Right-hand	Insert	Right-hand	The direction of spindle revolution	M03	
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\* These tables are based on SIN / CIN Toolholder.

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

## Infeed Methods

Infeed Methods	Features
 <p>Radial Infeed</p>	<ul style="list-style-type: none"> <li>• The most common threading method. The cutting edge moves toward the center of the workpiece every pass.</li> <li>• Suitable for relatively small pitch size threading.</li> <li>• V-shape chips are generated and chip control may be difficult depending on workpiece material.</li> </ul>
 <p>Flank Infeed</p>	<ul style="list-style-type: none"> <li>• Suitable for large pitch size threading.</li> <li>• The wear on the right side edge of the figure (no ap) tends to become greater.</li> <li>• Chips flow to one side.</li> </ul>
 <p>Flank Compound Infeed</p>	<ul style="list-style-type: none"> <li>• Revised compound methods of the above flank infeed method.</li> <li>• No "No ap." condition.</li> <li>• Chips flow to one side.</li> </ul>

## Lead Angle of Thread

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

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

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

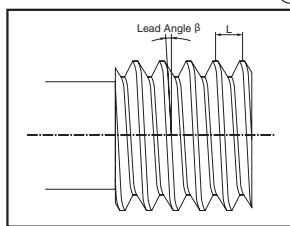


Fig. 1

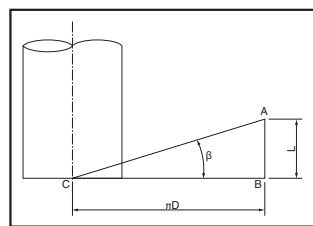


Fig. 2

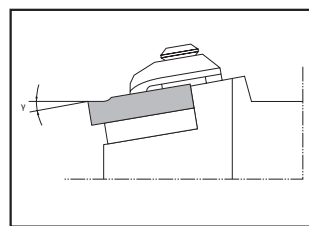


Fig. 3

## Relief Angle of Thread

Against this lead angle, the threading insert requires a side relief angle  $\alpha$ . Negative type threading insert has no relief angle. When a negative insert is mounted in the holder, the edge inclination angle  $\gamma$  (Fig. 3) is set, and at the same time, the front and side relief angles are generated on the insert. Side relief angle is described by the following formula. (Fig. 4)

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

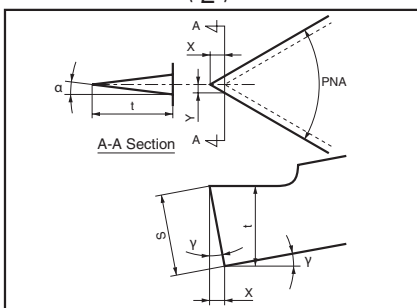


Fig. 4

Symbol	e.g.)
$\alpha$ : Side Relief Angle	
$\gamma$ : Inclination Angle after Installing Insert	External Insert : 10° Internal Insert : 15°
PNA : Insert's Thread Angle	Metric : 60° Tapered Pipe : 55° 30° Trapezoidal : 30°
S : Insert Thickness	

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

Table 1

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

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

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



# Thread Types & Basic Profile

## Thread Types & Basic Profile / Applicable Toolholders & Inserts

	Basic Profile	Symbol (Previous Symbol)	Type	Applicable Inserts	Applicable Toolholders
Metric		<b>M</b>  e.g.) <b>M30</b>	External	○○E%L○○○ISO(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTN%L○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			External	TT43E%L○○○M TT○○%L60○○ TTX32R60○○	KTT%L○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○I%L○○○ISO(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	SIN%L○○○○S-○○(E) CIN%L○○○○S-○○
			Internal	TT○○%L60○○ TPGB11○○○○(○)	KITG%L○○○○T-○○ S○○□-STWP%L11-○○(E)
Unified		<b>UN UNC UNF UNEF</b>  e.g.) <b>3/4 -16 UNF</b>	External	○○ER○○UN(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			External	TT○○%L60○○ TTX32R60○○	KTT%L○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○UN(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%L60○○ TPGB11○○○○(○)	KITG%L○○○○T-○○ S○○□-STWP%L11-○○(E)
Parallel Pipe		External : <b>G(PF)</b> Internal : <b>G(PF)</b> <b>Rp(PS)</b>  e.g.) <b>G3/4 (PF3/4)</b>	External	○○ER○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			External	TT○○%L55○○ TTX32R55○○	KTT%L○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%L55○○ KITG%L○○○○T-○○	
Whitworth		<b>W</b>  e.g.) <b>W3/8</b>	External	○○ER○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			External	TT○○%L55○○ TTX32R55○○	KTT%L○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%L55○○ KITG%L○○○○T-○○	
Tapered Pipe		External : <b>R(PT)</b> <b>(BSPT)</b> Internal : <b>Rc(PT)</b> <b>(BSPT)</b>  e.g.) <b>R1/2 (PT1/2)</b>	External	16ER○○BSPT(-TF/TQ)	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			External	TT○○%L55○○* TTX32R55○○*	KTT%L○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			Internal	○○IR○○BSPT(-TF/TQ)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%L55○○* KITG%L○○○○T-○○	
American National Tapered Pipe		<b>NPT</b>  e.g.) <b>3/8 -18 NPT</b>	External	16ER○○(.○)NPT	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	16IR○○(.○)NPT	SINR○○○○S-○○ CINR○○○○S-○○
30° Trapezoidal		<b>Tr</b>  e.g.) <b>Tr 26x3</b>	External	○○ER○○○TR	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	○○IR○○○TR	SINR○○○○S-○○ CINR○○○○S-○○

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

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