

Threading

J1~J52

Summary of External Threading / Summary of Internal Threading J2

Product Introduction J4

Summary of Threading Inserts J5

Threading Inserts (External / Internal) J6~J19

Metric (M) J6

Unified (UN) J8

Parallel Pipe [G (PF)] Whitworth (W) J10

Tapered Pipe [R, Rc(PT) (BSPT)] J12

American National Tapered Pipe (NPT) J14

60° Type (Partial Profile / M, UN) J16

55° Type [Partial Profile / G(PF), R, Rc(PT) (BSPT), W] J18

30° Trapezoidal J18

Threading Toolholders (External / Internal) J20~J35

KTN / KTNS J20

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

KTTX Small Parts Machining J26

S-KTTX Sleeve Holder J26

KTT J28

KITG J29

EZT EZ Bars J30

VNT System Tip-Bars J34

S-STWP / S-STWP-E J35

Technical Information J36~J52

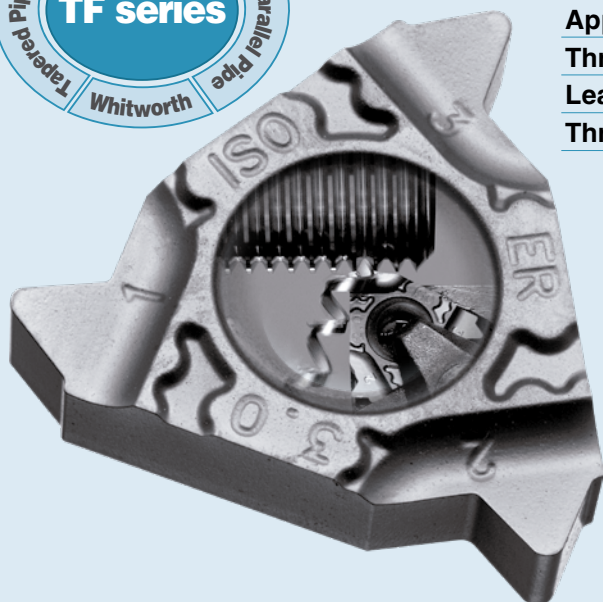
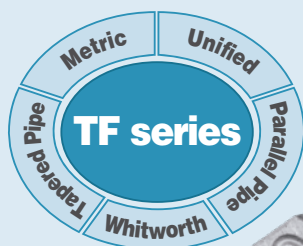
Recommended Cutting Conditions J36

Applicable Toolholders & Inserts J46

Threading Methods J50

Lead Angle & Relief Angle of Thread J51

Thread Types & Basic Profile J52



Summary of External Threading

Tooling Application Table (External Thread)

Thread Types		Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal
		M	UN, UNC UNF, UNEF	G(PF)	W	R(PT) (BSPT)	NPT	Tr
Thread shape								
Pitch	Toolholder Shape	mm	TPI	TPI	TPI	TPI	TPI	mm
KTN J20 (KTN-JCT) J21 	Full Profile	0.5~5.0 (0.5~3.0) J6	24~8 (24~8) J8	19~11 (19~11) J10	16~11 (16~11) J10	28~11 (28~11) J12	18~11.5 (18~11.5) J14	-
	Partial Profile	0.5~5.0 (0.5~3.0) J16	48~5 (48~8) J16	28~11 (28~11) J18	40~5 (40~8) J18	28~11 (28~11) J18	-	2.0~5.0 (2.0~3.0) J18
KTNS J20 	Full Profile	0.5~3.0 J6	24~8 J8	19~11 J10	16~11 J10	28~11 J12	18~11.5 J14	-
	Partial Profile	0.5~3.0 J16	48~8 J16	28~11 J18	40~8 J18	28~11 J18	-	2.0~3.0 J18
Sleeve Holder S-KTN J22 	Full Profile	1.0~2.0 J28	-	-	-	-	-	-
	Partial Profile	0.5~3.5 J28	56~8 J28	28~11 J28	24~7 J28	28~11 J28	-	-
KTT J28 	Full Profile	1.0~2.0 J28	-	-	-	-	-	-
	Partial Profile	0.5~3.5 J28	56~8 J28	28~11 J28	24~7 J28	28~11 J28	-	-
KTTX J26 	Partial Profile	0.5~2.0 J27	56~14 J27	28~11 J27	24~11 J27	28~11 J27	-	-
	Partial Profile	0.5~2.0 J27	56~14 J27	28~11 J27	24~11 J27	28~11 J27	-	-
S-KTTX J26 	Partial Profile	0.5~2.0 J27	56~14 J27	28~11 J27	24~11 J27	28~11 J27	-	-
	Partial Profile	0.5~2.0 J27	56~14 J27	28~11 J27	24~11 J27	28~11 J27	-	-
KTKF J24 	Partial Profile	0.2~1.5 J24	64~18 J24	28~19 J24	40~16 J24	28~19 J24	-	-
	Partial Profile	0.2~1.5 J24	64~18 J24	28~19 J24	40~16 J24	28~19 J24	-	-
KTKF J24 (Goose-neck Holder) 	Partial Profile	0.2~1.5 J24	64~18 J24	28~19 J24	40~16 J24	28~19 J24	-	-
	Partial Profile	0.2~1.5 J24	64~18 J24	28~19 J24	40~16 J24	28~19 J24	-	-

· 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
EZT J30 	Partial Profile	0.5~1.75 J30	36~16 J30	28~19 J30	24~18 J30	28~19 J30	18~14 J30
	Partial Profile	0.75~1.5 J34	28~18 J34	-	-	-	-
VNT J34 	Partial Profile	0.5~5.0 J7	24~8 J9	19~11 J11	16~11 J11	28~11 J13	18~11.5 J15
	Partial Profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	2.0~5.0 J19
SIN J23 	Full Profile	0.5~5.0 J7	24~8 J9	19~11 J11	16~11 J11	14~11 J13	18~11.5 J15
	Partial Profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	2.0~5.0 J19
CIN J23 	Full Profile	1.0~5.0 J7	24~8 J9	19~11 J11	16~11 J11	14~11 J13	18~11.5 J15
	Partial Profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	2.0~5.0 J19
KITG J29 	Partial Profile	0.5~3.0 J29	48~8 J29	28~11 J29	24~8 J29	28~11 J29	-
	Partial Profile	0.5~3.0 J29	48~8 J29	28~11 J29	24~8 J29	28~11 J29	-
STWP J35 	Partial Profile	0.75~3.5 J35	28~8 J35	-	-	-	-
	Partial Profile	0.75~3.5 J35	28~8 J35	-	-	-	-

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

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

A
B
C
D
E
F
G
H
J
K
L
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

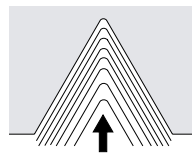
Asymmetric dot design controls chip-flow direction

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



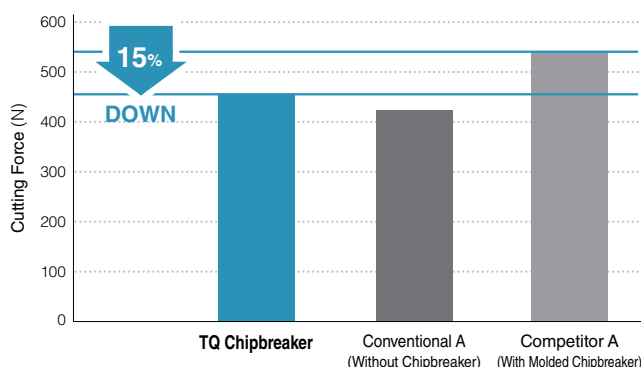
Competitor A

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

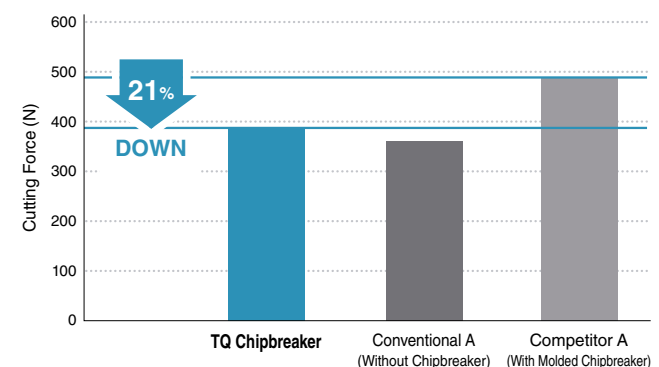
Strong Edge and Low Cutting Force

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°, Wet, 16ER150ISO type
Cutting force is average in total passes (6 passes), M35 x TP1.5 Workpiece Material : SCM415

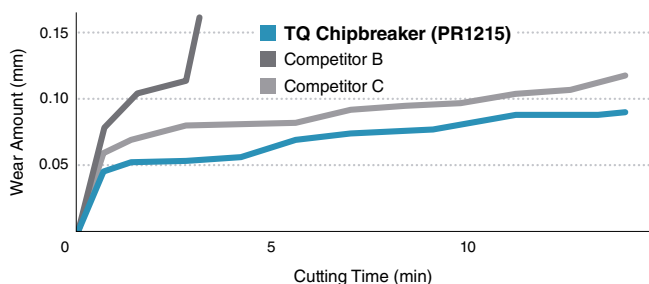
For Steel Machining

PR1215

For Stainless Steel Machining PR1515 PR1535 (Stability Oriented)

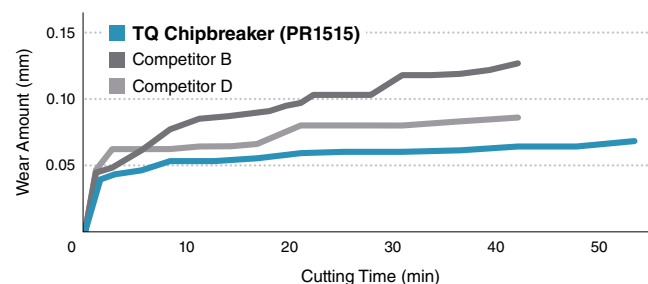
Wear Resistance Comparison (Internal evaluation)

Workpiece Material : SCM435



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

Workpiece Material : SUS304



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

KTKF

J24

“Threading” is added to Small Parts Machining special tool series

Threading

For Threading

TKFT



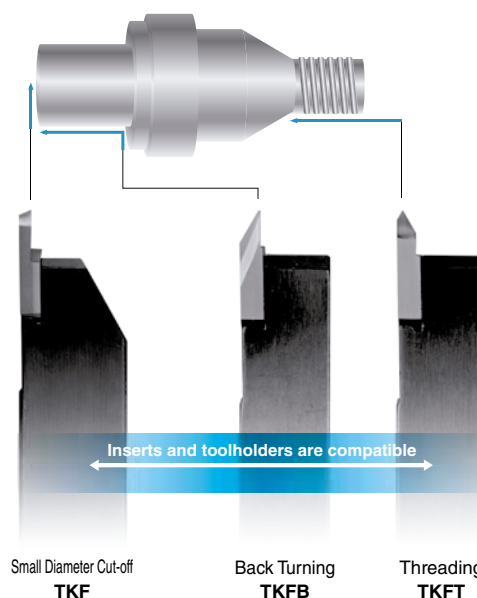
● Applicable for various type of threading

Metric (M)

Parallel Pipe [G (PF)]

Unified (UN)

Tapered Pipe [R(PT) (BSPT)]

Small Diameter Cut-off
TKFBack Turning
TKFBThreading
TKFT

Threading Insert Features

● Full Profile and Partial Profile

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

Full Profile 60°

Recommended Cutting Conditions ➡ J36

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

TC60M (Threading) are sold in 10 piece boxes

J6

(mm)

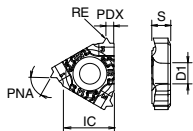
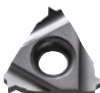
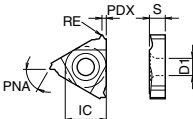
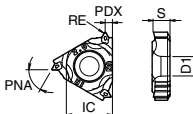
Full Profile 60°

Recommended Cutting Conditions ➡ J36

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

- Unified (UN)

Full Profile 60°

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			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	PR1535	PR1115	GW15				
					Pitch					R	L	R	L	R	L	R	L	R	L
					TPI														
Full Profile	 	16IR 24UN-TF 20UN-TF 18UN-TF 16UN-TF 14UN-TF 13UN-TF 12UN-TF 10UN-TF 08UN-TF	24	0.06	0.80	60°			●		●		○						
			20	0.08	1.00				●		●		○						
			18	0.09	1.00				●		●		○						
			16	0.10	1.10				●		●		○						
			14	0.12	1.50				●		●		○						
			13	0.13	1.50				●		●		○						
			12	0.14	1.50				●		●		○						
			10	0.17	1.50				●		●		○						
			8	0.21	1.80				●		●		○						
	 	16IR 24UN 20UN 18UN 16UN 14UN 12UN	24	0.05	0.80	60°	●						●						
			20	0.07	1.00		●						●						
			18	0.09	1.00		●						●						
			16	0.10	1.10		●						●						
			14	0.12	1.50		●						●						
			12	0.14	1.50		●						●						
	 	22IR 08UN 16IR 24UN-TQ 20UN-TQ 18UN-TQ 16UN-TQ 14UN-TQ 13UN-TQ 12UN-TQ 10UN-TQ 08UN-TQ	8	0.20	1.80	60°	●						●						
			24	0.06	0.80				●		●		●						
			20	0.08	1.00				●		●		●						
			18	0.09	1.00				●		●		●						
			16	0.10	1.10				●		●		●						
			14	0.12	1.50				●		●		●						
			13	0.13	1.50				●		●		●						
			12	0.14	1.50				●		●		●						
			10	0.17	1.50				●		●		●						
With Molded Chipbreaker			8	0.21	1.80			●		●		●							

● 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

Recommended Cutting Conditions ➡ J36

● : Std. Item
○ : Check Availability

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are
sold in 10 piece boxes

The diagram illustrates a cross-section of a grain boundary. A central region is labeled 'Internal' and contains a blue-shaded area representing the grain boundary. The angle between the two grain surfaces is marked as 55° . The thickness of this grain boundary region is labeled 'TP'. The region outside the grain boundary is labeled 'External'.

Description	IC	S	D1
16ER	9.525	3.68	4.0

Recommended Cutting Conditions ➡ J36

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

Internal Threading Inserts

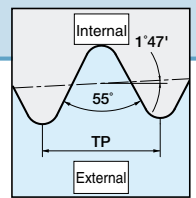
Parallel Pipe [G (PF)] Whitworth (W)

Full Profile 55° (mm)

Description	IC	S	D1
16IR	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													
Description		Applicable Thread		Dimension (mm)		Angle	Cermet	MEGACOAT MEGACOAT NANO						PVD Coated Carbide		Carbide	J38	
		G (PF)	W	RE	PDX	PNA	TC60M	PR1215		PR1515		PR1535		PR1115		GW15		
								Pitch	R	L	R	L	R	L	R			L
		TPI	R	L	R	L	R	L	R	L	R	L	R	L	R	L		
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				●		●		●		○				
14W	14	14	0.23	1.50	55°	●								●				
11W	11	11	0.30	1.50		●									●			
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				●		●		●						

Threading Inserts



External Threading Inserts

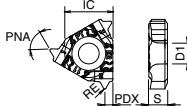
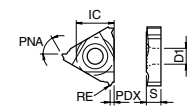
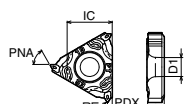
Tapered Pipe [R(PT) (BSPT)]

Full Profile 55° (mm)

Description	IC	S	D1
16ER	9.525	3.68	4.0

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

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	See Page for Depth of Cut & Number of Passes			
				R(PT) (BSPT)	RE	PDX	PNA	TC60M	PR1215		PR1515		PR1535		PR1115		GW15		
																		Pitch	
																		TPI	
Handed Insert shows Right-hand								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 J36

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

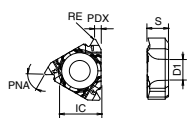
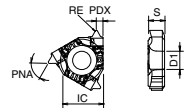
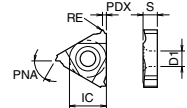
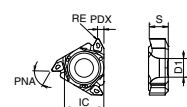
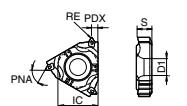
Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

● : Std. Item
 ○ : Check Availability

- Tapered Pipe [Rc (PT) (BSPT)]

Full Profile 55°

Full Profile 55° (mm)				Classification of usage ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel			●		○					
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 MEGACOAT NANO						PVD Coated Carbide	Carbide	
Handed Insert shows Right-hand			Rc(PT) (BSPT)	RE	PDX	PNA	TC60M	PR1215		PR1515		PR1535		PR1115		GW15
			Pitch					R	L	R	L	R	L	R	L	
			TPI													
		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	55°		●	●	●	○					
		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			●	●	●						
With Molded Chipbreaker		14BSPT-TQ	14	0.22	0.97			●	●	●						
		16IR 14BSPT-TQ	14	0.22	0.97			●	●	●						
With Molded Chipbreaker		11BSPT-TQ	11	0.29	1.50			●	●	●						

Full Profile

See Page for Depth of Cut & Number of Passes

J38

●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 ➡ J36

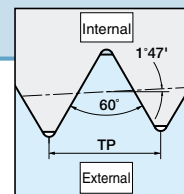
Applicable Thread	M : Metric	R, Rc (PT) (BSPT) : Tapered Pipe
	UN : Unified	W : Whitworth
	UNF : Unified Fine Thread	NPT : American National Tapered Pipe
	G (PF) : Parallel Pipe	Tr : 30° Trapezoidal

● : Std. Item
○ : Check Availability

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

Threading Inserts



External Threading Inserts

American National Tapered Pipe (NPT)

Full Profile 60°

(mm)

Description			IC	S	D1	Classification of Usage ● : 1st Choice	K	Cast Iron												
16ER			9.525	3.68	4.0		N	Non-ferrous Metals												
Insert					Description	Applicable Thread	Dimension (mm)		Angle	Cermet		MEGACOAT MEGACOAT NANO				PVD Coated Carbide		Carbide		
Handed Insert shows Right-hand						NPT	RE	PDX	PNA	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	60°	●							●	●			
				14NPT	14	0.05	1.5		●							●	●			
				11.5NPT	11.5	0.06	1.5		●							●	●			
																			J38	

Internal Threading Inserts

American National Tapered Pipe (NPT)

Full Profile 60°

(mm)

Description	IC	S	D1
16IR	9.525	3.68	4.0

Classification of usage ● : 1st 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													●		
Application	Applicable Thread	Dimension (mm)		Angle	Cermet		MEGACOAT MEGACOAT NANO						PVD Coated Carbide		Carbide			
	NPT	RE	PDX	PNA	TC60M		PR1215		PR1515		PR1535		PR1115		GW15			
	Pitch				R	L	R	L	R	L	R	L	R	L				
	TPI																	
18NPT	18	0.04	0.9	60°	●									●	●		J38	
14NPT	14	0.05	1.5		●										●	●		
11.5NPT	11.5	0.06	1.5		●										●	●		

Applicable Toolholders

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

Recommended Cutting Conditions J36

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

● : Std. Item

Threading inserts are sold in 5 piece boxes

TC60M (Threading) are sold in 10 piece boxes

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

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

Partial Profile 60°			(mm)
Description	IC	S	D1
16ER	9.525	3.68	4.0
22ER	12.70	4.9	4.85

Recommended Cutting Conditions ➡ J36

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

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

Classification of usage
● : 1st Choice

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	See Page for Depth of Cut & Number of Flutes	
			M	UN UNF	RE	PDX	PNA	TC60M	PR1215	PR1515	PR1535	PR1115	GW15					
														Pitch				
														mm	TPI			
Handed Insert shows Right-hand							R	L	R	L	R	L	R	L	R	L		
Partial Profile		11IR A60	0.5~1.5	48~16	0.02	1.00	60°								●			●
		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°								●		●	J42
		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 J36

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

Corner-R(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
Turning
Indexable Inserts
CNC & PCD Tools
External
Small Parts
Machining
Boring
Grooving
Cut-off
Threading
Drilling
Solid Tools
Milling
Tools for Turning Mill
Spare Parts
Technical Information
Index

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

A diagram of a single transverse fold. It shows a cross-section of a rock layer with a central fold. The top surface is labeled 'Internal' and the bottom surface is labeled 'External'. The angle between the two limbs of the fold is labeled '55°'. The horizontal distance between the two limbs is labeled 'TP'.

Partial Profile 55° (mm)

Recommended Cutting Conditions J36

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

Partial Profile 30° (mm)

Recommended Cutting Conditions J36

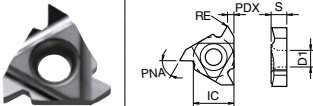
Insert Description	Applicable Toolholders	See Page for Applicable Toolholders
16ER...	KTNR...-16(JCT) KTNSR...-16 S...KTNL16	J20~J22
22ER...	KTNR ...-22	

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

Internal Threading Inserts

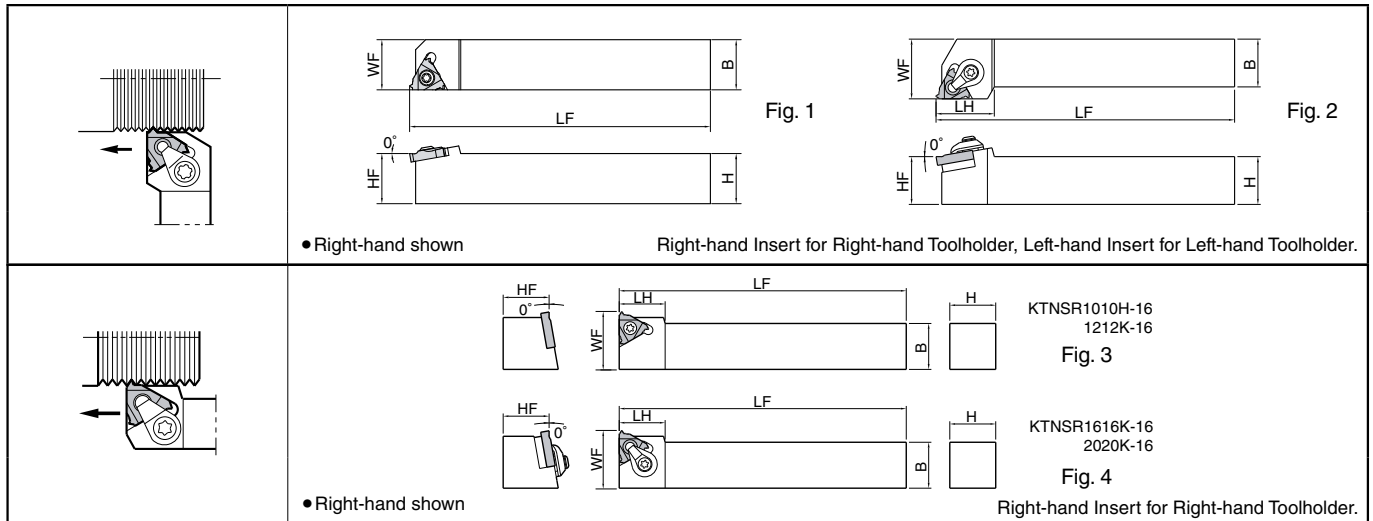
55° Type [Partial Profile / G(PF), Rc(PT) (BSPT), (W)]

Partial Profile 55° (mm)

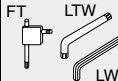
Description				IC	S	D1																	
06IR				3.97	1.91	2.3	Classification of usage ● : 1st Choice						P	Carbon Steel / Alloy Steel						●		See Page for Depth of Cut & Number of Passes	
08IR				4.76	2.38	2.3							M	Stainless Steel						●			
11IR				6.35	3.18	3.0							K	Cast Iron							●		
16IR				9.525	3.68	4.0							N	Non-ferrous Metals							●		
22IR				12.70	4.9	4.85																	
Insert Handed Insert shows Right-hand				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							
						Pitch																	
						TPI																	
									R	L	R	L	R	L	R	L	R	L					
Partial Profile 				11IR	A55	28, 19	40~16	0.06	1.10	55°								●	●	J40 J41			
				16IR	A55	28, 19	40~16	0.06	1.00									●	●				
					G55	14, 11	14~8	0.22	1.70									●	●				
					AG55	28~11	40~8	0.06	1.70									●	●				
				22IR	N55	-	7~5	0.47	2.50								●	●	J42				
				06IR	5501	28	24	0.10	0.60								●						
				08IR	5501	28, 19	24, 20	0.10	0.80								●						
				11IR	55005	28~14	24~14	0.05	1.10	●													
				16IR	5501	28~11	24~11	0.10	1.50	●													
					5502	14~11	16~11	0.20	1.50	●													

External Threading Toolholders

KTN / KTNS



Toolholder Dimensions

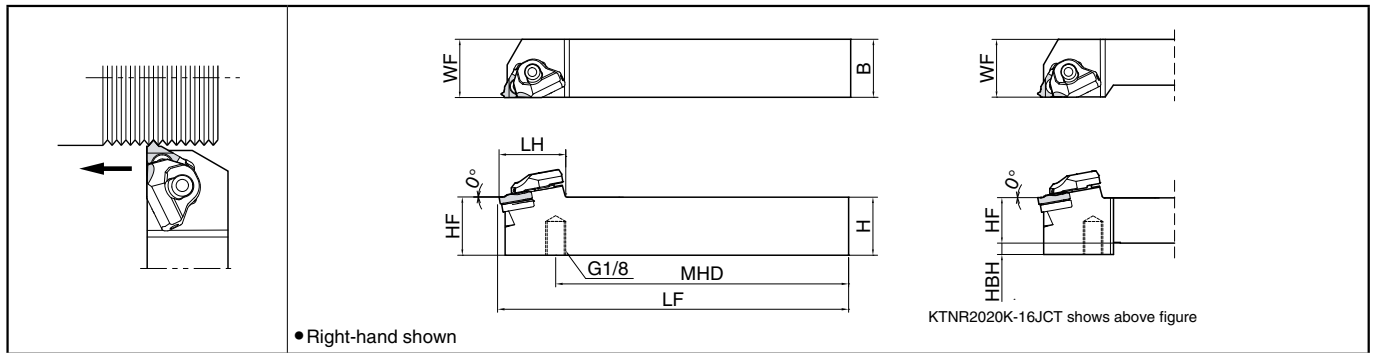
Description		Stock		Dimension (mm)					Drawing	Spare Parts					Applicable Inserts		
		R	L	H	HF	B	LF	LH		WF	Clamp Set	Clamp Screw	Wrench	Shim		Shim Screw	
																	
KTN ^{R/L}	1216JX-16F	●	●	12	12	16	120	-	16	Fig. 1	-	SB-3.5TR	LTW-15S	-	-	16E ^{R/L} ...	
	1616H-16	●	●	16	16		100	25	20	Fig. 2	CPS-5S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

* mark indicates short shank type.

See page for applicable inserts

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

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	
KTNR 2020K-16JCT	●		20	20	5	20	25	125	33.3	100.7						16ER...
2525M-16JCT	●		25	25	-	25	25	150	-	125.7						

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

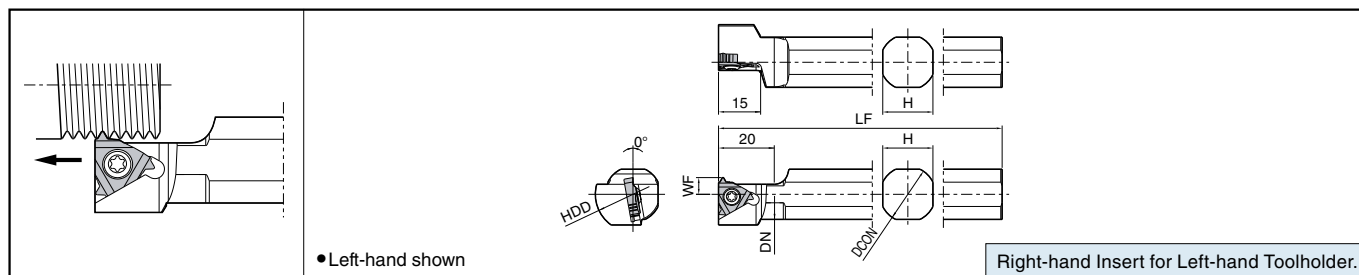
*1. It is possible to order just an O-ring (SS-035).

See page for applicable inserts

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

External Threading Toolholders

S-KTN (Sleeve Holder)



Toolholder Dimensions

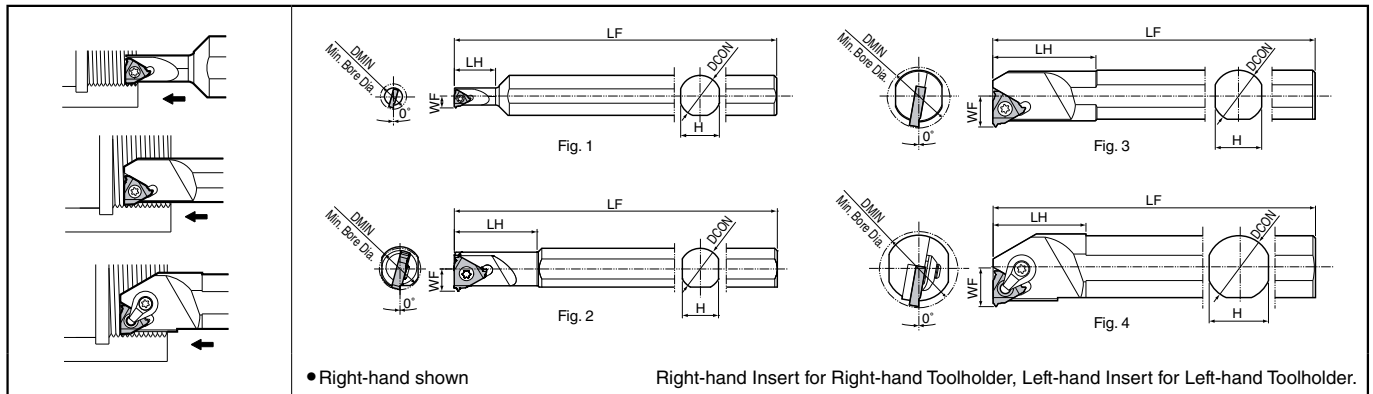
Description	Stock	Dimension (mm)						Spare Parts		Applicable Inserts
		DCON	LF	WF	DN	HDD	H	Clamp Screw	Wrench	
										
S16F-KTNL16	●	16	85	6	15	27	15	SB-3.5TR	LTW-15S	16ER...
S19K-KTNL16	●	19.05	120		18		17			
S20K-KTNL16	●	20			19		18			
S22K-KTNL16	●	22			21		20			
S25.0H-KTNL16	●	25	100	10	24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

See page for applicable inserts

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

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

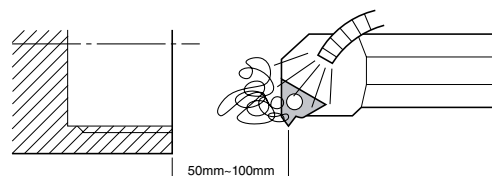
<When processing the first workpiece>

Set the program with the "single block"

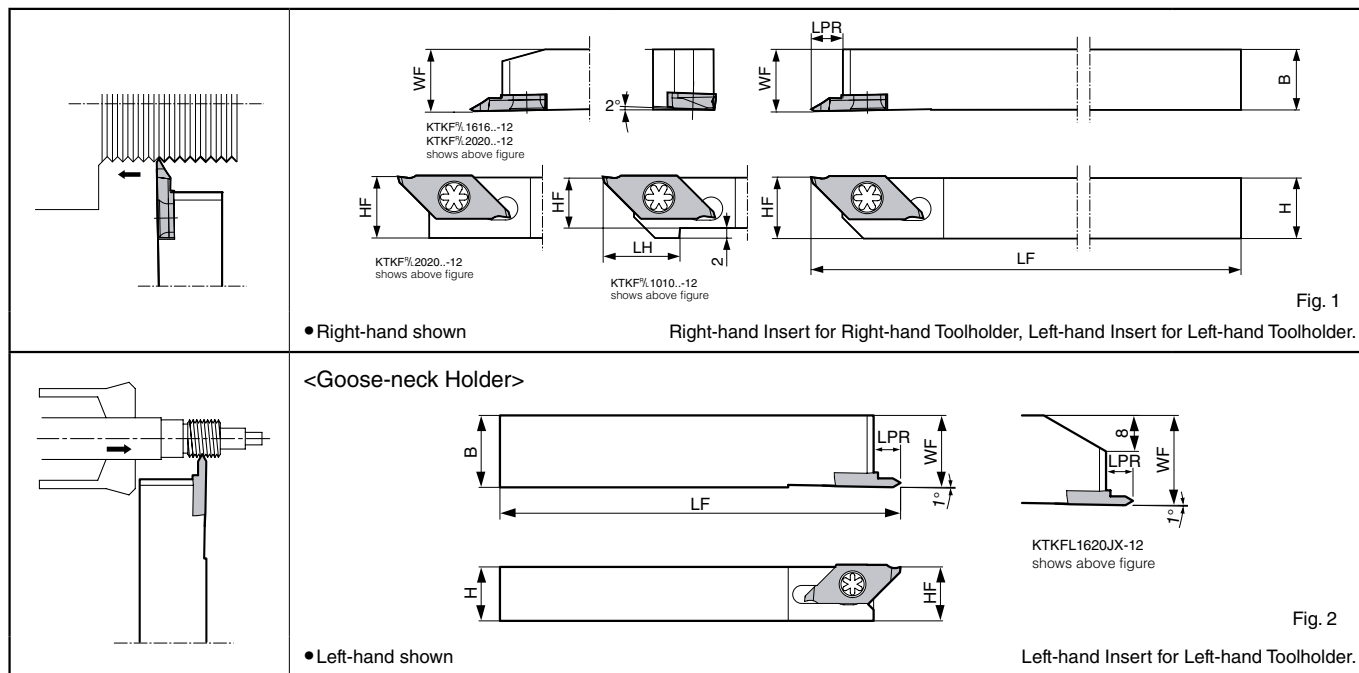
Keep the threading starting point 50mm~100mm away from the side of workpiece, and confirm that coolant is flushing down the chips for each pass.

<When processing the second workpiece and later>

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



■ KTKF / KTKF Goose-neck Holder



● Toolholder Dimensions

Description	Stock		Dimension (mm)							Drawing	Spare Parts		Applicable Inserts
	R	L	H	HF	B	LF	LH	WF	LPR		Clamp Screw	Wrench	
													
KTKF^{R/L} 1010JX-12	●	●	10	10	10	120	15	10	6	Fig. 1		LTW-10S	TKFT12 ^{R/L} ...
1212JX-12	●	●	12	12	12		-	12					
1616JX-12	●	●	16	16	16			16					
2020JX-12	●	●	20	20	20			20					
KTKF^{R/L} 1212F-12	●	●	12	12	12	85	-	12	6	Fig. 2		LTW-10S	TKFT12 ^{R/L} ...
KTKFL 1216JX-12		●	12	12	16	120	-	16	6				
1620JX-12		●	16	16	20		-	20					

• LPR shows the distance from the toolholder to the cutting edge.
• See page H13 for internal coolant type (coolant-through holders)

● Applicable Inserts

Insert		Description	Applicable Thread	Pitch		Dimension (mm)							Angle	MEGACOAT NANO		MEGACOAT	PVD Coated Carbide	Carbide	Applicable Toolholders
				mm	TPI	W1	CW	S	D1	RE	PDX	PDX1		PR1425	PR1535	PR1225	PR1025	KW10	
 Photo shows Right-hand • Right-hand shown • Left-hand shown	 Photo shows Right-hand • Right-hand shown • Left-hand shown	TKFT 12RA6000	M UN	0.2~0.6	64~48	3.0	2.5	8.7	5.2	Max 0.05 Flat	0.4	2.1	60°	●	●	●	○	●	KTKFR ...12
		12RB6000		0.5~1.25	48~24					0.05	1.7	0.8		●	●	●	○	●	
		12RA6000S		1~1.5	24~18					0.1	1.25	1.25		●	●	●	○	●	
		12RB6000S		-	40~16					0.05	1.7	0.8		●	●	●	○	●	
		12RN6001	G,R W	0.2~0.6	64~48	3.0	2.5	8.7	5.2	Max 0.05 Flat	2.1	0.4	60°	●	●	□	○	●	KTKFL ...12
		12RA5500S		0.5~1.25	48~24					0.05	1.7	0.8		●	●	□	○	●	
		12RB5500S		1~1.5	24~18					0.1	1.25	1.25		●	●	□	○	●	
		12LA6000		-	40~16					0.05	1.7	0.8		●	●	□	○	●	
		12LB6000	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°	●	●	□	○	●	
		12LA6000S		0.5~1.25	48~24					0.05	1.7	0.8		●	●	□	○	●	
		12LB6000S		1~1.5	24~18					0.1	1.25	1.25		●	●	□	○	●	
		12LN6001		-	40~16					0.05	1.7	0.8		●	●	□	○	●	

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

Inserts are sold in 10 piece boxes

Inserts Identification System (Ref. to Table 1)

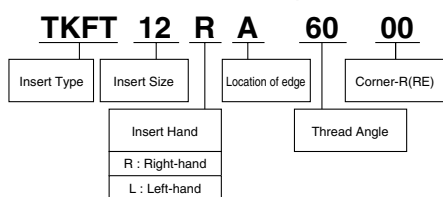
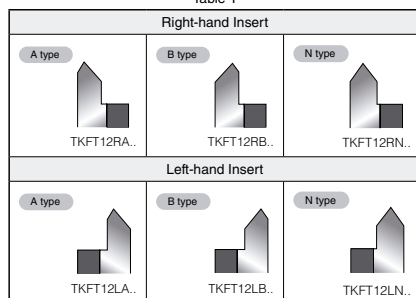


Table 1



Recommended Cutting Conditions

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

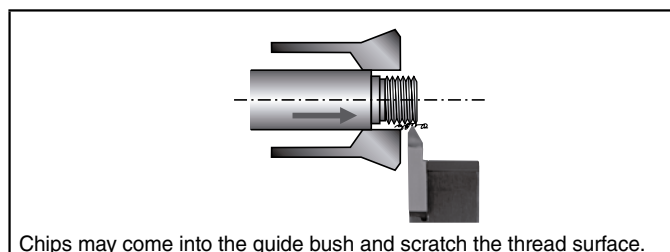
(ap shows the value of radial ap)

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
Metric	External Thread	TKFT 12R/L A/B6000	Max. 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02								
				0.19	4	0.07	0.06	0.04	0.02								
				0.23	4	0.08	0.07	0.06	0.02								
				0.27	5	0.08	0.07	0.06	0.04	0.02							
				0.30	5	0.10	0.08	0.06	0.04	0.02							
				0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		TKFT 12R/L A/B6000 12R/L A/B60005	0.05	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
				0.33	5	0.10	0.10	0.07	0.04	0.02							
		TKFT 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					
				0.40	6	0.10	0.10	0.08	0.06	0.04	0.02						
		TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
				0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		TKFT 12R/L A/B60005 12R/L N6001	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
				0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
				0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
Parallel Pipe	External Thread	TKFT 12R/L A/B55005	0.05	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
				1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02		
				0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02					
				1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02			
		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				
				0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02			
				1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
				1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02	
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				
				0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02			
				1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
				1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02	

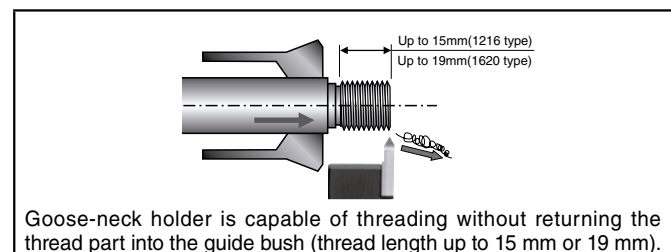
Swiss Tool Automatic Lathe (Guide Bush System)

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

Conventional Tool

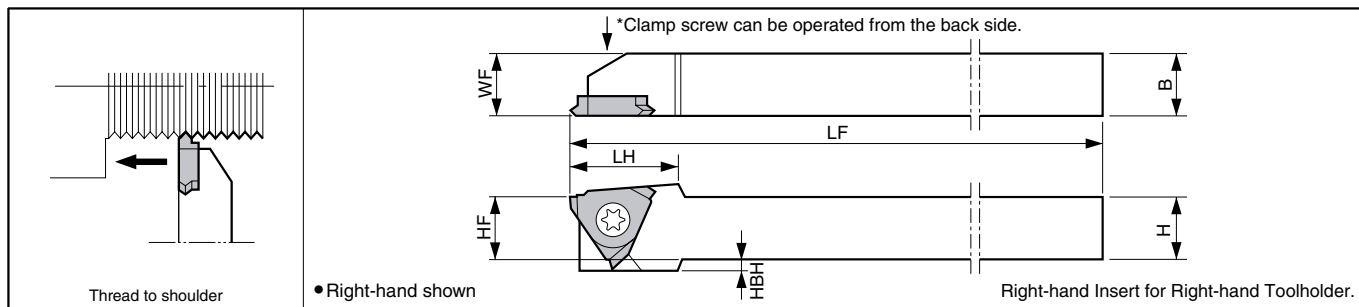


Goose-neck Holder



External Threading Toolholders [TTX Insert]

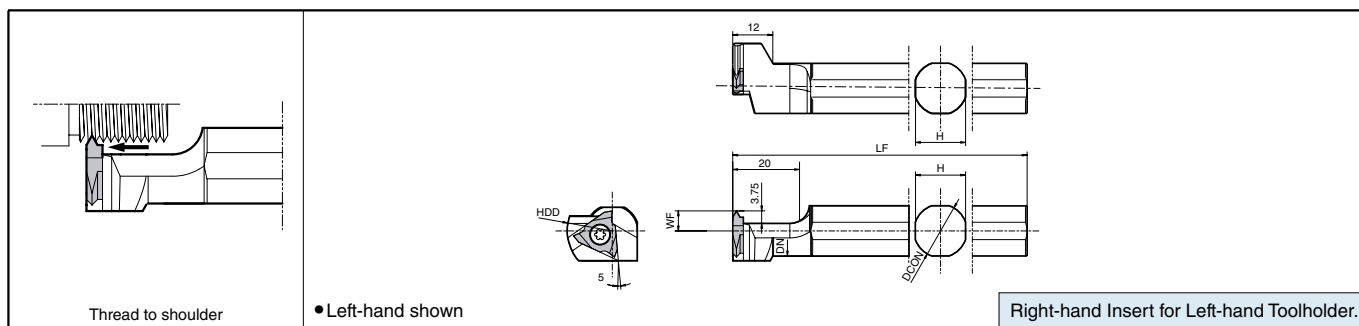
KTTX



Toolholder Dimensions

Description	Stock	Dimension (mm)							Spare Parts			
		H	HF	HBH	B	LF	LH	WF	Clamp Screw	Wrench		
KTTXR 1010JX-16F	●	10	10	2	10			10	SB-4070TRW	FT-8		
	●	12	12		12	120	17.6	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	●		90	10.0		32						
S20K-KTTXL16	●	20	120									
S25.0H-KTTXL16	●	25	100		23.6		23					
S25K-KTTXL16	●	25.4	120									

● Applicable Inserts

● Applicable Inserts				(mm)		P		Carbon Steel / Alloy Steel		●		●		●		Classification of usage		
Description		IC	S	D1	M		Stainless Steel		○		○		●		●		● : 1st Choice ○ : 2nd Choice	
TTX32R		9.525	3.18	4.4	K		Cast Iron											
						N		Non-ferrous Metals										
Insert				Description		Applicable Thread	Pitch		Dimension (mm)				Angle	Cermet	PVD Coated Carbide	Carbide	Applicable Toolholders	See Page for Depth of Cut & Number of Passes
Handed Insert shows Right-hand							mm	TPI	RE	PDX	PDX1	PNA	TC60M	PR930	PR1115	KW10		
Partial Profile			TTX32R 6000		M UN	0.5~1.0	-	56~32	0.00	0.6	1.12	60°	●	●	●	●	KTTXR...-16 S...KTTXL16	J44
			60005		M UN	0.5~1.0	-	48~32	0.05	0.6	1.12							
			6001		M UN	1.0~2.0	-	28~14	0.10	1.1	1.62							
			TTX32R 6000S		M UN	0.5	-	56~48	0.00	0.3	1.12	60°	●	●	●	●		
			60005S		M UN	0.5	-	48	0.05	0.3	1.12							
			TTX32R 5501		G, R W	-	28~19 24~20	0.10	0.75	1.01	55°	●	●	●	●			
			55015		G, R W	-	19~11 20~11	0.15	1.20	1.46								
Applicable Thread		M : Metric UN : Unified UNF : Unified Fine Thread G (PF) : Parallel Pipe		R (PT) (BSPT) : Tapered Pipe W : Whitworth NPT : American National Tapered Pipe		Recommended Cutting Conditions ● J36												

■ TT and TTX

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

● : Std. Item

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

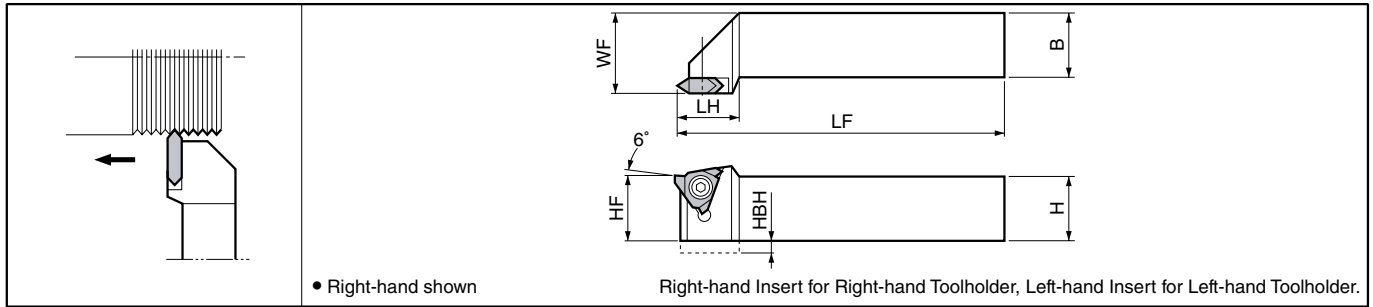
TC60M / KW10 (Threading) are sold in 10 piece boxes

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

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

External Threading Toolholders [TT Insert]

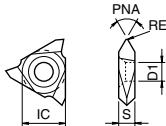
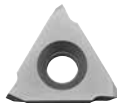
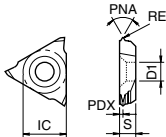
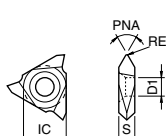
KTT



Toolholder Dimensions

Description	Stock		Dimension (mm)								Spare Parts			
	R	L	H	HF	HBH	B	LF	LH	WF		Clamp Screw	Wrench		
KTT^{R/L} 1010F-16	●	●	10	10	4	10	80		12		SB-4070TRS	-	FT-10	-
1212H-16	●	●	12	12	2	12	100		16					
1616H-16	●	●	16	16		16	100	18	20					
2020K-16	●	●	20	20	-	20	125		25		SB-4TR	-	FT-15	-
2525M-16	●	●	25	25		25	150		30					
2020K-22	●	●	20	20	-	20	125	25	25		-	GS-50	-	LW-3
2525M-22	●	●	25	25	-	25	150		30					

Applicable Inserts

Description		IC	S	D1											Classification of usage		See Page for Depth of Cut & Number of Passes																																																		
TT32 ^{R/L}		9.525	3.18	4.4											● : 1st Choice ○ : 2nd Choice																																																				
TT43 ^{R/L}		12.70	4.76	5.5																																																															
Insert			Description	Applicable Thread	Pitch		Dimension (mm)		Angle	Cement	PVD Coated Carbide	Carbide	Applicable Toolholders																																																						
					mm	TPI	RE	PDX	PNA	TC60M	PR930	PR1115			KW10																																																				
Handed Insert shows Right-hand																																																																			
Partial Profile			TT32 ^{R/L}	6000	M UN	0.5~2.5 -	56~10	0.0	-	60°	<table><tr><td>R</td><td>L</td><td>R</td><td>L</td><td>R</td><td>L</td><td>R</td><td>L</td><td>R</td><td>L</td><td>R</td><td>L</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table>								R	L	R	L	R	L	R	L	R	L	R	L	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
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			6001	M UN	1.0~2.5 -	24~10	0.1																																																												
6002	M UN	1.5~2.5 -	16~10	0.2																																																															
6003	M UN	2.5 -	11~10	0.3																																																															
TT32 ^{R/L}	5501	G PT W	-	28~11 24~10	0.1	-	55°	<table><tr><td>●</td><td>□</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>□</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table>								●	□	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	●	●	●	●	●	●																												
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Full Profile			TT43ER	100M	M	1.00	-	0.12	0.8	60°	<table><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table>								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
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Partial Profile			TT43 ^{R/L}	6001	M UN	1.0~3.5 -	24~8	0.1	-	60°	<table><tr><td>●</td><td>□</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table>								●	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
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			6002	M UN	1.5~3.5 -	16~8	0.2																																																												
			6003	M UN	2.5~3.5 -	11~8	0.3																																																												
			6004	M UN	3.0~3.5 -	8	0.4																																																												
TT43 ^{R/L}	5501	G PT W	-	28~11 24~7	0.1	-	55°	<table><tr><td>●</td><td>□</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>□</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table>								●	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	●	●	●	●	●	●				
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●	□	●	●	●	●	●	●	●	●	●	●																																																								
5502	G PT W	-	14~11 16~7	0.2																																																															
5503	G PT W	-	11 10~7	0.3																																																															
5504	G PT W	-	8~7	0.4																																																															

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

Recommended Cutting Conditions J36

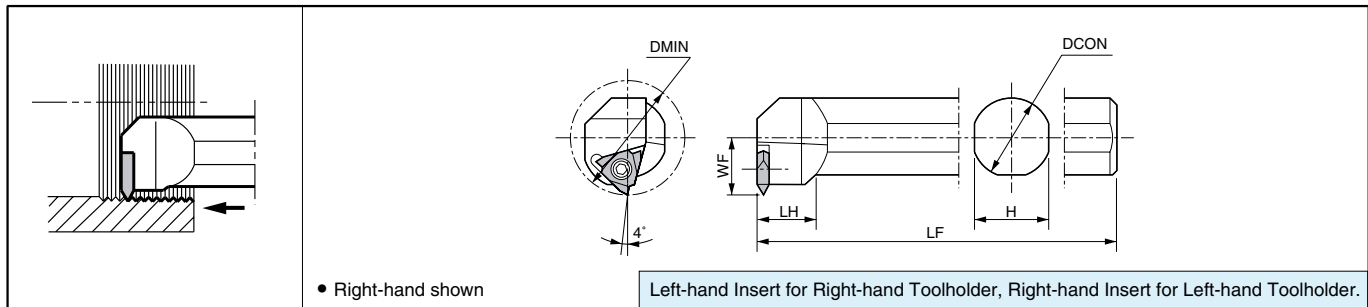
PR930 / PR1115 (Threading) are sold in 5 piece boxes

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

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

Internal Threading Toolholders [TT Insert]

KITG



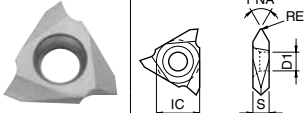
Toolholder Dimensions

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

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

Applicable Inserts

Description				IC	S	D1					Classification of usage			
TT32 ^{R/L}				9.525	3.18	4.4					● : 1st Choice ○ : 2nd Choice			
TT43 ^{R/L}				12.70	4.76	5.5								

Insert		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
Partial Profile		TT32 ^{R/L} 6000	M UN	0.5~2.5	-	48~10	0.0	60°	●	●	●	●	●	●	●	KITG ^{R/L} ...-16	J43 J44	
			M UN	1.5~2.5	-	16~10	0.1	55°	●	●	●	●	●	●	●			●
		TT32 ^{R/L} 5501	G.PT W	-	28~11	24~10	0.1	60°	●	□	●	●	●	●	●			●
			G.PT W	-	16~18	0.2	55°	●	□	●	●	●	●	●	●			
		TT43 ^{R/L} 6001	M UN	1.5~3.0	-	16~10	0.1	60°	●	□	●	●	●	●	●	●		
			M UN	3.0	-	8	0.2	55°	●	●	●	●	●	●	●	●		
		TT43 ^{R/L} 5501	G.PT W	-	28~11	24~8	0.1	60°	●	□	●	●	●	●	●	●		
			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°	●	●	□	●	●	●	●	●	●		

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

Recommended Cutting Conditions **J36**

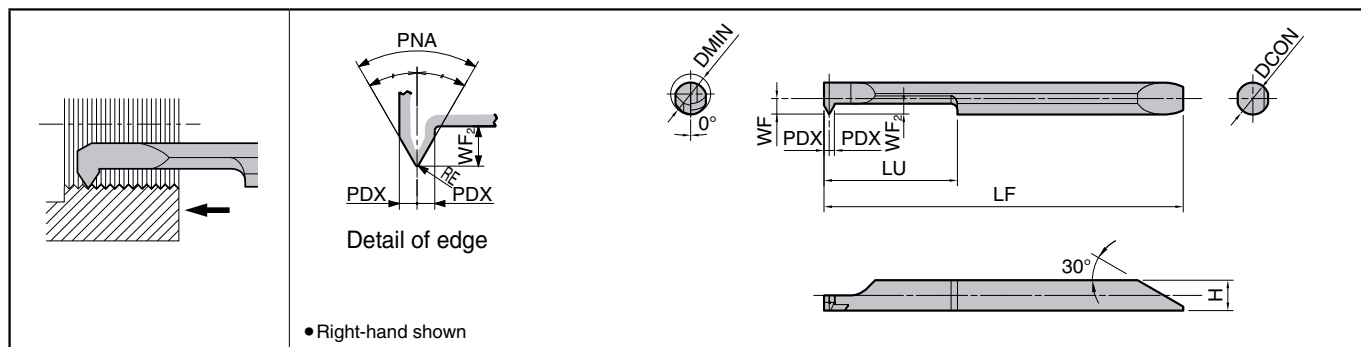
● : Std. Item
□ : Deleted from the next catalog

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

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

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

EZT



Dimensions

Description	Min. Bore Dia.	Dimension (mm)										MEGA COAT	Carbide	Applicable Thread						
														Metric		Unified		American National Tapered Pipe		
		DMIN	DCON	H	LF	LU	WF	WF ₂	PDX	RE	PNA			PR1225	GW05	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	Nominal Thread
EZTR 030025-60-002	3.0	2.5	2.3	35.0	6.5	1.19	1.0	0.5	0.02 ^{±0.01}	60°	0.04 ^{±0.01}	●	●	M4 and over (Fine Thread: M3.5 and over)	0.35~0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-	
	035030-60-002	3.5	3.0	2.8	39.0	9.0	1.44	1.2				0.6	●	●	M4.5 and over (Fine Thread: M4.5 and over)	0.5~1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-
	040035-60-004	4.0	3.5	3.3	42.0	11.0	1.69	1.2				0.6	●	●	M5 and over (Fine Thread: M6 and over)	0.75~1.25	No.12-24UNC No.12-28UNF and over	28~20	-	-
	050040-60-004	5.0	4.0	3.8	45.0	16.0	1.94	1.3				0.65	●	●	M7 and over (Fine Thread: M6 and over)	0.75~1.5	1/4-20UNC 1/4-28UNF and over	28~18	-	-
	060050-60-004	6.0	5.0	4.8	53.2	20.0	2.44	1.6				0.8	●	●	M8 and over (Fine Thread: M7 and over)	0.75~1.5	5/16-18UNC 5/16-24UNF and over	24~16	1/4NPT 3/8NPT	18
	070060-60-004	7.0	6.0	5.8	61.2	25.0	2.94	2.0				1.0	●	●	M9 and over (Fine Thread: M8 and over)	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				
EZTR 060050-55-008	6.0	5.0	4.8	53.2	20.0	2.44	1.6	0.8	0.085 ^{±0.015}	55°	●	●	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-		
	080070-55-008	8.0	7.0	6.8	64.2	25.0	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 **J33**
Applicable Sleeves **J31**

Applicable Sleeves

Sleeve Description				Applicable Inserts		Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) ⦿ F24	EZH-HP (Adjustable overhang length) ⦿ F26	EZH-ST ⦿ F28	Sleeve Shank Dia.	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.

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	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass	19Pass	20Pass
0.5	0.3	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.7	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.8	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03			
1.75	1.1	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03

◆ Depth of Cut & Number of Passes (Whitworth)

TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass
24	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03				
20	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03		
18	0.91	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03

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

TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass	18Pass
36	0.44	10	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.02								
32	0.5	11	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
28	0.55	12	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03						
24	0.65	12	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03						
20	0.78	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03				
18	0.88	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	
16	0.99	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03

Application of Parallel Pipe / Tapered Pipe Thread

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

Nominal Thread Symbol (Previous Symbol)	TPI	Internal Thread (G, Rp)		Same Root's Radius
		Insert	Bore Dia.	
G 1/2 (-)	28	EZTR 060050-55-008	6.56	0.12
G 1/2 (PF 1/2)			8.57	
G 1/2 (PF 1/2)	19	EZTR 080070-55-008	11.45	0.18
G 3/4 (PF 3/4)			14.95	

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

Nominal Thread Symbol (Previous Symbol)	TPI	Internal Thread (Rc)		Same Root's Radius
		Insert	Bore Dia.	
R 1/2 , Rc 1/2 (-)	28	EZTR 060050-55-008	-	0.12
R 1/2 , Rc 1/2 (PT 1/2)			-	
R 1/2 , Rc 1/2 (PT 1/2)	19	EZTR 080070-55-008	-	0.18
R 3/4 , Rc 3/4 (PT 3/4)			-	

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

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

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

Application of American National Tapered Pipe Thread (NPT)

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

Application of NPTF Thread

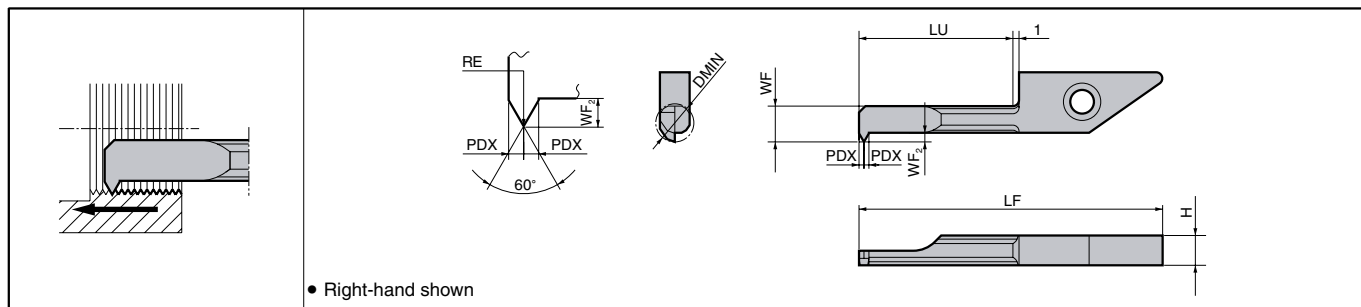
NPTF is the thread for sealing pipes without using any sealing material.

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

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

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

VNT (System Tip-Bars)



Dimensions

Description	Min. Bore Dia.	Dimension (mm)								Insert Grades			Applicable Thread			
		DMIN	H	LF	LU	WF	WF ₂	PDX	RE	MEGA COAT	PVD Coated Carbide	Carbide	Metric		Unified	
										PR1225	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
VNTR	045-11	4.5	3.9	30.8	11	3.6	1.3	0.6	+0 -0.02 0.05	●	●	●	M6 and over	0.75 ~1.25	1/4-20UNC, 1/4-28UNF and over	28~20
	060-11	6.0				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 F32 ~ F33 .

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

★ : 1st Recommendation ☆ : 2nd Recommendation

<Note>

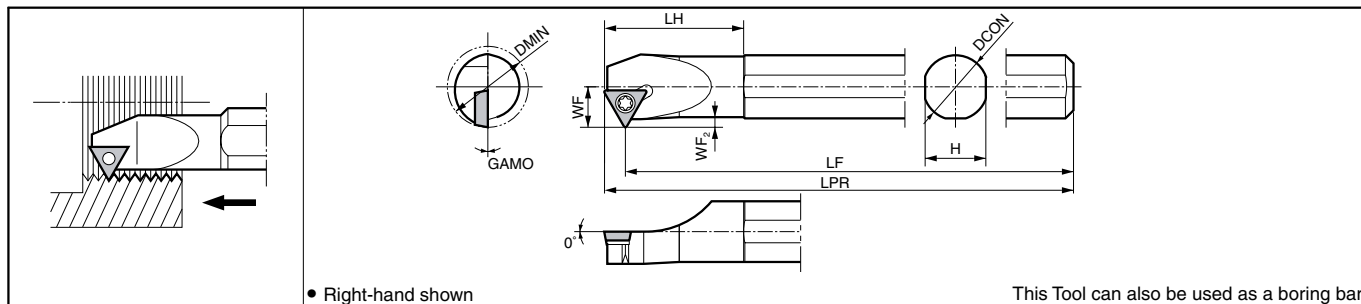
- The standard cutting speed is Vc=30~50m/min.
The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
- Coolant is recommended.

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

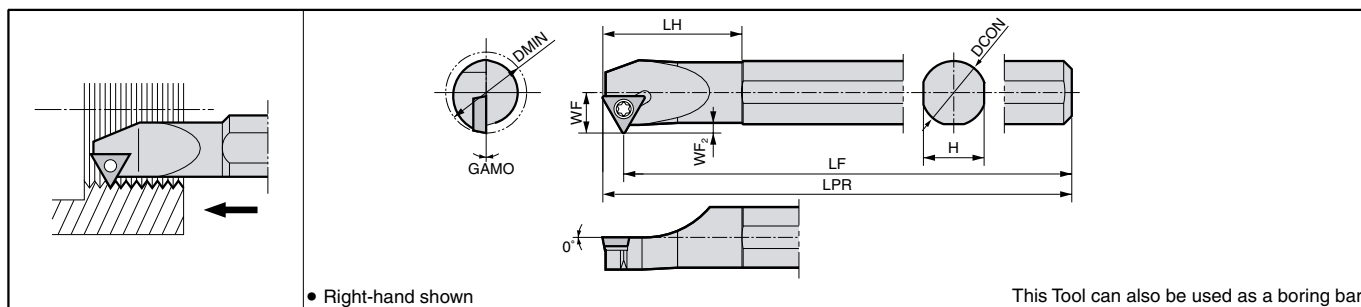
Pitch (mm)	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
1.25	0.76	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
1.50	0.92	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03

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 ₂		Clamp Screw	Wrench
S10M -STWPR11-12	●		12	10	9.2	150	144.6	23	6	1.0		0°	SB-3STR	FT-10
S12M -STWPR11-16	●		16	12	11	150	144.6	30	8	1.5				
S16Q -STWPR11-20	●		20	16	15	180	174.6	35	10	2.0			SB-3TR	
S20R -STWPR11-25	●		25	20	19	200	194.6	40	12.5	2.5				
S10M -STWP ¹ / _L 11-12E	●	●	12	10	9.2	150	144.6	23	6	1.0		0°	SB-3STR	FT-10
S12M -STWP ¹ / _L 11-16E	●	●	16	12	11	150	144.6	30	8	1.5				
S16R -STWP ¹ / _L 11-20E	●	●	20	16	15	200	194.6	35	10	2.0			SB-3TR	
S20X -STWP ¹ / _L 11-25E	●	●	25	20	19	220	194.6	40	12.5	2.5				

WF₂ : shows the Max. available ap.

Applicable Inserts

Description	IC	S	D1
TPGB1102...	6.35	2.38	3.5
TPGB1103...	6.35	3.18	3.3

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

Partial Profile	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	KW10		
		TPGB 1102005	M UN	0.75~1.5	-	28~16	0.05			●		●	...STWP ¹ / _L 11-12(E)	J45
		TPGB 110201	M UN	1.5	-	16	0.10			●		●		
		TPGB 1103005	M UN	0.75~3.5	-	28~11	0.05	60°		●		●	...STWP ¹ / _L 11-16(E)	
		TPGB 110301	M UN	1.5~3.5	-	16~8	0.10			●		●	...STWP ¹ / _L 11-20(E)	
		TPGB 110302	M UN	3.0~3.5	-	8	0.20			●	●	●	...STWP ¹ / _L 11-25(E)	

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

Recommended Cutting Conditions J36

● : Std. Item

Inserts are sold in 10 piece boxes

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

A
B
C
D
E
F
G
H
J
K
L
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 and under	0.3mm and under			0.3mm and under	
Alloy Steel	☆ 100~150	★ 100~150	-	-	☆ 100~150	-
First ap (Radial)	0.3mm and under	0.3mm and under			0.3mm and under	
Stainless Steel	☆ 60~80	-	★ 60~100	☆ 40~80	☆ 60~80	-
First ap (Radial)	0.25mm and under		0.25mm and under	0.25mm and under	0.25mm and under	
Cast Iron	-	-	-	-	-	★ 100
First ap (Radial)						0.3mm and under
Aluminum Alloys	-	-	-	-	-	★ 150~400
First ap (Radial)						0.3mm and under
Brass	-	-	-	-	-	★ 150~300
First ap (Radial)						0.3mm and under

•For 061R / 081R, please lower it to a figure under 40% of above condition list

KT

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

S-STWP(-E)

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

KTTX / S-KTTX

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

KITG

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

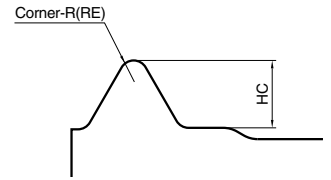
★ : 1st Recommendation ☆ : 2nd Recommendation

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

Depth of Cut & Number of Passes

◆Cautions for Usage of Full Profile Insert.

- 1) Max. ap is based on the value of 0.05~0.08mm.
- 2) Finishing ap should be 0.02~0.05mm.
- 3) Prepare chamfering for C0.3~C0.5 to the workpiece to prevent the insert cracking during the 1st pass.
- 4) Coolant is recommended.



Insert Grades

Turning
Indexable Inserts

External

Small Parts
Machining

Boring

Grooving

Cut-off

Threading

Drilling

Solid Tools

Milling

Tools for
Turning Mill

Spare Parts

Technical
Information

Index

A

B

C

D

E

F

G

H

J

K

L

M

N

P

R

T

11/16/22 (Full Profile) type

(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																								
Metric	External Thread	1.00mm	16ER 100ISO-TF/TQ	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05															
		1.25mm	125ISO-TF/TQ	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05														
		1.50mm	150ISO-TF/TQ	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05														
		1.75mm	175ISO-TF/TQ	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10	0.08	0.05												
		2.00mm	200ISO-TF/TQ	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05										
		2.50mm	250ISO-TF/TQ	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.08	0.10	0.08	0.06	0.05							
		3.00mm	300ISO-TF/TQ	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.10	0.08	0.08	0.05	0.02					
		0.50mm	16E% 050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04																
		0.75mm	075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04															
		1.00mm	100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05															
		1.25mm	125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05														
		1.50mm	150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05														
		2.00mm	200ISO	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05										
		2.50mm	250ISO	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.10	0.08	0.06	0.05						
	Internal Thread	3.00mm	22ER 300ISO	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
		3.50mm	350ISO	2.18	2.26	15	0.28	0.25	0.22	0.20	0.20	0.18	0.16	0.15	0.15	0.12	0.10	0.10	0.08	0.05	0.02					
		4.00mm	400ISO	2.48	2.56	17	0.28	0.25	0.24	0.22	0.20	0.18	0.16	0.15	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02			
		4.50mm	450ISO	2.79	2.87	18	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.10	0.07	0.05	0.02		
		5.00mm	500ISO	3.10	3.18	19	0.30	0.28	0.27	0.26	0.23	0.20	0.18	0.18	0.17	0.16	0.16	0.15	0.15	0.13	0.12	0.10	0.07	0.05	0.02	
		1.00mm	11IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04															
		1.25mm	125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04													
		1.50mm	150ISO-TF/TQ	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05												
		1.75mm	175ISO-TF/TQ	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05											
		2.00mm	200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.05									
		1.00mm	16IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04															
		1.25mm	125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04													
		1.50mm	150ISO-TF/TQ	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05	0.05											
		1.75mm	175ISO-TF/TQ	1.02	1.10	9	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.05										
	2.00mm	200ISO-TF/TQ	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.05										
	2.50mm	250ISO-TF/TQ	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.10	0.05	0.05	0.05	0.02						
	3.00mm	300ISO-TF/TQ	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02						
	1.00mm	16I% 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04																
	1.25mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04														
	1.50mm	150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05													
	2.00mm	200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.05										
	2.50mm	250ISO	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.08	0.05	0.05	0.05	0.02						
	3.00mm	300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02						
	3.00mm	22IR 300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02	0.02		0.05	0.02		
	3.50mm	350ISO	2.05	2.13	15	0.26	0.24	0.22	0.20	0.17	0.17	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.05	0.02					
	4.00mm	400ISO	2.34	2.42	17	0.26	0.24	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.05	0.02			
	4.50mm	450ISO	2.63	2.71	18	0.26	0.25	0.24	0.22	0.22	0.20	0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02			
	5.00mm	500ISO	2.92	3.00	19	0.28	0.26	0.24	0.22	0.20	0.20	0.18	0.18	0.16	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.05	0.02		
	Unified	External Thread	24 TPI	16ER 24UN-TF/TQ	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05														
			20 TPI	20UN-TF/TQ	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05													
18 TPI			18UN-TF/TQ	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05														
16 TPI			16UN-TF/TQ	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05													
14 TPI			14UN-TF/TQ	1.15	1.23	8	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.05												
13 TPI			13UN-TF/TQ	1.24	1.32	9	0.26	0.22	0.18	0.16	0.14	0.12	0.11	0.08	0.05											
12 TPI			12UN-TF/TQ	1.34	1.42	11	0.26	0.22	0.18	0.16	0.13	0.12	0.10	0.08	0.07	0.05	0.05									
10 TPI			10UN-TF/TQ	1.59	1.67	12	0.26	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.07	0.05	0.05	0.05							
8 TPI			08UN-TF/TQ	1.98	2.06	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.08	0.05	0.05						
24 TPI			16ER 24UN	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05															
20 TPI			20UN	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05														
18 TPI			18UN	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05														
16 TPI		16UN	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05														
14 TPI		14UN	1.15	1.23	8	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.05													
12 TPI		12UN	1.34	1.42	11	0.26	0.22	0.18	0.16	0.13	0.12	0.10	0.08	0.07	0.05	0.05										
8 TPI		22ER 08UN	1.98	2.06	15	0.30	0.26	0.22	0.20	0.16	0.15	0.14	0.13	0.10	0.10	0.10	0.07	0.05	0.06	0.05	0.02					
Internal Thread		24 TPI	16IR 24UN-TF/TQ	0.62	0.70	5	0.22	0.19	0.15	0.10	0.04															
		20 TPI	20UN-TF/TQ	0.75	0.83	6	0.22	0.20	0.16	0.12	0.08	0.05														
		18 TPI	18UN-TF/TQ	0.83	0.91	6	0.24	0.20	0.18	0.14	0.10	0.05														
		16 TPI	16UN-TF/TQ	0.94	1.02	7	0.24	0.20	0.18	0.14	0.11	0.10	0.05													
		14 TPI	14UN-TF/TQ	1.07	1.15	8	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.05												
		13 TPI	13UN-TF/TQ	1.15	1.23	9	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.08	0.05											
		12 TPI	12UN-TF/TQ	1.24	1.32	11	0.24	0.22	0.16	0.15	0.12	0.10	0.10	0.07	0.07	0.05	0.04									
		10 TPI	10UN-TF/TQ	1.48	1.56	12	0.24	0.22	0.20	0.16	0.15	0.12	0.12	0.10	0.09	0.07	0.05	0.04								
	8 TPI	08UN-TF/TQ	1.86	1.94	14	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.07	0.05	0.04	0.04						
	24 TPI	16IR 24UN	0.62	0.70</																						

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	0.10	0.10	0.07	0.07	0.05								
	Internal Thread	19 TPI	16IR 19W-TF/TQ	0.88	0.96	6	0.25	0.21	0.20	0.15	0.10	0.05														
		14 TPI	14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05											
		11 TPI	11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05								
Whitworth	External Thread	16 TPI	16ER 16W-TF/TQ	1.05	1.13	8	0.25	0.21	0.18	0.16	0.12	0.08	0.08	0.05												
		14 TPI	14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05											
		11 TPI	11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05								
	Internal Thread	16 TPI	16IR 16W-TF/TQ	1.05	1.13	8	0.25	0.21	0.18	0.16	0.12	0.08	0.08	0.05												
		14 TPI	14W-TF/TQ	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05											
		11 TPI	11W-TF/TQ	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05								
Tapered Pipe	External Thread	28 TPI	16ER 28BSPT-TF/TQ	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04															
		19 TPI	19BSPT-TF/TQ	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05														
		14 TPI	14BSPT-TF/TQ	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04											
		11 TPI	11BSPT-TF/TQ	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05								
	Internal Thread	28 TPI	16ER 28BSPT	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04															
		19 TPI	19BSPT	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05														
		14 TPI	14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04											
		11 TPI	11BSPT	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05								
		28 TPI	11IR 28BSPT-TF/TQ	0.58	0.63	5	0.20	0.16	0.13	0.10	0.04															
		19 TPI	19BSPT	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04													
		14 TPI	14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04											
		11 TPI	16IR 14BSPT-TF/TQ	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04											
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	0.08	0.08	0.07	0.06	0.05	0.04	0.02								
		14 TPI	14NPT	1.46	1.54	15	0.20	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02					
		11.5 TPI	11.5NPT	1.77	1.85	16	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.04	0.02				
	Internal Thread	18 TPI	16IR 18NPT	1.14	1.22	13	0.20	0.16	0.14	0.12	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02								
14 TPI		14NPT	1.46	1.54	15	0.20	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02						
11.5 TPI		11.5NPT	1.77	1.85	16	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.04	0.02					

60° / 55° (Partial Profile)

(ap shows the value of radial ap)

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

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	0.06	0.05				
		4.50mm			2.93	18	0.30	0.28	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05			
		5.00mm			3.31	19	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05	0.05	
	Internal Thread	0.75mm	06IR 60005	0.05	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03											
		1.00mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03							
			08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.06	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	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	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	0.05	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	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03			
				0.07	1.07	19	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	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																
					0.63	6	0.16	0.14	0.12	0.10	0.07	0.04															
		1.00mm	150mm		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														
					0.02	0.30	5	0.08	0.07	0.06	0.05	0.04															
					0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04														
					0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04														
					0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04														
					0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04														
					0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04														
					0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04													
					0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04													
					0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04											
					0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04											
					0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04											
					0.02	1.12	10	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.06	0.05	0.04										
					0.11	1.19	10	0.20	0.18	0.17	0.15	0.13	0.11	0.08	0.07	0.06	0.04										
					0.02	1.28	12	0.20	0.17	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04	0.04							
					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					
					0.02	1.60	16	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02						
					0.11	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				
	0.02				1.93	18	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	0.05	0.04	0.03	0.02			
				2.05	14	0.26	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04	0.02						
				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	0.04	0.02					
				2.70	18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.04	0.03	0.02		
3.03				19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	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														
			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													
			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													
			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	0.08	0.06	0.04											
			0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04												
		14 TPI	16ER G60-TF/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												
			0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04	0.04										
		13 TPI	16ER G60-TF/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												
			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	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											
			0.06	1.55	12	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.09	0.07	0.06	0.04	0.06	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	0.04								
			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	0.06	0.04	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								
			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	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	0.12	0.11	0.10	0.09	0.08	0.05	0.05						
			0.06	2.35	16	0.30	0.25																				

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	Internal Thread	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		0.05	0.64	12	0.07	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 0.75	14 14	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	0.05 0.04	0.04 0.03	0.03 0.03											
		18 TPI	081R 60007	0.07	0.85	17	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03						
		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	0.05	0.04	0.04	0.03	0.03			
		48 TPI	111R A60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04																
		24 TPI			0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04														
		20 TPI			0.8	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04													
		18 TPI			0.9	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04												
		16 TPI			1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04											
		48 TPI	161R A60 AG60	0.02 0.02	0.32 0.32	5 5	0.08 0.07	0.07 0.07	0.06 0.06	0.04 0.04																	
		24 TPI	161R A60 AG60	0.02 0.02	0.67 0.67	7 7	0.14 0.14	0.13 0.13	0.12 0.12	0.10 0.08	0.06 0.06	0.04 0.04															
		20 TPI	161R A60 AG60	0.02 0.02	0.80 0.80	8 8	0.14 0.14	0.13 0.13	0.12 0.12	0.11 0.08	0.06 0.06	0.04 0.04															
		18 TPI	161R A60 AG60	0.02 0.02	0.90 0.90	9 9	0.15 0.15	0.14 0.13	0.12 0.11	0.08 0.07	0.06 0.06	0.04 0.04															
		16 TPI	161R A60 AG60	0.02 0.02	1.01 1.01	10 10	0.15 0.15	0.14 0.13	0.12 0.12	0.10 0.08	0.07 0.07	0.06 0.06	0.04 0.04														
		14 TPI	161R G60 AG60	0.11 0.02	1.07 1.16	9 11	0.20 0.15	0.18 0.14	0.16 0.13	0.14 0.12	0.10 0.11	0.08 0.09	0.05 0.08	0.04 0.06	0.04												
		13 TPI	161R G60 AG60	0.11 0.02	1.16 1.25	10 12	0.20 0.18	0.16 0.16	0.14 0.15	0.12 0.13	0.11 0.10	0.08 0.09	0.07 0.07	0.06 0.06	0.04 0.04	0.04	0.04										
		12 TPI	161R G60 AG60	0.11 0.02	1.26 1.35	11 13	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.12	0.13 0.11	0.10 0.08	0.06 0.07	0.05 0.06	0.04 0.05	0.04	0.04	0.04									
		10 TPI	161R G60 AG60	0.11 0.02	1.54 1.63	14 16	0.20 0.20	0.18 0.16	0.16 0.15	0.14 0.14	0.13 0.12	0.11 0.10	0.08 0.08	0.06 0.06	0.05 0.05	0.04 0.05	0.04	0.04	0.02	0.04	0.02						
		9 TPI	161R G60 AG60	0.11 0.02	1.72 1.81	16 17	0.20 0.20	0.18 0.16	0.16 0.15	0.14 0.14	0.13 0.12	0.11 0.11	0.09 0.10	0.08 0.10	0.07 0.08	0.06 0.07	0.05 0.05	0.04 0.04	0.02	0.04	0.02	0.02					
		8 TPI	161R G60 AG60	0.11 0.02	1.95 2.04	17 19	0.22 0.20	0.20 0.19	0.18 0.17	0.16 0.15	0.14 0.14	0.12 0.13	0.11 0.10	0.09 0.09	0.08 0.07	0.07 0.06	0.05 0.05	0.04 0.04	0.02	0.04	0.02	0.02					
		7 TPI	221R N60	0.22	2.14	14	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.07	0.06	0.05	0.04	0.04	0.03	0.02			
		6 TPI	221R N60		2.53	17	0.28	0.26	0.23	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.07	0.06	0.05	0.04	0.05			
		5 TPI	221R N60		3.08	19	0.30	0.28	0.26	0.25	0.23	0.22	0.20	0.17	0.16	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.06	0.05		
		Parallel Pipe / Tapered Pipe	External Thread	28 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	0.67 0.67	7 7	0.16 0.16	0.14 0.10	0.09 0.08	0.06 0.06	0.04 0.04														
				19 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	1.02 1.02	8 8	0.20 0.20	0.18 0.16	0.14 0.14	0.12 0.10	0.07 0.07	0.05 0.05													
				14 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.22 0.06	1.20 1.40	9 11	0.22 0.24	0.19 0.22	0.17 0.16	0.13 0.14	0.12 0.10	0.08 0.08	0.04 0.06	0.05 0.05	0.04										
				11 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.22 0.06	1.60 1.79	12 13	0.24 0.25	0.22 0.21	0.20 0.18	0.16 0.16	0.14 0.14	0.13 0.12	0.10 0.10	0.08 0.08	0.06 0.05	0.04 0.05	0.03								
				28 TPI	16ER A55 AG55	0.06 0.06	0.67 0.67	7 7	0.16 0.16	0.14 0.10	0.09 0.08	0.06 0.06	0.04 0.04														
				19 TPI	16ER A55 AG55	0.06 0.06	1.02 1.02	8 8	0.20 0.20	0.18 0.16	0.14 0.14	0.12 0.10	0.07 0.07	0.05 0.05													
				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 0.16	0.13 0.14	0.12 0.10	0.08 0.08	0.04 0.06	0.05 0.05	0.04										
				11 TPI	16ER G55 AG55	0.22 0.06	1.60 1.79	12 13	0.24 0.25	0.22 0.21	0.20 0.20	0.18 0.16	0.14 0.14	0.13 0.12	0.10 0.10	0.08 0.08	0.06 0.05	0.04 0.05	0.03								
			Internal Thread	28 TPI	061R 5501 081R 5501	0.10	0.61	12	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
				19 TPI	081R 5501	0.10	0.95	18	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03		
28 TPI	111R A55			0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04														
19 TPI	111R A55			0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05													
28 TPI	161R A55 AG55			0.06 0.06	0.67 0.67	7 7	0.16 0.16	0.14 0.10	0.09 0.08	0.06 0.06	0.04 0.04																
19 TPI	161R A55 AG55			0.06 0.06	1.02 1.02	8 8	0.20 0.20	0.18 0.16	0.14 0.14	0.12 0.10	0.07 0.07	0.05 0.05															
14 TPI	161R G55 AG55			0.22 0.06	1.20 1.40	9 11	0.22 0.24	0.19 0.22	0.17 0.16	0.13 0.14	0.12 0.10	0.08 0.08	0.04 0.06	0.05 0.05	0.04												
11 TPI	161R G55 AG55			0.22 0.06	1.60 1.79	12 13	0.24 0.25	0.22 0.21	0.20 0.18	0.16 0.16	0.14 0.14	0.13 0.12	0.10 0.10	0.08 0.08	0.06 0.05	0.04 0.05	0.03										
Whitworth	External Thread			48 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	0.37 0.37	5 5	0.12 0.12	0.09 0.07	0.05 0.05	0.04 0.04															
		24 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	0.79 0.79	7 7	0.18 0.18	0.16 0.14	0.11 0.08	0.07 0.07	0.05 0.05																
		20 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	0.96 0.96	8 8	0.20 0.20	0.18 0.15	0.13 0.10	0.08 0.08	0.07 0.07	0.05 0.05															
		18 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	1.07 1.07	9 9	0.20 0.20	0.17 0.16	0.14 0.11	0.09 0.09	0.08 0.08	0.07 0.07	0.05 0.05														
		16 TPI	16ER A55-TF/TQ AG55-TF/TQ	0.06 0.06	1.22 1.22	11 11	0.20 0.20	0.18 0.16	0.13 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-TF/TQ AG55-TF/TQ	0.22 0.06	1.20 1.40	9 11	0.22 0.24	0.19 0.22	0.17 0.16	0.13 0.14	0.12 0.10	0.08 0.08	0.04 0.06	0.05 0.05	0.04												
		12 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.22 0.06	1.44 1.64	10 12	0.24 0.24	0.22 0.20	0.18 0.16	0.15 0.14	0.12 0.10	0.09 0.09	0.07 0.08	0.05 0.06	0.05	0											

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
Whitworth	External Thread	48 TPI 16ER A55 AG55	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
		24 TPI 16ER A55 AG55	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
		24 TPI 16ER A55 AG55	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI 16ER A55 AG55	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
		18 TPI 16ER A55 AG55	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		16 TPI 16ER A55 AG55	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
		14 TPI 16ER G55 AG55	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
		12 TPI 16ER G55 AG55	0.06	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		11 TPI 16ER G55 AG55	0.06	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04	0.03						
		10 TPI 16ER G55 AG55	0.06	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.09	0.07	0.05							
		9 TPI 16ER G55 AG55	0.06	1.98	14	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05					
		8 TPI 16ER G55 AG55	0.06	2.01	14	0.24	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05	0.05				
		7 TPI 16ER G55 AG55	0.06	2.20	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.06	0.05	0.05			
		6 TPI 22ER N55	0.47	2.43	16	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.06	0.05	0.05			
		5 TPI 22ER N55	0.47	2.92	18	0.30	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.07
		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
	Internal Thread	28 TPI 06IR 5501	0.10	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03						
		19 TPI 08IR 5501	0.10	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03				
		24 TPI 11IR A55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI 11IR A55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI 11IR A55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16 TPI 11IR A55	0.06	1.10	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	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI 16IR A55 AG55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI 16IR A55 AG55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		16 TPI 16IR A55 AG55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		14 TPI 16IR G55 AG55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		12 TPI 16IR G55 AG55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		11 TPI 16IR G55 AG55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		10 TPI 16IR G55 AG55	0.06	1.27	11	0.20	0.18	0.17	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		9 TPI 16IR G55 AG55	0.06	1.28	9	0.22	0.20	0.19	0.17	0.15	0.13	0.10	0.08	0.06	0.05	0.04								
		8 TPI 16IR G55 AG55	0.06	1.42	10	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04							
		7 TPI 16IR G55 AG55	0.06	1.62	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04	0.03						
		6 TPI 22IR N55	0.47	2.22	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	0.05	0.03					
		5 TPI 22IR N55	0.47	2.25	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.10	0.07	0.05	0.05	0.05	0.03				
		5 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	0.09	0.08	0.06	0.05	0.05			
		5 TPI 22IR N55	0.47	3.14	19	0.30	0.28	0.27	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.06	0.05	0.05	0.07
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				
		5.0mm 22IR 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		

Corner-R(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

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

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											
		6002	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04												
		1.75mm 16ER 6001	0.10	1.23	9	0.25	0.22	0.20	0.17	0.14	0.09	0.07	0.05	0.04										
		6002	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04											
	Internal Thread	2.00mm 16ER 6001	0.10	1.42	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		6002	0.20	1.32	10	0.25	0.22	0.20	0.16	0.14	0.12	0.08	0.07	0.04	0.04									
		2.50mm 16ER 6001	0.10	1.79	13	0.25	0.22	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.09	0.08	0.05	0.04						
		6002	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.16	0.12	0.12	0.10	0.08	0.06	0.04							
		0.75mm 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										
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI 16ER 5501	0.10	0.61	5	0.20	0.16	0.12	0.08	0.05														
		19 TPI 16ER 5501	0.10	0.95	7	0.22	0.20	0.16	0.14	0.10	0.08	0.05												
		14 TPI 16ER 5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05									
		5502	0.20	1.22	9	0.24	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
	Internal Thread	11 TPI 16ER 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02						
		5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.04	0.02						
		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	0.10	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									
Whitworth (55°)	External Thread	24 TPI 16ER 5501	0.10	0.73	6	0.22	0.18	0.12	0.09	0.07	0.05													
		20 TPI 16ER 5501	0.10	0.90	6	0.22	0.18	0.17	0.16	0.12	0.05													
		18 TPI 16ER 5501	0.10	1.01	7	0.24	0.20	0.18	0.16	0.10	0.08	0.05												
		16 TPI 16ER 5501	0.10	1.15	9	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05										
		5502	0.20	1.04	8	0.24	0.20	0.16	0.14	0.10	0.08	0.07	0.05											
		14 TPI 16ER 5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05									
		5502	0.20	1.22	9	0.24	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		12 TPI 16ER 5501	0.10	1.58	12	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.08	0.07	0.05							
	Internal Thread	5502	0.20	1.46	11	0.25	0.20	0.18	0.16	0.15	0.14	0.10	0.08	0.08	0.07	0.05								
		11 TPI 16ER 5501	0.10	1.73	12	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.07	0.05							
		5502	0.20	1.62	11	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05								
		10 TPI 16ER 5501	0.10	1.92	14	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.12	0.10	0.10	0.08	0.08	0.05	0.02					
		5502	0.20	1.80	13	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
		9 TPI 16ER 5502	0.20	2.03	14	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.12	0.10	0.08	0.08	0.06	0.02						
		24 TPI 11IR 55005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.05	0.03												
		16IR 5501	0.10	0.65	6	0.18	0.15	0.12	0.10	0.07	0.03													
		20 TPI 11IR 55005	0.05	0.87	8	0.18	0.16	0.14	0.12	0.10	0.06	0.06	0.05											
		16IR 5501	0.10	0.81	7	0.18	0.16	0.14	0.12	0.10	0.06	0.05												
		18 TPI 11IR 55005	0.05	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16IR 5501	0.10	0.91	7	0.20	0.18	0.16	0.14	0.10	0.08	0.05												
		16 TPI 11IR 55005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.10	0.10	0.08	0.08	0.05										
		16IR 5501	0.10	1.04	8	0.20	0.18	0.16	0.15	0.12	0.10	0.08	0.05											
		5502	0.20	0.92	7	0.20	0.18	0.16	0.15	0.10	0.08	0.05												
		14 TPI 11IR 55005	0.05	1.26	10	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.08	0.05									
		16IR 5501	0.10	1.20	9	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.08	0.05										
		5502	0.20	1.08	8	0.20	0.18	0.18	0.16	0.13	0.10	0.08	0.05											
		12 TPI 16IR 5501	0.10	1.42	10	0.25	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05									
		5502	0.20	1.30	9	0.25	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05										
		11 TPI 16IR 5501	0.10	1.56	11	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.08	0.05								
		5502	0.20	1.44	10	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05									

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

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° 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02																
		0.70mm	TT32° 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02															
		0.75mm	TT32° 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02														
		0.80mm	TT32° 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02														
		1.00mm	TT32° 6000 TT32/43° 6001	0.00 0.10	0.76 0.66	8 6	0.15 0.20	0.12 0.15	0.12 0.12	0.11 0.10	0.10 0.07	0.08 0.02	0.06	0.02	0.02													
		1.25mm	TT32° 6000 TT32/43° 6001	0.00 0.10	0.95 0.85	9 7	0.18 0.25	0.16 0.20	0.14 0.13	0.12 0.10	0.10 0.10	0.10 0.05	0.08 0.02	0.05	0.02	0.05	0.02											
		1.50mm	TT32° 6000 TT32/43° 6001 6002	0.00 0.10 0.20	1.14 1.04 0.94	10 9 8	0.20 0.25 0.25	0.18 0.18 0.18	0.16 0.14 0.14	0.14 0.12 0.12	0.10 0.10 0.10	0.10 0.08 0.08	0.07 0.05 0.05	0.07 0.05 0.02	0.05 0.02	0.02	0.02											
		1.75mm	TT32° 6000 TT32/43° 6001 6002	0.00 0.10 0.20	1.33 1.23 1.13	11 10 9	0.25 0.25 0.25	0.23 0.23 0.23	0.20 0.20 0.20	0.13 0.13 0.13	0.10 0.10 0.10	0.10 0.08 0.08	0.07 0.07 0.05	0.07 0.05 0.02	0.05 0.02	0.02	0.02											
		2.00mm	TT32° 6000 TT32/43° 6001 6002	0.00 0.10 0.20	1.52 1.42 1.32	12 11 10	0.25 0.25 0.25	0.23 0.23 0.23	0.20 0.20 0.20	0.16 0.16 0.16	0.13 0.13 0.13	0.10 0.10 0.10	0.10 0.10 0.08	0.10 0.08 0.05	0.10 0.08 0.05	0.08 0.05 0.02	0.05 0.02	0.02										
		2.50mm	TT32° 6000 TT32/43° 6001 6002 6003	0.00 0.10 0.20 0.30	1.89 1.79 1.69 1.59	13 12 11 11	0.27 0.27 0.27 0.27	0.25 0.25 0.25 0.25	0.20 0.20 0.20 0.20	0.18 0.17 0.18 0.17	0.17 0.15 0.15 0.15	0.14 0.14 0.14 0.12	0.14 0.13 0.13 0.10	0.13 0.12 0.10 0.08	0.10 0.08 0.08 0.05	0.08 0.06 0.02 0.02	0.06 0.02	0.02										
		3.00mm	TT43° 6001 6002 6003 6004	0.10 0.20 0.30 0.40	2.17 2.07 1.97 1.87	14 13 12 12	0.30 0.30 0.30 0.30	0.25 0.25 0.25 0.25	0.23 0.23 0.23 0.23	0.20 0.20 0.20 0.20	0.20 0.18 0.18 0.18	0.16 0.15 0.15 0.14	0.14 0.14 0.14 0.12	0.14 0.13 0.12 0.10	0.14 0.12 0.10 0.08	0.10 0.10 0.08 0.05	0.08 0.05 0.02	0.05 0.02	0.02									
		3.50mm	TT43° 6001 6002 6003 6004	0.10 0.20 0.30 0.40	2.55 2.45 2.35 2.25	16 15 14 14	0.30 0.30 0.30 0.30	0.27 0.27 0.27 0.27	0.23 0.23 0.23 0.23	0.22 0.22 0.22 0.20	0.20 0.18 0.18 0.18	0.18 0.16 0.16 0.16	0.16 0.16 0.15 0.14	0.16 0.16 0.15 0.14	0.16 0.14 0.10 0.08	0.14 0.14 0.12 0.10	0.12 0.10 0.10 0.08	0.10 0.10 0.08 0.05	0.08 0.05 0.02	0.05 0.02	0.05 0.02	0.02						
		Internal Thread	0.50mm	TT32° 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02																
			0.70mm	TT32° 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02															
			0.75mm	TT32° 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02															
			0.80mm	TT32° 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02															
			1.00mm	TT32° 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02														
			1.25mm	TT32° 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02													
			1.50mm	TT32° 6000 TT32/43° 6001	0.00 0.10	0.97 0.87	9 8	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.14	0.10 0.08	0.05 0.05	0.04 0.04	0.04 0.02	0.02												
			1.75mm	TT32° 6000 TT32/43° 6001	0.00 0.10	1.14 1.04	10 9	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.12 0.12	0.10 0.10	0.08 0.08	0.05 0.05	0.04 0.02	0.02											
			2.00mm	TT32° 6000 TT32/43° 6001	0.00 0.10	1.30 1.20	12 11	0.20 0.20	0.18 0.18	0.16 0.16	0.13 0.13	0.12 0.12	0.10 0.10	0.08 0.08	0.05 0.05	0.05 0.03	0.03 0.02	0.02										
	2.50mm		TT32° 6000 TT32/43° 6001	0.00 0.10	1.62 1.52	14 13	0.23 0.23	0.20 0.20	0.18 0.18	0.18 0.13	0.13 0.13	0.12 0.12	0.10 0.10	0.10 0.08	0.08 0.07	0.05 0.03	0.03 0.02	0.02										
	3.00mm		TT43° 6001 6002	0.10 0.20	1.85 1.75	15 14	0.25 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.14 0.14	0.13 0.13	0.12 0.12	0.10 0.10	0.10 0.08	0.07 0.05	0.03 0.02	0.05 0.05	0.05 0.02	0.05 0.02	0.02							
	Parallel Pipe / Tapered Pipe (55°)		External Thread	28 TPI	TT32° 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02															
				19 TPI	TT32/43° 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02												
				14 TPI	TT32/43° 5501 5502	0.10 0.20	1.34 1.22	10 9	0.25 0.25	0.22 0.22	0.20 0.20	0.16 0.18	0.14 0.12	0.12 0.10	0.08 0.08	0.05 0.05	0.02											
		11 TPI		TT32/43° 5501 5502 5503	0.10 0.20 0.30	1.73 1.62 1.50	13 12 11	0.25 0.25 0.25	0.22 0.22 0.22	0.22 0.20 0.20	0.18 0.18 0.16	0.14 0.14 0.14	0.12 0.12 0.12	0.10 0.10 0.10	0.08 0.08 0.07	0.05 0.05 0.04	0.05 0.04 0.02	0.02										
		28 TPI		TT32/43° 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.06	0.02															
		19 TPI		TT32/43° 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05														
		Internal Thread	14 TPI	TT32/43° 5501 5502	0.10 0.20	1.34 1.22	10 9	0.20 0.20	0.18 0.18	0.18 0.16	0.16 0.15	0.14 0.12	0.14 0.10	0.11 0.08	0.10 0.05	0.08 0.05	0.05											
			11 TPI	TT32/43° 5501 5502 5503	0.10 0.20 0.30	1.73 1.62 1.50	13 12 11	0.25 0.25 0.25	0.22 0.22 0.22	0.22 0.20 0.20	0.18 0.18 0.16	0.14 0.14 0.14	0.12 0.12 0.12	0.10 0.10 0.10	0.10 0.08 0.05	0.08 0.05 0.04	0.05 0.04 0.02	0.02										
			Whitworth (55°)	External Thread	24 TPI	TT32/43° 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02													
	20 TPI	TT32/43° 5501			0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02														
	18 TPI	TT32/43° 5501			0.10	1.01	8	0.20	0.18	0.18	0.16	0.12	0.10	0.05	0.02													
	16 TPI	TT32/43° 5501 5502			0.10 0.20	1.15 1.04	9 8	0.25 0.25	0.20 0.20	0.18 0.18	0.14 0.14	0.12 0.10	0.10 0.08	0.08 0.07	0.06 0.02	0.02												
	14 TPI	TT32/43° 5501 5502			0.10 0.20	1.34 1.22	10 9	0.25 0.25	0.22 0.22	0.20 0.20	0.16 0.18	0.14 0.12	0.12 0.10	0.08 0.08	0.05 0.05	0.02	0.02											
	12 TPI	TT32/43° 5501 5502			0.10 0.20	1.58 1.46	12 11	0.25 0.25	0.20 0.20	0.18 0.18	0.16 0.16	0.15 0.15	0.14 0.12	0.12 0.10	0.12 0.08	0.10 0.08	0.08 0.06	0.06 0.02	0.02									
	11 TPI	TT32/43° 5501 5502 5503			0.10 0.20 0.30	1.73 1.62 1.50	13 12 11	0.25 0.25 0.25	0.22 0.22 0.22	0.22 0.20 0.20	0.18 0.18 0.16	0.14 0.14 0.14	0.12 0.12 0.12	0.10 0.10 0.10	0.10 0.08 0.07	0.08 0.05 0.04	0.05 0.04 0.02	0.02										
	10 TPI	TT32/43° 5501 5502 5503			0.10 0.20 0.30	1.92 1.80 1.68	14 13 12	0.25 0.25 0.25	0.23 0.23 0.23	0.23 0.23 0.20	0.20 0.18 0.18	0.16 0.16 0.14	0.12 0.12 0.13	0.12 0.10 0.12	0.12 0.10 0.10	0.10 0.08 0.08	0.08 0.05 0.05	0.08 0.05 0.02	0.05 0.02	0.02								
	9 TPI	TT43° 5501 5502 5503			0.10 0.20 0.30	2.14 2.03 1.91	14 13 12	0.25 0.25 0.30	0.23 0.23 0.25	0.23 0.23 0.23	0.20 0.20 0.20	0.20 0.18 0.18	0.18 0.16 0.15	0.16 0.14 0.12	0.16 0.14 0.10	0.16 0.12 0.10	0.14 0.12 0.08	0.12 0.10 0.05	0.10 0.08 0.02	0.08 0.05 0.02	0.05 0.02	0.02						
	8 TPI	TT43° 5501 5502 5503 5504			0.10 0.20 0.30 0.40	2.43 2.31 2.19 2.08	15 14 13 12	0.27 0.27 0.30 0.27	0.25 0.25 0.27 0.25	0.23 0.23 0.23 0.23	0.23 0.23 0.20 0.23	0.20 0.20 0.20 0.20	0.20 0.20 0.18 0.18	0.18 0.16 0.15 0.15	0.16 0.16 0.14 0.12	0.16 0.16 0.15 0.12	0.14 0.14 0.12 0.10	0.12 08										

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 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 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 5502	0.20	1.30	9	0.25	0.22	0.20	0.18	0.16	0.12	0.10	0.05	0.02								
		11 TPI TT32/43% 5501	0.10	1.56	11	0.25	0.22	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.05	0.02						
		11 TPI 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 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 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 5503	0.30	1.70	11	0.25	0.22	0.22	0.20	0.20	0.18	0.14	0.12	0.10	0.05	0.02						
		8 TPI TT43% 5501	0.10	2.19	15	0.27	0.25	0.23	0.21	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.05	0.02		
		8 TPI 5502	0.20	2.07	14	0.27	0.25	0.23	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.02			
		8 TPI 5503	0.30	1.96	13	0.30	0.25	0.23	0.22	0.20	0.18	0.15	0.12	0.10	0.08	0.06	0.05	0.02				
		8 TPI 5504	0.40	1.84	12	0.30	0.25	0.23	0.21	0.20	0.18	0.14	0.12	0.08	0.06	0.05	0.02					

TT (60°, 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											
		0.50mm 6000S																				
		0.50mm 6000S	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02												
		0.50mm 6000S																				
		0.70mm TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
		0.70mm 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									
		0.75mm 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									
		0.80mm 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									
		1.00mm 6000S	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02										
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI TTX32R 5501	0.10	0.61	5	0.20	0.18	0.15	0.12	0.10	0.08	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									
		19 TPI 5501S	0.15	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	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							
		11 TPI TTX32R 5501S	0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.02					
		24 TPI TTX32R 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
		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 5501S	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 5501S	0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
		12 TPI TTX32R 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						
		11 TPI TTX32R 5501S	0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.02					

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

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

TPGB (60°, 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
		mm · TPI																					
Metric (60°)	Internal Thread	0.75mm	TPGB1102005 1103005	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02												
		0.80mm	TPGB1102005 1103005	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02												
		1.00mm	TPGB1102005 1103005	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02											
		1.25mm	TPGB1102005 1103005	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02										
		1.50mm	TPGB1102005 1103005	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02									
			110201 110301	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		1.75mm	TPGB1102005 1103005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.04	0.02								
			110301	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02								
		2.00mm	TPGB1102005 1103005	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02						
			110301	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02						
		2.50mm	TPGB1102005 1103005	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02				
			110301	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
		3.00mm	TPGB1102005 1103005	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.12	0.10	0.08	0.08	0.07	0.05	0.02		
			110301	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02		
			110302	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02			
		3.50mm	TPGB1102005 1103005	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02	
			110301	0.10	2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02	
			110302	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02		

Guide for Internal Threading

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

1. "Stabilizing Bore Dia."

Because small pitch internal threading has small corner-R(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.

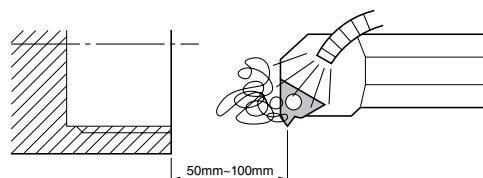
<When processing the first workpiece>

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.



Applicable Toolholders & Inserts

In Applicable Toolholder / Insert Lists on **J46-J49**, Right-hand Insert / Right-hand Toolholder descriptions are listed based on the previous TNN type inserts. For other applicable inserts / toolholders or stock availability of Left-hand, see each relevant page and **J52**.

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

Nominal Thread	TPI	External Thread (G)			Internal Thread (G, Rp)			Bore Dia.	Same Root's Radius
Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile		Partial Profile	Full Profile		
G 1/2 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ	-	SINR0612S-06E (EZT🌀J30)	06IR5501	-	6.56	0.12
G 1/2 (PF 1/2)			16ERAG55-TF/TQ 16ERA55 16ERAG55					8.57	
G 1/2 (PF 1/2)	19	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERA55-TF/TQ	16ER19W-TF/TQ 16ER19W	SINR0816S-08E (EZT🌀J30)	08IR5501	-	11.45	0.18
G 3/4 (PF 3/4)			16ERAG55-TF/TQ 16ERA55 16ERAG55		SINR1216S-11E (EZT🌀J30)	11IRA55 11IR55005	-	14.95	
G 1/2 (PF 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER14W-TF/TQ 16ER14W	SINR1516S-11 SINR1616S-16	11IR55005	-	18.63	0.25
G 5/8 (PF 5/8)					SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W	20.59	
G 3/4 (PF 3/4)								24.12	
G 7/8 (PF 7/8)								SINR2420S-16	
G 1 (PF 1)					11	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W	
G 1 1/2 (PF 1 1/2)	CINR3025S-16	34.94							
G 1 1/2 (PF 1 1/2)	CINR3732S-16	38.95							
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G 1 1/2 is recommended.									

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

Nominal Thread	TPI	External Thread (G)			Internal Thread (Rc)			Same Root's Radius	
Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert			
			Partial Profile	Full Profile		Partial Profile	Full Profile		
R 1/2, Rc 1/2 (-)	28	KTNR○○○○○-16 KTNSR○○○○○-16 S○○○-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER28BSPT-TF/TQ 16ER28BSPT	SINR0612S-06E (EZT J30)	06IR5501	-		0.12
R 1/8, Rc 1/8 (PT 1/8)									
R 1/4, Rc 1/4 (PT 1/4)	19	KTNR○○○○○-16 KTNSR○○○○○-16 S○○○-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER19BSPT-TF/TQ 16ER19BSPT	SINR0816S-08E (EZT J30)	08IR5501	-		0.18
R 3/8, Rc 3/8 (PT 3/8)			SINR1216S-11E (EZT J30)		(11IRA55) (11IR55005)				
R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○○-16 KTNSR○○○○○-16 S○○○-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER14BSPT-TF/TQ 16ER14BSPT	SINR1516S-11 SINR1616S-16	(11IR55005)	11IR14BSPT-TF/TQ 11IR14BSPT		0.25
R 3/4, Rc 3/4 (PT 3/4)			SINR2016S-16		16IR14BSPT-TF/TQ 16IR14BSPT				
R 1, Rc 1 (PT 1)	11	KTNR○○○○○-16 KTNSR○○○○○-16 S○○○-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER11BSPT-TF/TQ 16ER11BSPT	SINR2420S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR11BSPT-TF/TQ 16IR11BSPT		0.32
R 1 1/2, Rc 1 1/2 (PT 1 1/2)					CINR3025S-16				
R 1 1/2, Rc 1 1/2 (PT 1 1/2)					CINR3732S-16				
		Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for R1 1/2 is recommended.			Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for Rc1 1/2 is recommended.				

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

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

(e.g.) SINR2420S-16 (Min. Bore Dia.: ø24mm) is recommended for the Tool of G1/2 Internal Threading from the above Table, but SINR2016S-16 can also be used.

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

American National Tapered Pipe (NPT)

Nominal Thread	TPI	External Thread			Internal Thread			
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
1/ NPT 1/ NPT	27	KTRR-16 KTRXR-16F	TT32R6000 TTX32R6000	-	No Tools Available			
1/ NPT 3/ NPT	18	KTNR-16 KTNSR-16 S-KTNL16	-	16ER18NPT	EZH Sleeves (See Page J31)	EZTR060050-60-004 EZTR070060-60-004	-	
1/2 NPT 3/ NPT	14	KTNR-16 KTNSR-16 S-KTNL16	-	16ER14NPT	EZH Sleeves (See Page J31)	EZTR070060-60-004	-	
1/2 NPT	14	KTNR-16 KTNSR-16 S-KTNL16	-	16ER14NPT	SINR1616S-16	-	16IR14NPT	
3/ NPT					SINR2016S-16			
1 NPT	11.5	KTNR-16 KTNSR-16 S-KTNL16	-	16ER11.5NPT	SINR2420S-16	-	16IR11.5NPT	
1 1/ NPT					CINR3025S-16			
1 1/2 NPT 2 NPT					CINR3732S-16			

• Application of NPTF Thread

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

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

30° Trapezoidal (Tr)

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

Nominal Thread	Pitch (mm)	External Thread			Internal Thread			
		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				SINR2420S-16	16IR300TR	-	25.00 27.00 29.00
Tr 70X4 Tr 75X4 Tr 80X4 Tr 90X4 Tr 95X4 Tr 100X4 Tr 105X4 Tr 110X4	4				CINR3025S-16	16IR300TR	-	31.00 33.00 35.00 37.00
					CINR3732S-16	16IR300TR	-	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
					CINR3732S-22	22IR400TR	-	

• 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.

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

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

Applicable Toolholders & Inserts (Internal)

Metric Coarse Thread : M

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
M1 . . . M3	0.25 0.5	No Tools Available	-	-	0.73 . . . 2.46
M4			EZTR030025-60-002		3.24
M5	0.7		EZTR040035-60-004		4.13
M6	1.0		VNTR045-11	-	4.92
M7	1.0	-	EZTR050040-60-004	-	5.92
			VNTR045-11	-	
M8	1.25	-	EZTR060050-60-004	-	6.65
			VNTR060-11	-	
M9	1.25	-	EZTR070060-60-004	-	7.65
		SINR0612S-06E	06IR60005	-	
M10	1.5				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	22IRN60	22IR350ISO	26.21
M33	3.5				29.21
M36	4.0	CINR3025S-22		22IR400ISO	31.67
M39	4.0				34.67
M42	4.5	CINR3732S-22		22IR450ISO	37.13
M45	4.5				40.13
M48	5.0	CINR3732S-22	22IR500ISO	42.59	
M52	5.0			46.59	
M56 . . .	5.5	* Threading of M56 and over is not available due to too large pitch size.			50.05 . . .

Metric Fine Thread : M

Part 1

Nominal Thread	Pitch (mm)	Internal Thread			
		Toolholder	Insert		Bore Dia.
			Partial Profile	Full Profile	
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	-	
			EZTR060050-60-004	-	
M8x1.0	1.0	-	VNTR060-11	-	6.92
		SINR0612S-06E	06IR60005	-	
		-	EZTR060050-60-004	-	
M8x0.75	0.75	-	VNTR060-11	-	7.19
		SINR0612S-06E	06IR60005	-	
		-	EZTR070060-60-004	-	
M9x1.0	1.0	-	VNTR060-11	-	7.92
		SINR0612S-06E	06IR60005	-	
		SINR0816S-08E	08IR60007	-	
M9x0.75	0.75	-	EZTR070060-60-004	-	8.19
		SINR0612S-06E	VNTR060-11	-	
		-	06IR60005	-	
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	06IR600005	-	
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	SINR0816S-08E	08IR60007	-	10.38
M12x1.25	1.25				10.65
M12x1.0	1.0				10.92

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	11IR150ISO-□□	12.38
M14x1.25	1.25		11IR60005	11IR125ISO-□□	12.65
M14x1.0	1.0			11IR100ISO-□□	12.92
M15x1.5	1.5	SINR1216S-11E	11IRA60	11IR150ISO-□□	13.38
M15x1.0	1.0		11IR60005	11IR100ISO-□□	13.92
M16x1.5	1.5	SINR1216S-11E	11IRA60	11IR150ISO-□□	14.38
M16x1.0	1.0		11IR60005	11IR100ISO-□□	14.92
M17x1.5	1.5	SINR1516S-11	11IRA60	11IR150ISO-□□	15.38
M17x1.0	1.0		11IR60005	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
		SINR2420S-22	-	22IR300ISO	
M33x3.0	3.0	SINR2420S-16	Table 4	16IR300ISO-□□	29.75
M33x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	30.84
M33x1.5	1.5		Table 2	16IR150ISO-□□	31.38
M35x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	33.38
		CINR3025S-22	-	22IR300ISO	
M36x3.0	3.0	CINR3025S-16	Table 4	16IR300ISO-□□	32.75
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
		CINR3025S-22	-	22IR300ISO	
M39x3.0	3.0	CINR3025S-16	Table 4	16IR300ISO-□□	35.75
M39x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	36.84
M39x1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	37.38
		CINR3025S-22	-	22IR300ISO	
M40x3.0	3.0	CINR3025S-16	Table 4	16IR300ISO-□□	36.75
M40x2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	37.84
M40x1.5	1.5		Table 2	16IR150ISO-□□	38.38
M42x4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67
			-	22IR300ISO	
M42x3.0	3.0	CINR3732S-16	Table 4	16IR300ISO-□□	38.75
M42x2.0	2.0	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

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

Unified Coarse Thread : UNC

Nominal Thread	TPI	Internal Thread						
		Toolholder	Insert		Bore Dia.			
			Partial Profile	Full Profile				
2-56 UNC . . 6-32 UNC	56 32	No Tools Available	-	-	1.69 . . 2.65			
8-32 UNC	32				-	EZTR030025-60-002	-	3.31
10-24 UNC	24				-	EZTR035030-60-002	-	3.68
12-24 UNC	24				-	EZTR040035-60-004	-	4.34
1/4-20 UNC	20	-	EZTR050040-60-004	-	4.98			
		-	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					13.38		
3/4-10 UNC	10	SINR1616S-16	16IRAG60 16IRG60	16IR10UN-□□	16.30			
7/8- 9 UNC	9			-	19.17			
1- 8 UNC	8	SINR2016S-16		16IR08UN-□□	21.96			
1 1/8- 7 UNC	7	SINR2420S-22	22IRN60	-	24.65			
1 1/4- 7 UNC					27.82			
1 3/8- 6 UNC	6	CINR3025S-22			30.34			
1 1/2- 6 UNC			33.52					
1 3/4- 5 UNC	5	CINR3732S-22			38.95			
2-4 1/2 UNC	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.				44.69		
. . .						. . .		

Unified Fine Thread : UNF

Nominal Thread	TPI	Internal Thread				
		Toolholder	Insert		Bore Dia.	
			Partial Profile	Full Profile		
0-80 UNF : : 6-40 UNF	80 40	No Tools Available	-	-	1.18 : : 2.82	
8-36 UNF	36		-	EZTR030025-60-002	-	3.40
10-32 UNF	32		-	EZTR035030-60-002	-	3.97
12-28 UNF	28	-	EZTR040035-60-004	-	4.50	
1/4-28 UNF	28	-	EZTR050040-60-004	-	5.37	
		-	VNTR045-11	-		
5/16-24 UNF	24	-	EZTR060050-60-004	-	6.79	
		-	VNTR060-11	-		
		SINR0612S-06E	06IR60005	-		
3/8-24 UNF	24	-	EZTR070060-60-004	-	8.38	
		SINR0612S-06E	06IR60005	-		
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74	
1/2-20 UNF					11.33	
9/16-18 UNF	18	SINR1216S-11E	11IRA60	-	12.76	
5/8-18 UNF			11IR60005	-	14.35	
3/4-16 UNF	16	SINR1516S-11	11IRA60	-	17.33	
			11IR60005			
7/8-14 UNF	14	SINR1616S-16		16IR16UN(-□□)		
		SINR2016S-16		16IR14UN(-□□)	20.26	
1-12 UNF	12	SINR2016S-16	16IRAG60		23.10	
1 1/8-12 UNF	12	SINR2420S-16	16IRG60	16IR12UN(-□□)	26.28	
1 1/4-12 UNF			16IR6001		29.46	
1 3/8-12 UNF	12	CINR3025S-16			32.63	
1 1/2-12 UNF				36.81		

Whitworth Coarse Thread : W

Nominal Thread	TPI	Internal Thread			Bore Dia.
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4	20	No Tools Available			4.91
W 5/16	18		-	-	6.34
W 3/8	16	No Tools Available			7.73
W 7/16	14				9.06
W 1/2	12				10.30
W 9/16	12				11.89
W 5/8	11				13.26
W 3/4	10	SINR1616S-16	16IRAG55 16IRG55	-	16.17
W 7/8	9			-	19.03
W 1	8	SINR2016S-16		-	21.80
W 1 1/8	7	SINR2420S-22	22IRN55	-	24.47
W 1 1/4					27.64
W 1 3/8	6	CINR3025S-22	22IRN55	-	30.13
W 1 1/2					33.30
W 1 5/8	5	CINR3732S-22	22IRN55	-	35.52
W 1 3/4	5				38.69
W 1 7/8	4 1/2	No Tools Available			41.23
W 2					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 W10 TPI 24 W10.5 TPI 24	24	SINR0816S-08E	08IR5501	-	8.30 8.80 9.30			
W9.5 TPI 20 W10 TPI 20 W10.5 TPI 20 W11 TPI 20 W11.5 TPI 20 W12 TPI 20 W12.5 TPI 20 W13 TPI 20	20	SINR0816S-08E	08IR5501		-	8.06 8.56 9.06 9.56 10.06 10.56 11.06 11.56		
W13.5 TPI 20	20	SINR1216S-11E	11IRA55 11IR55005			-	12.06	
W11 TPI 18 W11.5 TPI 18 W12 TPI 18 W12.5 TPI 18 W14 TPI 18 W14.5 TPI 18 W15 TPI 18 W16 TPI 18	18	No Tools Available				9.40 9.90 10.40 10.90		
W13 TPI 16 W13.5 TPI 16	16	SINR1216S-11E	11IRA55 11IR55005	-	12.40 12.90 13.40 14.40			
W14 TPI 16 W14.5 TPI 16 W15 TPI 16	16				No Tools Available			11.20 11.70
W17 TPI 16	16				SINR1516S-11		15.20	
W18 TPI 16 W19 TPI 16 W20 TPI 16	16	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR16W-□□)	16.20 17.20 18.20			
W16 TPI 14 W17 TPI 14 W18 TPI 14	14	SINR1216S-11E	11IRA55 11IR55005	-	13.94 14.94			
W21 TPI 14 W22 TPI 14	14	SINR1516S-11			15.94			
W23 TPI 14 W24 TPI 14 W25 TPI 14 W26 TPI 14	14	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502		(16IR14W-□□) (16IR14W)	18.94 19.94 20.94 21.94 22.94 23.94		
W19 TPI 12 W20 TPI 12 W21 TPI 12 W22 TPI 12	12	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	-	16.60 17.60 18.60 19.60			
W28 TPI 12 W30 TPI 12 W32 TPI 12 W34 TPI 12 W35 TPI 12 W36 TPI 12 W38 TPI 12 W40 TPI 12 W42 TPI 12 W44 TPI 12 W45 TPI 12 W46 TPI 12 W48 TPI 12 W50 TPI 12 . . .	12	SINR2420S-16		-	25.60 27.60 29.60			
W33 TPI 12 W37 TPI 12 W39 TPI 12 W41 TPI 12 W43 TPI 12 W47 TPI 12	12	CINR3025S-16		-	31.60 32.60 33.60 35.60			
W49 TPI 12	12	CINR3732S-16		-	37.60 39.60 41.60 42.60 43.60 45.60 47.60 . . .			
W23 TPI 10 W24 TPI 10 W25 TPI 10 W26 TPI 10	10	SINR2016S-16		16IRAG55 16IRG55	-	20.12 21.12 22.12 23.12		
W28 TPI 9 W30 TPI 9 W32 TPI 9	9	SINR2420S-16			-	24.80 26.80 28.80		
W34 TPI 8 W35 TPI 8 W36 TPI 8 W38 TPI 8 W40 TPI 8 W42 TPI 8	8	CINR3025S-16			-	30.40 31.40 32.40 34.40 36.40 38.40		
W44 TPI 7 W45 TPI 7 W46 TPI 7 W48 TPI 7 W50 TPI 7 W52 TPI 7	7	CINR3732S-22			22IRN55	-	39.89 40.89 41.89 43.89 45.89 47.89	
W55 TPI 6 W58 TPI 6 W60 TPI 6 W62 TPI 6 . . . W72 TPI 6	6	CINR3732S-22		22IRN55	-	50.20 53.20 55.20 57.20 . . . 67.20		
W75 TPI 5 . . . W105 TPI 5	5	CINR3732S-22		22IRN55	-	69.24 . . . 99.24		
W110 TPI 4 . . .	4	No Tools Available			102.8 . . .			

Threading Methods

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

External Thread

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

A schematic diagram showing a left-hand toolholder (indicated by a curved arrow pointing left) cutting a left-hand external thread on a workpiece. The insert is also left-hand. The spindle revolution is M04, indicated by a curved arrow pointing left. Chip formation is shown on the right side of the thread.

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

A schematic diagram showing a right-hand toolholder (indicated by a curved arrow pointing right) cutting a left-hand external thread on a workpiece. The insert is also right-hand. The spindle revolution is M04, indicated by a curved arrow pointing left. Chip formation is shown on the right side of the thread.

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

A schematic diagram showing a left-hand toolholder (indicated by a curved arrow pointing left) cutting a left-hand external thread on a workpiece. The insert is also left-hand. The spindle revolution is M03, indicated by a curved arrow pointing right. Chip formation is shown on the left side of the thread.

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

A schematic diagram showing a right-hand toolholder (indicated by a curved arrow pointing right) cutting a left-hand external thread on a workpiece. The insert is also right-hand. The spindle revolution is M03, indicated by a curved arrow pointing right. Chip formation is shown on the left side of the thread.

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

A schematic diagram showing a right-hand toolholder (indicated by a curved arrow pointing right) cutting a right-hand external thread on a workpiece. The insert is also right-hand. The spindle revolution is M03, indicated by a curved arrow pointing right. Chip formation is shown on the left side of the thread.

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

A schematic diagram showing a left-hand toolholder (indicated by a curved arrow pointing left) cutting a right-hand external thread on a workpiece. The insert is also left-hand. The spindle revolution is M03, indicated by a curved arrow pointing right. Chip formation is shown on the left side of the thread.

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

A schematic diagram showing a right-hand toolholder (indicated by a curved arrow pointing right) cutting a right-hand external thread on a workpiece. The insert is also right-hand. The spindle revolution is M04, indicated by a curved arrow pointing left. Chip formation is shown on the right side of the thread.

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

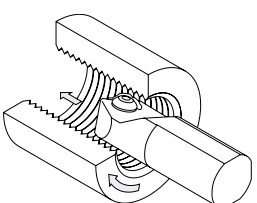
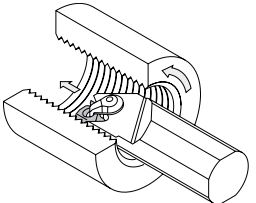
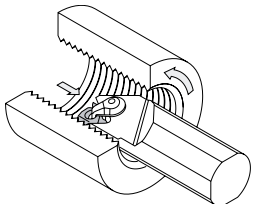
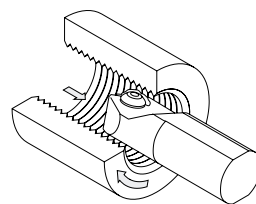
A schematic diagram showing a left-hand toolholder (indicated by a curved arrow pointing left) cutting a right-hand external thread on a workpiece. The insert is also left-hand. The spindle revolution is M04, indicated by a curved arrow pointing left. Chip formation is shown on the right side of the thread.

Left-hand Thread

Right-hand Thread

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

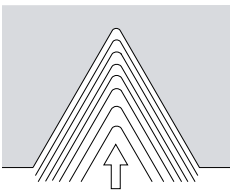
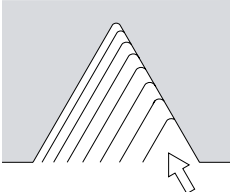
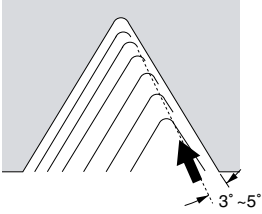
Internal Threading (Left-hand Thread / Right-hand Thread)

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

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

Lead Angle of Thread

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

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

β : 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.)

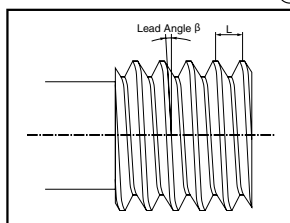


Fig. 1

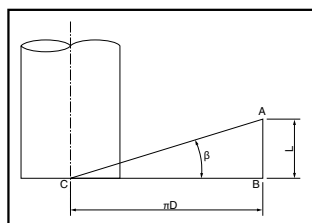


Fig. 2

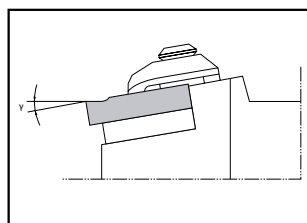


Fig. 3

Relief Angle of Thread

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

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

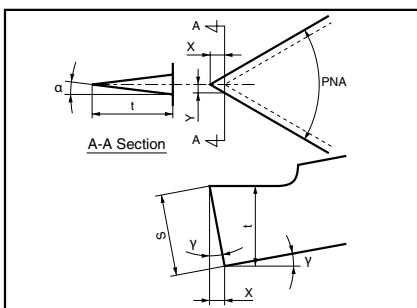


Fig. 4

Symbol	e.g.)
α : Side Relief Angle	
γ : Inclination Angle after Installing Insert	External Insert: 10° Internal Insert: 15°
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 α	
	External	Internal
60° Thread (M, UN, NPT)	5° 49'	8° 47'
55° Thread (W, G, PT)	5° 14'	7° 56'
30° Trapezoidal (Tr)	2° 43'	5° 7'

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

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

Thread Types & Basic Profile

Thread Types & Basic Profile / Applicable Toolholders & Inserts

	Basic Profile	Symbol (Previous Symbol)	Type	Applicable Inserts	Applicable Toolholders
Metric		M e.g.) M30	External	○○E%○○○ISO(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTN%○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	TT43E%○○○M TT○○%60○○ TTX32R60○○	KTT%○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			External	○○I%○○○ISO(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	SIN%○○○○S-○○(E) CIN%○○○○S-○○
			Internal	TT○○%60○○ TPGB11○○○○(○)	KITG%○○○○T-○○ S○○□-STWP%11-○○(E)
Unified		UN UNC UNF UNE F e.g.) ff/ -16 UNF	External	○○ER○○UN(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	TTX32R60○○ ○○IR○○UN(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	KTT%○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16 SINR○○○○S-○○(E) CINR○○○○S-○○
			External	TT○○%60○○ TPGB11○○○○(○)	KITG%○○○○T-○○ S○○□-STWP%11-○○(E)
			Internal	TT○○%60○○ TPGB11○○○○(○)	KITG%○○○○T-○○ S○○□-STWP%11-○○(E)
Parallel Pipe		External : G(PF) Internal : G(PF) Rp(PS) e.g.) Gff/ (PFff/)	External	○○ER○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	TT○○%55○○ TTX32R55○○	KTT%○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			External	○○IR○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%55○○ TPGB11○○○○(○)	KITG%○○○○T-○○ S○○□-STWP%11-○○(E)
Whitworth		W e.g.) Wff/8	External	○○ER○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	TT○○%55○○ TTX32R55○○	KTT%○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			External	○○IR○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%55○○ TPGB11○○○○(○)	KITG%○○○○T-○○ S○○□-STWP%11-○○(E)
Tapered Pipe		External : R(PT) (BSPT) Internal : Rc(PT) (BSPT) e.g.) R½ (PT½)	External	16ER○○BSPT(-TF/TQ)	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	TT○○%55○○ * TTX32R55○○ *	KTT%○○○○□-○○ KTTXR○○○○□-16F, S○○□-KTTXL16
			External	○○IR○○BSPT(-TF/TQ)	SINR○○○○S-○○(E) CINR○○○○S-○○
			Internal	TT○○%55○○ *	KITG%○○○○T-○○ S○○□-STWP%11-○○(E)
American National Tapered Pipe		NPT e.g.) ff/8 -18 NPT	External	16ER○○(.○)NPT	KTNR○○○○□-○○ KTNSR○○○○□-16 S○○□-KTNL16
			Internal	16IR○○(.○)NPT	SINR○○○○S-○○ CINR○○○○S-○○
30° Trapezoidal		Tr e.g.) Tr 26x3	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.