

Threading Tools

F68 to F86

F



Threading
Tools

For External Diameters
Internal Diameters

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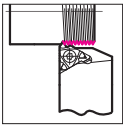
Stock Markings and Symbols

- : Standard stocked item
- ★: Worldwide Warehouse Item
- ▲: Limited Availability Item, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

Threading Tools Selection Guide

External Threading



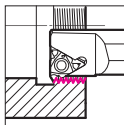
Applications Thread Ridge Shape	General Industrial Use				Pipe Couplings for Gas, Water and Water Faucets		Pipe Threads for Steam, Gas and Water Supply Pipes		Aerospace Equipment
	Internal Thread 60° Pitch External Thread	Internal Thread 55° Pitch External Thread	Internal Thread 60° Pitch External Thread	Internal Thread 60° Pitch External Thread	Internal Thread 55° Pitch External Thread	Internal Thread 60° Pitch External Thread	Internal Thread 55° Pitch External Thread	Internal Thread 60° Pitch External Thread	Internal Thread 60° Pitch External Thread
Type	60° General-purpose Thread	55° General-purpose Thread (Whitworth)	60° ISO Metric Thread	60° Unified Thread	55° Parallel Thread for Pipe/Whitworth	60° American NPT	55° Taper Thread for Pipe BSPT	60° American NPTF	60° UNJ
Symbol	M UNC/UNF	W	M	UNC/UNF	G/Rp/W	NPT	R/Rc	NPTF	UNJ
Pitch	mm Threads/Inch	Threads/Inch	mm	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch
Wiper Edge	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SSTE	0.50 to 3.00	48 to 8	0.75, 1.00, 1.25 1.50, 1.75, 2.00 2.50, 3.00	32, 28, 24 20, 18, 16 14, 13, 12 10, 8	36, 32, 28 24, 20, 19 18, 16, 14 12, 11, 10 8	27, 18, 14 11.5, 8	28, 19 14, 11	27, 18, 14 11.5	32, 28, 24 20, 18, 16 14, 12, 10
	48 to 8								
LTE	1.00 to 3.00	24 to 10	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00, 3.50, 4.00	24, 20, 18 16, 14, 12 8	—	—	28, 19 14, 11	—	—
	24 to 8								
STE	1.00 to 3.00	24 to 10	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00	24, 20, 18 16, 14, 12 8	—	—	28, 19 14, 11	—	—
	24 to 8								
STH	0.20 to 1.50	48 to 16	—	—	—	—	—	—	—

Threading
Tools

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Threading Tools Selection Guide

Internal Threading



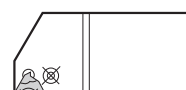
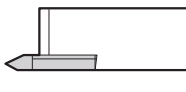
Threading
Tools

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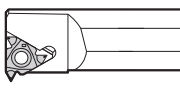
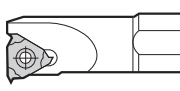
Applications	General Industrial Use				Pipe Couplings for Gas, Water and Water Faucets		Pipe Threads for Steam, Gas and Water Supply Pipes		Aerospace Equipment
Thread Ridge Shape									
Type	60° General-purpose Thread	55° General-purpose Thread (Whitworth)	60° ISO Metric Thread	60° Unified Thread	55° Parallel Thread for Pipe/Whitworth	60° American NPT	55° Taper Thread for Pipe BSPT	60° American NPTF	60° UNJ
Symbol	M UNC/UNF	W	M	UNC/UNF	G/Rp/W	NPT	R/Rc	NPTF	UNJ
Pitch	mm Threads/Inch	Threads/Inch	mm	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch
Wiper Edge	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SSTI	0.50 to 3.00 48 to 8	48 to 8	0.75, 1.00, 1.25 1.50, 1.75, 2.00 2.50, 3.00	32, 28, 24 20, 18, 16 14, 13, 12 10, 8	28, 24 20, 19	27, 18, 14 11.5, 8	28, 19	27, 18, 14 11.5, 8	32, 28, 24 20, 18, 16 14, 12, 10
STI	1.00 to 3.00 24 to 8	—	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00	—	—	—	—	—	—

Threading Tools Product Range

■ External Threading Tools

Series	Appearance	Structure				Features	Applicable Thread Symbol	
		Screw-on	Clamp-on	Lever Lock	Drawing Pin			
SSTE	 →F75	●				- Adopts a flat 3-corner insert. Ground cutting edge flank produces superior machined surface with sharp cutting edge - Stable chip control through use of a 3D molded breaker - Large lineup of inserts with a wiper edge	M UNC/UNF NPT NPTF	W G/Rp/W R/Rc UNJ
LTE/STE	 →F74, F75	●	●			- Range of lever lock holders with strong clamping force (shank size □25 to 32mm) and screw-on type holders (shank size □12 to 16mm) - M-Class flat-mounted 3-corner insert is economical - Range of cermet grades - Stable chip control with incorporated chipbreaker	M UNC/UNF NPT NPTF	W G/Rp/W R/Rc UNJ
STH	 →F86	●				- For a small lathe with a shank size of □20mm or less 2-corner vertically-mounted insert enables space-saving threading - Can also be used for back-turning threading with bar feeder - Can also be used for small-pitch (min. 0.2mm) threading	M UNC/UNF NPT NPTF	W G/Rp/W R/Rc UNJ

■ Internal Threading Tools

Series	Appearance	Structure				Features	Min. bore diameter (mm)	Applicable Thread Symbol	
		Screw-on	Clamp-on	Lever Lock	Drawing Pin				
SSTI	 →F76	●				- Adopts a flat 3-corner insert. Ground cutting edge flank produces superior machined surface with sharp cutting edge - Stable chip control through use of a 3D molded breaker - Large lineup of inserts with a wiper edge	ø18	M UNC/UNF NPT NPTF	W G/Rp/W R/Rc UNJ
STI	 →F76	●				- M-Class flat-mounted 3-corner insert is economical - Stable chip control with incorporated chipbreaker - Range of cermet grades	ø20	M UNC/UNF NPT NPTF	W G/Rp/W R/Rc UNJ

Note: The minimum machining diameter is the diameter of the screw prepared hole.

M : 60° ISO General-purpose Metric Thread
NPT : 60° American NPT

W : 55° General-purpose Thread (Whitworth)
R/Rc : 55° Taper Thread for Pipe BSPT

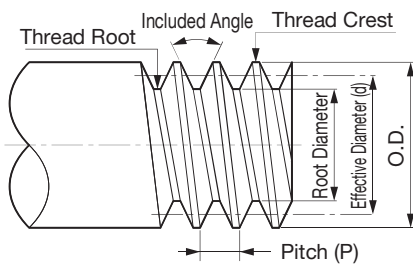
UNC/UNF : 60° Unified Thread
NPTF : 60° American NPTF

G/Rp/W : 55° Parallel Thread for Pipe
UNJ : 60° UNJ

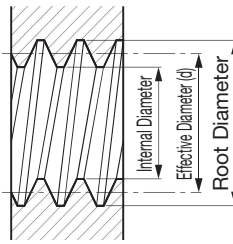
Threading Tools

Basics of Threading

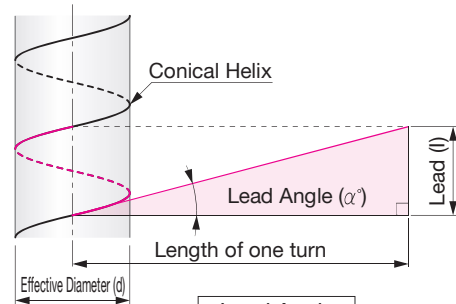
Parts of a Screw



External Thread



Internal Thread



Lead Angle

Effective Diameter (d) : Diameter of imaginary cylinder that passes through the thread at the point where the groove and ridge widths are equal
 Pitch (P) : Distance between two ridges adjacent to each other
 Lead (l) : Distance the screw thread moves axially in one turn
 (On a single threaded screw, the lead and pitch are identical.)
 Lead Angle (α) : Angle made by the conical helix of the thread ridge at a pitch diameter with a plane perpendicular to the axis

Lead Angle Calculation

$$\tan \alpha^\circ = \frac{l}{\pi \times d} = \frac{n \times P}{\pi \times d}$$

α° : Lead Angle

l : Lead

n : No. of Threads

P : Pitch

d : Effective Screw Diameter

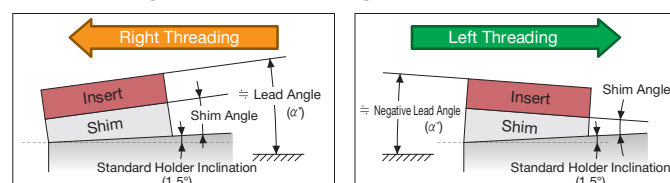
Main Screw Types and Standard Thread Patterns

Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile
Metric Thread	M	Internal Thread 1/4P 60° External Thread 1/8P	Parallel Thread for Pipe	Internal Thread G(PF) Rp(PS) External Thread G(PF)	Internal Thread R0.137P 55° External Thread R0.137P	Taper Thread for Pipe	Internal Thread Rc(PT) (BSPT) External Thread R(PT) (BSPT)	Internal Thread R0.137P 27.5°/27.5° External Thread 90° 1°47' R0.137P	Unified Thread	UN UNC UNF UNEF	Internal Thread 1/4P 60° External Thread 1/8P
Whitworth Thread	W BSW BSP	Internal Thread R0.137P 55° External Thread R0.137P	Thread for Aerospace Instruments	UNJ	Internal Thread 5/16P 60° External Thread B	American Taper Thread for Pipe	NPT	Internal Thread 30°/30° External Thread 90° 1°47'	American Taper Thread for Pipe	NPTF	Internal Thread 30°/30° External Thread 90° 1°47'

Tool Holder and Insert Selection Guide (SSTE / SSTI)

	External Diameter (Spindle Rotation Forward)	Internal Diameter (Forward Spindle Rotation)	External Diameter (Spindle Rotation Backward)
Right Threading	External Holder (SSTE) External Diameter Insert (16ER) Shim YE3-3P/YE3-2P YE3-1P/YE3/YE3-1N	Internal Holder (SSTI) Internal Diameter Insert (16IR) Shim YI3-3P/YI3-2P YI3-1P/YI3/YI3-1N	External Holder (SSTE) External Diameter Insert (16ER) Shim YE3-3P/YE3-2P YE3-1P/YE3/YE3-1N
Left Threading	External Holder (SSTE) External Diameter Insert (16ER) Shim YE3-2N/YE3-3N	Internal Holder (SSTI) Internal Diameter Insert (16IR) Shim YI3-2N/YI3-3N	External Holder (SSTE) External Diameter Insert (16ER) Shim YE3-2N/YE3-3N

Threading Method and Angle of Insert





■ Features

- High-precision inserts with wiper edge for threading, supporting a wide range of applications from general industrial machinery to pipes and aerospace devices
- Stable chip control through use of a 3D molded chipbreaker
- Ground cutting edge flank for improved cutting edge sharpness, resulting in high quality threads



Ground flank periphery around cutting edge

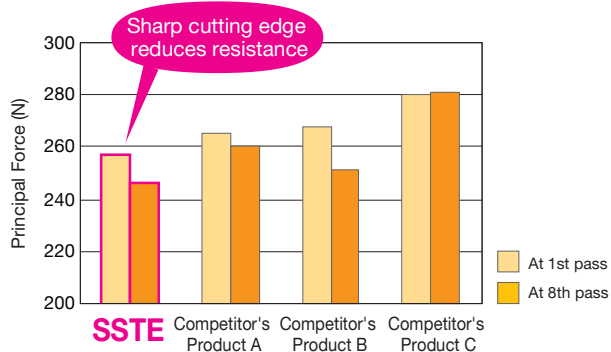
■ Product Range

Applications	Type	Wiper Edge	External/ Internal	Pitch																Insert Cat. No. (Example)	
				Pitch (mm)	TPI (Threads/Inch)																
					48	36	32	28	27	24	20	19	18	16	14	13	12	11	10		8
General Industrial Use	60° General-purpose Thread	No	External		48 to 8																16ER A60-CB
			Internal		48 to 8																16IR A60-CB
	55° General-purpose Thread		External		48 to 8																16ER A55-CB
			Internal		48 to 8																16IR A55-CB
	60° ISO Metric Thread	Yes	External																16ER 075ISO-CB		
			Internal																	16IR 075ISO-CB	
	60° Unified Thread		External																	16ER 32UN-CB	
			Internal																	16IR 32UN-CB	
Pipe Coupling for Gas, Water and Water Faucets	55° Parallel Thread for Pipe/Whitworth	External																16ER 36W-CB			
	Internal																	16IR 28W-CB			
Steam, Gas and Water Supply Pipes	60° American NPT	External																16ER 27NPT-CB			
		Internal																16IR 27NPT-CB			
	55° Taper Thread for Pipe BSPT	External																16ER 28BSPT-CB			
		Internal																	16IR 28BSPT-CB		
Aerospace Equipment	60° American NPTF	External																16ER 27NPTF-CB			
		Internal																16IR 27NPTF-CB			
	60° UNJ	External																16ER 32UNJ-CB			
		Internal																	16IR 32UNJ-CB		

For inch holders, the STH and STI holders will also fit these products

■ Application Examples

● Comparison of Cutting Force



Part Material: Medium 1045 Carbon Steel, M30 × 1.5
Cutting Conditions: $v_c = 500$ SFM Wet 8 passes Thread infeed method: Radial infeed

● Machined Surface Comparison



Part Material: Medium 1045 Carbon Steel, M30 × 1.5
Cutting Conditions: $v_c = 500$ SFM Wet 8 passes Thread infeed method: Radial infeed

Threading Tools LTE



Screw-on / Lever Lock
for External Diameter

M Metric Thread
W Whitworth Thread
UNC/UNF Unified Thread
R/Rc Taper Thread for Pipe

Threading
Tools
F

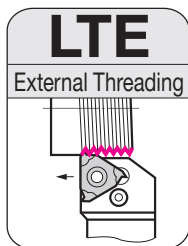
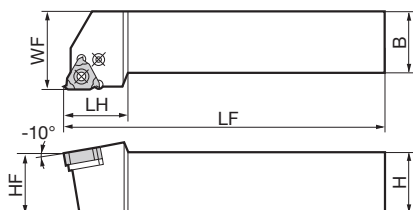


Fig 1



Holder

Parts

Dimensions (inch / mm)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Fig	Lever Pin	Bolt	Shim	Shim Retainer	Wrench
LTER123C	•	.750	.750	5.000	1.000	.750	1.000	1	LCL3S	LCS3TE	LSTE31-0	LSP3	LH025
LTER163D	•	1.000	1.000	6.000	1.250	1.000	1.000	1					
LTE R2020	★	20	20	125	25	20	25	1					
LTE R2525	★	25	25	150	32	25	25	1					
LTE R2525M22	★	25	25	150	32	25	28	1					
LTE R3232P22	★	32	32	170	40	32	28	1	LCL4S	LCS4	LSTE42-0	LSP4	LH030

Refer to below for shim selection.

Holder Identification Code

(Example) **S S T E R 25 25 M 16**

① Series SST Type	③ Feed Direction Symbol Feed Direction R Right Hand	④ Shank Height/Work Dia. Symbol (mm) External (Shank Height) 16 16 20 20 25 25 Internal (Min. bore diameter) 18 18 20 20 24 24 31 31 37 37	⑤ Shank Width/ Diameter Symbol (mm) External (Shank Width) 16 16 20 20 25 25 Internal (Shank Diameter) 12 12 16 16 20 20 25 25 32 32	⑥ Overall Length Symbol Symbol (mm) H 100 K 125 M 150 Q 180 S 250	⑦ Insert Size Symbol Inscribed Circle (mm) 16 9.525
② External/Internal Symbol Distinction E External I Internal					

Shim and Selection Criteria

Applications	Recommended Lead Angle (β)	External		Internal	
		Cat. No.	Stock	Cat. No.	Stock
Right-hand Thread	4.5°	YE3-3P	★	YI3-3P	★
	3.5°	YE3-2P	★	YI3-2P	★
	2.5°	YE3-1P	★	YI3-1P	★
	1.5°	YE3 ^{*4}	★	YI3 ^{*4}	★
	0.5°	YE3-1N	★	YI3-1N	★
Left-hand Thread	-0.5°	YE3-2N	★	YI3-2N	★
	-1.5°	YE3-3N	★	YI3-3N	★

β₁=4.5° For External Diameters: YE3-3P
For Internal Diameters: YI3-3P

β₁=3.5° For External Diameters: YE3-2P
For Internal Diameters: YI3-2P

β₁=2.5° For External Diameters: YE3-1P
For Internal Diameters: YI3-1P

β₁=1.5° For External Diameters: YE3
For Internal Diameters: YI3

β₁=0.5° For External Diameters: YE3-1N
For Internal Diameters: YI3-1N

*4 Standard shim supplied with holder.

Difficult to Machine Area

Pitch (mm)

Effective Diameter of Threading Hole (mm)

*4 Standard shim supplied with holder.

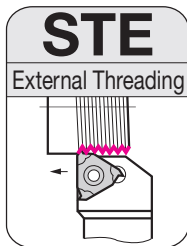
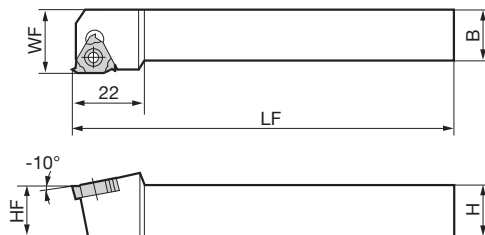


Fig 1



Screw-on / Lever Lock
for External Diameter

M	Metric Thread
W	Whitworth Thread
UNC/UNF	Unified Thread
R/Rc	Taper Thread for Pipe

Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Height	Width	Overall Length	Cutting Edge Distance	Cutting Edge Height	Fig	Flat Screw		Wrench
		H	B	LF	WF	HF				
STE R1212	★	12	12	100	16	12	1			
STE R1616	★	16	16	100	20	16	1			

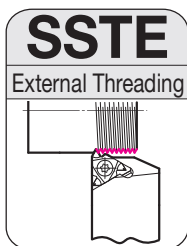
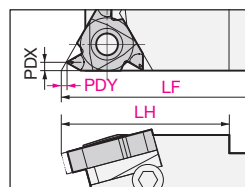
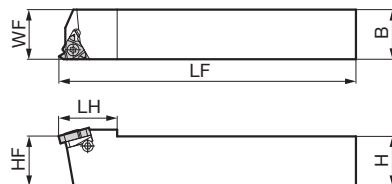


Fig 1



Screw-on
for External Diameter

The values for dimensions **LF** and **LH** below are only for reference.
The actual value is the value on page F77 minus the **PDY** insert dimension.

Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Height	Width	Overall Length	Head	Cutting Edge Distance	Cutting Edge Height	Fig	Flat Screw		Shim Screw	Flat Washer	Shim	Wrench
		H	B	LF	LH	WF	HF							
SSTE R1616H16	★	16	16	100	20.5	16	16	1						
SSTE R2020K16	★	20	20	125	30.0	20	20	1						
SSTE R2525M16	★	25	25	150	30.0	25	25	1						

*1 Shim screw wrench is sold separately.

★ Worldwide Warehouse Item

Recommended Tightening Torque (N·m)

Holder Identification F74

Details of Shim Selection F74

Threading Tools STI / SSTI



Screw-on
for Internal Diameter

M Metric Thread
UNC/UNF Unified Thread

Threading
Tools

F

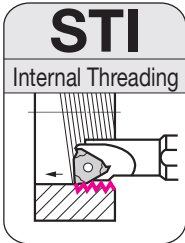
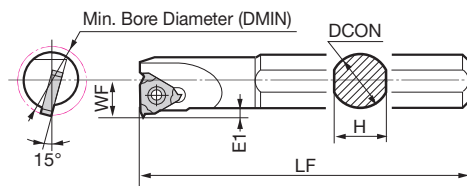


Fig 1



Holder

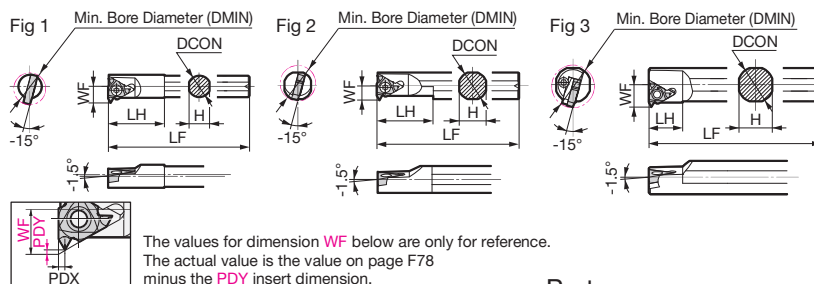
Parts

Dimensions (inch / mm)

Cat. No.	Stock	Diameter	Height	Overall Length	Cutting Edge Distance	Cutting Edge Distance	Min. Bore Diameter	Fig	Flat Screw		Wrench
		DCON	H	LF	WF	E1	DMIN				
STIR103	•	.625	.590	6.000	.406	.1080	.750	1			
STIR123	•	.750	.670	7.000	.492	.1525	1.000	1			
STIR163	•	1.000	.905	8.000	.600	.1375	1.150	1			
STIR203	•	1.250	1.142	10.000	.724	.1415	1.400	1			
STIR243	•	1.500	1.378	12.000	.897	.1560	1.700	1			
STIR316	★	16	15	150	11	3.5	20	1	BFTX03508	2.0	TRX10
STIR320	★	20	18	180	14	5.0	25	1			



Screw-on
for Internal Diameter



Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Diameter	Height	Overall Length	Head	Cutting Edge Distance	Min. Bore Diameter	Fig	Flat Screw		Shim Screw	Flat Washer	Shim	Wrench
		DCON	H	LF	LH	WF	DMIN ²							
SSTI R1812M16 ⁻³	★	12	11.0	150	32.0	10.2	18	1	BFTX03085N	2.0	-	-	-	TRX10
SSTI R2016M16 ⁻³	★	16	15.0	150	63.5	9.2	20	2						
SSTI R2420Q16	★	20	18.0	180	19.0	13.5	24	3	BFTX0312N	2.0	BX0304 ⁻¹	PW3	YI3	
SSTI R3125S16	★	25	23.0	250	14.3	16.5	31	3						
SSTI R3732S16	★	32	30.0	250	14.3	20.0	37	3						

*1 Shim screw wrench is sold separately. *2 The minimum bore diameter is the diameter of the prepared hole. *3 Left-hand threads are not available.

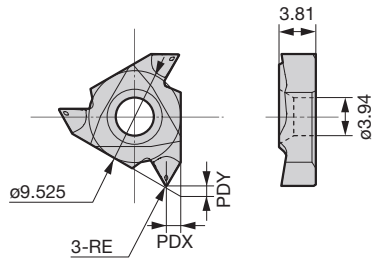
★ Worldwide Warehouse Item

Recommended Tightening Torque (N-m)

Threading Tools SSTE / SSTI Inserts



Fig 1



SSTE Guidelines for Depth of Cut and No. of Passes **F81**

(Coated Carbide)

ER Insert

(Coated Carbide)

60°/55° General-purpose Threads (Partial Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
60°	16ER A60-CB	★	0.5-1.5	16 - 48	0.8	0.6	0.09	5	2
	16ER AG60-CB	★	0.5-3.0	8 - 48	1.5	1.1	0.10	5	2
	16ER G60-CB	★	2.0-3.0	8 - 14	1.5	1.1	0.20	5	2
55°	16ER A55-CB	★	—	16 - 48	0.8	0.5	0.05	5	2
	16ER AG55-CB	★	—	8 - 48	1.5	1.1	0.08	5	2
	16ER G55-CB	★	—	8 - 14	1.5	1.1	0.22	5	2

60° American NPT (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
60°	16ER 27NPT-CB	★	—	27	0.8	0.6	0.06	5	2
	16ER 18NPT-CB	★	—	18	0.8	0.6	0.06	5	2
	16ER 14NPT-CB	★	—	14	1.5	1.0	0.08	5	2
	16ER 11NPT-CB	★	—	11.5	1.5	1.0	0.08	5	2
	16ER 08NPT-CB	★	—	8	1.5	1.1	0.13	5	2

60° ISO Metric Thread (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
60°	16ER 075 ISO-CB	★	0.75	—	0.5	1.0	0.09	5	2
	16ER 100 ISO-CB	★	1.00	—	0.8	0.6	0.14	5	2
	16ER 125 ISO-CB	★	1.25	—	0.8	0.7	0.15	5	2
	16ER 150 ISO-CB	★	1.50	—	0.8	0.7	0.20	5	2
	16ER 175 ISO-CB	★	1.75	—	1.5	1.0	0.23	5	2
	16ER 200 ISO-CB	★	2.00	—	1.5	1.1	0.26	5	2
	16ER 250 ISO-CB	★	2.50	—	1.5	1.2	0.33	5	2
	16ER 300 ISO-CB	★	3.00	—	1.5	1.1	0.41	5	2

55° Taper Thread for Pipe / BSPT (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
55°	16ER 28BSPT-CB	★	—	28	0.8	0.6	0.13	5	2
	16ER 19BSPT-CB	★	—	19	0.8	0.6	0.18	5	2
	16ER 14BSPT-CB	★	—	14	1.5	1.3	0.25	5	2
	16ER 11BSPT-CB	★	—	11	1.5	1.0	0.31	5	2

60° American NPTF (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
60°	16ER 27NPTF-CB	★	—	27	0.8	0.6	0.06	5	2
	16ER 18NPTF-CB	★	—	18	0.8	0.6	0.06	5	2
	16ER 14NPTF-CB	★	—	14	1.5	1.0	0.13	5	2
	16ER 11NPTF-CB	★	—	11.5	1.5	1.0	0.12	5	2

60° Unified Thread (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
60°	16ER 32UN-CB	★	—	32	0.5	1.0	0.10	5	2
	16ER 28UN-CB	★	—	28	0.8	0.7	0.11	5	2
	16ER 24UN-CB	★	—	24	0.8	0.7	0.13	5	2
	16ER 20UN-CB	★	—	20	0.8	0.7	0.16	5	2
	16ER 18UN-CB	★	—	18	0.8	0.7	0.18	5	2
	16ER 16UN-CB	★	—	16	0.8	0.8	0.20	5	2
	16ER 14UN-CB	★	—	14	1.5	1.2	0.23	5	2
	16ER 13UN-CB	★	—	13	1.5	1.1	0.26	5	2
	16ER 12UN-CB	★	—	12	1.5	1.0	0.27	5	2
	16ER 10UN-CB	★	—	10	1.5	1.2	0.33	5	2
	16ER 08UN-CB	★	—	8	1.5	1.2	0.42	5	2

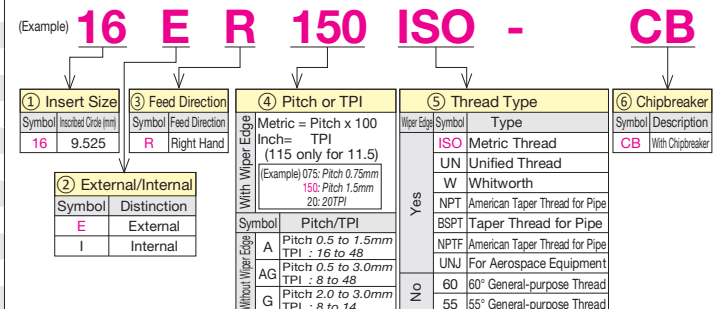
60° UNJ (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
60°	16ER 32UNJ-CB	★	—	32	0.5	1.0	0.13	5	2
	16ER 28UNJ-CB	★	—	28	0.8	0.6	0.15	5	2
	16ER 24UNJ-CB	★	—	24	0.8	0.6	0.18	5	2
	16ER 20UNJ-CB	★	—	20	0.8	0.7	0.21	5	2
	16ER 18UNJ-CB	★	—	18	0.8	0.6	0.23	5	2
	16ER 16UNJ-CB	★	—	16	0.8	0.6	0.25	5	2
	16ER 14UNJ-CB	★	—	14	1.5	1.1	0.29	5	2
	16ER 12UNJ-CB	★	—	12	1.5	1.1	0.34	5	2
	16ER 10UNJ-CB	★	—	10	1.5	1.1	0.40	5	2

55° Parallel Thread for Pipe / Whitworth (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/ Pack	Fig
			mm	Threads/Inch					
55°	16ER 36W-CB	★	—	36	0.5	1.0	0.10	5	2
	16ER 32W-CB	★	—	32	0.5	1.0	0.11	5	2
	16ER 28W-CB	★	—	28	0.8	0.6	0.12	5	2
	16ER 24W-CB	★	—	24	0.8	0.6	0.15	5	2
	16ER 20W-CB	★	—	20	0.8	0.6	0.18	5	2
	16ER 19W-CB	★	—	19	0.8	0.6	0.18	5	2
	16ER 18W-CB	★	—	18	0.8	0.6	0.19	5	2
	16ER 16W-CB	★	—	16	0.8	0.6	0.22	5	2
	16ER 14W-CB	★	—	14	1.5	1.0	0.25	5	2
	16ER 12W-CB	★	—	12	1.5	1.1	0.29	5	2
	16ER 11W-CB	★	—	11	1.5	1.1	0.32	5	2
	16ER 10W-CB	★	—	10	1.5	1.1	0.35	5	2
	16ER 08W-CB	★	—	8	1.5	1.1	0.43	5	2

Insert Nomenclature



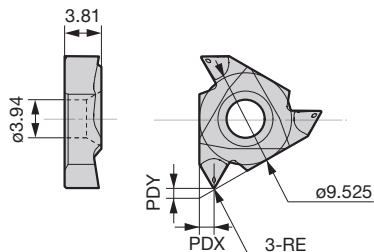
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Threading Tools SSTE / SSTI Inserts

SSTE Type Guidelines for Depth of Cut and No. of Passes **F72**



Fig 1



(Coated Carbide)

60°/55° General-purpose Threads (Partial Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR A60-CB	★	0.5-1.5	16-48	0.8	0.5	0.09	5	1
	16IR AG60-CB	★	0.5-3.0	8-48	1.5	1.1	0.10		
	16IR G60-CB	★	2.0-3.0	8-14	1.5	1.1	0.18		
55°	16IR A55-CB	★	-	16-48	0.8	0.5	0.05	5	1
	16IR AG55-CB	★	-	8-48	1.5	1.1	0.08		
	16IR G55-CB	★	-	8-14	1.5	1.1	0.20		

60° ISO Metric Thread (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 075 ISO-CB	★	0.75	-	0.5	0.9	0.04	5	1
	16IR 100 ISO-CB	★	1.00	-	0.8	0.6	0.06		
	16IR 125 ISO-CB	★	1.25	-	0.8	0.6	0.07		
	16IR 150 ISO-CB	★	1.50	-	0.8	0.6	0.09		
	16IR 175 ISO-CB	★	1.75	-	1.5	1.0	0.10		
	16IR 200 ISO-CB	★	2.00	-	1.5	1.1	0.13		
	16IR 250 ISO-CB	★	2.50	-	1.5	1.1	0.15		
	16IR 300 ISO-CB	★	3.00	-	1.5	1.1	0.19		

60° Unified Thread (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 32UN-CB	★	-	32	0.5	0.9	0.04	5	1
	16IR 28UN-CB	★	-	28	0.8	0.6	0.06		
	16IR 24UN-CB	★	-	24	0.8	0.7	0.06		
	16IR 20UN-CB	★	-	20	0.8	0.6	0.08		
	16IR 18UN-CB	★	-	18	0.8	0.6	0.08		
	16IR 16UN-CB	★	-	16	0.8	0.7	0.09		
	16IR 14UN-CB	★	-	14	1.5	1.1	0.13		
	16IR 13UN-CB	★	-	13	1.5	1.1	0.11		
	16IR 12UN-CB	★	-	12	1.5	1.1	0.13		
	16IR 10UN-CB	★	-	10	1.5	1.1	0.15		
	16IR 08UN-CB	★	-	8	1.5	1.1	0.20		

55° Parallel Thread for Pipe / Whitworth (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
55°	16IR 28W-CB	★	-	28	0.8	0.6	0.12	5	1
	16IR 24W-CB	★	-	24	0.8	0.6	0.14		
	16IR 20W-CB	★	-	20	0.8	0.6	0.18		
	16IR 19W-CB	★	-	19	0.8	0.6	0.18		

60° American NPT (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 27NPT-CB	★	-	27	0.8	0.6	0.06	5	1
	16IR 18NPT-CB	★	-	18	0.8	0.6	0.06		
	16IR 14NPT-CB	★	-	14	1.5	1.1	0.08		
	16IR 115NPT-CB	★	-	11.5	1.5	1.0	0.08		
	16IR 08NPT-CB	★	-	8	1.5	1.0	0.13		

55° Taper Thread for Pipe / BSPT (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
55°	16IR 28BSPT-CB	★	-	28	0.8	0.6	0.13	5	1
	16IR 19BSPT-CB	★	-	19	0.8	0.6	0.18		

60° American NPTF (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 27NPTF-CB	★	-	27	0.8	0.6	0.06	5	1
	16IR 18NPTF-CB	★	-	18	0.8	0.6	0.08		
	16IR 14NPTF-CB	★	-	14	1.5	1.0	0.10		
	16IR 115NPTF-CB	★	-	11.5	1.5	1.0	0.08		
	16IR 08NPTF-CB	★	-	8	1.5	1.1	0.13		

60° UNJ (Full Profile) Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch		X direction	Y direction	Nose Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 32UNJ-CB	★	-	32	0.5	0.9	0.04	5	1
	16IR 28UNJ-CB	★	-	28	0.8	0.6	0.05		
	16IR 24UNJ-CB	★	-	24	0.8	0.6	0.06		
	16IR 20UNJ-CB	★	-	20	0.8	0.6	0.06		
	16IR 18UNJ-CB	★	-	18	0.8	0.6	0.06		
	16IR 16UNJ-CB	★	-	16	0.8	0.6	0.09		
	16IR 14UNJ-CB	★	-	14	1.5	1.1	0.09		
	16IR 12UNJ-CB	★	-	12	1.5	1.1	0.11		
	16IR 10UNJ-CB	★	-	10	1.5	1.1	0.15		

Insert Cat. No. Nominal

(Example) **16 I R 150 ISO - CB**

① Insert Size	② External/Internal	③ Feed Direction	④ Pitch or TPI	⑤ Thread Type	⑥ Chipbreaker
Symbol (Insert Circle mm) 16 9.525	Symbol Ex/In E O.D. I Internal Diameter	Symbol Feed Direction R Right Hand	Metre= Pitch x 100 Inch= TPI (115 only for 11.5) (Example) 075: Pitch 0.75mm 150: Pitch 1.5mm 20: 20TPI Symbol Pitch/TPI Without Wiper Edge A Pitch : 0.5 to 1.5mm TPI : 16 to 48 AG Pitch : 0.5 to 3.0mm TPI : 8 to 48 G Pitch : 2.0 to 3.0mm TPI : 8 to 14	Wiper Edge Symbol Type ISO Metric Thread UN Unified Thread W Whitworth NPT American Taper Thread for Pipe BSPT Taper Thread for Pipe NPTF American Taper Thread for Pipe UNJ For Aerospace Equipment 60° 60° General-purpose Thread 55° 55° General-purpose Thread	Symbol Description CB With Chipbreaker

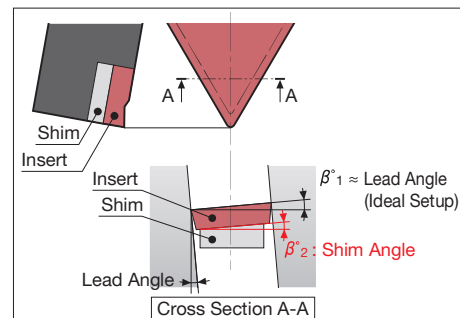
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Shim Selection

If the pitch is large or the threading diameter is small, the threading lead angle will become large and the effective relief angle will become small.

It is ideal to set the threading insert so that both right and left relief angles are equal.

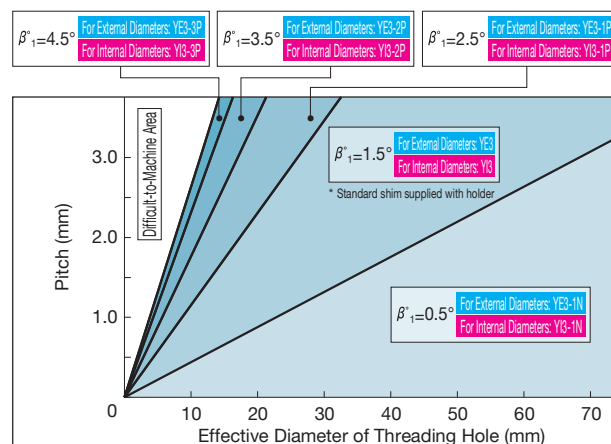
Therefore, it is necessary to select an appropriate shim based on the thread pitch and effective diameter using the table below.



Shim Selection Procedure

1. Choose from [Right-Hand Thread / Left-Hand Thread] in the table.
2. Locate the required threading "pitch".
3. Locate the cell with the required "Effective Diameter" range.
4. Confirm the part no. at the "Shim" row above the corresponding "Effective Diameter" cell located previously. If the shim part no. is different from the one currently in use, change to the correct one.

Example: When machining a M16x2.0 external right-hand thread, the pitch diameter is 14.701mm. In the table below, locate [2.0]mm under the "Pitch" column then move along the row to the right to locate the required "Effective Diameter" range [11.4 - 17.4]mm. As such, the correct shim should be [YE3-1P], shown in the corresponding cell under the "External" row above.



Pitch (mm)

Right-hand/Left-hand Thread		For Right-hand Thread					For Left-hand Thread	
Lead Angle		4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
Shim	External	YE3-3P	YE3-2P	YE3-1P	YE3*	YE3-1N	YE3-2N	YE3-3N
	Internal	YI3-3P	YI3-2P	YI3-1P	YI3*	YI3-1N	YI3-2N	YI3-3N
Shim Angle (β₁)		3°	2°	1°	0°	-1°	-2°	-3°
Pitch (mm)		Effective Diameter (mm)						
0.5		1.9 - 2.2	2.2 - 2.8	2.8 - 4.3	4.3 - 11.4	> 11.4	> 11.4	11.4 - 4.3
0.75		2.8 - 3.3	3.3 - 4.3	4.3 - 6.5	6.5 - 17.1	> 17.1	> 17.1	17.1 - 6.5
1.0		3.8 - 4.3	4.3 - 5.7	5.7 - 8.7	8.7 - 22.8	> 22.8	> 22.8	22.8 - 8.7
1.25		4.7 - 5.4	5.4 - 7.1	7.1 - 10.9	10.9 - 28.5	> 28.5	> 28.5	28.5 - 10.9
1.5		5.7 - 6.5	6.5 - 8.5	8.5 - 13.0	13.0 - 34.2	> 34.2	> 34.2	34.2 - 13.0
1.75		6.6 - 7.6	7.6 - 10.0	10.0 - 15.2	15.2 - 39.9	> 39.9	> 39.9	39.9 - 15.2
2.0		7.6 - 8.7	8.7 - 11.4	11.4 - 17.4	17.4 - 45.6	> 45.6	> 45.6	45.6 - 17.4
2.5		9.5 - 10.8	10.8 - 14.2	14.2 - 21.7	21.7 - 57.0	> 57.0	> 57.0	57.0 - 21.7
3.0		11.4 - 13.0	13.0 - 17.1	17.1 - 26.0	26.0 - 68.4	> 68.4	> 68.4	68.4 - 26.0

TPI (threads/inch)

Right-hand/Left-hand Thread		For Right-hand Thread					For Left-hand Thread	
Lead Angle		4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
Shim	External	YE3-3P	YE3-2P	YE3-1P	YE3*	YE3-1N	YE3-2N	YE3-3N
	Internal	YI3-3P	YI3-2P	YI3-1P	YI3*	YI3-1N	YI3-2N	YI3-3N
Shim Angle (β₁)		3°	2°	1°	0°	-1°	-2°	-3°
TPI (Threads/Inch)		Effective Diameter (mm)						
32		3.0 - 3.3	3.3 - 4.6	4.6 - 6.9	6.9 - 18.0	> 18.0	> 18.0	18.0 - 6.9
28		3.0 - 3.8	3.8 - 5.1	5.1 - 7.9	7.9 - 20.8	> 20.8	> 20.8	20.8 - 7.9
27		3.6 - 4.1	4.1 - 5.3	5.3 - 8.1	8.1 - 21.3	> 21.3	> 21.3	21.3 - 8.1
24		4.1 - 4.6	4.6 - 6.1	6.1 - 9.1	9.1 - 24.4	> 24.4	> 24.4	24.4 - 9.1
20		4.8 - 5.6	5.6 - 7.1	7.1 - 10.9	10.9 - 29.0	> 29.0	> 29.0	29.0 - 10.9
18		5.3 - 6.1	6.1 - 8.1	8.1 - 12.4	12.4 - 32.5	> 32.5	> 32.5	32.5 - 12.4
16		5.8 - 6.9	6.9 - 8.9	8.9 - 13.7	13.7 - 35.8	> 35.8	> 35.8	35.8 - 13.7
14		6.9 - 7.9	7.9 - 10.2	10.2 - 15.7	15.7 - 41.1	> 41.1	> 41.1	41.1 - 15.7
13		7.4 - 8.4	8.4 - 11.2	11.2 - 17.0	17.0 - 44.7	> 44.7	> 44.7	44.7 - 17.0
12		8.1 - 9.1	9.1 - 12.2	12.2 - 18.5	18.5 - 48.8	> 48.8	> 48.8	48.8 - 18.5
11.5		8.4 - 9.7	9.7 - 12.4	12.4 - 19.3	19.3 - 50.3	> 50.3	> 50.3	50.3 - 19.3
11		8.9 - 9.9	9.9 - 13.2	13.2 - 20.1	20.1 - 52.6	> 52.6	> 52.6	52.6 - 20.1
10		9.7 - 10.9	10.9 - 14.5	14.5 - 22.1	22.1 - 57.9	> 57.9	> 57.9	57.9 - 22.1
9		10.7 - 12.2	12.2 - 16.0	16.0 - 24.4	24.4 - 64.3	> 64.3	> 64.3	64.3 - 24.4
8		11.9 - 13.7	13.7 - 18.0	18.0 - 27.7	27.7 - 72.4	> 72.4	> 72.4	72.4 - 27.7

* SSTE Type/SSTI Type holders are shipped with shims for lead angle of β₁ = 1.5° (SSTE Type: **YE3**, SSTI Type: **YI3**).

Shims for lead angles of β₁ = -1.5°, -0.5°, 0.5°, 2.5°, 3.5°, and 4.5° are sold separately.

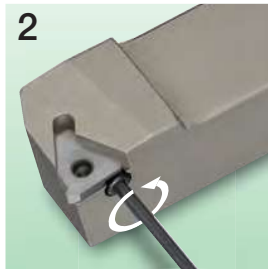
* Shims are not needed for SSTI R1812M16 and SSTI R2016M16. (The holders are already provided with the standard holder inclination of 1.5°.)

Threading Tools SSTE / SSTI Inserts

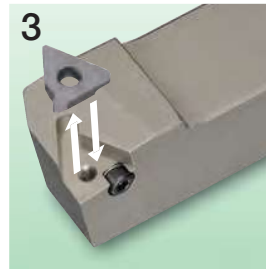
■ Shim Replacement



Remove the insert to expose the shim.



Loosen the shim set screw by one to two turns.



Remove the shim and mount a different shim that matches the lead edge angle.



Tighten the shim set screw. (Recommended Tightening Torque 1.0 to 1.5N·m)

■ Wiper Edge (Partial Profile & Full Profile)

Partial Profile	Full Profile
· Performs threading without machining thread ridges (the machined surface from the previous process is left unworked.) · Enables machining of threads with different pitch widths with the same insert · Finishing of the internal (or external) diameter is required before the threading process. · Fine burrs are easily formed on edges of ridges	· Enables machining of workpieces into shapes compliant with thread standards · Only specific thread specifications and pitch can be machined · In order to finish a thread with the wiper edge, a finishing allowance of 0.1mm on each side is required · Edges of ridges can be rounded off.

■ Infeed Method

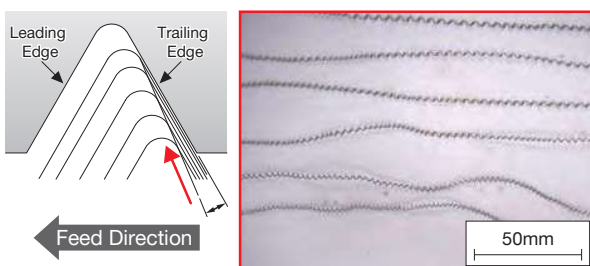
The modified flank infeed is recommended for the SSTE Type/SSTI Type.

This infeed method, which features reduced chip curl diameters and stable chip control, can also decrease chipping on trailing edges that often occurs in radial infeed machining. (1° is recommended for the modification angle.)

● Impact of Infeed Method on Chip Shapes

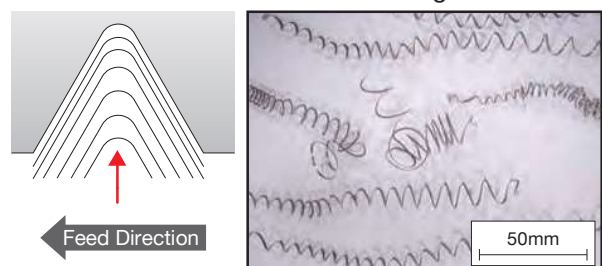
Work Material: SUS316, M30 x 1.5 Cutting Conditions: $v_c=60\text{mm/min}$ Wet, 8 Passes

Modified Flank Infeed



Reduced curl diameters ensure smooth, stable chip control (performance)

Radial Infeed Machining



Large curl diameters cause unstable chip control

Guide to Depth of Cut and No. of Passes

SSTE Guidelines for Depth of Cut

■ External Metric Threads (Depth of cut per pass: mm)

Pitch (mm)	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Overall Depth of Cut (mm)	0.48	0.64	0.80	0.92	1.10	1.26	1.57	1.87
No. of Passes	4	5	7	8	10	12	14	16
1	0.24	0.25	0.25	0.28	0.28	0.30	0.38	0.40
2	0.12	0.15	0.15	0.15	0.15	0.16	0.19	0.22
3	0.07	0.11	0.12	0.12	0.12	0.13	0.15	0.15
4	0.05	0.08	0.09	0.10	0.10	0.10	0.10	0.13
5		0.05	0.08	0.09	0.10	0.09	0.10	0.12
6			0.06	0.07	0.09	0.09	0.09	0.10
7			0.05	0.06	0.08	0.08	0.09	0.10
8				0.05	0.07	0.07	0.08	0.09
9					0.06	0.07	0.08	0.09
10					0.05	0.06	0.07	0.08
11						0.06	0.07	0.08
12						0.05	0.06	0.07
13							0.06	0.07
14							0.05	0.06
15								0.06
16								0.05

■ External Unified Threads (Depth of cut per pass: mm)

Threads/Inch	32	28	24	20	18	16	14	13	12	11	10	9	8
Overall Depth of Cut (mm)	0.50	0.57	0.67	0.80	0.89	1.00	1.15	1.23	1.34	1.46	1.60	1.78	2.00
No. of Passes	4	4	5	7	8	10	11	12	12	14	14	16	16
1	0.24	0.25	0.25	0.26	0.26	0.28	0.28	0.30	0.30	0.30	0.38	0.38	0.40
2	0.14	0.17	0.19	0.15	0.15	0.15	0.15	0.18	0.18	0.18	0.20	0.20	0.25
3	0.07	0.10	0.12	0.10	0.12	0.10	0.12	0.13	0.13	0.13	0.15	0.13	0.19
4	0.05	0.05	0.06	0.09	0.10	0.09	0.10	0.10	0.12	0.12	0.12	0.12	0.16
5			0.05	0.08	0.08	0.08	0.10	0.08	0.11	0.11	0.10	0.11	0.14
6				0.07	0.07	0.07	0.09	0.08	0.10	0.10	0.09	0.10	0.12
7				0.05	0.06	0.07	0.08	0.07	0.09	0.08	0.09	0.10	0.11
8					0.05	0.06	0.07	0.07	0.08	0.08	0.08	0.09	0.10
9						0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.09
10						0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08
11							0.05	0.05	0.05	0.06	0.07	0.08	0.07
12								0.05	0.05	0.06	0.06	0.07	0.07
13										0.05	0.06	0.07	0.06
14										0.05	0.05	0.06	0.06
15												0.05	0.05
16												0.05	0.05

No. of passes and depths of cut in the table above are general guidelines only. Increase or decrease depending on conditions. However, the maximum depth of cut should be kept to 0.5mm or less.

When using an insert with a wiper edge, add machining allowance to the total depth of cut.

■ Recommended Cutting Conditions

Work Material	P Carbon Steel	P Alloy Steel (up to 330HB)	M Stainless Steel	K Gray Cast Iron (up to 330HB)	K Ductile Cast Iron	S Titanium Alloy
Cutting Speed v_c (m/min)	75 to 150	75 to 135	60 to 120	90 to 180	75 to 135	24 to 90

Guide to Depth of Cut and No. of Passes

SSTI Guidelines for Depth of Cut

Internal Metric Threads (Depth of cut per pass: mm)

Pitch (mm)	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Overall Depth of Cut (mm)	0.49	0.58	0.74	0.89	1.04	1.18	1.47	1.76
No. of Passes	4	5	8	10	11	12	14	16
1	0.20	0.22	0.22	0.25	0.25	0.25	0.30	0.30
2	0.12	0.14	0.14	0.12	0.17	0.18	0.19	0.20
3	0.12	0.10	0.09	0.08	0.10	0.12	0.15	0.17
4	0.05	0.07	0.07	0.08	0.08	0.10	0.12	0.14
5		0.05	0.06	0.07	0.08	0.09	0.10	0.12
6			0.06	0.07	0.07	0.08	0.09	0.11
7			0.05	0.06	0.07	0.07	0.08	0.10
8			0.05	0.06	0.06	0.07	0.08	0.10
9				0.05	0.06	0.06	0.07	0.08
10				0.05	0.05	0.06	0.07	0.08
11					0.05	0.05	0.06	0.07
12						0.05	0.06	0.07
13							0.05	0.06
14							0.05	0.06
15								0.05
16								0.05

Internal Unified Threads (Depth of cut per pass: mm)

Threads/Inch	32	28	24	20	18	16	14	13	12	11	10	9	8
Overall Depth of Cut (mm)	0.43	0.49	0.57	0.69	0.76	0.86	0.98	1.06	1.15	1.25	1.37	1.53	1.72
No. of Passes	4	4	5	7	8	10	11	12	12	14	14	16	16
1	0.20	0.20	0.20	0.22	0.22	0.22	0.25	0.25	0.27	0.27	0.27	0.30	0.30
2	0.10	0.16	0.16	0.12	0.13	0.13	0.15	0.15	0.16	0.16	0.18	0.18	0.22
3	0.08	0.08	0.09	0.09	0.10	0.08	0.10	0.10	0.12	0.12	0.16	0.16	0.18
4	0.05	0.05	0.07	0.08	0.08	0.08	0.08	0.08	0.10	0.10	0.12	0.11	0.15
5			0.05	0.07	0.07	0.07	0.07	0.08	0.09	0.08	0.10	0.09	0.12
6				0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09	0.11
7				0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.10
8					0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.09
9						0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.08
10						0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07
11							0.04	0.05	0.05	0.05	0.05	0.06	0.06
12								0.04	0.04	0.05	0.05	0.06	0.06
13										0.04	0.04	0.05	0.05
14										0.04	0.04	0.05	0.05
15												0.04	0.04
16												0.04	0.04

No. of passes and depths of cut in the table above are general guidelines only. Increase or decrease depending on conditions. However, the maximum depth of cut should be kept to 0.5mm or less.

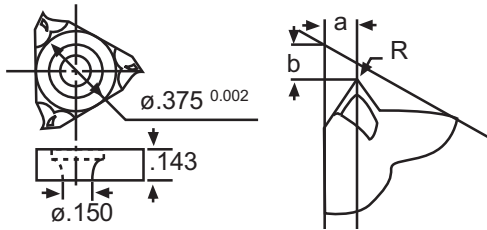
When using an insert with a wiper edge, add machining allowance to the total depth of cut.

Recommended Cutting Conditions

Work Material	P Carbon Steel	P Alloy Steel (up to 330HB)	M Stainless Steel	K Gray Cast Iron (up to 330HB)	K Ductile Cast Iron	S Titanium Alloy
Cutting Speed v_c (m/min)	75 to 150	75 to 135	60 to 120	90 to 180	75 to 135	24 to 90

Threading Inserts

▲ USA Limited Availability Item



External Laydown - Full Profile (ISO Metric)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade			R	Included Angle θ°	a	b
			Uncoated A30	Coated EH20Z	Cermet AC225 T130A				
TME100R	1.00	-	▲	▲	▲	.0050	60	.031	.047
TME125R	1.25	-	▲	▲	▲	.0067		.039	
TME150R	1.50	-	▲	▲	▲	.0080		.047	
TME175R	1.75	-	▲	▲	▲	.0094		.055	
TME200R	2.00	-	▲	▲	▲	.0106		.071	
TME250R	2.50	-	▲	▲	▲	.0140			
TME300R	3.00	-	▲	▲	▲	.0165			

Full Profile (Inch)

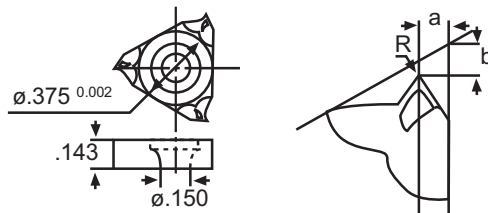
Catalog Number	Pitch (mm)	Threads /in	Stock Grade					R	Included Angle θ°	a	b
			Uncoated	Coated	Cermet						
			A30	EH20Z	AC225	T1500A	T130A				
TUE24R	-	24	▲		▲		▲	.0047	60	.031	.047
TUE20R	-	20		▲			▲	.0059			
TUE18R	-	18	▲	▲	▲		▲	.0067			
TUE16R	-	16	▲	▲	▲		▲	.0079			
TUE14R	-	14	▲	▲	▲	▲	▲	.0091			
TUE12R	-	12	▲	▲	▲	▲	▲	.0110			
TUE08R	-	8		▲	▲			.0169			

Partial Profile (55°)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade			R	Included Angle θ°	a	b
			Uncoated A30	Coated AC225	Cermet T130A				
TWE1410R	-	14~10	▲	▲	▲	.009	55	.055	.047
TWE2416R	-	24~16	▲	▲	▲	.005			

Partial Profile (60°)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade				R	Included Angle θ°	a	b
			Uncoated A30	Coated EH20Z	Cermet AC225 T1500A	T130A				
TME1020R	1.0~2.0	24~12	▲	▲	▲	▲	.005	60	.043	.047
TME1530R	1.50~3.0	16~8	▲	▲	▲	▲	.008		.063	.039



Internal Laydown - Full Profile (ISO Metric)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade			R	Included Angle θ°	a	b
			Uncoated A30	Coated EH20Z	Cermet AC225 T130A				
TMI100R	1.00	-	▲	▲	▲	.0024	60	.031	.047
TMI125R	1.25	-	▲	▲	▲	.0030		.039	
TMI150R	1.50	-	▲	▲	▲	.0035		.047	
TMI175R	1.75	-	▲	▲	▲	.0043		.055	
TMI200R	2.00	-	▲	▲	▲	.0050		.071	
TMI250R	2.50	-	▲	▲	▲	.0063			
TMI300R	3.00	-	▲	▲	▲	.0080			

Partial Profile (60°)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade				R	Included Angle θ°	a	b
			Uncoated A30	Coated EH20Z	Cermet AC225 T1500A	T130A				
TMI1020R	1.0~2.0	24~12	▲	▲	▲	▲	.0024	60	.039	.047
TMI1530R	1.5~3.0	16~8	▲	▲	▲	▲	.0035		.060	

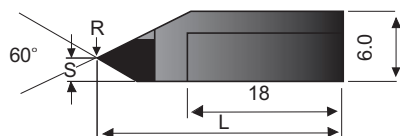
Partial Profile (NPT)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade			R	Included Angle θ°	a	b
			Uncoated A30	Coated EH20Z	Cermet T130A				
TNPT1115R	-	11.5	▲	▲	▲	.0004	60	.059	.043

Threading Inserts for BNGG Holders

Catalog Number	Pitch (mm)	Threads /in	Grade	R (mm)	Included Angle θ°	S (mm)	L (mm)
			CBN BN250				
BNTT1020R	1.0 ~ 2.0	28-12	▲	.14	60	-	25
BNTT1530R	1.50 ~ 3.00	18-8	▲	.20			

Holder & Anvils F57



External Threading Tool Depth of Cut Guide

■ With Wiper Edge

Applications		Cat. No.	Reference Cat. No.	Pitch	Depth of Cut	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14
60° Metric Thread	External	TME 100R	16ER 100ISO-TE	1.00mm	0.68	5	0.20	0.16	0.14	0.11	0.07									
		TME 125R	16ER 125ISO-TE	1.25	0.83	6	0.20	0.18	0.15	0.12	0.11	0.07								
		TME 150R	16ER 150ISO-TE	1.50	0.96	7	0.22	0.18	0.14	0.13	0.12	0.10	0.07							
		TME 175R	16ER 175ISO-TE	1.75	1.12	8	0.22	0.19	0.16	0.14	0.13	0.12	0.09	0.07						
		TME 200R	16ER 200ISO-TE	2.00	1.25	8	0.25	0.21	0.18	0.16	0.15	0.13	0.10	0.07						
		TME 250R	16ER 250ISO-TE	2.50	1.55	10	0.27	0.24	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.07				
		TME 300R	16ER 300ISO-TE	3.00	1.85	12	0.28	0.25	0.20	0.19	0.17	0.15	0.13	0.12	0.10	0.10	0.09	0.07		
		TME 350R	22ER 350ISO-TE	3.50	2.25	13	0.30	0.27	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.09	0.07	
		TME 400R	22ER 400ISO-TE	4.00	2.57	14	0.35	0.32	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10	0.09	0.08	0.07
	Internal	TMI 100R	16IR 100ISO-TI	1.00mm	0.63	5	0.18	0.16	0.12	0.10	0.07									
		TMI 125R	16IR 125ISO-TI	1.25	0.77	6	0.18	0.16	0.14	0.12	0.10	0.07								
		TMI 150R	16IR 150ISO-TI	1.50	0.90	7	0.20	0.16	0.14	0.13	0.11	0.09	0.07							
		TMI 175R	16IR 175ISO-TI	1.75	1.03	8	0.20	0.18	0.15	0.14	0.11	0.10	0.08	0.07						
		TMI 200R	16IR 200ISO-TI	2.00	1.18	8	0.22	0.19	0.17	0.15	0.14	0.13	0.11	0.07						
TMI 250R		16IR 250ISO-TI	2.50	1.44	10	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.10	0.09	0.07					
TMI 300R		16IR 300ISO-TI	3.00	1.70	12	0.27	0.24	0.20	0.17	0.14	0.12	0.12	0.10	0.10	0.09	0.08	0.07			
60° Unified Thread	External	TUE 24R	16ER 24UN-TE	24TPI	0.72	5	0.20	0.18	0.15	0.12	0.07									
		TUE 20R	16ER 20UN-TE	20	0.85	6	0.21	0.18	0.16	0.13	0.10	0.07								
		TUE 18R	16ER 18UN-TE	18	0.95	6	0.22	0.20	0.18	0.16	0.12	0.07								
		TUE 16R	16ER 16UN-TE	16	1.05	7	0.22	0.20	0.17	0.15	0.13	0.11	0.07							
		TUE 14R	16ER 14UN-TE	14	1.20	8	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.07						
		TUE 12R	16ER 12UN-TE	12	1.38	9	0.25	0.22	0.19	0.17	0.15	0.13	0.11	0.09	0.07					
		TUE 08R	16ER 08UN-TE	8	2.05	12	0.28	0.25	0.23	0.21	0.19	0.17	0.15	0.14	0.13	0.12	0.11	0.07		
55° Taper Thread for Pipe	External	TPE 28R	16ER 28BSPT-TE	28TPI	0.62	5	0.18	0.15	0.13	0.10	0.06									
		TPE 19R	16ER 19BSPT-TE	19	0.92	6	0.22	0.20	0.17	0.15	0.11	0.07								
		TPE 14R	16ER 14BSPT-TE	14	1.04	7	0.22	0.20	0.17	0.15	0.13	0.10	0.07							
		TPE 11R	16ER 11BSPT-TE	11	1.50	9	0.25	0.22	0.21	0.19	0.17	0.15	0.13	0.11	0.07					

*When pitch becomes smaller, decrease the cutting speed. In the case of inserts for internal threading without wiper edge, the number of passes should be increased.

■ Recommended Cutting Speeds

(Units: m/min)

Tool Grade		T1500A / T130A	A30	ST10P
Work Material	Mild Steel	100 - 150	70 - 120	120 - 180
	Low-carbon Steel	80 - 130	70 - 100	90 - 150
	Alloy Steel	80 - 120	70 - 100	80 - 130
	Stainless Steel	-	70 - 100	-

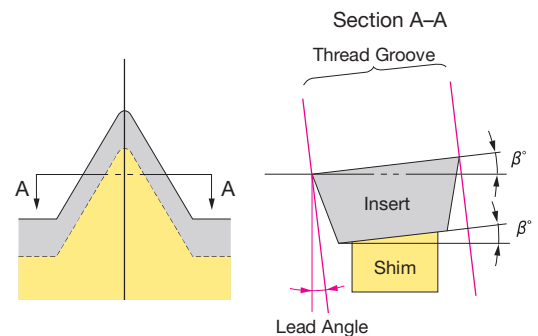
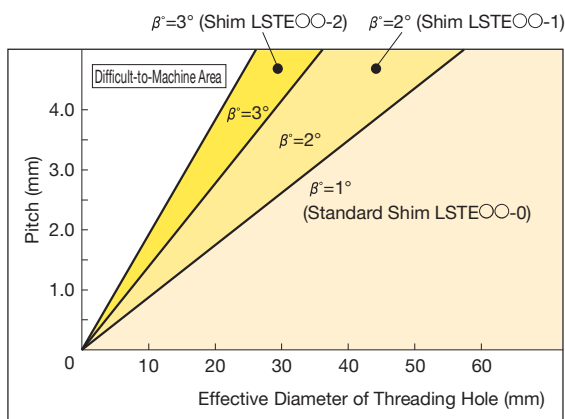
External Threading Tool Depth of Cut Guide

■ Without Wiper Edge

Applications		Cat. No.	Reference Cat. No.	Nose Radius	Pitch	Depth of Cut	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
60° Metric Thread		External	TME 1020R	16ER 102060-TE	0.13	1.00mm	0.65	5	0.20	0.16	0.12	0.10	0.07										
						1.25	0.84	6	0.20	0.18	0.16	0.13	0.10	0.07									
		1.50				1.03	7	0.22	0.20	0.17	0.15	0.12	0.10	0.07									
		1.75				1.22	8	0.22	0.21	0.18	0.16	0.15	0.13	0.10	0.07								
		2.00				1.41	10	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.07						
		TME 1530R	16ER 153060-TE	0.20	1.50mm	0.95	7	0.22	0.17	0.14	0.13	0.12	0.10	0.07									
					1.75	1.14	8	0.22	0.18	0.16	0.15	0.14	0.12	0.10	0.07								
					2.00	1.33	9	0.25	0.20	0.18	0.16	0.15	0.13	0.10	0.09	0.07							
					2.50	1.71	12	0.25	0.22	0.19	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.08	0.07				
					3.00	2.09	14	0.25	0.22	0.20	0.20	0.18	0.17	0.15	0.14	0.14	0.10	0.10	0.09	0.08	0.07		
60° Metric Thread		Internal	TMI 1020R	16IR 102060-TI	0.06	1.00mm	0.59	6	0.16	0.12	0.10	0.08	0.08	0.05									
						1.25	0.75	7	0.16	0.14	0.12	0.10	0.10	0.08	0.05								
						1.50	0.92	8	0.18	0.15	0.14	0.12	0.10	0.10	0.08	0.05							
						1.75	1.08	9	0.18	0.16	0.14	0.13	0.12	0.12	0.10	0.08	0.05						
					2.00	1.24	10	0.20	0.18	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.05						
					TMI 1530R	16IR 153060-TI	0.09	1.50mm	0.91	8	0.18	0.14	0.14	0.12	0.10	0.10	0.08	0.05					
								1.75	1.07	9	0.18	0.16	0.13	0.13	0.12	0.12	0.10	0.08	0.05				
								2.00	1.23	10	0.20	0.18	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05			
								2.50	1.56	12	0.20	0.18	0.16	0.16	0.15	0.13	0.13	0.11	0.11	0.10	0.08	0.05	
								3.00	1.88	14	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.10	0.08	0.07
55° Whitworth Thread		External	TWE 2416R	16ER 241655-TE	0.13	20TPI	0.80	6	0.20	0.17	0.15	0.12	0.09	0.07									
						19	0.84	6	0.20	0.18	0.16	0.13	0.10	0.07									
						18	0.90	7	0.20	0.18	0.15	0.12	0.10	0.08	0.07								
						16	1.03	7	0.22	0.20	0.17	0.15	0.12	0.10	0.07								
						14TPI	1.07	8	0.20	0.17	0.15	0.14	0.13	0.12	0.09	0.07							
					TWE 1410R	16ER 141055-TE	0.23	12	1.29	9	0.22	0.20	0.17	0.15	0.14	0.13	0.12	0.09	0.07				
			11	1.43				10	0.22	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.09	0.07					
			10	1.60				11	0.22	0.21	0.18	0.17	0.16	0.14	0.13	0.12	0.11	0.09	0.07				

*When pitch becomes smaller, decrease the cutting speed. In the case of inserts for internal threading without wiper edge, the number of passes should be increased.

■ Shim Selection for External Threading Tool LTE Type Holder



Standard shim that comes with LTE has $\beta=1^\circ$.
 $\beta=2^\circ$, 3° shims are sold separately.
 STE and STI Type holders do not come with shims.

Threading Tools STH



Screw-on
for External Diameter

M Metric Thread
W Whitworth Thread

Threading
Tools

F

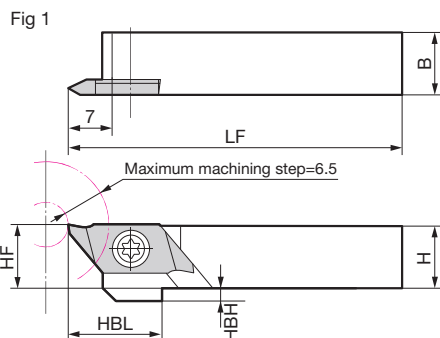
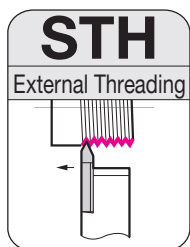


Figure shows right hand (R) tool.

Holder

Parts

Dimensions (mm)

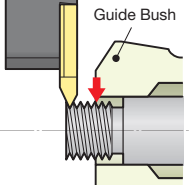
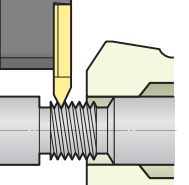
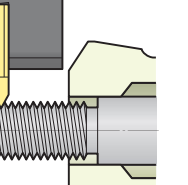
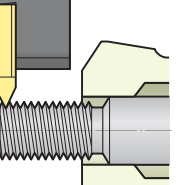
Cat. No.	Stock		Height H	Width B	Overall Length LF	Cutting Edge Height HF	Step HBH	Bottom Offset HBL	Applicable Insert	Fig	Flat Screw		Wrench
	R	L											
STH R/L0810	★	★	8	10	120	8	4	15	TH R/L Type	1	BFTX0410NTW	RT08	
STH R/L1010	★	★	10	10	120	10	2	15		1			
STH R/L1212F	★	★	12	12	85	12	-	15		1			
STH R/L1212	★	★	12	12	120	12	-	15		1			
STH R/L1616H	★	★	16	16	100	16	-	15		1			
STH R/L1616	★	★	16	16	120	16	-	15		1			
STH R/L2020	★	★	20	20	80	20	-	15		1	BFTX0410NT	LT25NT	

Insert (Coated Carbide)

Dimensions (mm)

Cat. No.	ACZ150		Pitch		Overall Length L	Height W1	Nose Radius RE	X direction PDX	Thread Ridge Angle PNA	Cutting Edge Shape	Applicable Holder	Fig		
	R	L	mm	Threads/Inch										
TH R/L6002075A	★	★	0.20 to 0.75	-	20	8	-	0.40	60	(A)	STH Type	1		Figure shows right hand (R) tool.
TH R/L6002075B	★	★	0.20 to 0.75	-	20	8	-	0.40	60	(A)		2		
TH R/L6005125A	★	★	0.50 to 1.25	-	20	8	0.05	0.80	60	(B)		1		
TH R/L6005125B	★	★	0.50 to 1.25	-	20	8	0.05	0.80	60	(B)		2		
TH R/L601015N	★	★	1.00 to 1.50	-	20	8	0.10	1.25	60	(B)		3		
TH R/L550515A	★	★	0.529 to 1.58	48 to 16	20	8	0.05	0.80	55	(B)		1		
TH R/L550515B	★	★	0.529 to 1.58	48 to 16	20	8	0.05	0.80	55	(B)		2		

Holder/Insert Combinations

Feed Direction	Right Hand		Left Hand	
Cutting Edge Position	Guide Bush Side	Back Turning Side	Guide Bush Side	Back Turning Side
Threading Illustration				
Holders	STH R (Right Hand)	STH R (Right Hand)	STH L (Left Hand)	STH L (Left Hand)
Insert	TH R ... A	TH R ... B	TH L ... B	TH L ... A
Features	It is often used in common tooling for workpieces that have a thread at their top end. In this type of tooling, the undercutting width indicated with the arrow can be reduced since the cutting edge point is placed closer to the guide bush side.		Often used when a thread is at the middle of the workpiece or at the rear. In this type of tooling, the undercutting width indicated with the arrow can be reduced since the cutting edge point is placed closer to the back turning side.	
			With a left hand holder used, a sufficient cutting distance can be kept since the cutting edge position is separate from the guide bush. For the left-hand holder, the selection of A type and B type is the reverse of the right-hand holder. (B indicates the guide bush side while A indicates the back turning side.)	