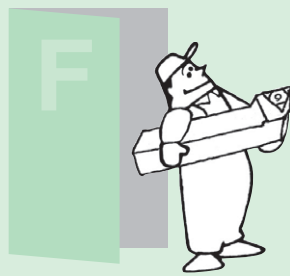


# Threading tool

## F63 –F85



<b>Threading tool</b>	External Grooving / Internal Grooving	<b>SEC-Threading Tool Series Selection Guide .....F64</b>
		<b>Basics of Threads ..... F67</b>
		<b>SSTE Type / SSTI Type .....F68</b>
		<b>SSTE Type / SSTI Type Standard Depth of Cut and Number of Passes ..... F74</b>
	External Grooving	<b>STH Type (For Small Pitch) ..... F76</b>
		<b>GME-TH Type (For Large Pitch) .....F77</b>
		<b>LTE Type (For General Use) .....F78</b>
		<b>STE Type (For General Use) .....F79</b>
		<b>THE Type (For General Use) .....F80</b>
	Internal Grooving	<b>THE Type (For Mini Tools) .....F80</b>
	<b>STI Type (For General Use) ..... F81</b>	
	<b>STHI Type (For General Use) .....F82</b>	
	<b>THI Type (For General Use) .....F82</b>	
	<b>SumiGrip Standard Depth of Cut and Number of Pathes .....F84</b>	

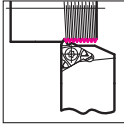
**Stock Indications and Symbols**







- mark : Standard stocked item
- mark: To be replaced by a new item featured on the same page
- ▲ mark: To be replaced by a new item  
(Please confirm stock availability)

- \* mark: Semi-standard stock (Please confirm stock availability)
- mark: Stock or planned stock (Please confirm stock availability)
- No mark: Made-to-order item
- mark: We cannot produce

# Selection Guide

## External Threading



Application Thread ridge shape	For general industry				For binding sink faucets, water, and gas	Thread for steam, gas, and water pipes		For aerospace instruments	
	Internal thread 60° Pitch	Internal thread 55° Pitch	Internal thread 60° Pitch	Internal thread 60° Pitch	Internal thread 55° Pitch	Internal thread 60° 1°47' Pitch	Internal thread 55° 1°47' Pitch	Internal thread 60° 1°47' Pitch	
Type	General purpose 60° thread	General purpose 55° thread (Whitworth)	ISO meter thread 60°	Unified thread 60°	Parallel thread for pipes Whitworth 55°	US NPT 60°	Taper threads for pipe BSPT 55°	US NPTF 60°	UNJ 60°
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
 <b>SSTE type</b> →F68	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	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
 <b>LTE type</b> →F78	1.00 to 3.00 24 to 8	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	—	—
 <b>STE type</b> →F79	1.00 to 3.00 24 to 8	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	—	—
 <b>THE type</b> →F80	0.80 to 3.00 24 to 10	24 to 10	0.80, 1.00, 1.25 1.50, 1.75, 2.00 2.50	—	28, 19	—	—	—	—
 <b>GME-TH type</b> →F77	3.00 to 6.00 11 to 4.5	11 to 4.5	—	—	—	—	—	—	—
 <b>STH type</b> →F76	0.20 to 1.50 48 to 16	48 to 16	—	—	—	—	—	—	—

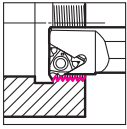
F  
Threading tool





Grooving  
Cut-Off

Threading

# Selection Guide

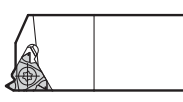
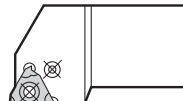

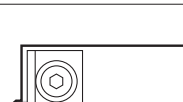

## Internal Threading



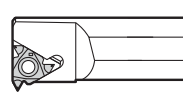
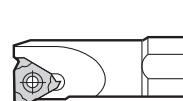

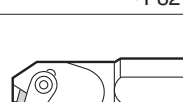
Application Thread ridge shape	For general industry				For binding sink faucets, water, and gas		Thread for steam, gas, and water pipes		For aerospace instruments
	Internal thread 60° External thread	Internal thread 55° External thread	Internal thread 60° External thread	Internal thread 60° External thread	Internal thread 55° External thread	Internal thread 60° 1°47' External thread	Internal thread 55° 1°47' External thread	Internal thread 60° 1°47' External thread	Internal thread 60° External thread
Type	General purpose 60° thread	General purpose 55° thread (Whitworth)	ISO meter thread 60°	Unified thread 60°	Parallel thread for pipes Whitworth 55°	US NPT 60°	Taper threads for pipe BSPT 55°	US NPTF 60°	UNJ 60°
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
 <b>SSTI type</b> →F68	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
 <b>STI type</b> →F80	1.00 to 3.00 24 to 8	—	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00	—	—	—	—	—	—
 <b>STHI type</b> →F82	0.40 to 1.00	—	—	—	—	—	—	—	—
 <b>THI type</b> →F82	0.80 to 2.50	—	1.50, 2.00	—	—	—	—	—	—

# Series Table

## External Threading Tools

Type	Appearance	Clamping				Feature	Applicable thread symbol	
		Screw-on	Clamp-on	Lever lock	Retracting pin		M	W
<b>SSTE</b>	 →F68	●				<ul style="list-style-type: none"> <li>Utilizes a lay down 3-cornered insert. Achieving good surface finish with its sharp cutting edges and ground flank faces.</li> <li>Stable chip control through its 3D mold chipbreaker</li> <li>A comprehensive lineup of inserts with wiper edges</li> </ul>	M	W
							UNC/UNF	G/Rp/W
							NPT	R/Rc
							NPTF	UNJ
<b>LTE/STE</b>	 →F78/F79	●	●			<ul style="list-style-type: none"> <li>A lineup of strong clamping, lever-lock holders (shank size □25 to 32mm), as well as screw-on holders (shank size □12 to 16mm).</li> <li>Economical M-Class lay down 3-cornered inserts.</li> <li>Cermet inserts are available.</li> <li>Stable chip control with molded chipbreaker.</li> </ul>	M	W
							UNC/UNF	G/Rp/W
							NPT	R/Rc
							NPTF	UNJ
<b>THE</b>	 →F80	●		●		<ul style="list-style-type: none"> <li>Utilizes a standing G-Class 3-cornered insert.</li> <li>Available in draw-pin type holders □25mm shank and screw-on holders □12mm and □16mm shank.</li> <li>Cermet inserts without wiper edges are available.</li> </ul>	M	W
							UNC/UNF	G/Rp/W
							NPT	R/Rc
							NPTF	UNJ
<b>GME-TH</b>	 →F77		●			<ul style="list-style-type: none"> <li>2 corner insert for large pitch (3 to 6 mm) machining</li> <li>A lineup of 11 to 4.5 threads/inch tools for 55° angle</li> <li>Rigid clamping with a clamp metal</li> </ul>	M	W
							UNC/UNF	G/Rp/W
							NPT	R/Rc
							NPTF	UNJ
<b>STH</b>	 →F76	●				<ul style="list-style-type: none"> <li>For small lathes with a shank size of □20 mm or less</li> <li>Able to perform threading with a space-saving tangential 2-cornered insert.</li> <li>Able to perform back threading operations with a bar feeder.</li> <li>Available in small pitch (From 0.2mm).</li> </ul>	M	W
							UNC/UNF	G/Rp/W
							NPT	R/Rc
							NPTF	UNJ

## Internal Threading Tools

Type	Appearance	Clamping				Feature	Min. machining diameter (mm)	Applicable thread symbol	
		Screw-on	Clamp-on	Lever lock	Retracting pin			M	W
<b>SSTI</b>	 →F68	●				<ul style="list-style-type: none"> <li>Utilizes a lay down 3-cornered insert. Achieving good surface finish with its sharp cutting edges and ground flank faces.</li> <li>Stable chip control through its 3D mold chipbreaker.</li> <li>A comprehensive lineup of inserts with wiper edges</li> </ul>	ø18	M	W
								UNC/UNF	G/Rp/W
								NPT	R/Rc
								NPTF	UNJ
<b>STI</b>	 →F81	●				<ul style="list-style-type: none"> <li>Class M with economical, horizontally mounted 3 corner insert</li> <li>Stable chip control with a chipbreaker</li> <li>Cermet grade lineup</li> </ul>	ø20	M	W
								UNC/UNF	G/Rp/W
								NPT	R/Rc
								NPTF	UNJ
<b>STHI</b>	 →F82	●				<ul style="list-style-type: none"> <li>Can handle small diameter (inner diameter ø8mm and more) and small pitch (0.4 to 1.0 mm)</li> <li>Perfect for machining small parts</li> </ul>	ø8	M	W
								UNC/UNF	G/Rp/W
								NPT	R/Rc
								NPTF	UNJ
<b>THI</b>	 →F82	●				<ul style="list-style-type: none"> <li>Good cutting performance with a G Class, 3 corner insert</li> </ul>	ø18	M	W
								UNC/UNF	G/Rp/W
								NPT	R/Rc
								NPTF	UNJ

F  
 Threading Tools  
 Grooving  
 Cut-Off  
 Threading

# Basics of Threads

## Parts of the Thread

**External thread**      **Internal thread**      **Lead angle**

Effective diameter (d) : Thread groove width that has a virtually comparable cylinder diameter to the thread width  
 Pitch (P) : Adjoining thread distance  
 Lead (l) : Thread movement amount after one revolution  
 (1 section threads are comparable with the pitch)  
 Lead angle ( $\alpha$ ) : A corner that forms a right angled flat surface between the thread helix and thread axis

● How to calculate a lead angle  $\alpha^\circ$  : Lead angle  
 l : Lead  
 n : Number of threads  
 P : Pitch  
 d : Effective thread diameter

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

## Basic Profile of Major Thread Forms

Application	Symbol	Basic profile	Application	Symbol	Basic profile	Application	Symbol	Basic profile	Application	Symbol	Basic profile
Metric thread	<b>M</b>	Internal thread: 60° External thread: 1/4P, 1/8P	Parallel threads for pipe	Internal thread: <b>G(PF)</b> External thread: <b>G(PF)</b>	Internal thread: 55° External thread: 5/16P, R0.137P	Taper pipe thread	Internal thread: <b>Rc(PT)</b> <b>(BSPT)</b> External thread: <b>R(PT)</b> <b>(BSPT)</b>	Internal thread: 27.5°, 27.5° External thread: 90°, 1°47', R0.137P	Unified thread	<b>UN</b> <b>UNC</b> <b>UNF</b> <b>UNEF</b>	Internal thread: 60° External thread: 1/4P, 1/8P
Witworth thread	<b>W</b> <b>BSW</b> <b>BSP</b>	Internal thread: 55° External thread: R0.137P	Thread for aerospace instruments	<b>UNJ</b>	Internal thread: 60° External thread: 5/16P, R	Taper US pipe thread	<b>NPT</b>	Internal thread: 30°, 30° External thread: 90°, 1°47'	Taper US pipe thread	<b>NPTF</b>	Internal thread: 30°, 30° External thread: 90°, 1°47'

## Holder and Insert Selection Guide (SSTE Type/SSTI Type)

	External diameter (Spindle forward rotation)	Internal diameter (Spindle forward rotation)	External diameter (Spindle reverse rotation)
Right threading	External holder (SSTE type) Inserts for external machining (16ER type) Shim (YE3-3P/YE3-2P, YE3-1P/YE3/YE3-1N)	Internal holder (SSTI type) Inserts for internal machining (16IR type) Shim (Y13-3P/Y13-2P, Y13-1P/Y13/Y13-1N)	External holder (SSTE type) Inserts for external machining (16ER type) Shim (YE3-3P/YE3-2P, YE3-1P/YE3/YE3-1N)
Left threading	External holder (SSTE type) Inserts for external machining (16ER type) Shim (YE3-2N/YE3-3N)	Internal holder (SSTI type) Inserts for internal machining (16IR type) Shim (Y13-2N/Y13-3N)	External holder (SSTE type) Inserts for external machining (16ER type) Shim (YE3-2N/YE3-3N)

## Threading Method and Angle of Insert

