Threading Tools

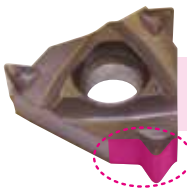
SEC-Threading Tool Holders SSTE Type / SSTI Type

- Grinding finish is applied only around the cutting edge, but these new tools can realize high-quality machining performance as well as the conventional tools with complete periphery grinding finish.
- 110 insert models are available in stock to support various types of thread.
- More stable chip control with the combination of inserts with chip breaker

SSTE Type / SSTI Type

Features

- High-precision inserts with/without wiper flat 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 flanks around cutting edge

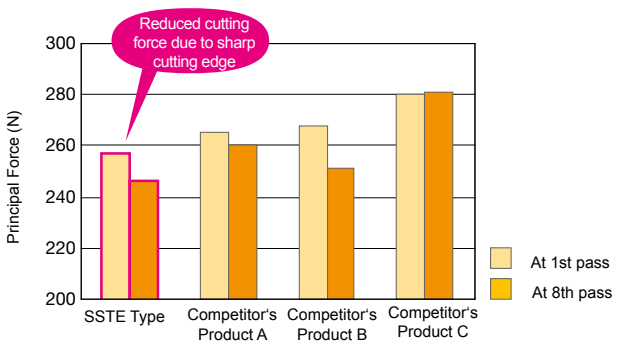
Product Range

Applications	Type	Wiper Flat	External/ Internal	Pitch (mm)	TPI (Threads/Inch)	Insert Cat. No. Example:
General Industrial Use	60° General-purpose Thread	No	External	0.5 – 3.0	48 to 8	16ER A60-CB
			Internal	0.5 – 3.0	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	0.75 1.0 1.25 1.5 1.75 2.0 2.5 3.0		16ER 075ISO-CB
			Internal	0.75 1.0 1.25 1.5 1.75 2.0 2.5 3.0		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
	60° American NPT		External			16ER 27NPT-CB
			Internal			16IR 27NPT-CB
Steam, Gas and Water Supply Pipes	55° Taper Thread for Pipe BSPT		External			16ER 28BSPT-CB
			Internal			16IR 28BSPT-CB
	60° American NPTF		External			16ER 27NPTF-CB
			Internal			16IR 27NPTF-CB
For Aerospace Equipment	UNJ 60°		External			16ER 32UNJ-CB
			Internal			16IR 32UNJ-CB

48 36 32 28 27 24 20 19 18 16 14 13 12 11.5 11 10 8

Application Examples

Comparison of Cutting Force



Work Material: C45, M30×1.5
Cutting Conditions: v_C=150m/min Wet 8 passes Thread infeed method: Radial infeed

Machined Surface Comparison

Work Material: C45, M30×1.5
Cutting Conditions: v_C=150m/min Wet 8 passes Thread infeed method: Radial infeed

SSTE Type / SSTI Type

External

SSTE

External Threading

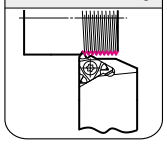
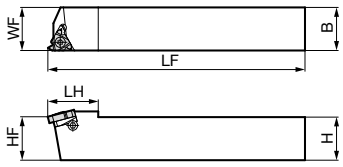
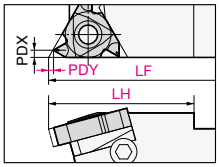


Fig 1





Screw-on for External Diameter

The values for dimensions LF and LH below are only for reference.
The actual value is the value below minus the PDY value for the corresponding insert on page 4.

Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Head LH	Cutting Edge Functional Width WF	Cutting Edge Height HF	Fig	Screw	N·m	Shim Screw	Flat Washer	Shim	Wrench
SSTE R1616H16	●	16	16	100	20.5	16	16	1						
SSTE R2020K16	●	20	20	125	30.0	20	20	1	BFTX0312N	2.0	BX0304*1	PW3	YE3	TRX10
SSTE R2525M16	●	25	25	150	30.0	25	25	1						

*1 Shim screw wrench is sold separately.

Internal

SSTI

Internal Threading

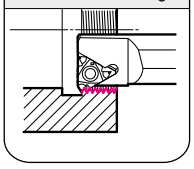


Fig 1

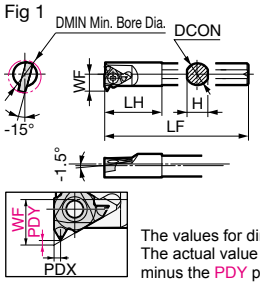


Fig 2

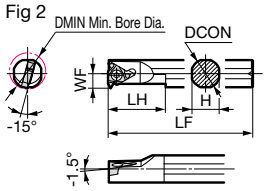
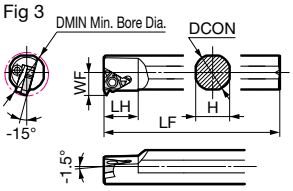


Fig 3



Screw-on for Internal Diameter

The values for dimension WF below are only for reference.
The actual value is the value on page 5.
minus the PDY profile distance.

Holder

Parts

Dimensions (mm)

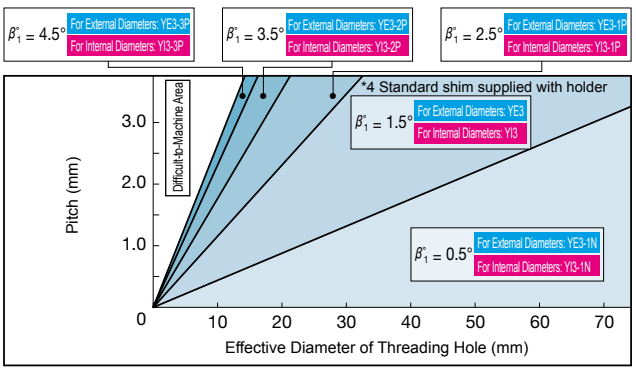
Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Head LH	Functional Width WF	Min. Bore Dia. DMIN*2	Fig	Screw	N·m	Shim Screw	Flat Washer	Shim	Wrench
SSTI R1812M16*3	●	12	11.0	150	32.0	10.2	18	1						
SSTI R2016M16*3	●	16	15.0	150	63.5	9.2	20	2	BFTX03085N	2.0	Q	Q	Q	
SSTI R2420Q16	●	20	18.0	180	19.0	13.5	24	3						TRX10
SSTI R3125S16	●	25	23.0	250	14.3	16.5	31	3	BFTX0312N	2.0	BX0304*1	PW3	YI3	
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.

Shim and Selection Criteria

Applications	Recommended Lead Angle (T1)	External Turning Cat. No.	External Turning Stock	Internal Boring Cat. No.	Internal Boring 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	❍

*4 Standard shim supplied with holder.



Holder Identification Code

Example: **S S T E R 25 25 M 16**

(1) Series: SST Type

(2) External/Internal

Symbol	Distinction
E	External
I	Internal

(3) Feed Direction

Symbol	FeedDirection
R	FeedDirection

(4) Shank Height/Work Diameter

	Symbol	(mm)
Ext. Turn. (Height)	16	16
	20	20
	25	25
Internal Boring (Min. bore dia.)	18	18
	20	20
	24	24
	31	31
	37	37

(5) Shank Width/Diameter

	Symbol	(mm)
Ext. Turn. (Width)	16	16
	20	20
	25	25
Internal Boring (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

Details of Shim Selection page 6

N·m Recommended Tightening Torque (N·m)

● European Stock ❍Japanese Stock

SSTE Type / SSTI Type

External

Fig 1

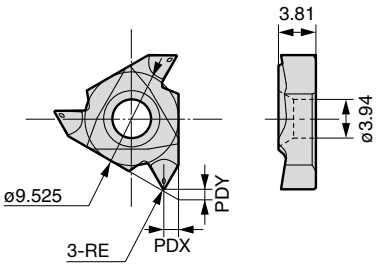
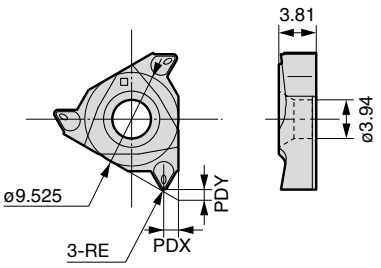


Fig 2



(Coated Carbide)

60°/55° General-purpose Threads (Without Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16ER A60-CB	●	0.5-1.5	16 - 48	0.8	0.6	0.09	5	1
	16ER AG60-CB	●	0.5-3.0	8 - 48	1.5	1.1	0.10		1
	16ER G60-CB	●	2.0-3.0	8 - 14	1.5	1.1	0.20		1
55°	16ER A55-CB	●	—	16 - 48	0.8	0.5	0.05	5	1
	16ER AG55-CB	●	—	8 - 48	1.5	1.1	0.08		1
	16ER G55-CB	●	—	8 - 14	1.5	1.1	0.22		1

60° ISO Metric Thread (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
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		2
	16ER 125 ISO-CB	●	1.25	—	0.8	0.7	0.15		2
	16ER 150 ISO-CB	●	1.50	—	0.8	0.7	0.20		2
	16ER 175 ISO-CB	●	1.75	—	1.5	1.0	0.23		2
	16ER 200 ISO-CB	●	2.00	—	1.5	1.1	0.26		2
	16ER 250 ISO-CB	●	2.50	—	1.5	1.2	0.33		2
	16ER 300 ISO-CB	●	3.00	—	1.5	1.1	0.41		2

60° Unified Thread (With Wiper Flat)

Dimensions (mm)

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

55° Parallel Thread for Pipe/Whitworth (With Wiper Flat)

Dimensions (mm)

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

For these inserts, only SSTE Type holders can be used.

60° American NPT (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16ER 27NPT-CB	❍	—	27	0.8	0.6	0.06	5	2
	16ER 18NPT-CB	❍	—	18	0.8	0.6	0.06		2
	16ER 14NPT-CB	❍	—	14	1.5	1.0	0.08		2
	16ER 115NPT-CB	❍	—	11.5	1.5	1.0	0.08		2
	16ER 08NPT-CB	❍	—	8	1.5	1.1	0.13		2

55° Taper Thread for Pipe/BSPT (With Wiper Flat)

Dimensions (mm)

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

60° American NPTF (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16ER 27NPTF-CB	❍	—	27	0.8	0.6	0.06	5	2
	16ER 18NPTF-CB	❍	—	18	0.8	0.6	0.06		2
	16ER 14NPTF-CB	❍	—	14	1.5	1.0	0.13		2
	16ER 115NPTF-CB	❍	—	11.5	1.5	1.0	0.12		2

60° UNJ (With Wiper Flat)

Dimensions (mm)

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

Insert Identification Table

Example: **16 E R 150 ISO - CB**

(1) Insert Size	
Symbol	Inscribed Circle (mm)
16	9.525

(2) External/Internal	
Symbol	Distinction
E	External
I	Internal

(3) Feed Direction	
Symbol	Feed Direction
R	Right Hand

(4) Pitch or TPI

	Symbol	Pitch/TPI
With Wiper Flat		Metric = Pitch x 100 Inch=TPI (115 only for 11.5) (Example) 075: Pitch 0.75 mm 150: Pitch 1.5 mm 20: 20 TPI
Without Wiper Flat	A	Pitch : 0.5 to 1.5 mm TPI : 16 to 48
	AG	Pitch : 0.5 to 3.0 mm TPI : 8 to 48
	G	Pitch : 2.0 to 3.0 mm TPI : 8 to 14

(5) Thread Type

Wiper Flat	Symbol	Type
Yes	ISO	Metric Thread
	UN	Unified Thread
	W	Whitworth
	NPT	Americ. Taper Thread f. Pipe
	BSPT	Taper Thread for Pipe
	NPTF	Americ. Taper Thread f. Pipe
	UNJ	For Aerospace Equipment
No	60	60° General-purpose Thread
	55	55° General-purpose Thread

(6) Chipbreaker

Symbol	Description
CB	With Chipbreaker

SSTE Type / SSTI Type

Internal

Fig 1

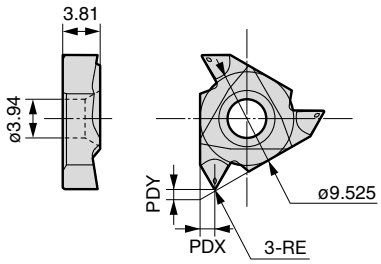
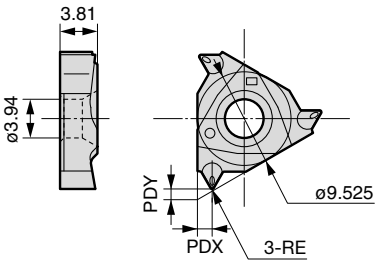


Fig 2



(Coated Carbide)

60°/55° General-purpose Threads (Without Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner 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		1
	16IR AG60-CB	●	0.5-3.0	8 - 48	1.5	1.1	0.10	5	1
	16IR G60-CB	❍	2.0-3.0	8 - 14	1.5	1.1	0.18		1
55°	16IR A55-CB	●	—	16 - 48	0.8	0.5	0.05		1
	16IR AG55-CB	●	—	8 - 48	1.5	1.1	0.08	5	1
	16IR G55-CB	❍	—	8 - 14	1.5	1.1	0.20		1

60° ISO Metric Thread (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 075 ISO-CB	●	0.75	—	0.5	0.9	0.04		2
	16IR 100 ISO-CB	●	1.00	—	0.8	0.6	0.06		2
	16IR 125 ISO-CB	●	1.25	—	0.8	0.6	0.07		2
	16IR 150 ISO-CB	●	1.50	—	0.8	0.6	0.09	5	2
	16IR 175 ISO-CB	●	1.75	—	1.5	1.0	0.10		2
	16IR 200 ISO-CB	●	2.00	—	1.5	1.1	0.13		2
	16IR 250 ISO-CB	●	2.50	—	1.5	1.1	0.15		2
	16IR 300 ISO-CB	●	3.00	—	1.5	1.1	0.19		2

60° Unified Thread (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 32UN-CB	❍	—	32	0.5	0.9	0.04		2
	16IR 28UN-CB	❍	—	28	0.8	0.6	0.06		2
	16IR 24UN-CB	❍	—	24	0.8	0.7	0.06		2
	16IR 20UN-CB	❍	—	20	0.8	0.6	0.08		2
	16IR 18UN-CB	❍	—	18	0.8	0.6	0.08		2
	16IR 16UN-CB	❍	—	16	0.8	0.7	0.09	5	2
	16IR 14UN-CB	❍	—	14	1.5	1.1	0.13		2
	16IR 13UN-CB	❍	—	13	1.5	1.1	0.11		2
	16IR 12UN-CB	❍	—	12	1.5	1.1	0.13		2
	16IR 10UN-CB	❍	—	10	1.5	1.1	0.15		2
	16IR 08UN-CB	❍	—	8	1.5	1.1	0.20		2

55° Parallel Thread for Pipe/Whitworth (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
55°	16IR 28W-CB	❍	—	28	0.8	0.6	0.12		2
	16IR 24W-CB	❍	—	24	0.8	0.6	0.14		2
	16IR 20W-CB	❍	—	20	0.8	0.6	0.18	5	2
	16IR 19W-CB	❍	—	19	0.8	0.6	0.18		2

60° American NPT (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 27NPT-CB	❍	—	27	0.8	0.6	0.06		2
	16IR 18NPT-CB	❍	—	18	0.8	0.6	0.06		2
	16IR 14NPT-CB	❍	—	14	1.5	1.1	0.08	5	2
	16IR 115NPT-CB	❍	—	11.5	1.5	1.0	0.08		2
	16IR 08NPT-CB	❍	—	8	1.5	1.0	0.13		2

55° Taper Thread for Pipe/BSPT (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
55°	16IR 28BSPT-CB	❍	—	28	0.8	0.6	0.13	5	2
	16IR 19BSPT-CB	❍	—	19	0.8	0.6	0.18		2

60° American NPTF (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 27NPTF-CB	❍	—	27	0.8	0.6	0.06		2
	16IR 18NPTF-CB	❍	—	18	0.8	0.6	0.08		2
	16IR 14NPTF-CB	❍	—	14	1.5	1.0	0.13	5	2
	16IR 115NPTF-CB	❍	—	11.5	1.5	1.0	0.08		2
	16IR 08NPTF-CB	❍	—	8	1.5	1.1	0.13		2

60° UNJ (With Wiper Flat)

Dimensions (mm)

Included Angle	Cat. No.	AC530U	Pitch		X Direction	Y Direction	Corner Radius	Pcs/ Pack	Fig
			mm	Threads/Inch	PDX	PDY	RE		
60°	16IR 32UNJ-CB	❍	—	32	0.5	0.9	0.04		2
	16IR 28UNJ-CB	❍	—	28	0.8	0.6	0.05		2
	16IR 24UNJ-CB	❍	—	24	0.8	0.6	0.06		2
	16IR 20UNJ-CB	❍	—	20	0.8	0.6	0.06		2
	16IR 18UNJ-CB	❍	—	18	0.8	0.6	0.06	5	2
	16IR 16UNJ-CB	❍	—	16	0.8	0.6	0.09		2
	16IR 14UNJ-CB	❍	—	14	1.5	1.1	0.09		2
	16IR 12UNJ-CB	❍	—	12	1.5	1.1	0.11		2
	16IR 10UNJ-CB	❍	—	10	1.5	1.1	0.15		2

Insert Identification Table

Example: **16 I R 150 ISO - CB**

(1) Insert Size	
Symbol	Inscribed Circle (mm)
16	9.525

(2) External/Internal	
Symbol	Distinction
E	External
I	Internal

(3) Feed Direction	
Symbol	Feed Direction
R	Right Hand

(4) Pitch or TPI

Metric = Pitch x 100
Inch=TPI
(115 only for 11.5)
(Example)
075: Pitch 0.75 mm
150: Pitch 1.5 mm
20: 20 TPI

With Wiper Flat	Symbol	Pitch/TPI
Without Wiper Flat	A	Pitch : 0.5 to 1.5 mm TPI : 16 to 48
	AG	Pitch : 0.5 to 3.0 mm TPI : 8 to 48
	G	Pitch : 2.0 to 3.0 mm TPI : 8 to 14

(5) Thread Type		
Wiper Flat	Symbol	Type
Yes	ISO	Metric Thread
	UN	Unified Thread
	W	Whitworth
	NPT	Americ. Taper Thread f. Pipe
	BSPT	Taper Thread for Pipe
	NPTF	Americ. Taper Thread f. Pipe
	UNJ	For Aerospace Equipment
No	60	60° General-purpose Thread
	55	55° General-purpose Thread

(6) Chipbreaker	
Symbol	Description
CB	With Chipbreaker

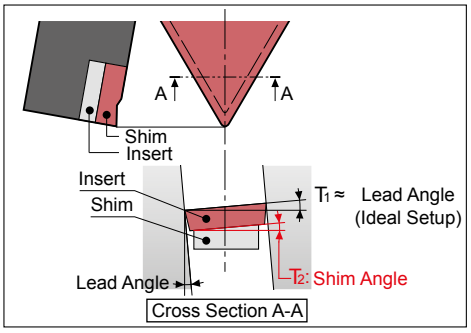
● European Stock ❍Japanese Stock

For these inserts, only SSTI Type holders can be used.

SSTE Type / SSTI Type

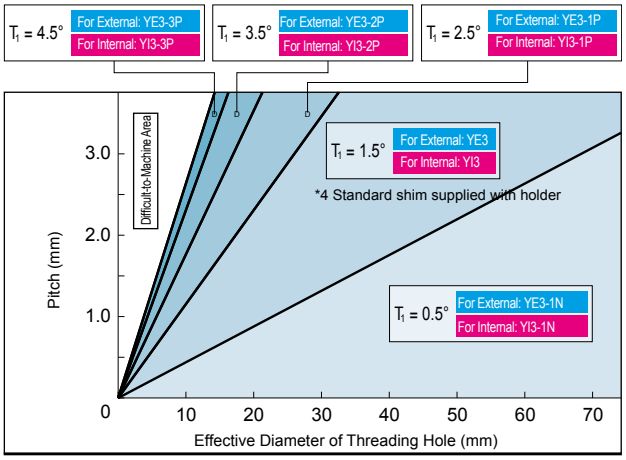
■ Shim Selection

If the pitch is large or thread diameter is small, the lead angle of the thread becomes larger and the effective relief angle of the leading edge becomes smaller. 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 an M16×2.0 external right-hand thread, the pitch diameter is 14.701mm. In the table below, locate [2.0]mm under the "Pitch" column and 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 "Internal" row below.

● 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 (T_1)	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)

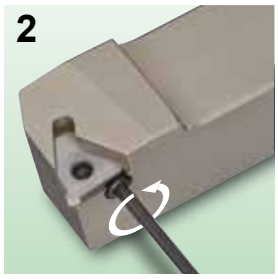
Right-hand/Left-hand Thread		For Right-hand Thread					For Left-hand Thread	
Lead Angle		4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
Shim	External	YE3-3P	YE3-2P	YE3-1P	YE3*	YE3-1N	YE3-2N	YE3-3N
	Internal	YI3-3P	YI3-2P	YI3-1P	YI3*	YI3-1N	YI3-2N	YI3-3N
	Shim Angle (T_1)	3°	2°	1°	0°	-1°	-2°	-3°
TPI (Threads/Inch)		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 a lead angle of Y_1 = 1.5° (SSTE Type: YE3, SSTI Type: YI3).
Shims for lead angles of Y_1 = -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°.)

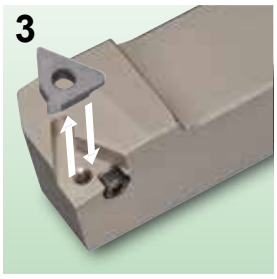
SSTE Type / SSTI Type

■ Shim Replacement

Remove the insert to expose the shim.



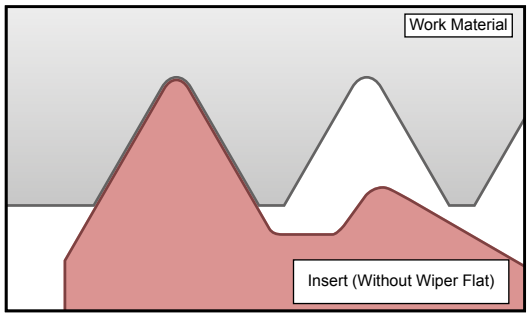
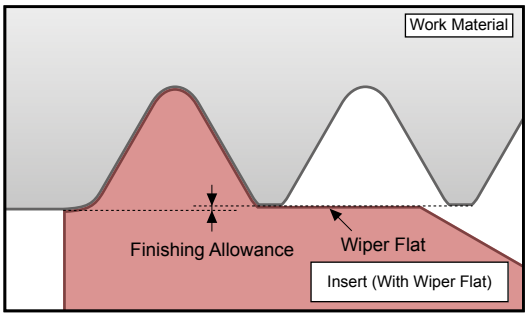
Loosen the shim set screw by one to two turns.



Remove the shim and attach a different shim that matches the lead.

Tighten the shim set screw (recommended tightening torque 1.0 to 1.5 Nm).

■ Wiper Flat

Without Wiper Flat	With Wiper Flat
	
● 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 flat, a finishing allowance of 0.1mm on each side is required. ● Edges of ridges can be rounded off.

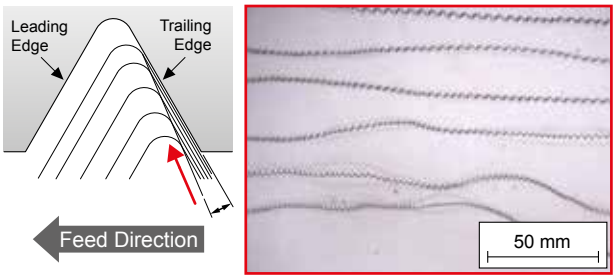
■ Infeed Method

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 the Infeed Method on Chip Shapes

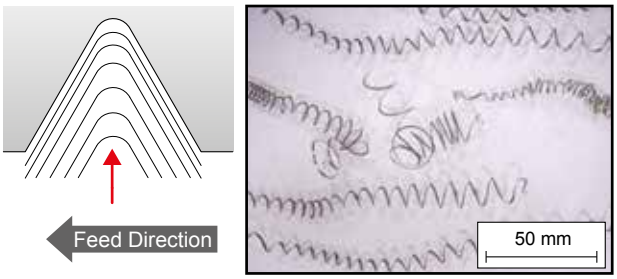
Work Material: X5CrMo17-12-2, M30 x 1.5 Cutting Conditions: vc = 60 mm/min, wet, 8 passes

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 Type 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 flat, 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 Grey Cast Iron (up to 330HB)	K Ductile Cast Iron	S Titanium Alloy
Cutting Speed v_c (m/min)	75 -150	75 - 135	60 - 120	90 - 180	75 - 135	24 - 90

Guide to Depth of Cut and No. of Passes

SSTI Type 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 flat, 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 Grey Cast Iron (up to 330HB)	K Ductile Cast Iron	S Titanium Alloy
Cutting Speed v_c (m/min)	75 - 150	75 - 135	60 - 120	90 - 180	75 - 135	24 - 90

SUMITOMO

CARBIDE - CBN - DIAMOND

(Germany)
SUMITOMO ELECTRIC Hartmetall GmbH
Konrad-Zuse-Straße 9, 47877 Willich

Tel. +49 2154 4992-0, Fax +49 2154 4992-161
info@sumitomotool.com
www.sumitomotool.com

(UK and Ireland)
SUMITOMO ELECTRIC Hardmetal Ltd.
3 Paper Mill Drive
Redditch, B98 8QJ, UK

Tel. +44 1844 342081, Fax: +44 1844 342415
infouk@sumitomotool.com
www.sumitomotool.com

Distributed by:

E-171-02/22 CR-KI