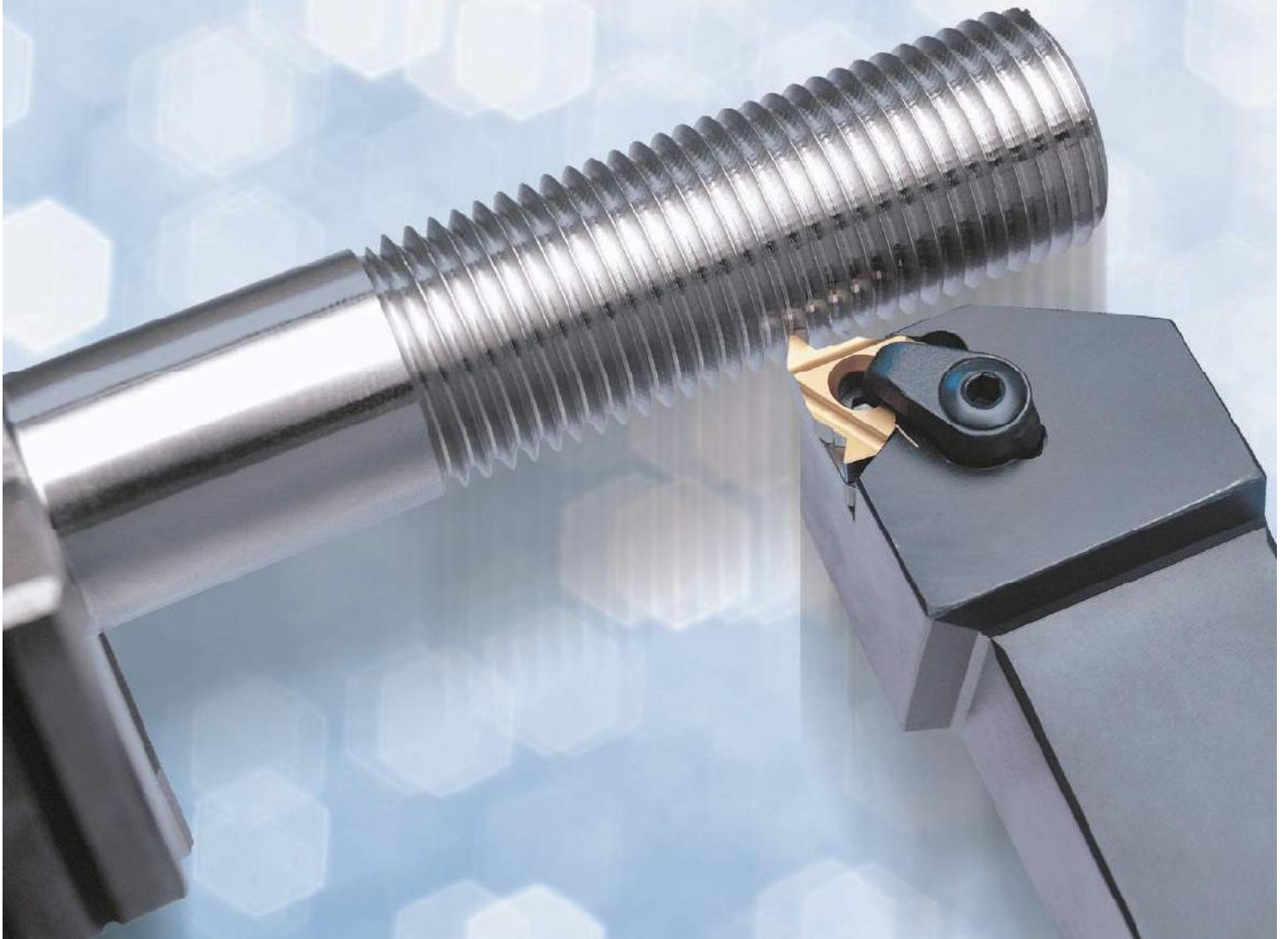


D

THREADING

Korloy threading tools are available for machining of various shapes of thread at various pitches with high quality.



Threading Code System

D02 Threading Holder Code System

D02 Threading Insert Code System

Threading

D03 Technical Information for Threading

D09 Threading Insert with Chip Breaker

Thread Inserts

D10 Partial Profile 60°

D11 Partial Profile 55°

D12 ISO Metric

D16 American UN

D18 With Worth

D22 British Standard Pipe Thread

D22 National Pipe Thread

D23 National Pipe Thread-Dry seal

D23 Round DIN 405

D24 Trapez DIN 103

Thread Inserts

D24 American ACME

D25 Stub ACME

D26 UNJ (Unified Constant Thread)

D28 American Buttress (ABUT)

D28 British Buttress (BBUT)

D29 Metric Buttress (SAGE) / API

D30 API Buttress Casing (BUT)

D30 API Round Casing & Tubing (APIRD)

D30 Extreme Line Casing (EL)

Thread Holders

D31 External Holder

D32 Internal Holder

D33 Vertical Type Holder

Thread Milling

D34 Technical Information for Thread Milling

D44 Thread Milling Inserts

D49 Thread Milling Holder

Solid Threading Endmills

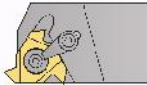
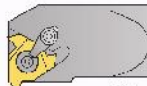
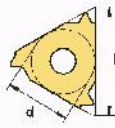
D50 Technical Information for
Solid Threading Endmills

D51 Solid Threading Endmills



THREADING

Threading Holder Code System

E	R	H	10	(N)	-	11	(C)
1	2	3	4	5		6	7
Holder Type	Hand of Insert	Name	Height of shank	Shim		Insert Size (mm)	Clamping System
1 Holder Type E R H 10 (N) - 11 (C) E : For External I : For Internal	2 Hand of Insert E R H 10 (N) - 11 (C) R : Right handed L : Left handed	3 Name E R H 10 (N) - 11 (C) H : Holder	4 Height of shank E R H 10 (N) - 11 (C)  - External 8, 10, 12, 16, 20, 25, 32, 40, 50  - Internal 10, 12, 13, 16, 20, 25, 32, 49, 50, 60 • Refer to the specification for shank diameter information	5 Shim E R H 10 (N) - 11 (C) No code : Shim required N : No shim required		6 Insert Size (mm) E R H 10 (N) - 11 (C) 11 : d=6.35 16 : d=9.525 22 : d=12.7 27 : d=15.875 	7 Clamping System E R H 10 (N) - 11 (C) No code : Screw on system C : Clamp on system

Threading Insert Code System

E

R

M

16

-

1.5

ISO

1

2

3

4

5

6

Insert Type

Hand of Insert

Chip Breaker

Insert Size (mm)

Pitch

Standard

1

Insert Type

E R M 16 - 1.5 ISO

E : External thread

I : Internal thread

2

Hand of Insert

E R M 16 - 1.5 ISO

R : Right handed

L : Left handed

3

Chip Breaker

E R M 16 - 1.5 ISO

M : With Chip Breaker

4

Insert Size (mm)

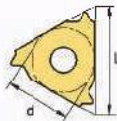
E R M 16 - 1.5 ISO

11 : d=6.35

16 : d=9.525

22 : d=12.7

27 : d=15.875



Insert Shape



<ER/IR>



<ERM/IRM>

5

Pitch

E R M 16 - 1.5 ISO

Full profile		Partial profile	
mm	tpi	mm	tpi
0.35-6.0	72-3	A 0.5-1.5	48-6
		AG 0.5-3.0	48-8
		G 1.75-3.0	14-8
		N 3.5-5.0	7-5
		Q 5.5-6.0	4.5-4

6

Standard

E R M 16 - 1.5 ISO

Partial profile 60°

Partial Profile 55°

ISO Metric (Full Profile)

American UN (Full Profile) UN, UNC, UNF, UNEF

Whitworth (Full Profile) BSW, BSF, BSP

British Standard Pipe thread (Full Profile) BSP I

National Pipe Thread (Full Profile) NPT

National Pipe Thread-Dryseal (Full Profile) NPTF

Round DIN 405

Trapez DIN 103

American ACME

Stub ACME

UNJ

American Buttress

British Buttress

Metric Buttress-Sagengewinde

API

API Buttress Casing

API Round Casing & Tubing

EL-Extreme Line

Special Features

External Thread

A thread on the external surface of a cylinder screw or cone

Depth of Thread

The distance between the crest and root measured from normal to the axis

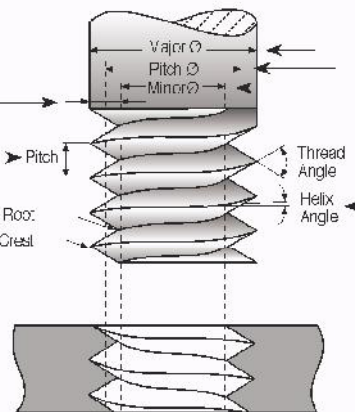
Pitch

The distance between the corresponding points on adjacent thread forms measured parallel to the axis. This distance can be defined in millimeters or by the tpi (threads per inch), which is the reciprocal of the pitch

Nominal Diameter

The diameter of which the diameter limits are derived by the application of deviation allowances and tolerances

External Thread



Major Diameter

The largest diameter of a screw thread

Pitch Diameter

On a straight thread, the diameter of an imaginary cylinder, the surface of which cuts the thread forms where the width of the thread and groove are equal

Minor Diameter

The smallest diameter of a screw thread

Helix Angle

For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite of the lead

Straight Thread

A thread formed on a cylinder

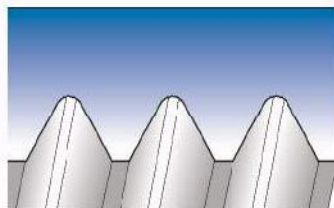
Taper Thread

A thread formed on a cone

Internal Thread

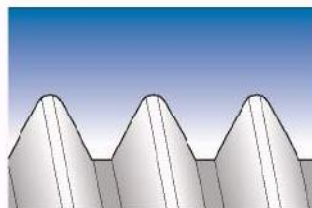
A thread on the internal surface of a cylinder or cone

Left handed thread



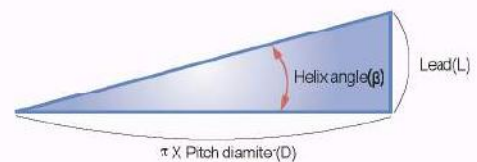
A thread which, when viewed axially, winds in a counter clockwise and receding direction. All left handed threads are designated LH

Right handed thread



A thread which, when viewed axially, winds in a clockwise and receding direction. Threads are always right handed unless they are specified

The Helix Angle (β)

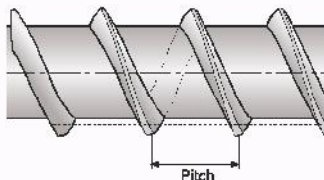


For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite of the lead

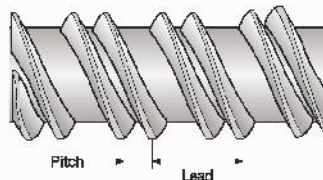
Machining a Multi-start Thread

A thread in which the lead is an integral multiple, greater than one, of the pitch. A multi-start thread permits a more rapid advance without a coarser (larger) thread form

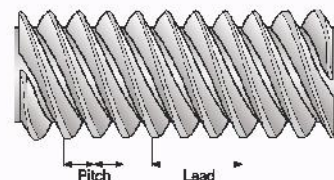
First Start Machined



Second Start Machined

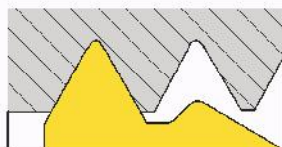


Third Start Machined (Final 3 Starts Thread)



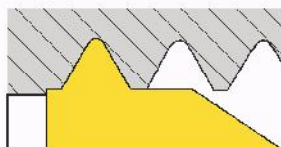
Insert Profile Style

Partial Profile



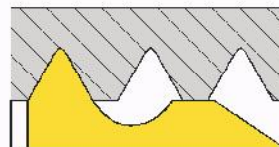
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle

Full Profile



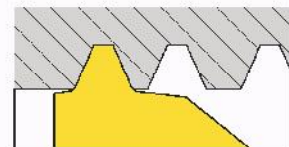
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required

Full Profile for Fine Pitches



The full profile for Fine Pitches will form a complete thread. The topping of the outer diameter is generated by second tooth

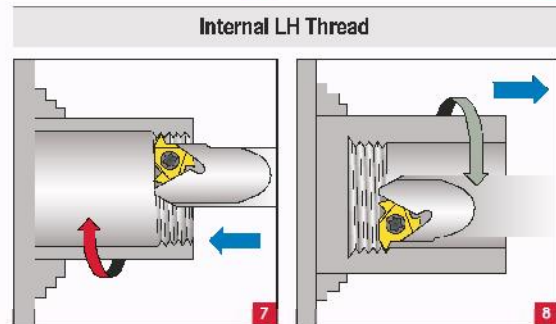
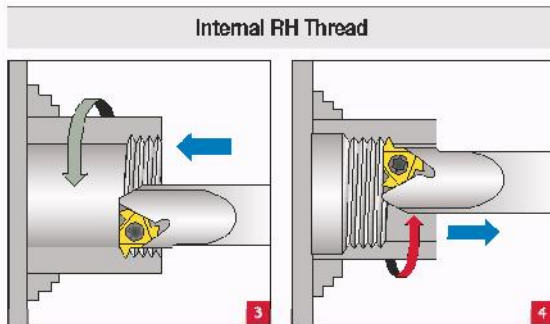
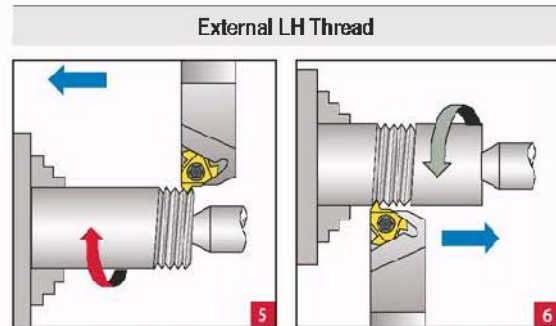
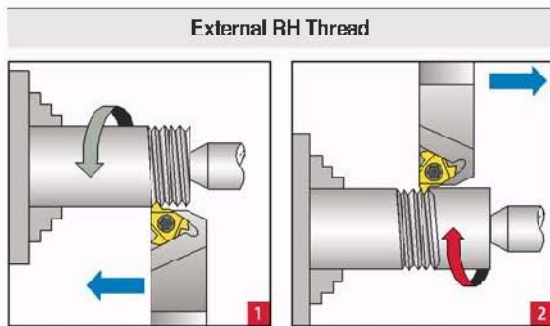
Semi Full



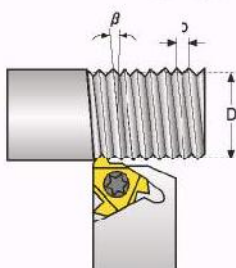
The Semi profile insert will form a complete thread including crest radius but without topping the outer diameter. Mainly used for trapezoidal profiles

Thread Turning Method

Thread	Inserts & Tool holder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Counter clockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reverse	2
Right Hand Internal	IN LH	Counter clockwise	Towards chuck	Regular	3
	IN RH	Clockwise	From chuck	Reverse	4
Left Hand External	FX LH	Clockwise	Towards chuck	Regular	5
	EX RH	Counter clockwise	From chuck	Reverse	6
Left Hand Internal	IN LH	Clockwise	Towards chuck	Regular	7
	IN RH	Counter clockwise	From chuck	Reverse	8



Calculating the Helix Angle(β)

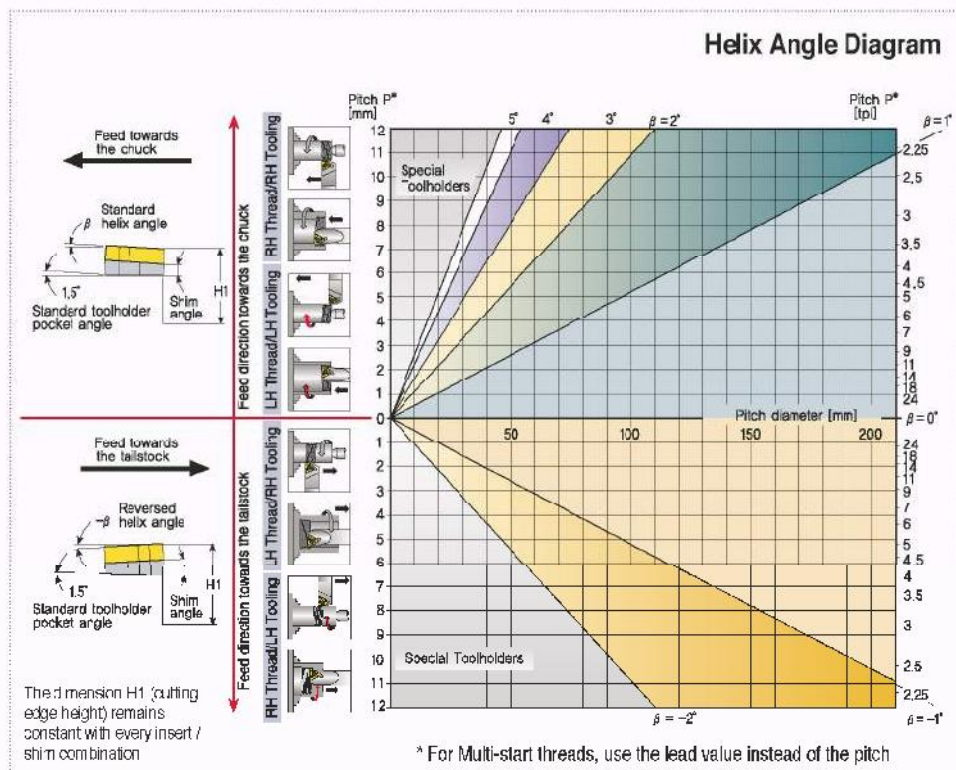


- The helix angle is calculated by the following formula :

$$\beta = \tan^{-1} \frac{P \times N}{\pi \times D}$$

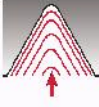
- β - Helix angle(°)
- P - Pitch(mm)
- N - No. of starts
- D - Pitch diameter(mm)
- Lead = P x N

- The helix angle can also be found from the diagram below



▶ Thread Infeed Method

Radial Infeed



Radial infeed is the simplest and quickest method. The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation. Radial infeed is recommended in 3 cases:

- when the pitch is smaller than 16 tpi
- for material with short chips
- for work with hardened material

Flank Infeed (modified)



Flank infeed is recommended in the following cases:

- When the thread pitch is greater than 16 tpi. Using the radial method, the effective cutting edge length is too large, resulting in chatter for TRAPEZ and ACME. The radial method results in three cutting edges, making chip flow very difficult.

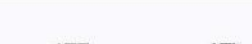
Alternate Flank Infeed



Use of the alternate flank method is recommended especially in large pitches and for materials with long chips.

- This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. An alternate flank infeed requires more complicated programming, and is not available on all lathes.

▶ Shim

Standard Shim			Helix angle 1.5°	Insert Size	d	9.525		12.7		15.875	
	L	16			22		27				
	Holder			ER(L)H	IR(L)H	ER(L)H	IR(L)H	ER(L)H	IR(L)H		
	Ordering Code			A*E16	ATI16	ATE22	ATI22	ATE27	ATI27		

※ Standard shim has lead angle 1.5°

▶ Application grade

Grade	Features	Available insert type
PC5300	• PVD Universal Grade For chip breaker type only Stable machining on a wide application due to fine-grained carbide substrate with balanced heat resistance and toughness Excellent wear resistance and oxidation resistance due to AlTiN coating film Outstanding performance on high speed machining	ERM/IRM (Insert with Chip breaker)
PC3030T	• General Grade A tough sub-micron substrate with AlTiN coating provides good fracture toughness and excellent wear resistance Outstanding performance on STS and hard to cut materials	ER/IR (Ground insert)

▶ Recommended Cutting Speed as per workpiece(vc)

ISO	Work piece	
P	Carbon steel, Alloy steel, Cast Steel	
M	Stainless steel, Heat resistant steel, Titanium alloy steel	
K	Carbon Iron, Aluminum, Cast Steel, Copper	

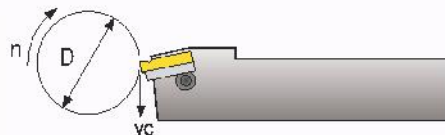
D Technical Information for Threading

Recommended Cutting Speed as per workpiece(vc)

Material			Hardness Brinell (HB)	ISO vc(m/min) PC3030T
P	Carbon steel	Low carbon (C=0.1-0.25 %)	125	115~190
		Medium carbon (C=0.25-0.55 %)	150	100~175
		High carbon (C=0.55-0.85 %)	170	90~155
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	100~180
		Hardened	275	75~140
		Hardened	350	70~135
	High alloy steel (alloying elements > 5%)	Annealed	200	80~120
		Hardened	325	50~100
	Cast steel	Low alloy (alloying elements <5%)	200	70~130
		High alloy (alloying elements >5%)	225	60~120
M	Stainless steel Ferritic	Non hardened	200	70~130
		Hardened	330	50~95
	Stainless steel Austenitic	Austenitic	180	80~120
		Super austenitic	200	30~100
	Stainless steel Cast ferritic	Non hardened	200	90~120
		Hardened	330	65~110
	Stainless steel Cast austenitic	Austenitic	200	85~110
		Hardened	330	60~100
	High temperature alloy	Annealed (Iron based)	200	45~60
		Aged (Iron based)	280	30~50
		Annealed (Nickel or Cobalt based)	250	20~30
		Aged (Nickel or Cobalt based)	350	15~25
	Titanium alloy	99.5% pure Titanium	400Rm	140~170
		Titanium alloy	1050Rm	50~70
K	Extra hard steel	Hardened & tempered	55HRC	45~60
		Ferritic (short chips)	130	70~120
	Malleable cast iron	Pearlitic (long chips)	230	70~120
		Low tensile strength	180	70~130
	Gray cast iron	High tensile strength	260	60~100
		Ferritic	160	125~160
	Nodular SG iron	Pearlitic	260	90~120
		Non aging	60	100~250
	Aluminum alloy Wrought	Aged	100	80~180
		Cast	75	200~400
	Aluminum alloy	Cast & aged	90	200~280
		Cast Si 13-22%	130	60~150
	Copper and copper alloy	Brass	90	80~120
		Bronze and non leaded copper	100	80~120

Calculation of N [RPM]

$$n = \frac{vc \times 1000}{\pi \times D} \quad vc = \frac{\pi \times D \times n}{1000}$$



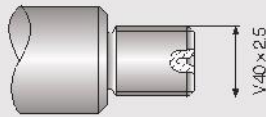
n - Revolution Per Minute
[min⁻¹]
vc - Cutting Speed [m/min]
D - Workpiece Diameter [mm]

Number of Passes

Pitch	mm	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	8.00
	tpi	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
No. of passes		4~6	4~7	4~8	5~9	6~10	7~12	7~12	8~14	9~16	10~18	11~18	11~19	12~20	12~20	12~20	15~24

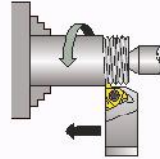
※ One cutting depth is calculated by total cutting depth divided into machining times
ex) ER16-1.5ISO, h/min 0.92 : if 10times machining, one cutting depth is 0.092(0.92/10)

Step by step Thread Turning



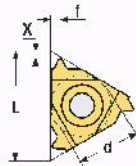
Application Thread : External Right Hand ISO Metric M40 x 2.5
Material : 4140 (25 HRC)

1 Choose the Thread Turning Method



Feed direction towards the chuck was chosen
Therefore an external right hand insert and an external right hand holder will be used

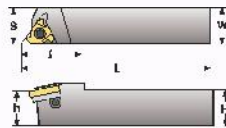
2 Choose the Insert Size



Chosen insert : **ER16 - 2.5 ISO**

Insert Size	Pitch	Ordering Code	Shim	Tool holder
d	mm	RH (RH)	RH (RH)	
9.525	2.5	ER16-2.5ISO	ATE16	ERH□□-16

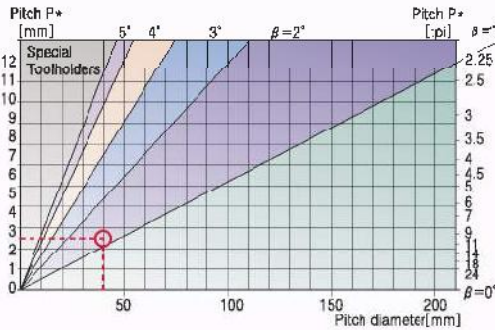
3 Choose the Tool holder



Chosen tool holder : **ERH 25 - 16**

Insert Size	Ordering code	Dimensions(mm)				
d	RH (RH)	H=h	W	S	L	ℓ
9.525	ERH25-16	25	25	25	153.6	30

4 Determine the Helix Angle



From the table, using a pitch of 2.5 mm (10 tpi) and a workpiece diameter of 40mm (1.571"), we find the helix angle to be 1.5°

5 Choose the Correct Shim

Shim Chosen : **ATE16**

Resultant Helix Angle		1.5°
Insert Size	d	9.525
	L	16
Ordering Code		ATE16

6 Choose the Carbide Grade and Cutting Speed

Carbide grade chosen : **PC3030T** / Cutting speed : 140m/min

Material	HB	vc(m/min)	
		PC3030T	
P Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	85~145
	Hardened	275	75~140
	Hardened	350	70~35

7 Determine the Number of Passes

Carbide grade chosen : **PC3030T**
Cutting speed : 140m/min

Pitch	mm	1.50	1.75	2.00	2.50	3.00	3.50	4.00
	tpi	16	14	12	10	8	7	6
No. of passes		6~10	7~12	7~12	8~14	9~16	10~18	11~18

8 Summary

Thread type	ISO M40 x 2.5 External Right Hand
1. Feed Direction	Towards the chuck
2. Insert and Grade	ER16-2.5 ISO, PC3030T
3. Tool holder	ERH25-16
4. Helix Angle	1.5°
5. Shim	ATE16
6. Cutting Speed	140 m/min
7. Number of Passes	10

D Technical Information for Threading

▶ Cutting Condition depending on

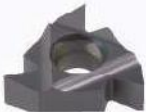
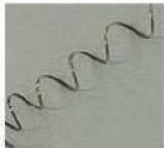
Workpiece	Material Type		Coolant	Coolant Type	
	Material Dimension			Holder Cross Section Area	
	Diameter and Length Chipflow Character			Holder Overhang	
	Material Hardness		Holders	Through Coolant Option	
Thread Application	External or Internal			Shank Type: Carbide, Alloy.	
	Profile Shape			Carbide Implant Grade	
	Surface Finish			Profile Shape: Pitch and Depth	
Machine	Machine Stability		Insert	Nose Radius	
	Max. RPM			Chipbreaker Style	
	Clamping System Stability				

▶ Trouble Shooting

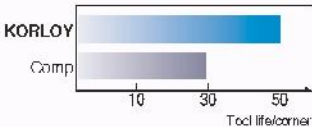
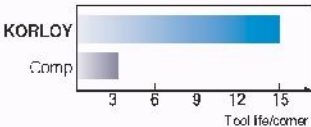
Problem	Possible Cause	Solution
 Increased flank wear	Cutting speed too high Depth of cut too low/too many passes Unsuitable carbide grade Insufficient cooling	➤ Reduce cutting speed/ use coated insert ➤ Increase the depth of cut per pass ➤ Use a tougher carbide grade ➤ Increase coolant flow rate
 Uneven cutting edge wear	Incorrect helix angle Wrong infeed method	➤ Choose the correct shim ➤ Use the Alternating Flank Infeed method
 Extreme plastic deformation	Depth of cut too large Insufficient cooling Cutting speed too high Unsuitable carbide grade Nose radius too small	➤ Decrease depth of cut/ increase number of passes ➤ Increase coolant flow rate ➤ Reduce cutting speed ➤ Use a tougher carbide ➤ Use an insert with a larger radius, if possible
 Cutting edge breakage	Depth of cut too large Extreme plastic deformation Insufficient cooling Unsuitable carbide grade Instability	➤ Decrease depth of cut/ increase number of passes ➤ Use a tougher carbide ➤ Increase flow rate and/ or correct flow direction ➤ Use a tougher carbide ➤ Check stability of the system
 Built-up edge	Incorrect cutting speed Unsuitable carbide grade	➤ Change the cutting speed ➤ Use a coated carbide
 Thread profile is too shallow	The tool is not at the workpiece axis height Insert is not machining the thread crest Worn insert	➤ Change tool height ➤ Measure the workpiece diameter ➤ Change the cutting edge sooner
 Poor surface quality	Too low cutting speed Wrong shim Flank infeed method is not appropriate	➤ Increase cutting speed ➤ Choose correct shim ➤ Use the alternate flank or radial infeed method

Threading insert with chip breaker

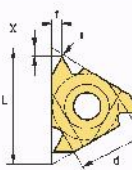
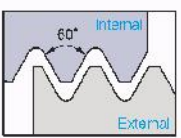
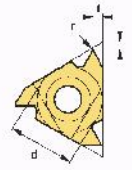
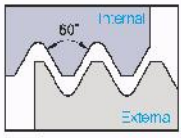
- Features**
- ▶ Economical insert
 - ▶ Good toughness and high accuracy as ground type inserts
 - ▶ Exclusive insert design improves chip control.
 - ▶ New grade for general application of various kinds of workpieces

Type	Ground insert		Insert with a chip breaker			
C/B Code	None		None		U	
Designation	ER16-1.5ISO		ERM16-1.5ISO		ERM16-1.5ISO-U	
Machining	External	Internal	External	Internal	External	Internal
Insert Shape						
Chip Shape						
Class	P, M, K, N, S		P, M, K		P, M, K	
Application	G-Class		M-Class		M-Class	
Features	• Groove-shaped chip breaker with superior chip evacuation lowers cutting load. • Enables high precision machining. • Applicable for machining of various shapes of threads. • Applicable for machining of various workpieces.		• Unique 3 dimensional chip breaker improves machinability with good chip control. • Excellent cutting edge treatment technology ensures high precision sharp cutting edge.		• Groove-shaped chip breaker with superior chip evacuation lowers cutting load. • Reduces machining pass by 10~30%. • Excellent cutting edge treatment achieves high precision sharp cutting edge.	

Machining Example

Korloy		ERM16-1.5ISO [PC3030T]	IRM16-2.0ISO [PC3030T]
Competitor tools		ERM16-1.5ISO [K-Maker]	IRM16-2.0ISO [S-Maker]
Workpiece	Material	SCM440	
	Figure		
Cutting condition	Cutting speed (m/min)	63	120
	Pass	8	9
	Machining	Radial infeed	Radial infeed
	Pitch	1.5	2.0
Coolant		Wet	Wet
Result		 Increased tool life with good chip breaking	 Prevention outbreak damage of insert due to smooth chip control

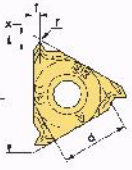
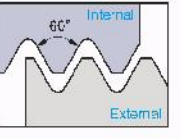
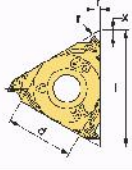
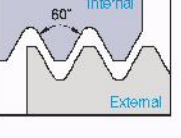
Partial profile 60°

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Picture
					(mm)	(tpi)	d	L	r	x	f	
External	ER 11-A60	●	EL 11-A60	●	0.5~1.5	48~16	6.35	1*	0.05	0.8	0.9	 
	16-A60	●	16-A60	●	0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G60	●	16-G60	●	1.75~3.0	14~8	9.525	16	0.27	1.2	1.7	
	16-AG60	●	16-AG60	●	0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N60	●	22-N60	●	3.5~5.0	7~5	12.7	22	0.53	1.7	2.5	
	27-Q60	●	27-Q60	●	5.5~6.0	4.5~4	15.875	27	0.64	2.1	3.1	
Internal	IR 11-A60	●	IL 11-A60	●	0.5~1.5	48~16	6.35	1*	0.05	0.8	0.9	 
	16-A60	●	16-A60	●	0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G60	●	16-G60	●	1.75~3.0	14~8	9.525	16	0.18	1.2	1.7	
	16-AG60	●	16-AG60	●	0.5~3.0	48~8	9.525	16	0.05	1.2	1.7	
	22-N60	●	22-N60	●	3.5~5.0	7~5	12.7	22	0.30	1.7	2.5	
	27-Q60	●	27-Q60	●	5.5~6.0	4.5~4	15.875	27	0.30	1.8	2.7	

● Applicable holders, D31, D32

● Stock item

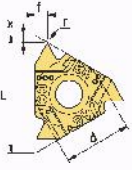
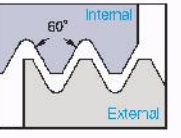
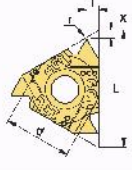
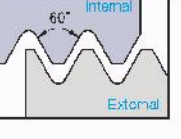
Partial profile 60° (M Chip Breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Picture
						(mm)	(tpi)	d	L	r	x	f	
External	ERM 16-A60	●				0.5~1.5	48~16	9.525	16	0.05	0.6	0.9	 
	16-G60	●				1.75~3.0	14~8	9.525	16	0.27	1.2	1.7	
	16-AG60	●				0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N60	●				3.5~5.0	7~5	12.7	22	0.53	1.7	2.5	
Internal	IRM 11-A60	●				0.5~1.5	48~16	6.35	11	0.08	0.6	0.9	 
	16-A60	●				0.5~1.5	48~16	9.525	16	0.08	0.6	0.9	
	16-G60	●				1.75~3.0	14~8	9.525	16	0.12	1.2	1.7	
	16-AG60	●				0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N60	●				3.5~5.0	7~5	12.7	22	0.30	1.7	2.5	

● Applicable holders, D31, D32

● Stock item

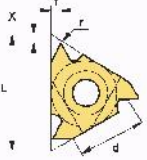
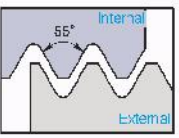
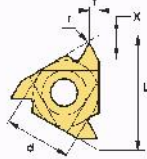
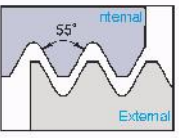
Partial profile 60° (U Chip Breaker) New

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Picture
						(mm)	(tpi)	d	L	r	x	f	
External	ERM 16-AG60-U					0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	 
Internal	IRM 16-AG60-U					0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	 

● Applicable holders, D31, D32

● Stock item

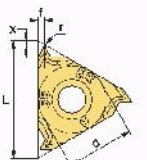
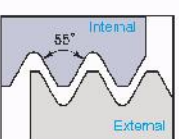
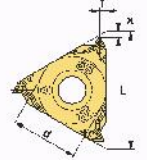
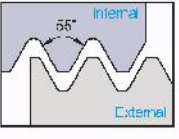
Partial profile 55°

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Picture
					(mm)	(tpi)	d	L	r	x	f	
External	ER 11-A55	●	EL 11-A55		0.5~1.5	48~16	6.35	11	0.05	0.8	0.9	 
	16-A55	●	16-A55		0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G55	●	16-G55		1.75~3.0	14~8	9.525	16	0.21	1.2	1.7	
	16-AG55	●	16-AG55	●	0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
	22-N55	●	22-N55		3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	
	27-Q55		27-Q55		5.5~6.0	4.5~4	15.875	27	0.60	2.0	2.9	
Internal	IR 11-A55	●	IL 11-A55		0.5~1.5	48~16	6.35	11	0.05	0.8	0.9	 
	16-A55	●	16-A55		0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G55	●	16-G55		1.75~3.0	14~8	9.525	16	0.21	1.2	1.7	
	16-AG55	●	16-AG55		0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
	22-N55	●	22-N55		3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	
	27-Q55		27-Q55		5.5~6.0	4.5~4	15.875	27	0.60	2.0	2.9	

● Applicable holders D31, D32

● Stock item

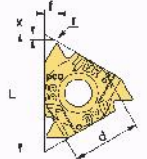
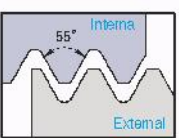
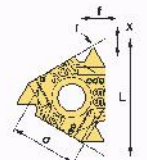
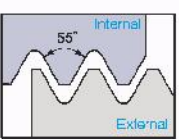
Partial profile 55° (M Chip Breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Picture
						(mm)	(tpi)	d	L	r	x	f	
External	ERM 16-A55	●				0.5~1.5	48~16	9.525	16	0.08	0.8	0.9	 
	16-G55	●				1.75~3.0	14~8	9.525	16	0.21	1.2	1.7	
	16-AG55	●				0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
	22-N55	●				3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	
Internal	IRM 11-A55	●				0.5~1.5	48~16	6.35	11	0.08	0.8	0.9	 
	16-A55	●				0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G55	●				1.75~3.0	14~8	9.525	16	0.08	1.2	1.7	
	16-AG55	●				0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N55	●				3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	

● Applicable holders D31, D32

● Stock item

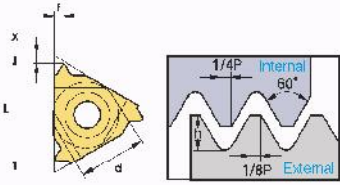
Partial profile 55° (U Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Picture
						(mm)	(tpi)	d	L	r	x	f	
External	ERM 16-AG55-U					0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	 
Internal	IRM 16-AG55-U					0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	 

● Applicable holders D31, D32

● Stock item

ISO Metric

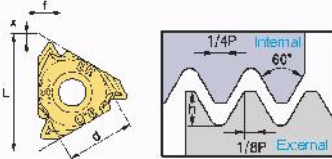
Type	Designation (Right)		Designation (Left)		Pitch	Dimensions (mm)					Picture
					(mm)	d	L	hmin	X	f	
External	ER	11-0.35ISO	EL	11-0.35ISO	0.35	6.35	11	0.21	C.8	0.4	
		11-0.4ISO		11-0.4ISO	0.4	6.35	11	0.25	C.7	0.4	
		11-0.45ISO		11-0.45ISO	0.45	6.35	11	0.28	C.7	0.4	
		11-0.5ISO		11-0.5ISO	0.5	6.35	11	0.31	C.6	0.4	
		11-0.6ISO		11-0.6ISO	0.6	6.35	11	0.37	C.6	0.6	
		11-0.7ISO		11-0.7ISO	0.7	6.35	11	0.43	C.6	0.6	
		11-0.75ISO		11-0.75ISO	0.75	6.35	11	0.46	C.6	0.6	
		11-0.8ISO		11-0.8ISO	0.8	6.35	11	0.49	C.6	0.6	
		11-1.0ISO		11-1.0ISO	1.0	6.35	11	0.61	C.7	0.7	
		11-1.25ISO		11-1.25ISO	1.25	6.35	11	0.77	C.8	0.9	
		11-1.5ISO		11-1.5ISO	1.5	6.35	11	0.92	C.8	1.0	
		11-1.75ISO		11-1.75ISO	1.75	6.35	11	1.07	C.8	1.1	
		16-0.35ISO		16-0.35ISO	0.35	9.525	16	0.21	C.8	0.4	
		16-0.4ISO		16-0.4ISO	0.4	9.525	16	0.25	C.7	0.4	
		16-0.45ISO		16-0.45ISO	0.45	9.525	16	0.28	C.7	0.4	
		16-0.5ISO		16-0.5ISO	0.5	9.525	16	0.31	C.6	0.4	
		16-0.6ISO		16-0.6ISO	0.6	9.525	16	0.37	C.6	0.6	
		16-0.7ISO		16-0.7ISO	0.7	9.525	16	0.43	C.6	0.6	
		16-0.75ISO		16-0.75ISO	0.75	9.525	16	0.46	C.6	0.6	
		16-0.8ISO		16-0.8ISO	0.8	9.525	16	0.49	C.6	0.6	
		16-1.0ISO		16-1.0ISO	1.0	9.525	16	0.61	C.7	0.7	
		16-1.25ISO		16-1.25ISO	1.25	9.525	16	0.77	C.8	0.9	
		16-1.5ISO		16-1.5ISO	1.5	9.525	16	0.92	C.8	1.0	
		16-1.75ISO		16-1.75ISO	1.75	9.525	16	1.07	C.9	1.2	
		16-2.0ISO		16-2.0ISO	2.0	9.525	16	1.23	1.0	1.3	
		16-2.5ISO		16-2.5ISO	2.5	9.525	16	1.53	1.1	1.5	
		16-3.0ISO		16-3.0ISO	3.0	9.525	16	1.84	1.2	1.6	
		22-3.5ISO		22-3.5ISO	3.5	12.7	22	2.15	1.6	2.3	
		22-4.0ISO		22-4.0ISO	4.0	12.7	22	2.45	1.6	2.3	
		22-4.5ISO		22-4.5ISO	4.5	12.7	22	2.78	1.7	2.4	
		22-5.0ISO		22-5.0ISO	5.0	12.7	22	3.07	1.7	2.5	
		27-5.5ISO		27-5.5ISO	5.5	15.875	27	3.37	1.9	2.7	
		27-6.0ISO		27-6.0ISO	6.0	15.875	27	3.68	2.0	2.9	

Applicable holders D31

● : Stock item



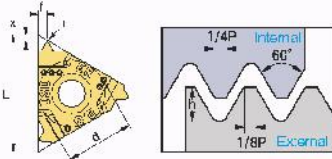
ISO Metric (M Chip Breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(mm)	d	L	hmin	X	l	
External	ERM 16-1.0ISO	●				1.0	9.525	16	0.61	0.7	0.7	
	16-1.25ISO					1.25	9.525	16	0.77	0.6	0.9	
	16-1.5ISO	●				1.5	9.525	16	0.93	0.8	1.0	
	16-1.75ISO	●				1.75	9.525	16	1.09	0.9	1.2	
	16-2.0ISO	●				2.0	9.525	16	1.25	1.0	1.3	
	16-2.5ISO	●				2.5	9.525	16	1.55	1.1	1.5	
	16-3.0ISO	●				3.0	9.525	16	1.87	1.2	1.6	

● Applicable holders D31

● Stock item

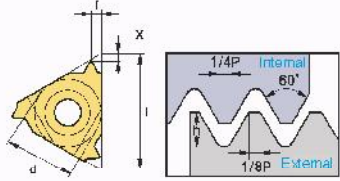
ISO Metric (U Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(mm)	d	L	hmin	X	l	
External	ERM 16-1.5ISO-U					1.5	9.525	16	0.93	0.6	1.0	
	16-2.0ISO-U					2.0	9.525	16	1.25	1.0	1.3	

● Applicable holders D31

● Stock item

ISO Metric

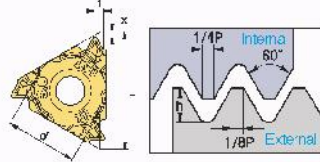
Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(mm)	d	L	hmin	X	f	
Internal	IR 11-0.35ISO		IL 11-0.35ISO		0.35	6.35	11	0.20	0.8	0.3	
	11-0.4ISO		11-0.4ISO		0.4	6.35	11	0.23	0.8	0.4	
	11-0.45ISO		11-0.45ISO		0.45	6.35	11	0.26	0.8	0.4	
	11-0.5ISO	●	11-0.5ISO		0.5	6.35	11	0.29	0.6	0.4	
	11-0.6ISO		11-0.6ISO		0.6	6.35	11	0.35	0.6	0.6	
	11-0.7ISO		11-0.7ISO		0.7	6.35	11	0.40	0.6	0.6	
	11-0.75ISO	●	11-0.75ISO		0.75	6.35	11	0.43	0.6	0.6	
	11-0.8ISO		11-0.8ISO		0.8	6.35	11	0.46	0.6	0.6	
	11-1.0ISO	●	11-1.0ISO		1.0	6.35	11	0.58	0.6	0.7	
	11-1.25ISO	●	11-1.25ISO		1.25	6.35	11	0.72	0.8	0.9	
	11-1.5ISO	●	11-1.5ISO	●	1.5	6.35	11	0.87	0.8	1.0	
	11-1.75ISO		11-1.75ISO		1.75	6.35	11	1.01	0.9	1.1	
	11-2.0ISO	●	11-2.0ISO	●	2.0	6.35	11	1.15	0.9	1.1	
	11-2.5ISO	●	11-2.5ISO		2.5	6.35	11	1.44	0.8	1.1	
	16-0.35ISO		16-0.35ISO		0.35	9.525	16	0.20	0.8	0.3	
	16-0.4ISO		16-0.4ISO		0.4	9.525	16	0.23	0.8	0.4	
	16-0.45ISO		16-0.45ISO		0.45	9.525	16	0.26	0.8	0.4	
	16-0.5ISO	●	16-0.5ISO		0.5	9.525	16	0.29	0.6	0.4	
	16-0.6ISO		16-0.6ISO		0.6	9.525	16	0.35	0.6	0.6	
	16-0.7ISO		16-0.7ISO		0.7	9.525	16	0.40	0.6	0.6	
	16-0.75ISO	●	16-0.75ISO		0.75	9.525	16	0.43	0.6	0.6	
	16-0.8ISO		16-0.8ISO		0.8	9.525	16	0.46	0.6	0.6	
	16-1.0ISO	●	16-1.0ISO		1.0	9.525	16	0.58	0.6	0.7	
	16-1.25ISO	●	16-1.25ISO		1.25	9.525	16	0.72	0.8	0.9	
	16-1.5ISO	●	16-1.5ISO		1.5	9.525	16	0.87	0.8	1.0	
	16-1.75ISO	●	16-1.75ISO		1.75	9.525	16	1.01	0.9	1.2	
	16-2.0ISO	●	16-2.0ISO	●	2.0	9.525	16	1.15	1.0	1.3	
	16-2.5ISO	●	16-2.5ISO		2.5	9.525	16	1.44	1.1	1.5	
	16-3.0ISO	●	16-3.0ISO	●	3.0	9.525	16	1.73	1.1	1.5	
	22-3.5ISO	●	22-3.5ISO		3.5	12.7	22	2.02	1.6	2.3	
	22-4.0ISO	●	22-4.0ISO		4.0	12.7	22	2.31	1.6	2.3	
	22-4.5ISO	●	22-4.5ISO		4.5	12.7	22	2.60	1.6	2.4	
	22-5.0ISO	●	22-5.0ISO		5.0	12.7	22	2.89	1.6	2.3	
	27-5.5ISO		27-5.5ISO		5.5	15.875	27	3.17	1.6	2.3	
	27-6.0ISO	●	27-6.0ISO		6.0	15.875	27	3.46	1.8	2.5	

● Applicable holders D32

● : Stock item



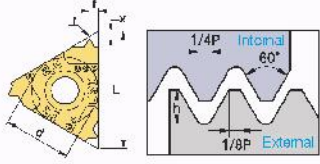
ISO Metric (M Chip Breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(mm)	d	L	hmin	X	f	
Internal	IRM 11-1.5ISO	●				1.5	6.35	16	0.85	0.8	1.0	
	16-1.0ISO	●				1.0	9.525	16	0.58	0.6	0.7	
	16-1.25ISO					1.25	9.525	16	0.72	0.8	0.9	
	16-1.5ISO	●				1.5	9.525	16	0.85	0.8	1.0	
	16-1.75ISO					1.75	9.525	16	1.01	0.9	1.2	
	16-2.0ISO	●				2.0	9.525	16	1.12	1.0	1.3	
	16-2.5ISO	●				2.5	9.525	16	1.44	1.1	1.5	
	16-3.0ISO	●				3.0	9.525	16	1.69	1.1	1.5	

Applicable holders D32

●: Stock item

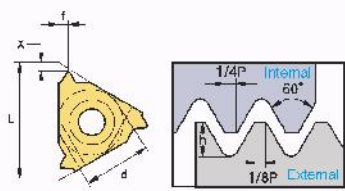
ISO Metric (U Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(mm)	d	L	hmin	X	f	
Internal	IRM 16-1.5ISO-U					1.5	9.525	16	0.85	0.6	1.0	
	16-2.0ISO-U					2.0	9.525	16	1.12	1.0	1.3	

Applicable holders D32

●: Stock item

American UN (UN, UNC, UNF, UNEF, UNS)

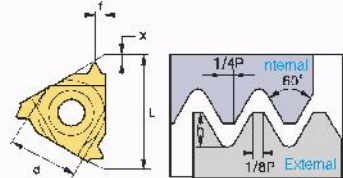
Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tpi)	d	L	hmin	X	f	
External	ER 11-72UN		EL 11-72UN		72	6.35	11	0.22	C.8	0.4	
	11-64UN		11-64UN		64	6.35	11	0.24	C.8	0.4	
	11-56UN		11-56UN		56	6.35	11	0.26	C.7	0.4	
	11-48UN		11-48UN		48	6.35	11	0.32	C.6	0.6	
	11-44UN		11-44UN		44	6.35	11	0.35	C.6	0.6	
	11-40UN		11-40UN		40z	6.35	11	0.39	C.6	0.6	
	11-36UN		11-36UN		36	6.35	11	0.43	C.6	0.6	
	11-32UN		11-32UN		32	6.35	11	0.49	C.6	0.6	
	11-28UN		11-28UN		28	6.35	11	0.56	C.6	0.7	
	11-27UN		11-27UN		27	6.35	11	0.58	C.7	0.8	
	11-24UN		11-24UN		24	6.35	11	0.65	C.7	0.8	
	11-20UN		11-20UN		20	6.35	11	0.76	C.8	0.9	
	11-18UN		11-18UN		18	6.35	11	0.87	C.8	1.0	
	11-16UN		11-16UN		16	6.35	11	0.97	C.9	1.1	
	11-14UN		11-14UN		14	6.35	11	1.11	C.9	1.1	
	16-72UN		16-72UN		72	9.525	16	0.22	C.8	0.4	
	16-64UN		16-64UN		64	9.525	16	0.24	C.8	0.4	
	16-56UN		16-56UN		56	9.525	16	0.26	C.7	0.4	
	16-48UN		16-48UN		48	9.525	16	0.32	C.6	0.6	
	16-44UN		16-44UN		44	9.525	16	0.35	C.6	0.6	
	16-40UN		16-40UN		40	9.525	16	0.39	C.6	0.6	
	16-36UN		16-36UN		36	9.525	16	0.43	C.6	0.6	
	16-32UN	●	16-32UN		32	9.525	16	0.49	C.6	0.6	
	16-28UN		16-28UN		28	9.525	16	0.56	C.6	0.7	
	16-27UN		16-27UN		27	9.525	16	0.58	C.7	0.8	
	16-24UN	●	16-24UN		24	9.525	16	0.65	C.7	0.8	
	16-20UN	●	16-20UN		20	9.525	16	0.76	C.8	0.9	
	16-18UN	●	16-18UN		18	9.525	16	0.87	C.8	1.0	
	16-16UN	●	16-16UN		16	9.525	16	0.97	C.9	1.1	
	16-14UN	●	16-14UN		14	9.525	16	1.11	1.0	1.2	
	16-13UN		16-13UN		13	9.525	16	1.20	1.0	1.3	
	16-12UN	●	16-12UN		12	9.525	16	1.30	1.1	1.4	
	16-11.5UN		16-11.5UN		11.5	9.525	16	1.35	1.1	1.5	
	16-11UN	●	16-11UN		11	9.525	16	1.42	1.1	1.5	
	16-10UN	●	16-10UN		10	9.525	16	1.56	1.1	1.5	
	16-9UN	●	16-9UN		9	9.525	16	1.73	1.2	1.7	
	16-8UN	●	16-8UN		8	9.525	16	1.95	1.2	1.6	
	22-7UN		22-7UN		7	12.7	22	2.22	1.6	2.3	
	22-6UN		22-6UN		6	12.7	22	2.60	1.6	2.3	
	22-5UN		22-5UN		5	12.7	22	3.12	1.7	2.5	
	27-4.5UN		27-4.5UN		4.5	15.875	27	3.46	1.9	2.7	
	27-4UN		27-4UN		4	15.875	27	3.69	2.1	3.0	

● Applicable holders D31

● Stop > item



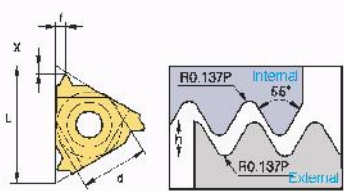
American UN (UN, UNC, UNF, UNEF, UNS)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tpi)	d	L	hmin	X	l	
Internal	IR 11-72UN		IL 11-72UN		72	6.35	11	0.20	0.6	0.3	
	11-64UN		11-64UN		64	6.35	11	0.23	0.6	0.4	
	11-56UN		11-56UN		56	6.35	11	0.26	0.7	0.4	
	11-48UN		11-48UN		48	6.35	11	0.31	0.6	0.6	
	11-44UN		11-44UN		44	6.35	11	0.33	0.6	0.6	
	11-40UN		11-40UN		40	6.35	11	0.37	0.6	0.6	
	11-36UN		11-36UN		36	6.35	11	0.41	0.6	0.6	
	11-32UN		11-32UN		32	6.35	11	0.46	0.6	0.6	
	11-28UN		11-28UN		28	6.35	11	0.52	0.6	0.7	
	11-27UN		11-27UN		27	6.35	11	0.54	0.7	0.8	
	11-24UN		11-24UN		24	6.35	11	0.61	0.7	0.8	
	11-20UN		11-20UN		20	6.35	11	0.73	0.6	0.9	
	11-18UN	●	11-18UN		18	6.35	11	0.81	0.6	1.0	
	11-16UN		11-16UN		16	6.35	11	0.92	0.9	1.1	
	11-14UN		11-14UN		14	6.35	11	1.05	0.9	1.1	
	11-12UN		11-12UN		12	6.35	11	1.22	0.6	1.1	
	11-11UN	●	11-11UN		11	6.35	11	1.33	0.6	1.1	
	16-72UN		16-72UN		72	9.525	16	0.20	0.6	0.3	
	16-64UN		16-64UN		64	9.525	16	0.23	0.6	0.4	
	16-56UN		16-56UN		56	9.525	16	0.26	0.7	0.4	
	16-48UN		16-48UN		48	9.525	16	0.31	0.6	0.6	
	16-44UN		16-44UN		44	9.525	16	0.33	0.6	0.6	
	16-40UN		16-40UN		40	9.525	16	0.37	0.6	0.6	
	16-36UN		16-36UN		36	9.525	16	0.41	0.6	0.6	
	16-32UN		16-32UN		32	9.525	16	0.51	0.6	0.6	
	16-28UN		16-28UN		28	9.525	16	0.52	0.6	0.7	
	16-27UN		16-27UN		27	9.525	16	0.54	0.7	0.8	
	16-24UN		16-24UN		24	9.525	16	0.61	0.7	0.8	
	16-20UN	●	16-20UN		20	9.525	16	0.73	0.6	0.9	
	16-18UN		16-18UN		19	9.525	16	0.81	0.6	1.0	
	16-16UN	●	16-16UN		16	9.525	16	0.92	0.9	1.1	
	16-14UN	●	16-14UN		14	9.525	16	1.05	0.9	1.2	
	16-13UN		16-13UN		13	9.525	16	1.13	1.0	1.3	
	16-12UN	●	16-12UN		12	9.525	16	1.22	1.1	1.4	
	16-11.5UN		16-11.5UN		11.5	9.525	16	1.29	1.1	1.5	
	16-11UN	●	16-11UN		11	9.525	16	1.33	1.1	1.5	
	16-10UN	●	16-10UN		10	9.525	16	1.47	1.1	1.5	
	16-9UN		16-9UN		9	9.525	16	1.63	1.2	1.7	
	16-8UN	●	16-8UN		8	9.525	16	1.83	1.2	1.5	
	22-7UN		22-7UN		7	12.7	22	2.09	1.6	2.3	
	22-6UN		22-6UN		6	12.7	22	2.44	1.6	2.3	
	22-5UN		22-5UN		5	12.7	22	2.93	1.7	2.3	
	27-4.5UN		27-4.5UN		4.5	15.875	27	3.26	1.9	2.4	
	27-4UN		27-4UN		4	15.875	27	3.67	2.1	2.7	

 Applicable holders D32

● : Stock item

Whitworth (BSW, BSF, BSP, BSB)

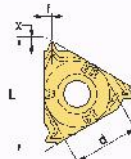
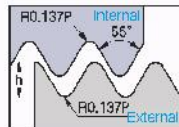
Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tp)	d	L	hmin	X	f	
External	ER 11-72W		EL 11-72W		72	6.35	11	0.23	0.7	0.4	
	11-60W		11-60W		60	6.35	11	0.27	0.7	0.4	
	11-56W		11-56W		56	6.35	11	0.29	0.7	0.4	
	11-48W		11-48W		48	6.35	11	0.34	0.6	0.6	
	11-40W		11-40W		40	6.35	11	0.41	0.6	0.6	
	11-36W		11-36W		36	6.35	11	0.45	0.6	0.6	
	11-32W		11-32W		32	6.35	11	0.51	0.6	0.6	
	11-28W		11-28W		28	6.35	11	0.58	0.6	0.7	
	11-26W		11-26W		26	6.35	11	0.63	0.7	0.6	
	11-24W		11-24W		24	6.35	11	0.68	0.7	0.6	
	11-22W		11-22W		22	6.35	11	0.74	0.8	0.9	
	11-20W		11-20W		20	6.35	11	0.81	0.8	0.9	
	11-19W		11-19W		19	6.35	11	0.86	0.8	1.0	
	11-18W		11-18W		18	6.35	11	0.90	0.8	1.0	
	11-16W		11-16W		16	6.35	11	1.02	0.9	1.1	
	11-14W		11-14W		14	6.35	11	1.16	1.0	1.2	
	16-72W		16-72W		72	9.525	16	0.23	0.7	0.4	
	16-60W		16-60W		60	9.525	16	0.27	0.7	0.4	
	16-56W		16-56W		56	9.525	16	0.29	0.7	0.4	
	16-48W		16-48W		48	9.525	16	0.34	0.6	0.6	
	16-40W		16-40W		40	9.525	16	0.41	0.6	0.6	
	16-36W		16-36W		36	9.525	16	0.45	0.6	0.6	
	16-32W		16-32W		32	9.525	16	0.51	0.6	0.6	
	16-30W		16-30W		30	9.525	16	0.56	0.6	0.7	
	16-28W	●	16-28W		28	9.525	16	0.58	0.6	0.7	
	16-26W		16-26W		26	9.525	16	0.63	0.7	0.6	
	16-24W		16-24W		24	9.525	16	0.68	0.7	0.6	
	16-22W		16-22W		22	9.525	16	0.74	0.8	0.9	
	16-20W		16-20W		20	9.525	16	0.81	0.8	0.9	
	16-19W	●	16-19W		19	9.525	16	0.86	0.8	1.0	
	16-18W	●	16-18W		18	9.525	16	0.90	0.8	1.0	
	16-16W	●	16-16W		16	9.525	16	1.02	0.9	1.1	
	16-14W	●	16-14W		14	9.525	16	1.16	1.0	1.2	
	16-12W	●	16-12W		12	9.525	16	1.36	1.1	1.4	
	16-11W	●	16-11W		11	9.525	16	1.48	1.1	1.5	
	16-10W	●	16-10W		10	9.525	16	1.63	1.1	1.5	
	16-9W		16-9W		9	9.525	16	1.81	1.2	1.7	
	16-8W	●	16-8W		8	9.525	16	2.03	1.2	1.5	
	22-7W		22-7W		7	12.7	22	3.32	1.6	2.3	
	22-6W		22-6W		6	12.7	22	2.71	1.6	2.3	
	22-5W		22-5W		5	12.7	22	3.25	1.7	2.4	
	27-4.5W		27-4.5W		4.5	16.875	27	3.61	1.8	2.6	
	27-4W		27-4W		4	16.875	27	4.07	2.0	2.9	

● Applicable holders D31

● Stock item



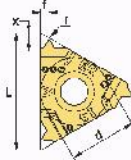
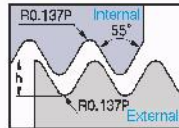
Whitworth (M Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(tpi)	d	L	hmin	X	l	
External	ERM 16-14W	●				14	9.525	16	1.16	1.0	1.2	 
	16-11W	●				11	9.525	16	1.48	1.1	1.5	
	16-19W	●				19	9.525	16	0.86	0.8	1.0	

 Applicable holders D31

● : Stock item

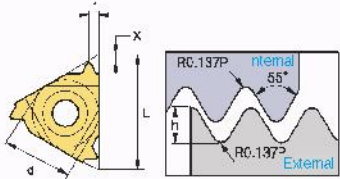
Whitworth (U Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(tpi)	d	L	hmin	X	l	
External	ERM 16-14W-U					14	9.525	16	1.16	1.0	1.2	 
	16-11W-U					11	9.525	16	1.48	1.1	1.5	

 Applicable holders D31

● : Stock item

Whitworth (BSW, BSF, BSP, BSB)

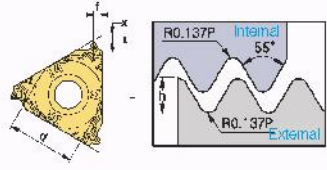
Type	Designation (Right)		PC3030T	Designation (Left)		Pitch (tp)	Dimensions (mm)					Picture
							d	L	hmin	X	f	
Internal	IR	11-72W		IL	11-72W	72	6.35	11	0.23	0.7	0.4	
		11-60W			11-60W	60	6.35	11	0.27	0.7	0.4	
		11-56W			11-56W	56	6.35	11	0.29	0.7	0.4	
		11-48W			11-48W	48	6.35	11	0.34	0.6	0.6	
		11-40W			11-40W	40	6.35	11	0.41	0.6	0.6	
		11-36W			11-36W	36	6.35	11	0.45	0.6	0.6	
		11-32W			11-32W	32	6.35	11	0.51	0.6	0.6	
		11-28W			11-28W	28	6.35	11	0.58	0.6	0.7	
		11-26W			11-26W	26	6.35	11	0.63	0.7	0.6	
		11-24W			11-24W	24	6.35	11	0.68	0.7	0.6	
		11-22W			11-22W	22	6.35	11	0.74	0.8	0.9	
		11-20W			11-20W	20	6.35	11	0.81	0.8	0.9	
		11-19W	●		11-19W	19	6.35	11	0.86	0.8	1.0	
		11-18W			11-18W	18	6.35	11	0.90	0.8	1.0	
		11-16W			11-16W	16	6.35	11	1.02	0.9	1.1	
		11-14W	●		11-14W	14	6.35	11	1.16	0.9	1.1	
		11-12W			11-12W	12	6.35	11	1.32	0.9	1.2	
		16-72W			16-72W	72	9.525	16	0.23	0.7	0.4	
		16-60W			16-60W	60	9.525	16	0.27	0.7	0.4	
		16-56W			16-56W	56	9.525	16	0.29	0.7	0.4	
		16-48W			16-48W	48	9.525	16	0.34	0.6	0.6	
		16-40W			16-40W	40	9.525	16	0.41	0.6	0.6	
		16-36W			16-36W	36	9.525	16	0.45	0.6	0.6	
		16-32W			16-32W	32	9.525	16	0.51	0.6	0.6	
		16-30W			16-30W	30	9.525	16	0.55	0.6	0.7	
		16-28W			16-28W	28	9.525	16	0.58	0.6	0.7	
		16-26W			16-26W	26	9.525	16	0.63	0.7	0.6	
		16-24W			16-24W	24	9.525	16	0.68	0.7	0.6	
		16-22W			16-22W	22	9.525	16	0.74	0.8	0.9	
		16-20W			16-20W	20	9.525	16	0.81	0.8	0.9	
		16-19W			16-19W	19	9.525	16	0.86	0.8	1.0	
		16-18W			16-18W	18	9.525	16	0.90	0.8	1.0	
		16-16W			16-16W	16	9.525	16	1.02	0.9	1.1	
		16-14W	●		16-14W	14	9.525	16	1.16	1.0	1.2	
		16-12W	●		16-12W	12	9.525	16	1.36	1.1	1.4	
		16-11W	●		16-11W	11	9.525	16	1.48	1.1	1.5	
		16-10W	●		16-10W	10	9.525	16	1.63	1.1	1.5	
		16-9W	●		16-9W	9	9.525	16	1.81	1.2	1.7	
		16-8W	●		16-8W	8	9.525	16	2.03	1.2	1.5	
		22-7W			22-7W	7	12.7	22	3.32	1.6	2.3	
		22-6W			22-6W	6	12.7	22	2.71	1.6	2.3	
		22-5W			22-5W	5	12.7	22	3.25	1.7	2.4	
		27-4.5W			27-4.5W	4.5	15.875	27	3.61	1.8	2.6	
		27-4W			27-4W	4	15.875	27	4.07	2.0	2.9	

● Applicable holders D32

● : Stock item



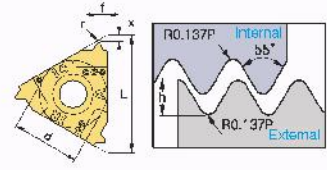
Whitworth (M Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(tpi)	d	L	hmin	X	f	
Internal	IRM 16-14W					14	9.525	16	1.16	1.0	1.2	
	16-11W	●				11	9.525	16	1.48	1.1	1.5	

● Applicable holders D32

● Stock item

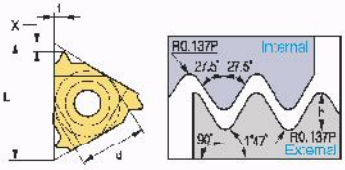
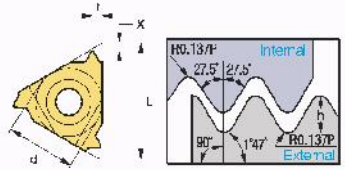
Whitworth (U Chip Breaker) *New*

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
						(tpi)	d	L	hmin	X	f	
Internal	IRM 16-14W-U					14	9.525	16	1.16	1.0	1.2	
	16-11W-U					11	9.525	16	1.48	1.1	1.5	

● Applicable holders D32

● Stock item

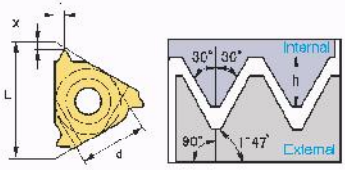
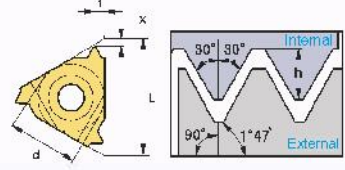
British Standard Pipe Thread (BSPT)

Type	Designation (Right)		PC3030T	Designation (Left)		Pitch (tpi)	Dimensions (mm)					Picture
							d	L	hmin	X	f	
External	ER	11-28BSPT		EL	11-28BSPT	28	6.35	11	0.58	C.6	0.6	
		11-19BSPT			11-19BSPT	19	6.35	11	0.86	C.8	0.9	
		11-14BSPT			11-14BSPT	14	6.35	11	1.16	C.9	1.0	
		16-28BSPT			16-28BSPT	28	9.525	16	0.58	C.6	0.6	
		16-19BSPT			16-19BSPT	19	9.525	16	0.86	C.8	0.9	
		16-14BSPT			16-14BSPT	14	9.525	16	1.16	1.0	1.2	
		16-11BSPT	●		16-11BSPT	11	9.525	16	1.48	1.1	1.5	
Internal	IR	11-28BSPT		IL	11-28BSPT	28	6.35	11	0.58	C.6	0.6	
		11-19BSPT			11-19BSPT	19	6.35	11	0.86	C.8	0.9	
		11-14BSPT			11-14BSPT	14	6.35	11	1.16	C.9	1.0	
		16-28BSPT			16-28BSPT	28	9.525	16	0.58	C.6	0.6	
		16-19BSPT	●		16-19BSPT	19	9.525	16	0.86	C.8	0.9	
		16-14BSPT	●		16-14BSPT	14	9.525	16	1.16	1.0	1.2	
		16-11BSPT			16-11BSPT	11	9.525	16	1.48	1.1	1.5	

● Applicable holders D31, D32

● : Stock item

National Pipe Thread (NPT)

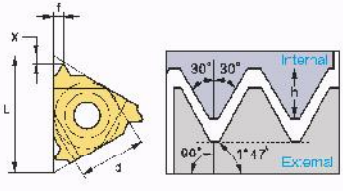
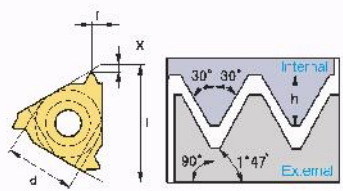
Type	Designation (Right)		PC3030T	Designation (Left)		Pitch (tpi)	Dimensions (mm)					Picture
							d	L	hmin	X	f	
External	ER	11-27NPT		EL	11-27NPT	27	6.35	11	0.66	C.7	0.8	
		11-18NPT			11-18NPT	18	6.35	11	1.01	C.8	1.0	
		11-14NPT			11-14NPT	14	6.35	11	1.33	C.8	1.0	
		16-27NPT			16-27NPT	27	9.525	16	0.66	C.7	0.8	
		16-18NPT	●		16-18NPT	18	9.525	16	1.01	C.8	1.0	
		16-14NPT	●		16-14NPT	14	9.525	16	1.33	C.9	1.2	
		16-11.5NPT	●		16-11.5NPT	11.5	9.525	16	1.64	1.1	1.5	
		16-8NPT	●		16-8NPT	8	9.525	16	2.42	1.3	1.8	
Internal	IR	11-27NPT		IL	11-27NPT	27	6.35	11	0.66	C.7	0.8	
		11-18NPT	●		11-18NPT	18	6.35	11	1.01	C.8	1.0	
		11-14NPT	●		11-14NPT	14	6.35	11	1.33	C.8	1.0	
		16-27NPT			16-27NPT	27	9.525	16	0.66	C.7	0.8	
		16-18NPT			16-18NPT	18	9.525	16	1.01	C.8	1.0	
		16-14NPT	●		16-14NPT	14	9.525	16	1.33	C.9	1.2	
		16-11.5NPT	●		16-11.5NPT	11.5	9.525	16	1.64	1.1	1.5	
		16-8NPT	●		16-8NPT	8	9.525	16	2.42	1.3	1.8	

● Applicable holders D31, D32

● : Stock item



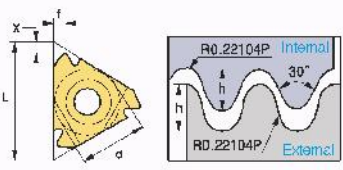
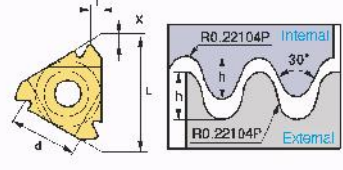
National Pipe Threads-Dryseal (NPTF)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch (tpi)	Dimensions (mm)					Picture
						d	L	hmin	X	l	
External	ER 11-27NPTF		EL 11-27NPT		27	6.35	11	0.64	0.7	0.8	
	11-18NPTF		11-18NPT		18	6.35	11	1.00	0.6	1.0	
	11-14NPTF		11-14NPT		14	6.35	11	1.35	0.6	1.0	
	16-27NPTF		16-27NPT		27	9.525	16	0.64	0.7	0.8	
	16-18NPTF	●	16-18NPT		18	9.525	16	1.00	0.6	1.0	
	16-14NPTF		16-14NPT		14	9.525	16	1.35	0.9	1.2	
	16-11.5NPTF		16-11.5NPT		11.5	9.525	16	1.63	1.1	1.5	
	16-8NPTF		16-8NPT		8	9.525	16	2.38	1.3	1.8	
Internal	IR 11-27NPTF		IL 11-27NPT		27	6.35	11	0.64	0.7	0.8	
	11-18NPTF		11-18NPT		18	6.35	11	1.00	0.6	1.0	
	11-14NPTF		11-14NPT		14	6.35	11	1.35	0.6	1.0	
	16-27NPTF		16-27NPT		27	9.525	16	0.64	0.7	0.8	
	16-18NPTF		16-18NPT		18	9.525	16	1.00	0.6	1.0	
	16-14NPTF		16-14NPT		14	9.525	16	1.35	0.9	1.2	
	16-11.5NPTF		16-11.5NPT		11.5	9.525	16	1.63	1.1	1.5	
	16-8NPTF		16-8NPT		8	9.525	16	2.38	1.3	1.8	

● Applicable holders D31, D32

● : Stock item

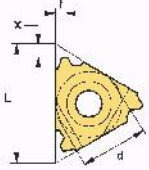
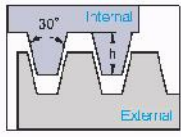
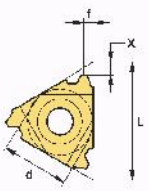
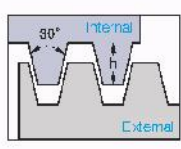
Round DIN 405

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch (tpi)	Dimensions (mm)					Picture
						d	L	hmin	X	l	
External	ER 16-10RD		EL 16-10RD		10	9.525	16	1.27	1.1	1.2	
	16-8RD		16-8RD		8	9.525	16	1.59	1.4	1.3	
	16-6RD		16-6RD		6	9.525	16	2.12	1.5	1.7	
	22-6RD		22-6RD		6	12.7	22	2.12	1.6	1.7	
	22-4RD		22-4RD		4	12.7	22	3.19	2.2	2.3	
	27-4RD		27-4RD		4	15.875	27	3.19	2.2	2.3	
Internal	IR 16-10RD		IL 16-10RD		10	9.525	16	1.27	1.1	1.2	
	16-8RD		16-8RD		8	9.525	16	1.59	1.4	1.4	
	16-6RD		16-6RD		6	9.525	16	2.12	1.4	1.5	
	22-6RD		22-6RD		6	12.7	22	2.12	1.6	1.7	
	22-4RD		22-4RD		4	12.7	22	3.19	2.2	2.3	
	27-4RD		27-4RD		4	15.875	27	3.19	2.2	2.3	

● Applicable holders D31, D32

● : Stock item

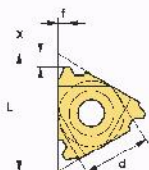
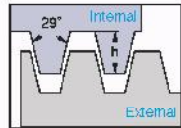
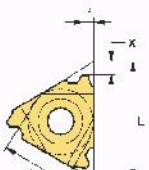
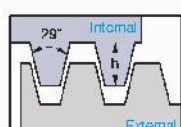
Trapez DIN 103 (TR)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(mm)	d	L	hmin	X	f	
External	ER 11-1.5TR		EL 11-1.5TR		1.5	6.35	11	0.90	0.8	0.9	 
	16-1.5TR		16-1.5TR		1.5	9.525	16	0.90	1.0	1.1	
	16-2.0TR	●	16-2.0TR	●	2.0	9.525	16	1.25	1.1	1.3	
	16-3.0TR	●	16-3.0TR		3.0	9.525	16	1.75	1.3	1.5	
	22-4.0TR	●	22-4.0TR	●	4.0	12.7	22	2.25	1.7	1.9	
	22-5.0TR	●	22-5.0TR	●	5.0	12.7	22	2.75	2.1	2.5	
	27-6.0TR	●	27-6.0TR		6.0	15.875	27	3.50	2.3	2.7	
Internal	IR 11-1.5TR		IL 11-1.5TR		1.5	6.35	11	0.90	0.8	0.9	 
	16-1.5TR		16-1.5TR		1.5	9.525	16	0.90	1.0	1.1	
	16-2.0TR		16-2.0TR		2.0	9.525	16	1.25	1.1	1.3	
	16-2.5TR		16-2.5TR		2.5	9.525	16	1.53	1.2	1.4	
	16-3.0TR	●	16-3.0TR		3.0	9.525	16	1.75	1.3	1.5	
	22-4.0TR	●	22-4.0TR		4.0	12.7	22	2.25	1.7	1.9	
	22-5.0TR	●	22-5.0TR		5.0	12.7	22	2.75	2.1	2.5	
	27-6.0TR	●	27-6.0TR		6.0	15.875	27	3.50	2.3	2.7	

● Applicable holders D31, D32

● : Stock item

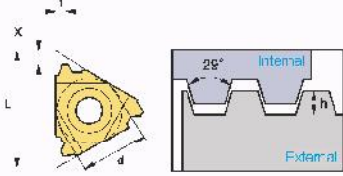
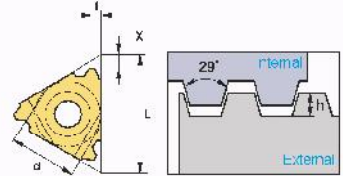
American ACME (ACME)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tpi)	d	L	hmin	X	f	
External	ER 11-16ACME		EL 11-16ACME		16	6.35	11	0.92	1.0	1.1	 
	16-16ACME		16-16ACME		16	9.525	16	0.92	1.0	1.1	
	16-14ACME		16-14ACME		14	9.525	16	1.03	1.0	1.2	
	16-12ACME		16-12ACME		12	9.525	16	1.19	1.1	1.2	
	16-10ACME		16-10ACME		10	9.525	16	1.52	1.3	1.4	
	16-8ACME		16-8ACME		8	9.525	16	1.84	1.4	1.5	
	16-6ACME		16-6ACME		6	9.525	16	2.37	1.7	1.9	
	22-6ACME	●	22-6ACME		6	12.7	22	2.37	1.8	2.1	
	22-5ACME		22-5ACME		5	12.7	22	2.79	2.0	2.5	
Internal	IR 11-16ACME		IL 11-16ACME		16	6.35	11	0.92	0.9	0.9	 
	16-16ACME		16-16ACME		16	9.525	16	0.92	1.0	1.1	
	16-14ACME		16-14ACME		14	9.525	16	1.03	1.1	1.2	
	16-12ACME		16-12ACME		12	9.525	16	1.19	1.2	1.3	
	16-10ACME		16-10ACME		10	9.525	16	1.52	1.2	1.3	
	16-8ACME		16-8ACME		8	9.525	16	1.84	1.4	1.5	
	16-6ACME		16-6ACME		6	9.525	16	2.37	1.7	1.9	
	22-6ACME		22-6ACME		6	12.7	22	2.37	1.8	2.1	
	22-5ACME		22-5ACME		5	12.7	22	2.79	2.0	2.5	
	27-4ACME	●	27-4ACME		4	15.875	27	3.43	2.3	2.6	

● Applicable holders D31, D32

● : Stock item

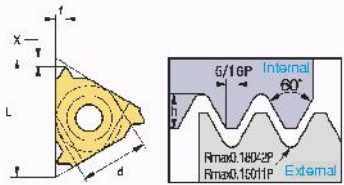
Stub ACME (STACME)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch (mm)	Dimensions (mm)					Picture
						d	L	hmin	X	f	
External	ER 11-16STACME		EL 11-16STACME		16	6.35	11	0.60	1.0	1.0	
	16-16STACME		16-16STACME		16	9.525	16	0.60	1.0	1.0	
	16-14STACME		16-14STACME		14	9.525	16	0.67	1.1	1.1	
	16-12STACME		16-12STACME		12	9.525	16	0.76	1.2	1.2	
	16-10STACME		16-10STACME		10	9.525	16	1.02	1.2	1.3	
	16-8STACME		16-8STACME		8	9.525	16	1.21	1.4	1.5	
	16-6STACME		16-6STACME		6	9.525	16	1.52	1.7	1.8	
	22-6STACME		22-6STACME		6	12.7	22	1.52	1.7	1.8	
	22-5STACME		22-5STACME		5	12.7	22	1.79	2.1	2.3	
	27-4STACME		27-4STACME		4	15.875	27	2.16	2.3	2.4	
	27-3STACME		27-3STACME		3	15.875	27	2.79	2.9	2.9	
Internal	IR 11-16STACME		IL 11-16STACME		16	6.35	11	0.60	1.0	1.0	
	16-16STACME		16-16STACME		16	9.525	16	0.60	1.0	1.0	
	16-14STACME		16-14STACME		14	9.525	16	0.67	1.1	1.1	
	16-12STACME		16-12STACME		12	9.525	16	0.76	1.1	1.2	
	16-10STACME		16-10STACME		10	9.525	16	1.02	1.2	1.3	
	16-8STACME		16-8STACME		8	9.525	16	1.21	1.4	1.5	
	16-6STACME		16-6STACME		6	9.525	16	1.52	1.7	1.8	
	22-6STACME		22-6STACME		6	12.7	22	1.52	1.7	1.8	
	22-5STACME		22-5STACME		5	12.7	22	1.78	2.1	2.3	
	27-4STACME		27-4STACME		4	15.875	27	2.16	2.3	2.4	
	27-3STACME		27-3STACME		3	15.875	27	2.79	2.9	2.9	

 Applicable holders D31, D32

 Stoc < Item

UNJ (Unified Constant Thread)

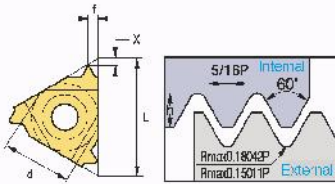
Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tp)	d	L	hmin	X	f	
External	ER 11-48UNJ		EL 11-48UNJ		48	6.35	11	0.31	0.6	0.6	
	11-44UNJ		11-44UNJ		44	6.35	11	0.33	0.6	0.6	
	11-40UNJ		11-40UNJ		40	6.35	11	0.37	0.6	0.6	
	11-36UNJ		11-36UNJ		36	6.35	11	0.41	0.6	0.6	
	11-32UNJ		11-32UNJ		32	6.35	11	0.46	0.6	0.7	
	11-28UNJ		11-28UNJ		28	6.35	11	0.52	0.7	0.7	
	11-24UNJ		11-24UNJ		24	6.35	11	0.61	0.7	0.8	
	11-20UNJ		11-20UNJ		20	6.35	11	0.73	0.8	0.9	
	11-18UNJ		11-18UNJ		18	6.35	11	0.81	0.8	1.0	
	11-16UNJ		11-16UNJ		16	6.35	11	0.92	0.9	1.1	
	11-14UNJ		11-14UNJ		14	6.35	11	1.05	1.0	1.2	
	16-48UNJ		16-48UNJ		48	9.525	16	0.31	0.6	0.6	
	16-44UNJ		16-44UNJ		44	9.525	16	0.33	0.6	0.6	
	16-40UNJ		16-40UNJ		40	9.525	16	0.37	0.6	0.6	
	16-36UNJ		16-36UNJ		36	9.525	16	0.41	0.6	0.6	
	16-32UNJ		16-32UNJ		32	9.525	16	0.46	0.6	0.7	
	16-28UNJ		16-28UNJ		28	9.525	16	0.52	0.7	0.7	
	16-24UNJ		16-24UNJ		24	9.525	16	0.61	0.7	0.8	
	16-20UNJ		16-20UNJ		20	9.525	16	0.73	0.8	0.9	
	16-18UNJ		16-18UNJ		18	9.525	16	0.81	0.8	1.0	
	16-16UNJ		16-16UNJ		16	9.525	16	0.92	0.9	1.1	
	16-14UNJ		16-14UNJ		14	9.525	16	1.05	1.0	1.2	
	16-13UNJ		16-13UNJ		13	9.525	16	1.13	1.0	1.3	
	16-12UNJ		16-12UNJ		12	9.525	16	1.22	1.1	1.3	
	16-11UNJ		16-11UNJ		11	9.525	16	1.33	1.2	1.5	
	16-10UNJ		16-10UNJ		10	9.525	16	1.47	1.2	1.5	
	16-9UNJ		16-9UNJ		9	9.525	16	1.63	1.3	1.7	
	16-8UNJ		16-8UNJ		8	9.525	16	1.83	1.2	1.6	
	22-7UNJ		22-7UNJ		7	12.7	22	2.09	1.7	2.3	
	22-6UNJ		22-6UNJ		6	12.7	22	2.44	1.7	2.3	
	22-5UNJ		22-5UNJ		5	12.7	22	2.93	1.8	2.5	
	27-4.5UNJ		27-4.5UNJ		4.5	15.875	27	3.26	2.0	2.7	
	27-4UNJ		27-4UNJ		4	15.875	27	3.67	2.2	3.0	

Applicable holders D31

Stock item



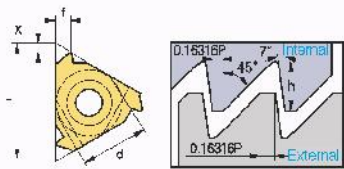
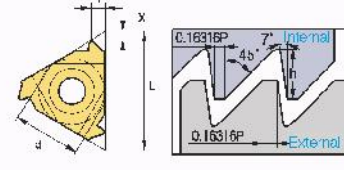
UNJ (Unified Constant Thread)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture		
					(tpi)	d	L	hmin	X	l			
Internal	IR		IL		48	6.35	11	0.28	0.6	0.5			
					44	6.35	11	0.30	0.6	0.6			
					40	6.35	11	0.33	0.6	0.6			
							36	6.35	11	0.37		0.6	0.6
							32	6.35	11	0.42		0.6	0.7
							28	6.35	11	0.47		0.7	0.7
							24	6.35	11	0.55		0.7	0.8
							20	6.35	11	0.66		0.6	0.9
							18	6.35	11	0.74		0.6	1.0
							16	6.35	11	0.83		0.9	1.1
							14	9.525	11	0.95		1.0	1.2
							48	9.525	16	0.28		0.6	0.5
							44	9.525	16	0.30		0.6	0.6
							40	9.525	16	0.33		0.6	0.6
							36	9.525	16	0.37		0.6	0.6
							32	9.525	16	0.42		0.6	0.7
							28	9.525	16	0.47		0.7	0.7
							24	9.525	16	0.55		0.7	0.8
							20	9.525	16	0.66		0.6	0.9
							18	9.525	16	0.74		0.6	1.0
							16	9.525	16	0.83		0.9	1.1
							14	9.525	16	0.95		1.0	1.2
							13	9.525	16	1.02		1.0	1.3
							12	9.525	16	1.11		1.1	1.3
							11	9.525	16	1.21		1.2	1.5
							10	9.525	16	1.33		1.2	1.5
							9	9.525	16	1.49		1.3	1.7
							8	9.525	16	1.66		1.2	1.6
							7	12.7	22	1.90		1.7	2.3
							6	12.7	22	2.21		1.7	2.3
							5	12.7	22	2.66		1.6	2.5
							4.5	15.875	27	2.95		2.0	2.7
							4	15.875	27	3.32		2.2	3.0

 Applicable holders D32

 : Stock item

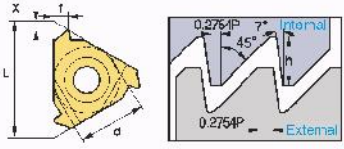
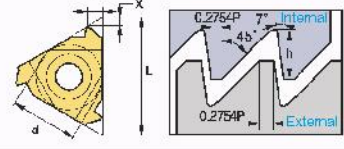
American Buttress (ABUT)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tp)	d	L	hmin	X	f	
External	ER 11-20ABUT		EL 11-20ABUT		20	6.35	11	0.84	1.0	1.4	
	11-16ABUT		11-16ABUT		16	6.35	11	1.05	1.3	1.8	
	16-20ABUT		16-20ABUT		20	9.525	16	0.84	1.0	1.4	
	16-16ABUT		16-16ABUT		16	9.525	16	1.05	1.3	1.8	
	16-12ABUT		16-12ABUT		12	9.525	16	1.40	1.4	2.0	
	16-10ABUT		16-10ABUT		10	9.525	16	1.68	1.5	2.5	
	22-8ABUT		22-8ABUT		8	12.7	22	2.10	2.0	3.2	
	22-6ABUT		22-6ABUT		6	12.7	22	2.80	2.2	3.5	
Internal	IR 11-20ABUT		IL 11-20ABUT		20	6.35	11	0.84	1.0	1.4	
	11-16ABUT		11-16ABUT		16	6.35	11	1.05	1.3	1.8	
	16-20ABUT		16-20ABUT		20	9.525	16	0.84	1.0	1.4	
	16-16ABUT		16-16ABUT		16	9.525	16	1.05	1.3	1.8	
	16-12ABUT		16-12ABUT		12	9.525	16	1.40	1.4	2.0	
	16-10ABUT		16-10ABUT		10	9.525	16	1.68	1.5	2.5	
	22-8ABUT		22-8ABUT		8	12.7	22	2.10	2.0	3.2	
	22-6ABUT		22-6ABUT		6	12.7	22	2.80	2.2	3.5	

Applicable holders D31, D32

Stock item

British Buttress (BBUT)

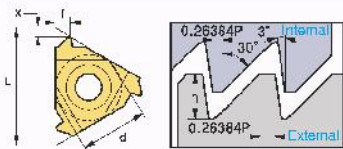
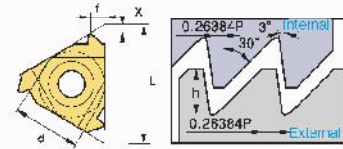
Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tp)	d	L	hmin	X	f	
External	ER 16-16BBUT		EL 16-16BBUT		16	9.525	16	0.80	1.1	1.6	
	16-12BBUT		16-12BBUT		12	9.525	16	1.07	1.4	2.1	
	16-10BBUT		16-10BBUT		10	9.525	16	1.28	1.4	2.2	
	16-8BBUT		16-8BBUT		8	9.525	16	1.61	1.6	2.5	
	22-8BBUT		22-8BBUT		8	12.7	22	1.61	1.6	2.5	
Internal	IR 16-16BBUT		IL 16-16BBUT		16	9.525	16	0.80	1.1	1.6	
	16-12BBUT		16-12BBUT		12	9.525	16	1.07	1.4	2.1	
	16-10BBUT		16-10BBUT		10	9.525	16	1.28	1.4	2.2	
	16-8BBUT		16-8BBUT		8	9.525	16	1.61	1.6	2.5	
	22-8BBUT		22-8BBUT		8	12.7	22	1.61	1.6	2.5	

Applicable holders D31, D32

Stock item



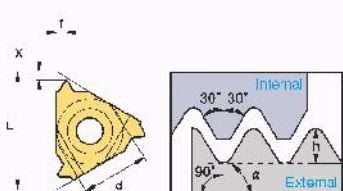
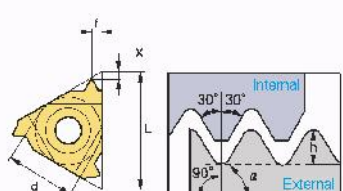
Metric Buttress (SAGE)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch (mm)	Dimensions (mm)					Picture
						d	L	hmin	X	f	
External	ER 16-2.0SAGE		EL 16-2.0SAGE		2.0	9.525	16	1.74	1.47	2.08	
	22-2.0SAGE		22-2.0SAGE		2.0	12.7	22	1.74	1.47	2.08	
	22-3.0SAGE	●	22-3.0SAGE		3.0	12.7	22	2.60	1.79	2.60	
	27-4.0SAGE		27-4.0SAGE		4.0	15.875	27	3.55	1.93	3.20	
Internal	IR 16-2.0SAGE		IL 16-2.0SAGE		2.0	9.525	16	1.50	1.52	2.2	
	22-3.0SAGE		22-3.0SAGE		3.0	12.7	22	2.25	1.66	2.9	
	27-4.0SAGE		27-4.0SAGE		4.0	5/8	27	3.09	2.12	3.2	

● Applicable holders D31, D32

● : Stock item

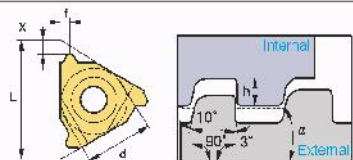
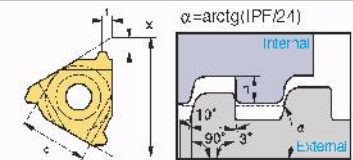
API

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch (tpi)	Dimensions (mm)					Picture
						d	L	hmin	X	f	
External	ER 22-4API382		EL 22-4API382		4	12.7	22	3.09	2.1	2.8	
	22-4API383		22-4API383		4	12.7	22	3.06	2.1	2.8	
	22-4API502		22-4API502		4	12.7	22	3.75	2.0	2.9	
	22-4API503		22-4API503		4	12.7	22	3.74	2.0	2.9	
	22-5API403		22-5API403		5	12.7	22	2.99	1.6	2.6	
	22-6API551		22-6API551		6	12.7	22	1.41	2.6	2.0	
	27-4API382		27-4API382		4	15.875	27	3.09	2.1	2.8	
	27-4API383		27-4API383		4	15.875	27	3.08	2.1	2.8	
	27-4API502		27-4API502		4	15.875	27	3.75	2.1	3.1	
	27-4API503		27-4API503		4	15.875	27	3.74	2.1	3.1	
Internal	IR 22-4API382		IL 22-4API382		4	12.7	22	3.09	2.1	2.8	
	22-4API383		22-4API383		4	12.7	22	3.00	2.1	2.0	
	22-4API502		22-4API502		4	12.7	22	3.75	2.1	3.1	
	22-4API503		22-4API503		4	12.7	22	3.74	2.0	2.9	
	22-5API403	●	22-5API403		5	12.7	22	2.99	1.6	2.6	
	22-6API551		22-6API551		6	12.7	22	1.41	2.6	2.0	
	27-4API382		27-4API382		4	15.875	27	3.09	2.1	2.8	
	27-4API383		27-4API383		4	15.875	27	3.08	2.1	2.8	
	27-4API502		27-4API502		4	15.875	27	3.75	2.1	3.1	
	27-4API503		27-4API503		4	15.875	27	3.74	2.1	3.1	
	27-5API403		27-5API403		5	15.875	27	2.99	1.9	2.7	

● Applicable holders D31, D32

● : Stock item

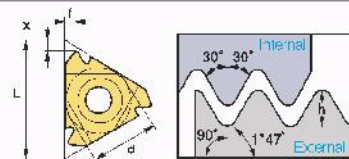
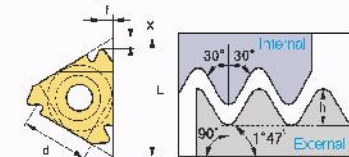
API Buttress Casing (BUT)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)						Picture
					(mm)	IPF	d	L	hmin	X	f	
External	ER 22-5BUT75		EL 22-5BUT75		5	0.75	12.7	22	1.55	3.1	1.9	
	22-5BUT1		22-5BUT1		5	1	12.7	22	1.55	3.1	1.9	
Internal	IR 22-5BUT75		IL 22-5BUT75		5	0.75	12.7	22	1.55	2.8	1.9	
	22-5BUT1		22-5BUT1		5	1	12.7	22	1.55	2.8	1.9	

Applicable holders D31, D32

Stoc < item

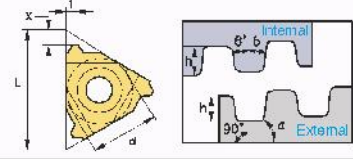
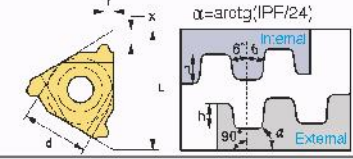
API Round Casing & Tubing (APIRD)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Picture
					(tpi)	d	L	hmin	X	f	
External	ER 16-10APIRD	●	EL 16-10APIRD		10	9.525	16	1.41	1.2	1.4	
	16-8APIRD	●	16-8APIRD		8	9.525	16	1.61	1.3	1.5	
Internal	IR 16-10APIRD	●	IL 16-10APIRD		10	9.525	16	1.41	1.2	1.4	
	16-8APIRD	●	16-8APIRD		8	9.525	16	1.61	1.3	1.5	

Applicable holders D31, D32

Stoc < item

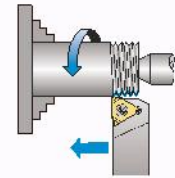
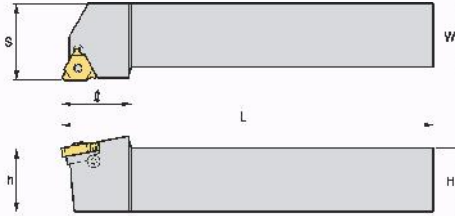
Extreme Line Casing (EL)

Type	Designation (Right)	PC3030T	Designation (Left)	PC3030T	Pitch	Dimensions (mm)						Picture
					(mm)	IPF	d	L	hmin	X	f	
External	ER 22-6EL15		EL 22-6EL15		3	1.5	12.7	22	1.21	1.9	1.9	
	22-5EL125		22-5EL125		5	1.25	12.7	22	1.71	2.3	2.4	
Internal	IR 22-6EL15		IL 22-6EL15		3	1.5	12.7	22	1.39	1.8	1.9	
	22-5EL125		22-5EL125		5	1.25	12.7	22	1.91	2.2	2.4	

Applicable holders D31, D32

Stoc < item

ER(L)H (Screw on system)



Righthand drawing

(mm)

Designation	Stock		Inscribed circle	H	W	L	S	H	t	Insert Screw	Shim Screw	Screw RH	Screw LH	Wrench
	R	L												
ER(L)H 08N-11			6.35	8	8	136.4	11	8	17.5					
10N-11			6.35	10	10	70.0	11	10	17.5	ST11N	-	-	-	TW08P
12N-11	●		6.35	12	12	80.0	12	12	17.5					
12N-16			9.525	12	12	83.2	16	12	22	ST16N	-	-	-	TW10P
09-16			9.525	9.52	9.52	63.6	16	9.52	20.5					
12-16	●		9.525	12	12	83.2	16	12	22					
16-16	●	●	9.525	16	16	100.0	16	16	20.5	ST16	STA16	ATE16	ATI22	TW10P
20-16	●	●	9.525	20	20	128.6	20	20	30					
25-16	●	●	9.525	25	25	153.6	25	25	30					
32-16	●		9.525	32	32	173.6	32	32	30					
25-22	●	●	12.7	25	25	155.7	25	25	36					
32-22	●		12.7	32	32	175.7	32	32	36	ST22	STA22	ATE22	ATI22	TW20P
40-22			12.7	40	40	205.7	40	40	36					
25-27	●	●	15.875	25	25	151.6	32	25	35					
32-27	●		15.875	32	32	176.6	32	32	40	ST27	STA27	ATE27	ATI27	TW25L
40-27	●		15.875	40	40	206.6	40	40	40					
50-27			15.875	50	50	256.6	50	50	40					

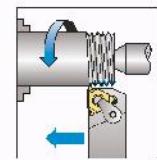
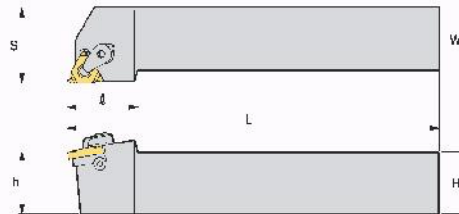
Applicable holders D10~D13, D16, D18, D19, D22, D23~D26

• Helix angle is 1.5° for all holders.

• No shim needed for N type holder

● : Stock item

ER(L)H-C (Clamp on system)



Righthand drawing

(mm)

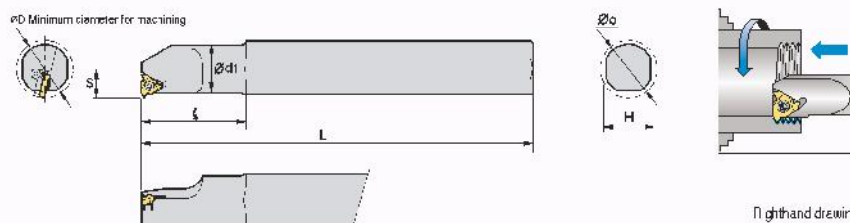
Designation	Stock		Inscribed circle	H	W	L	S	H	t	Insert Screw	Shim Screw	Screw RH	Screw LH	Wrench
	R	L												
ER(L)H-C 20-16C	●		9.525	20	20	128.6	20	20	30					
25-16C	●	●	9.525	25	25	153.6	25	25	30	STA16	CTH16	ATE16	ATI16	TW10P TW15P
32-16C	●		9.525	32	32	173.6	32	32	30					
25-22C	●		12.7	25	25	155.7	25	25	36					
32-22C	●		12.7	32	32	175.7	32	32	36	STA22	CTH22	ATE22	ATI22	TW20P
40-22C	●		12.7	40	40	205.7	40	40	36					
25-27C	●		15.875	25	25	151.6	25	25	35					
32-27C			15.875	32	32	176.6	32	32	40	STA27	CTH27	ATE27	ATI27	TW25L
40-27C			15.875	40	40	206.6	40	40	40					
50-27C			15.875	50	50	256.6	50	50	40					

Applicable holders D10~D13, D16, D18, D19, D22, D23~D26

• Helix angle is 1.5° for all holders.

● : Stock item

IR(L)H (Screw on system)



Right hand drawing

(mm)

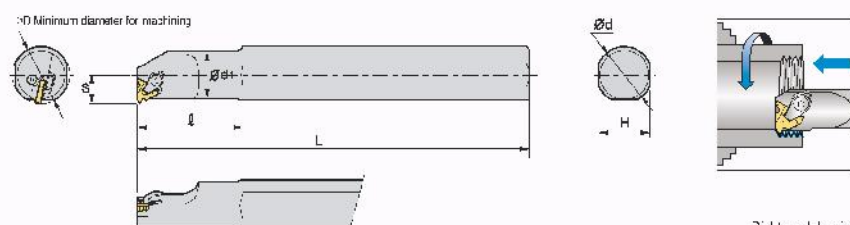
Designation	Stock		Inscribed circle	ØD	Ød	Ød1	H	L	S	ℓ	Insert Screw	Shim Screw	Screw RH	Screw LH	Wrench
	R	-													
IR(L)H	10DN-11	●	6.35	13	1C	10.0	9.5	100	7.3	-	3T11N	-	-	-	TW00P
	10N-11	●	6.35	13	2C	10.0	18.0	180	7.3	25					
	13N-11	●	6.35	16	2C	13.0	18.0	180	8.9	32					
	13N-16	●	9.525	17	2C	12.7	18.0	180	10.3	32	3T16N	-	-	-	TW10P
	16N-16	●	9.525	20	2C	16.0	18.0	180	11.5	40					
	16DN-16	●	9.525	20	1C	16.0	15.2	150	11.3	32					
	20-16	●	9.525	24	2C	20.0	18.0	180	13.4	40	3T16	3TA-16	AT116	ATF16	TW10P
	25-16	●	9.525	29	32	25.0	29.0	250	16.3	60					
	25D-16	●	9.525	29	25	24.5	22.6	200	16.1	45					
	32-16	●	9.525	36	32	32.0	29.0	250	19.6	60	3T22N	-	-	-	TW20P
	40-16	●	9.525	44	4C	40.0	36.0	300	23.8	60					
	20N-22	●	12.7	27	2C	20.0	18.0	180	15.6	50					
	25-22	●	12.7	32	32	25.0	29.0	250	17.4	60	3T22	3TA22	AT122	ATF22	TW20P
	25D-22	●	12.7	32	25	24.6	22.6	200	17.2	45					
	32-22	●	12.7	39	32	32.0	29.0	250	21.5	60					
	40-22	●	12.7	47	4C	40.0	36.0	300	25.8	60	3127	3A27	AT127	ATF27	TW25L
	32-27	●	15.875	40	32	32.0	29.0	250	22.4	60					
	40-27	●	15.875	48	4C	40.0	36.0	300	26.4	60					
	50-27	●	15.875	58	5C	50.0	45.0	350	31.4	75					
	60-27	●	15.875	69	6C	60.0	54.0	400	36.4	75					

Applicable holders D10, D11, D14, D15, D17, D20~D25, D27~D30

Helix angle is 5° for all holders. No shim needed for N type holder

●: Stock item

IR(L)H-C (Clamp on system)



Right hand drawing

(mm)

Designation	Stock		Inscribed circle	ØD	Ød	Ød1	H	L	S	ℓ	Insert Screw	Shim Screw	Screw RH	Screw LH	Wrench
	R	L													
IR(L)H	20-16C	●	9.525	24	20	20.0	18.0	180	13.4	50	3TA16	CTH16	AT116	ATE16	TW10P TW15P
	25-16C	●	9.525	29	32	25.0	28.0	250	16.3	60					
	25D-16C	●	9.525	29	25	24.6	22.6	200	16.1	45					
	32-16C	●	9.525	36	32	32.0	29.0	250	19.6	60	3TA22	CTH22	AT122	ATE22	TW20P
	40-16C	●	9.525	44	40	40.0	36.0	300	23.8	60					
	25-22C	●	12.7	32	32	25.0	29.0	250	17.4	60					
	25D-22C	●	12.7	32	25	24.6	22.6	200	17.2	45	3TA27	CTH27	AT127	ATE27	TW25L
	32-22C	●	12.7	39	32	32.0	29.0	250	21.5	60					
	40-22C	●	12.7	47	40	40.0	36.0	300	25.8	60					
	32-27C		15.875	40	32	32.0	29.0	250	22.4	60	3TA27	CTH27	AT127	ATE27	TW25L
	40-27C		15.875	48	40	40.0	36.0	300	26.4	60					
	50-27C		15.875	58	50	50.0	45.0	350	31.4	75					
	60-27C		15.875	69	60	60.0	54.0	400	36.4	75					

Applicable holders D10, D11, D14, D15, D17, D20~D25, D27~D30

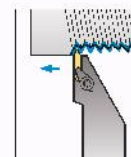
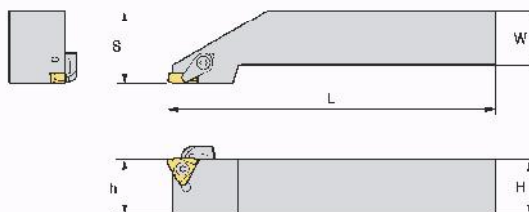
Helix angle is 1.5° for all holders.

●: Stock item

VTH



VETR



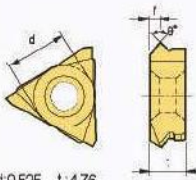
Nighthend drawing

(mm)

Designation		Stock	H=(h)	W	L	S	Inserts	Clamp	Clamp Screw	Screw	Wrench
VTH	2020R	●	20	20	125	26.4	VCTR				
	2525R	●	25	25	150	33.4		C36R1	D11A0617	TTKA03510	W15P, HW30L
	3225R		32	25	170	33.4					

● Stock item

Vertical Type Thread Insert

Picture	Designation	Coated	Cermet	Uncoated	Dimensions			Picture
		PC130	CN20	ST10P	Pitch (mm)	θ	f	
	VETR 080				0.8	60°	1.4	
	100			●	1.0	60°	1.4	
	125				1.25	60°	1.4	
	150			●	1.5	60°	1.2	
	175				1.75	60°	1.2	
	200			●	2.0	60°	1.2	
	250			●	2.5	60°	1.4	
	300			●	3.0	60°	1.6	
	150F		●	●	0.8~1.5	60°	1.4	
	300F	●	●	●	1.5~3.0	60°	1.6	
								d:9.525 t:4.76

● Stock item

Thread Milling Holders code system

1	2	3	4	5	6
TM	S	R	L	25	- 11
Insert Style	Holder Style	Hand	Shank Type	Shank Dia.	Cutting edge Length
1 Insert Style TM S R L 25 - 11 Thread Milling Holder	2 Holders Style TM S R L 25 - 11 S : Shank Type	3 Hand TM S R L 25 - 11 R : Right Hand L : Left Hand	4 Shank Type TM S R L 25 - 11 None : Standard L : Long Type T : Taper Type	5 Shank Dia. TM S R L 25 - 11 25 : 25.0	6 Cutting edge Length TM S R L 25 - 11 10 : 10.4 22 : 22 11 : 11 27 : 27 16 : 16 38 : 38.5

Thread Milling Inserts code system

1	2	3	4	5	6
TM	2	I	16	- 1.5	ISO
Insert Style	Cutting Edge	Type of Insert	Cutting edge Length	Pitch	Standard
1 Insert Style TM 2 I 16 - 1.5 ISO Thread Milling Holder	2 Cutting Edge TM 2 I 16 - 1.5 ISO None : 1 cutting edge 2 : 2 cutting edge	3 Type of Insert TM 2 I 16 - 1.5 ISO I : Internal E : External EI : External & Internal	4 Cutting edge Length TM 2 I 16 - 1.5 ISO 10 : 10.4 11 : 11 16 : 16 22 : 22 27 : 27 38 : 38.5	5 Pitch TM 2 I 16 - 1.5 ISO mm : 0.5 ~ 6.0 tpi : 48 ~ 6	6 Standard TM 2 I 16 - 1.5 ISO ISO Metric American UN(UNC, UNF, UNEF) UNJ Whit Worth (BSW, BSF, BSP, BSB) National Pipe Thread (NPT) National Pipe Thread (NPTF) British Standard Pipe Thread (BSPT)

Thread Milling

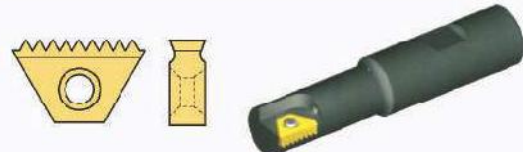
▶ The right Tool for the Job

Small diameter type



Tool holder : TMSR Insert : TM L=10.4mm
For small bore diameters down to 9.5mm

Standard Type



Tool holder : TMSR Insert : TM2
For standard length threads

Long Type



Tool holder : TMSR Insert : TM2
For long or remote threads

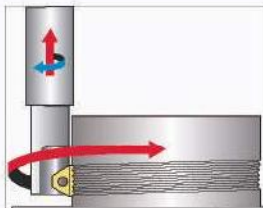
Tapered Type



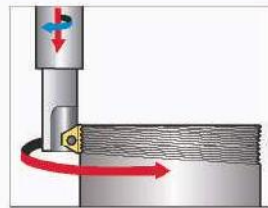
Tool holder : TMSR Insert : TM2(BSPT, NPT, NPTF)
For standard length threads

▶ Thread milling methods

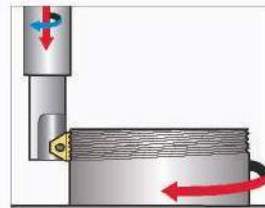
External threading



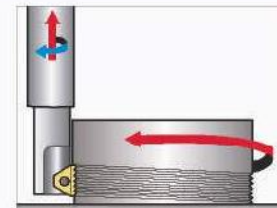
Right handed Thread
Conventional Milling



Left handed Thread
Down Milling

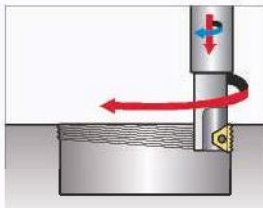


Right handed Thread
Down Milling

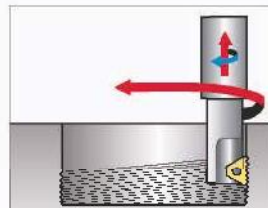


Left handed Thread
Conventional Milling

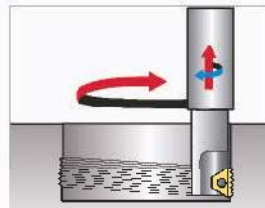
Internal threading



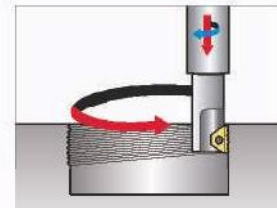
Right handed Thread
Down Milling



Left handed Thread
Conventional Milling



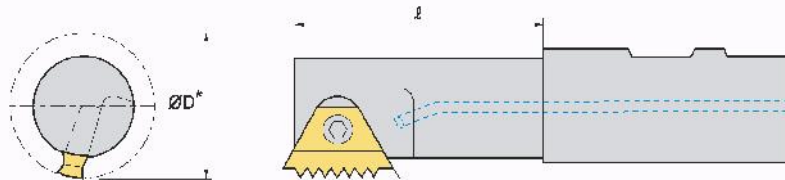
Right handed Thread
Conventional Milling



Left handed Thread
Down Milling

D Technical Information for Thread Milling

▶ Tooling recommendation* for given INTERNAL thread specification



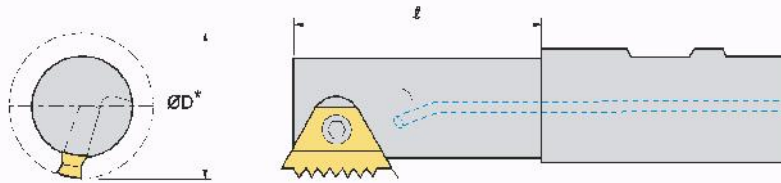
ISO

Pitch (mm)	Nominal Dia. (mm)	Holder	Insert	L-Tool holder overhang	D-Tool cutting dia.*	Min. Thread Depth (Profile depth)
0.75	1	TM3R 12-10	TM21 10-0.75 ISO	12.0	9.0	0.43
1.0	12-14	TM3R 12-10	TM21 10-1.0 ISO	12.0	9.0	0.58
	15-18	TM3R 12-11	TM21 11-1.0 ISO	12.0	11.5	
	20	TM3R 16-16	TM21 16-1.0 ISO	22.0	17.0	
	22	TM3R 20-22	TM21 22-1.0 ISO	29.0	19.0	
	24	TM3R 20-16	TM21 16-1.0 ISO	43.0	20.0	
	25-28	TM3RL 25-16	TM21 16-1.0 ISO	25.0	22.0	
1.25	11	TM3R 12-10	TM21 10-1.25 ISO	12.0	9.0	0.72
1.5	14-15	TM3R 12-10	TM21 10-1.5 ISO	12.0	9.0	0.67
	16-20	TM3R 12-11	TM21 11-1.5 ISO	12.0	11.5	
	22	TM3R 16-16	TM21 16-1.5 ISO	22.0	17.0	
	24	TM3R 20-22	TM21 22-1.5 ISO	29.0	19.0	
	25-26	TM3R 20-16	TM21 16-1.5 ISO	43.0	20.0	
	27-30	TM3RL 25-16	TM21 16-1.5 ISO	25.0	22.0	
	35-42	TM3R 25-27	TM21 27-1.5 ISO	52.0	30.0	
	45	TM3R 32-27	TM21 27-1.5 ISO	58.0	37.0	
2.0	22	TM3RT 16-16	TM21 16-2.0 ISO	22.0	15.5	1.15
	24	TM3R 16-16	TM21 16-2.0 ISO	22.0	17.0	
	25	TM3R 20-22	TM21 22-2.0 ISO	29.0	19.0	
	27	TM3R 20-16	TM21 16-2.0 ISO	43.0	20.0	
	28-32	TM3RL 25-16	TM21 16-2.0 ISO	25.0	22.0	
	39-42	TM3R 25-27	TM21 27-2.0 ISO	52.0	30.0	
	45-48	TM3R 32-27	TM21 27-2.0 ISO	58.0	37.0	
3.0	42-48	TM3R 25-27	TM21 27-3.0 ISO	52.0	30.0	1.73
	50-52	TM3R 32-27	TM21 27-3.0 ISO	58.0	37.0	
4.0	45-52	TM3R 25-27	TM21 27-4.0 ISO	52.0	30.0	2.31
	55	TM3R 32-38	TM21 38-4.0 ISO	55.0	35.0	
	50-58	TM3R 32-27	TM21 27-4.0 ISO	58.0	37.0	
	60-65	TM3R 40-38	TM21 38-4.0 ISO	65.0	46.0	
5.0	48-52	TM3R 32-38	TM21 38-5.0 ISO	55.0	35.0	2.89
5.5	56	TM3R 32-38	TM21 38-5.5 ISO	55.0	35.0	3.17
	60	TM3R 40-38	TM21 38-5.5 ISO	65.0	46.0	
6.0	64-68	TM3R 40-38	TM21 38-6.0 ISO	65.0	46.0	3.46

- * The recommended holder is the largest for the given thread specification
- * Holder with smaller or equal cutting diameters (D2) can also be used



Tooling recommendation* for given INTERNAL thread specification

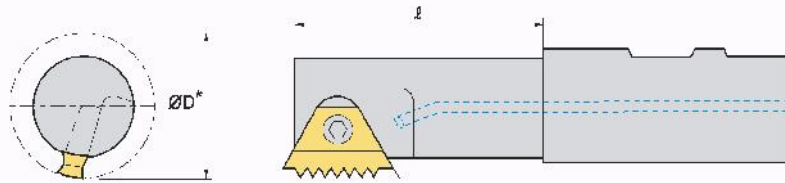


UN

Pitch (tpi)	Nominal Dia. (inch)	Holder	Insert	Tool holder overhang	D-Tool cutting dia.*	Min.Thread Depth (Profile depth)
32	7/16-1/2	TMSR 12-10	TM1 0-32UN	12.0	9.0	0.46
	9/16-11/16	TMSR 12-11	TM21 11-32UN	12.0	11.5	
	3/4-13/16	TMSR 16-16	TM21 16-32UN	22.0	17.0	
	7/8-15/16	TMSR 20-16	TM21 16-32UN	43.0	20.0	
	1	TMSR 25-16	TM21 16-32UN	25.0	22.0	
28	7/16-1/2	TMSR 12-10	TM1 0-28UN	12.0	9.0	0.52
	9/16-3/4	TMSR 12-11	TM21 11-28UN	12.0	11.5	
	13/16-7/8	TMSR 16-16	TM21 16-28UN	22.0	17.0	
	15/16	TMSR 20-16	TM21 16-28UN	43.0	20.0	
	1-1 1/8	TMSRL 25-16	TM21 16-28UN	25.0	22.0	
24	9/16-11/16	TMSR 12-11	TM21 11-24UN	12.0	11.5	0.61
	1/2-9/16	TMSR 12-10	TM1 0-20UN	12.0	9.0	
20	5/8-13/16	TMSR 12-11	TM21 11-20UN	12.0	11.5	0.73
	7/8	TMSR 16-16	TM21 16-20UN	22.0	17.0	
	15/16-1	TMSR 20-16	TM21 16-20UN	43.0	20.0	
	1 1/16-1 1/8	TMSRL 25-16	TM21 16-20UN	25.0	22.0	
	1 3/8-1 5/8	TMSR 25-27	TM21 27-20UN	52.0	30.0	
	1 11/16-1 13/16	TMSR 32-27	TM21 27-20UN	58.0	37.0	
18	5/8	TMSR 12-11	TM21 11-18UN	12.0	11.5	0.81
	1 1/16-1 3/16	TMSRL 25-16	TM21 16-18UN	25.0	22.0	
	1 7/16-1 5/8	TMSR 25-27	TM21 27-18UN	52.0	30.0	
	1 11/16	TMSR 32-27	TM21 27-18UN	58.0	37.0	
16	11/16-13/16	TMSR 12-11	TM21 11-16UN	12.0	11.5	0.92
	7/8-15/16	TMSR 16-16	TM21 16-16UN	22.0	17.0	
	1	TMSR 20-16	TM21 16-16UN	43.0	20.0	
	1 1/16-1 3/16	TMSRL 25-16	TM21 16-16UN	25.0	22.0	
	1 7/16-1 5/8	TMSR 25-27	TM21 27-16UN	52.0	30.0	
	1 11/16-1 7/8	TMSR 32-27	TM21 27-16UN	58.0	37.0	
14	7/8	TMSR 12-11	TM21 11-14UN	12.0	11.5	1.05
12	7/8	TMSRT 16-16	TM21 16-12UN	22.0	15.5	1.22
	15/16	TMSR 16-16	TM21 16-12UN	22.0	17.0	
	1	TMSR 20-22	TM21 22-12UN	29.0	19.0	
	1 1/16	TMSR 20-16	TM21 16-12UN	43.0	20.0	
	1 1/8-1 1/4	TMSRL 25-16	TM21 16-12UN	25.0	22.0	
	1 1/2-1 11/16	TMSR 25-27	TM21 27-12UN	52.0	30.0	
	1 3/4-1 15/16	TMSR 32-27	TM21 27-12UN	58.0	37.0	
8	1 11/16-1 15/16	TMSR 25-27	TM21 27-8UN	52.0	30.0	1.83
	2-1 1/8	TMSR 32-27	TM21 27-8UN	58.0	37.0	
6	2-2 1/8	TMSR 25-27	TM21 27-6UN	52.0	30.0	2.44
	2 1/4	TMSR 32-27	TM21 27-6UN	58.0	37.0	
	2 3/8-2 1/2	TMSR 40-38	TM21 36-6UN	65.0	46.0	
4.5	2-2 1/4	TMSR 32-38	TM21 36-4.5UN	55.0	35.0	3.26
4	2 1/2	TMSR 40-38	TM21 36-4UN	65.0	46.0	3.67

* The recommended holder is the largest for the given thread specification.
 * Holder with smaller or equal cutting diameters (D2) can also be used.

▶ Tooling recommendation* for given INTERNAL thread specification



UNJ

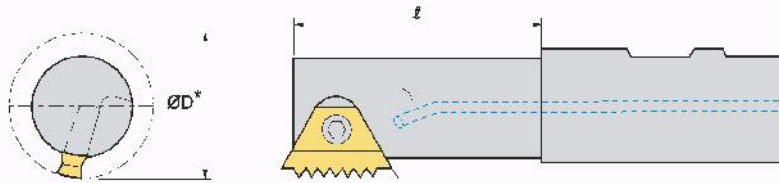
Pitch (tpi)	Nominal Dia. (inch)	Holder	Insert	L-Tool holder overhang	D-Tool cutting dia.*	Min.Thread Depth (Profile depth)
24	9/16-11/16	TMSR 12-11	TM2I 11-24UNJ	~2.0	11.5	0.55
20	1/2	TMSR 12-10	TM1-10-20UNJ	~2.0	9.0	0.66
	3/4-13/16	TMSR 12-11	TM2I 11-20UNJ	~2.0	11.5	
	7/8	TMSR 16-16	TM2I 16-20UNJ	22.0	17.0	
	15/16-1	TMSR 20-16	TM2I 16-20UNJ	43.0	20.0	
18	5/8	TMSR 12-11	TM2I 11-18UNJ	~2.0	11.5	0.74
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-18UNJ	25.0	22.0	
16	11/16-13/16	TMSR 12-11	TM2I 11-16UNJ	~2.0	11.5	0.83
	7/8-15/16	TMSR 16-16	TM2I 16-16UNJ	22.0	17.0	
	1	TMSR 20-16	TM2I 16-16UNJ	43.0	20.0	
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-16UNJ	25.0	22.0	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-16UNJ	52.0	30.0	
14	1 11/16-1 7/8	TMSR 32-27	TM2I 27-16UNJ	58.0	37.0	0.95
	7/8	TMSR 12-11	TM2I 11-14UNJ	~2.0	11.5	
12	7/8	TMSRT 10-10	TM2I 10-12UNJ	22.0	15.5	1.11
	15/16-1	TMSR 16-16	TM2I 16-12UNJ	22.0	17.0	
	1 1/16	TMSR 20-16	TM2I 16-12UNJ	43.0	20.0	
	1 1/8-1 1/4	TMSRL 25-16	TM2I 16-12UNJ	25.0	22.0	
	1 1/2-1 11/16	TMSR 25-27	TM2I 27-12UNJ	52.0	30.0	
	1 3/4-1 15/16	TMSR 32-27	TM2I 27-12UNJ	58.0	37.0	

W

Pitch (tpi)	Nominal Dia. (inch)	Holder	Insert	L-Tool holder overhang	D-Tool cutting dia.*	Min.Thread Depth (Profile depth)
26	1/2-9/16	TMSR 12-10	TMEI 10-26W	~2.0	9.0	0.63
	5/8-3/4	TMSR 12-11	TM2EI 11-26 W	~2.0	11.5	
	13/16-7/8	TMSR 16-16	TM2EI 16-26W	22.0	17.0	
	15/16-1	TMSR 20-16	TM2EI 16-26W	43.0	20.0	
	1 1/16-1 1/8	TMSRL 25-16	TM2EI 16-26W	25.0	22.0	
20	3/16	TMSR 12-10	TM2EI 10-20W	~2.0	9.0	0.81
	5/8-13/16	TMSR 12-11	TM2EI 11-20W	~2.0	11.5	
	7/8-15/16	TMSR 16-16	TM2EI 16-20W	22.0	17.0	
	1	TMSR 20-16	TM2EI 16-20W	43.0	20.0	
	1 1/16-1 3/16	TMSRL 25-16	TM2EI 16-20W	25.0	22.0	
16	13/16	TMSR 16-16	TM2EI 16-16W	22.0	15.5	1.02
	7/8-15/16	TMSR 16-16	TM2EI 16-16W	22.0	17.0	
	1-1 1/16	TMSR 20-16	TM2EI 16-16W	43.0	20.0	
	1 1/8-1 1/4	TMSRL 25-16	TM2EI 16-16W	25.0	22.0	
	1 1/4-1 5/8	TMSR 25-27	TM2EI 27-16W	52.0	30.0	
	1 3/4-1 1/2	TMSR 32-27	TM2EI 27-16W	58.0	37.0	
	1 1/2-1 3/4	TMSR 25-27	TM2EI 27-12W	52.0	30.0	
12	1 7/8	TMSR 32-27	TM2EI 27-12W	58.0	37.0	1.56
	1 7/8-1.9	TMSR 25-27	TM2EI 27-8W	52.0	30.0	
8	2.1-2 1/8	TMSR 32-27	TM2EI 27-8W	58.0	37.0	2.03
7	2	TMSR 25-27	TM2EI 27-7W	52.0	30.0	2.32
6	2.1-2 1/8	TMSR 25-27	TM2EI 27-6W	52.0	30.0	2.71
	2 1/4	TMSR 32-38	TM2EI 38-6W	55.0	35.0	
	2 3/8-2.6	TMSR 32-27	TM2EI 27-6W	58.0	37.0	
	2 5/8-2 3/4	TMSR 40-38	TM2EI 38-6W	65.0	46.0	
5	3	TMSR 40-38	TM2EI 38-5W	65.0	46.0	3.25
4.5	3 1/2	TMSR 40-38	TM2EI 38-4.5W	65.0	46.0	3.61

* The recommended holder is the largest for the given thread specification
 * Holder with smaller or equal cutting diameters (D2) can also be used

Tooling recommendation* for given INTERNAL thread specification



BSPT

Pitch (tpi)	Nominal Dia. (inch)	Holder	Insert	Tool holder overhang	D-Tool cutting dia.*	Min.Thread Depth (Profile depth)
19	3/8	TMSR 21-11	TM2EI 11-19 BSPT	20.0	11.5	0.86
14	1/2 3/4	TMSRT 16-11	TM2EI 16-14 BSPT	22.0	15.5	1.16
1"	1-1 1/4	TMSRT 20-16	TM2EI 16-11 BSPT	23.0	19.0	1.46
	1 1/2	TMSR 25-27	TM2EI 27-11 BSPT	52.0	30.0	
	2-6	TMSRT 32-27	TM2EI 27-11 BSPT	58.0	37.0	

NPT

Pitch (tpi)	Nominal Dia. (inch)	Holder	Insert	Tool holder overhang	D-Tool cutting dia.*	Min.Thread Depth (Profile depth)
14	1/2	TMSRT 16-16	TM2EI 16-14 NPT	22.0	15.5	1.33
	3/4	TMSRT 20-16	TM2EI 16-14 NPT	23.0	19.0	
11.5	1	TMSRT 20-16	TM2EI 16-11.5 NPT	23.0	19.0	1.64
	1 1/4	TMSR 25-27	TM2EI 27-11.5 NPT	52.0	30.0	
	1 1/2-2	TMSRT 32-27	TM2EI 27-11.5 NPT	58.0	37.0	
8	2 1/2	TMSR 32-27	TM2EI 27-8 NPT	58.0	37.0	2.42
	3-24	TMSR 40-38	TM2EI 38-8 NPT	65.0	46.0	

NPTF

Pitch (tpi)	Nominal Dia. (inch)	Holder	Insert	Tool holder overhang	D-Tool cutting dia.*	Min.Thread Depth (Profile depth)
14	1/2	TMSR 16-16	TM2EI 16-14 NPTF	22.0	15.5	1.35
	3/4	TMSRT 20-16	TM2EI 16-14 NPTF	23.0	19.0	
11.5	1	TMSRT 20-16	TM2EI 16-11.5 NPTF	23.0	19.0	1.63
	1 1/2	TMSR 25-27	TM2EI 27-11.5 NPTF	52.0	30.0	
	2	TMSRT 32-27	TM2EI 27-11.5 NPTF	58.0	37.0	
8	2 1/2	TMSRT 32-27	TM2EI 27-8 NPTF	58.0	37.0	2.38
	3	TMSR 40-38	TM2EI 38-8 NPTF	65.0	46.0	

* The recommended holder is the largest for the given thread specification

* Holder with smaller or equal cutting diameters (D2) can also be used



Minimum Bore Diameters for Thread milling

Pitch		0,5	0,6	0,7	0,75 0,80	0,9	1,0	1,25	1,5	1,75	2,0	–	2,5	3,0	3,5	4,0	4,5	5,0	5,5	–	6,0	–
	tpi	48	44	36	32	28	26 24	20 19	18 16	14	13 12	11,5 11	10	9 8	7	6	–	5	–	4,5	–	4
Holder Designation	diameter	Minimum diameter for machining																				
TMSR 12-10	9,0	9,5	9,7	9,9	10,0	10,4	10,7	11,4	12,0													
TMSR 20-10	9,0	9,5	9,7	9,9	10,0	10,4	10,7	11,4	12,0													
TMSR 12-11	11,5	12,0	12,2	12,4	12,5	12,9	13,2	13,9	14,5	15,1												
TMSR 20-11	11,5	12,0	12,2	12,4	12,5	12,9	13,2	13,9	14,5	15,1												
TMSRL 26-11	11,5	12,0	12,2	12,4	12,5	12,9	13,2	13,9	14,5	15,1												
TMSRT 16-16	15,5	16,0	16,2	16,4	16,5	16,9	17,2	17,9	18,5	19,0	19,5	20,0										
TMSR 16-16	17,0	17,6	17,8	18,0	18,2	18,7	19,0	19,6	20,0	20,5	21,0	21,5										
TMSR 16-22	17,0	17,6	17,8	18,0	18,2	18,7	19,0	19,6	20,0	20,5	21,0	21,5										
TMSR 20-22	19,0	19,7	20,0	20,2	20,4	20,8	21,0	21,6	22,0	22,5	23,0	23,5										
TMSRT 20-16	19,0	19,7	20,0	20,2	20,4	20,8	21,0	21,6	22,0	22,5	23,0	23,5										
TMSR 20-16	20,0	20,7	21,0	21,2	21,4	21,8	22,0	22,6	23,0	23,5	24,0	24,5										
TMSRW 25-22	22,0	22,7	23,0	23,2	23,4	23,8	24,0	24,6	25,0	25,5	26,0	26,5										
TMSRL 25-22	22,0	22,7	23,0	23,2	23,4	23,8	24,0	24,6	25,0	25,5	26,0	26,5										
TMSRL 25-16	22,0	22,7	23,0	23,2	23,4	23,8	24,0	24,6	25,0	25,5	26,0	26,5										
TMSR 25-27	30,0	30,7	31,0	31,2	31,4	31,8	32,0	32,6	33,0	34,1	34,6	35,6	36,6	39,0	42,0	45,0	48,0					
TMSRL 25-27	30,0	30,7	31,0	31,2	31,4	31,8	32,0	32,6	33,0	34,1	34,6	35,6	36,6	39,0	42,0	45,0	48,0					
TMSR 32-38	35,0								38,5	39,1	39,6	40,6	42,0	44,0	47,0	50,0	53,4	42,5	50,0	44,6	57,5	56,6
TMSR 32-27	37,0	38,0	38,2	38,4	38,6	39,1	39,5	40,4	41,0	41,5	42,0	43,0	44,0	46,5	49,0	52,0	55,5					
TMSRL 32-27	37,0	38,0	38,2	38,4	38,6	39,1	39,5	40,4	41,0	41,5	42,0	43,0	44,0	46,5	49,0	52,0	55,5					
TMSRT 32-27	37,0	38,0	38,2	38,4	38,6	39,1	39,5	40,0	41,0	41,5	42,0	43,0	44,0	46,5	49,0	52,0	55,5					
TMSR 40-38	46,0								49,5	50,1	50,6	51,6	53,0	55,0	55,2	55,6	55,0	52,5	54,0	54,5	57,5	56,6
TMSRL 40-38	46,0								49,5	50,1	50,6	51,6	53,0	55,0	55,2	55,6	55,0	52,5	54,0	54,5	57,5	56,6

In order to perform a thread milling operation, a milling machine with three-axis control capability of helical interpolation is required. Helical interpolation is a CNC function producing tool movement along a helical path. This helical motion combines circular movement in one plane with a simultaneous linear motion in a plane perpendicular to the first. For example, the path from point A to point B (Fig. A) on the envelope of the cylinder combines a circular movement in the xy plane with a linear displacement in the z direction. On most CNC systems this function can be executed in two different ways:

- GO2 : Helical interpolation in a clockwise direction
- GO3 : Helical interpolation in a counter-clockwise direction

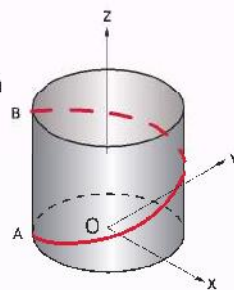


Fig. A

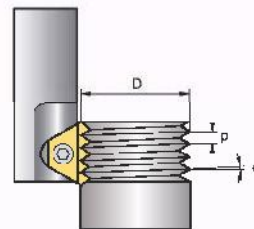


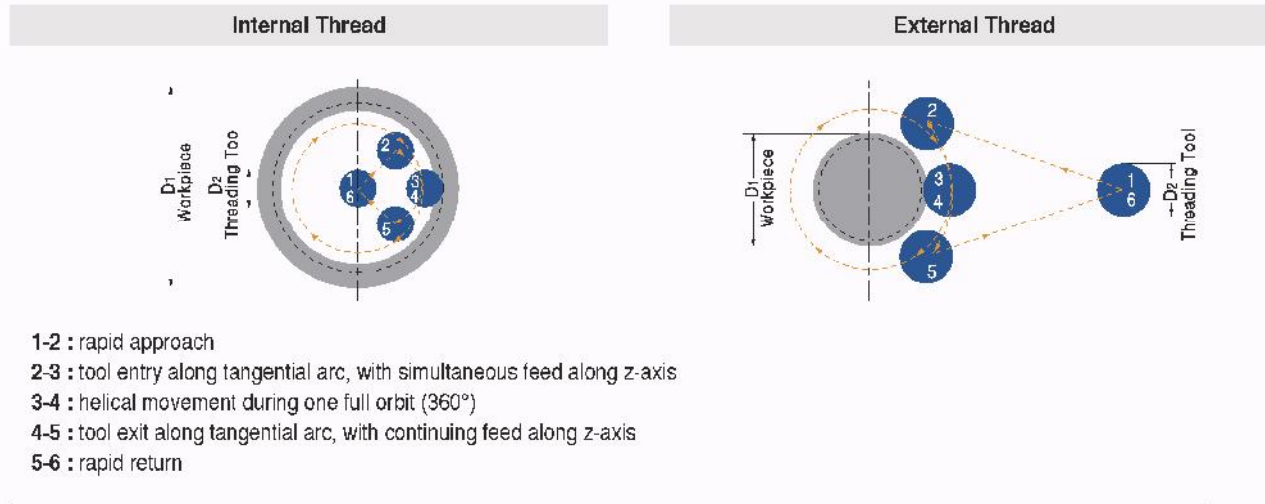
Fig. B

► The thread milling operation (Fig. B) consists of circular rotation of the tool around its own axis together with an orbiting motion along the bore or workpiece circumference. During one such orbit, the tool will shift vertically one pitch length. These movements combined with the insert geometry create the required thread form. There are three acceptable ways of approaching the workpiece with the tool to initiate production of the thread:

1. Tangential Arc Approach
2. Radial Approach
3. Tangential Line Approach

► Tangential Arc Approach

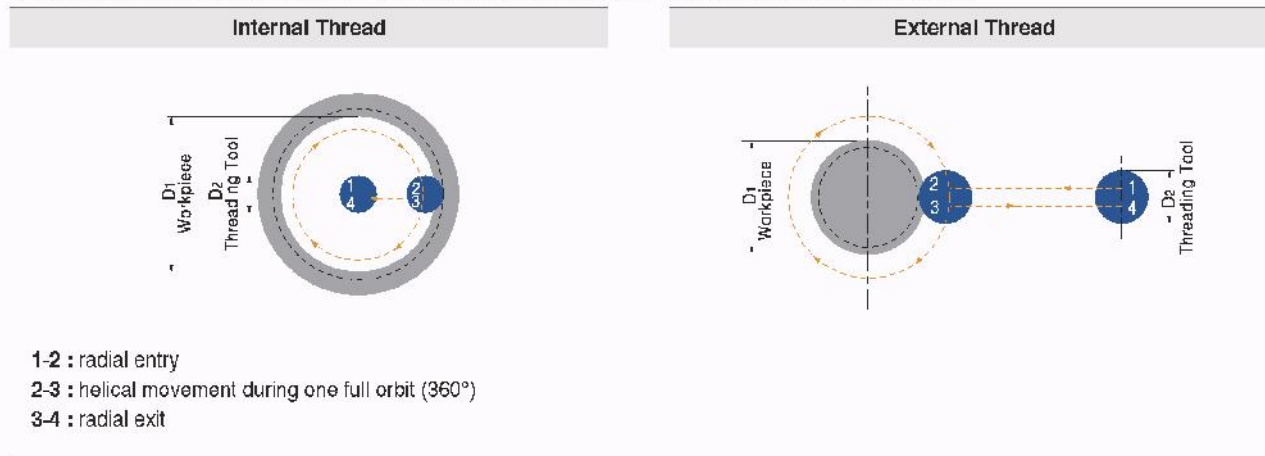
- With this method, the tool enters and exits the workpiece smoothly. No marks are left on the workpiece and there is no vibration, even with harder materials. Although it requires slightly more complex programming than the radial approach (see below), this is the method recommended for machining the highest quality threads



► Radial Approach

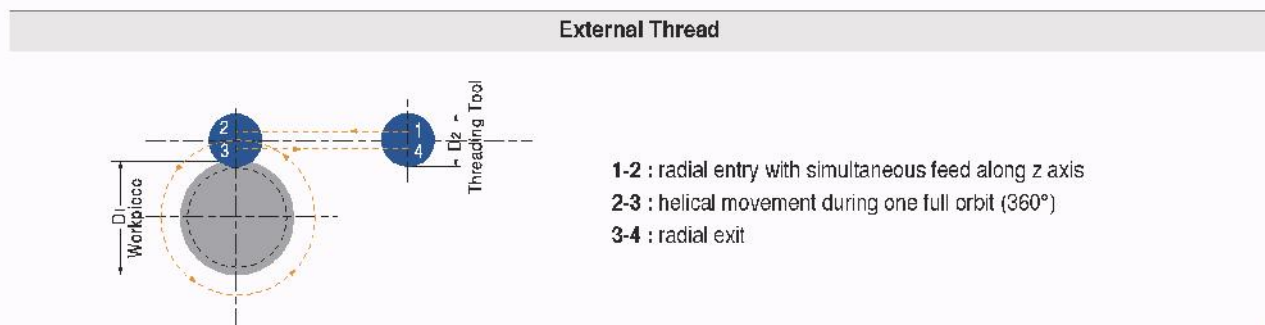
- This is the simplest method. There are two characteristics worth noting about the radial approach:
 - A small vertical mark may be left at the entry (and exit) point. This is of no significance to the thread itself
 - When using this method with very hard materials, there may be a tendency of the tool to vibrate as it approaches the full cutting depth

► Note: Radial feed during entry to the full profile depth should only be 1/3 of the subsequent circular feed!



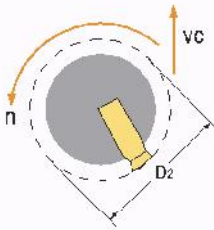
► Tangential Line Approach

- This method is very simple, and has all of the advantages of the tangential arc method. However, it is applicable only with external threads



Preparing for the Thread Milling Operation

▶ Calculation of Rotational Velocity and Feed at the Cutting Edge



$$n = \frac{vc \times 1000}{\pi \times D_2}$$

$$vc = \frac{n \times \pi \times D_2}{1000}$$

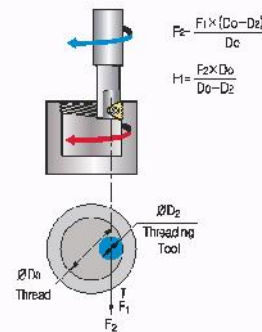
$$F' = n \times z \times fn$$

n - Rotational Velocity [R.P.M]
vc - Cutting Speed [m/min]
D2 - Tool holder Cutting Dia. [mm]
F1 - Real Feed rate at the Cutting edges [mm/min]
z - No. of Cutting Edges
fn - Feed per Tooth per Rotation [mm/rev]

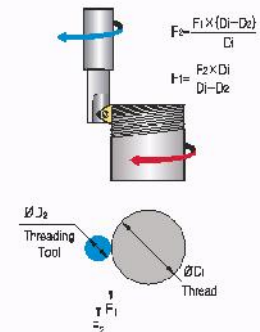
▶ Calculation of Feed Rates at the Tool Center Line

- On most CNC machines, the feed rate required for programming is that of the center-line of the tool. When dealing with linear tool movement, the feed rate at the cutting edge and the center line are identical, but with circular tool movement this is not the case. The equations define the relationship between feed rates at the cutting edge and at the tool center line

Internal Thread



External Thread



▶ Grades and Applications

Grade	Application
PC9570T	First Choice for steel and cast iron A tough sub-micron substrate with TiCN coating Provides good fracture toughness and excellent wear resistance
PC9070T	General grade Enhance wear Resistance with new-coating technology Multi layer film Superior performance for stainless steel and HSS

▶ Trouble shooting

Problem	Possible	Solution
Increased insert flank wear	Cutting speed too high Chip is too thin Insufficient coolant	Reduce cutting speed/use coated insert Increase feed rate Increase coolant flow rate
Chipping of cutting edge	Chip is too thick Vibration	Reduce feed rate / Use the tangential arc method Increase RPM Check stability
Material Built-up on the cutting edge	Incorrect cutting speed Unsuitable carbide grade	Change cutting speed Use a coated carbide grade
Chatter / Vibration	Feed rate is too high Profile is too deep Thread length is too long	Reduce the feed Execute two passes, each with increased cutting depth/ Execute two passes, each cutting only half the thread length Execute two passes, each cutting only half the thread length
Insufficient thread accuracy	Tool deflection	Reduce feed rate / Execute a "zero" cut

▶ Recommended cutting condition

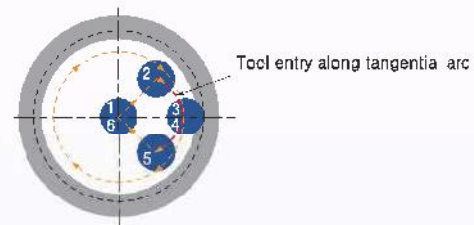
Workpiece			Hardness Brinell HB	vc(m/min)		Feed fz(mm/t)	
				Grade		Indexable Insert	Solid Endmill
				PC9570T	PC9070M		
P	Unalloyed steel	Low carbon(C:0.1-0.25%)	125	100 - 210	80 - 250	0.05 ~ 0.3	0.03 ~ 0.15
		Medium carbon(C=0.25-0.55%)	150	100 ~ 180	80 ~ 230	0.05 ~ 0.25	0.03 ~ 0.1
		High carbon (C=0.55-0.85%)	170	100 ~ 170	80 ~ 200	0.05 ~ 0.2	0.03 ~ 0.08
	Low alloy steel (alloying elements≤5%)	Non Hardened	180	90 ~ 160	60 ~ 180	0.05 ~ 0.25	0.03 ~ 0.1
		Hardened	275	80 ~ 150	60 ~ 170	0.05 ~ 0.2	0.03 ~ 0.07
		Hardened	350	70 ~ 140	60 ~ 160	0.05 ~ 0.15	0.01 ~ 0.03
	High alloy steel	Annealed	200	60 ~ 130	40 ~ 100	0.05 ~ 0.2	0.03 ~ 0.05
		Hardened	325	70 ~ 110	30 ~ 80	0.05 ~ 0.1	0.01 ~ 0.03
	Cast steel	Low alloy (alloying elements<5%)	200	100 ~ 170	80 ~ 250	0.05 ~ 0.15	0.03 ~ 0.1
High alloy(alloying elements>5%)		225	70 - 120	60 - 170	0.05 ~ 0.1	0.01 ~ 0.03	
M	Stainless steel Ferritic	Non Hardened	200	100 ~ 170	60 ~ 150	0.05 ~ 0.15	0.04 ~ 0.1
		Hardened	330	100 ~ 170	60 ~ 120	0.05 ~ 0.1	0.01 ~ 0.05
	Stainless steel Austenitic	Austenitic	180	70 ~ 140	60 ~ 140	0.05 ~ 0.15	0.04 ~ 0.1
		Super austenitic	200	70 ~ 140	60 ~ 130	0.05 ~ 0.1	0.04 ~ 0.1
	Stainless steel Cast ferritic	Non Hardened	200	70 ~ 140	60 ~ 160	0.05 ~ 0.15	0.04 ~ 0.1
		Hardened	330	70 ~ 140	60 ~ 110	0.05 ~ 0.1	0.03 ~ 0.05
	Stainless steel Cast austenitic	Austenitic	200	70 ~ 120	60 ~ 150	0.05 ~ 0.15	0.04 ~ 0.1
		Hardened	330	70 ~ 120	60 ~ 100	0.05 ~ 0.1	0.03 ~ 0.05
	High temperature alloys	Annealed (Iron based)	200	20 - 45	30 ~ 60	0.05 ~ 0.1	0.04 ~ 0.1
		Aged (Iron based)	280	20 ~ 30	20 ~ 50	0.02 ~ 0.05	0.01 ~ 0.03
		Annealed(Nickel or Cobalt based)	250	15 ~ 20	15 ~ 35	0.02 ~ 0.05	0.01 ~ 0.03
		Aged (Nickel or Cobalt based)	350	10 ~ 15	15 ~ 30	0.02 ~ 0.05	0.01 ~ 0.03
	Titanium alloys	Pure 99.5 Ti	400Rm	70 ~ 140	40 ~ 80	0.02 ~ 0.05	0.03 ~ 0.05
		Al +Ti alloys	1050Rm	20 ~ 50	20 ~ 50	0.02 ~ 0.05	0.03 ~ 0.05
K	Extra hard steel	Hardened & tempered	55HRC	20 ~ 45	15 ~ 45	0.01 ~ 0.03	0.005 ~ 0.01
	Malleable cast iron	Ferritic (short chips)	130	60 ~ 130	70 ~ 160	0.02 ~ 0.08	0.01 ~ 0.03
		Pearlitic (long chips)	230	60 ~ 120	60 ~ 150	0.02 ~ 0.05	0.03 ~ 0.05
	Grey cast iron	Low tensile strength	180	60 - 130	70 - 160	0.05 ~ 0.15	0.05 ~ 0.1
		High tensile strength	260	60 ~ 100	40 ~ 120	0.05 ~ 0.1	0.03 ~ 0.05
	Nodular SG iron	Ferritic	160	60 ~ 125	40 ~ 110	0.05 ~ 0.15	0.05 ~ 0.1
		Pearlitic	260	50 ~ 90	40 ~ 100	0.05 ~ 0.1	0.03 ~ 0.05
	Aluminum alloys Wrought	Non aging	60	100 ~ 250	200 ~ 300	0.1 ~ 0.4	0.1 ~ 0.25
		Aged	100	100 ~ 180	150 ~ 250	0.1 ~ 0.3	0.1 ~ 0.2
		Cast	75	150 ~ 400	100 ~ 200	0.1 ~ 0.3	0.1 ~ 0.2
	Aluminum alloys	Cast & aged	90	150 ~ 280	120 ~ 220	0.05 ~ 0.25	0.1 ~ 0.15
		Cast Si 13-22%	130	80 ~ 150	200 ~ 300	0.1 ~ 0.3	0.1 ~ 0.2
	Copper and copper alloys	Brass	90	120 ~ 210	200 ~ 300	0.1 ~ 0.3	0.1 ~ 0.25
Bronze and more leaded copper		100	120 ~ 210	150 ~ 250	0.05 ~ 0.25	0.1 ~ 0.2	

▶ Recommendation

- ▶ At tool entry, set the Feed f [mm/tooth] to 70% lower than the threading Feed

▶ Example

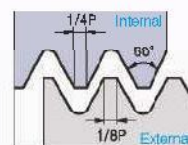
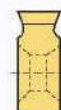
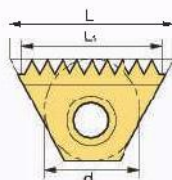
- ▶ Threading Feed: 0.3[mm/t]
- ▶ Tool entry Feed: 0.09[mm/t]



D Thread Milling Inserts

ISO Metric

External / Internal



Defined by : R262 (DIN 13)
Tolerance class : 6g/6H (mm)

Insert Size		Pitch (mm)	Designation				L1	Tooth	Tool holder
d	L		External	PC9570T	Internal	PC9570T			
6.0	10.4	0.5	-		TMI	10-0.5ISO	●	10.0	TMSR - 10
		0.75	-			10-0.75ISO		9.75	
		1.0	-			10-1.0ISO	●	9.0	
		1.25	-			10-1.25ISO		8.75	
		1.5	-			10-1.5ISO		9.0	
6.35	11	0.5	-		TM2I	11-0.5ISO		10.0	TMSR - 11
		0.75	TM2E	11-0.75ISO		11-0.75ISO	●	10.5	
		1.0		11-1.0ISO		11-1.0ISO	●	10.0	
		1.25		11-1.25ISO		-		10.0	
		1.25	-			11-1.25ISO		8.75	
		1.5		11-1.5ISO		-		9.0	
		1.5	-			11-1.5ISO	●	10.5	
		1.5		-		11-1.5ISO		9.0	
9.525	16	0.5	-		TM2I	16-0.5ISO		15.0	TMSR - 16
		0.75	TM2E	16-0.75ISO		16-0.75ISO		15.0	
		0.8	-			16-0.8ISO		14.4	
		1.0		16-1.0ISO		-		14.0	
		1.0	-			16-1.0ISO		15.0	
		1.25		16-1.25ISO		16-1.25ISO		15.0	
		1.5		16-1.5ISO		16-1.5ISO	●	15.0	
		1.75		16-1.75ISO		16-1.75ISO		14.0	
		2.0		16-2.0ISO		16-2.0ISO	●	14.0	
9.525B	22	1.0	TM2E	22-1.0ISO		TM2I		22.0	TMSR - 22
		1.25		22-1.25ISO				21.25	
		1.5		22-1.5ISO		22-1.5ISO	●	21.0	
		1.75		22-1.75ISO		22-1.75ISO		21.0	
		2.0		22-2.0ISO	●	22-2.0ISO	●	22.0	
10.8/0	27	1.0	TM2E	27-1.0ISO		TM2I		26.0	TMSR - 27
		1.25		27-1.25ISO				25.0	
		1.5		27-1.5ISO		27-1.5ISO	●	25.5	
		1.75		27-1.75ISO		27-1.75ISO		24.5	
		2.0		27-2.0ISO		27-2.0ISO	●	24.0	
		2.5		27-2.5ISO		27-2.5ISO		25.0	
		3.0		27-3.0ISO		27-3.0ISO	●	24.0	
		3.5		27-3.5ISO		27-3.5ISO		24.5	
		4.0		27-4.0ISO		27-4.0ISO	●	24.0	
		4.5		27-4.5ISO		27-4.5ISO		22.5	
19.05B	38.5	1.5	TM2E	38-1.5ISO		TM2I		36.0	TMSR - 38
		2.0		38-2.0ISO		38-2.0ISO		36.0	
		3.0		38-3.0ISO		38-3.0ISO		36.0	
		4.0		38-4.0ISO		38-4.0ISO		32.0	
		4.5		38-4.5ISO		38-4.5ISO		31.5	
		5.0		38-5.0ISO		38-5.0ISO		30.0	
		5.5		38-5.5ISO		38-5.5ISO		33.0	
		6.0		38-6.0ISO		38-6.0ISO		30.0	

● Applicable holders D49

All inserts except TM 10 code have 2 cutting edges

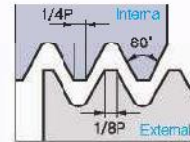
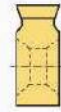
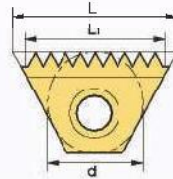
● : Stock item



D

Threading

American UN



Defined by : ANSI B1.174
Tolerance class : Class 2A/2B

(mm)

External / Internal

Insert Size		Pitch (tpi)	Designation				L1	Tooth	Tool holder		
d	L		External	PC9570T	Internal	PC9570T					
6.0	10.4	32	-		TMI	10-32UN		9.53	12	TMSR - 10	
		28	-			10-28UN		9.07	10		
		24	-			10-24UN		9.53	9		
		20	-			10-20UN		8.89	7		
		18	-			10-18UN		8.47	6		
		16	-			10-16UN		7.94	5		
6.35	1"	48	-		TM2I	11-48UN		10.05	19	TMSR - 11	
		40	-			11-40UN		10.16	16		
		32	-			11-32UN		10.32	13		
		28	TM2E	11-28UN			11-28UN		9.98		11
		27		11-27UN			11-27UN		10.35		11
		24		11-24UN			11-24UN		9.53		9
		20		11-20UN			11-20UN		10.16		8
		18		11-18UN			11-18UN		9.88		7
		16	11-16UN			11-16UN		9.53	6		
		14	11-14UN			11-14UN		9.07	5		
9.525	16	40	-		TM2I	16-40UN		14.61	40	TMSR - 16	
		32	-			16-32UN		15.08	32		
		28	TM2E	16-28UN			16-28UN		14.51		28
		27		16-27UN			16-27UN		14.11		27
		24		16-24UN			16-24UN		14.92		24
		20		16-20UN			16-20UN		13.97		20
		18		16-18UN			16-18UN		14.11		18
		16	16-16UN			16-16UN		14.29	16		
		14	16-14UN			16-14UN		14.51	14		
		13	16-13UN			16-13UN		13.63	13		
		12	16-12UN			16-12UN	●	14.92	12		
		11.5	16-11.5UN			16-11.5UN		13.25	11.5		
9.525B	22	24	TM2E	22-24UN		TM2I	22-24UN		21.16	20	TMSR - 22
		20		22-20UN			22-20UN		21.59	17	
		18		22-18UN			22-18UN		21.17	15	
		16		22-16UN			22-16UN		20.84	13	
		14		22-14UN			22-14UN		21.77	12	
		13		22-13UN			22-13UN		21.49	11	
		12		22-12UN			22-12UN		21.17	10	
15.875	27	24	TM2E	27-24UN		TM2I	27-24UN		25.40	24	TMSR - 27
		20		27-20UN			27-20UN		25.40	20	
		18		27-18UN			27-18UN		25.40	18	
		16		27-16UN			27-16UN		25.40	16	
		14		27-14UN			27-14UN		25.40	14	
		13		27-13UN			27-13UN		25.40	13	
		12		27-12UN			27-12UN		25.40	12	
		11.5		27-11.5UN			27-11.5UN		24.30	11	
		11		27-11UN			27-11UN		25.40	11	
		10		27-10UN			-		22.86	9	
		10		-			27-10UN		25.40	10	
		9		27-9UN			27-9UN		22.53	8	
		8		27-8UN			27-8UN		22.23	7	
		7		27-7UN			-		21.77	6	
		7		-			27-7UN		25.40	7	
		6		27-6UN			-		21.17	5	
		6		-			27-6UN		25.40	6	
19.05	38.5	6	TM2E	38-6UN		TM2I	38-6UN		38.97	8	TMSR - 38
		5		38-5UN			38-5UN		30.48	6	
		4.5		38-4.5UN			38-4.5UN		33.97	6	
		4		38-4UN			38-4UN		31.75	5	

Applicable holders D49

All inserts except TMI10 code have 2 cutting edges

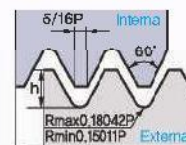
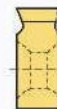
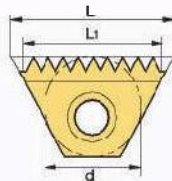
● : Stock item

Threading

D

UNJ (Unified Constant Thread)

External / Internal



Defined by : MIL-S-8879C
Tolerance class : 3A/3B

(mm)

Insert Size		Pitch (tpi)	Designation				L1	Tooth	Tool holder
d	L		External	PC9070T	Internal	PC9070T			
6.0	10.4	24	-		TMI	10-24UNJ	9.53	9	TMSR - 10
		20	-			10-20UNJ	8.89	7	
		18	-			10-18UNJ	8.47	6	
		16	-			10-16UNJ	9.53	8	
6.35	11	24	TM2E	11-24UNJ	TM2I	11-24UNJ	9.53	9	TMSR - 11
		20		11-20UNJ		11-20UNJ	10.16	8	
		18	-			11-18UNJ	9.68	7	
		16		11-16UNJ		11-16UNJ	9.53	6	
		14		11-14UNJ		11-14UNJ	9.07	5	
9.525	16	24	TM2E	16-24UNJ	TM2I	16-24UNJ	14.82	14	TMSR - 16
		20		16-20UNJ		16-20UNJ	13.97	11	
		18		16-18UNJ		16-18UNJ	14.1	10	
		16		16-16UNJ		16-16UNJ	14.29	9	
		14		16-14UNJ		16-14UNJ	14.51	8	
		13		16-13UNJ		-	13.66	7	
		12		16-12UNJ		16-12UNJ	14.82	7	
15.875	27	16	TM2E	27-16UNJ	TM2I	27-16UNJ	25.40	16	TMSR - 27
		12		27-12UNJ		27-12UNJ	25.40	12	
		11		27-11UNJ		27-11UNJ	25.40	11	

Applicable holders D49

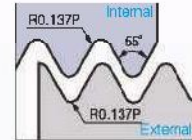
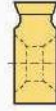
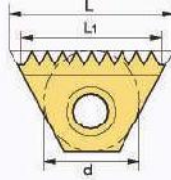
All inserts except TM 10 code have 2 cutting edges

● : Stock item



Whithworth (BSW, BSF, BSP, BSB)

External / Internal



BSW Defined by : B.S.84:1956, DIN 259, ISO 228/1:1982
BSP Defined by : B.S.2779:1956
Tolerance class : BSW-Medium class A, BSP-Medium class

(mm)

Insert Size		Pitch (tpi)	Designation		L1	Tooth	Tool holder
d	L		External + Internal	PC9070T			
6.0	10.4	28	TMEI 10-28W		9.07	10	TM3R - 10
		26	10-26W		8.79	9	
		24	10-24W		8.53	9	
		20	10-20W		8.39	7	
		19	10-19W		8.36	7	
6.35	11	28	TM2EI 11-28W		9.38	11	TM3R - 11
		26	11-26W		9.27	10	
		24	11-24W		9.53	9	
		20	11-20W		10.16	8	
		19	11-19W		9.36	7	
9.525	16	14	11-14W		9.07	6	TM3R - 16
		26	TM2EI 16-26W		14.65	15	
		24	16-24W		14.62	14	
		20	16-20W		13.97	11	
		19	16-19W		14.71	11	
		18	16-18W		14.11	10	
		16	16-16W		14.29	9	
		14	16-14W		14.51	8	
9.525B	22	12	16-12W		14.62	/	TM3R - 22
		11	16-11W	●	13.65	6	
		24	TM2EI 22-24W		21.17	20	
		20	22-20W		21.50	17	
		19	22-19W		21.59	16	
		18	22-18W		21.17	15	
		16	22-16W		20.64	13	
		14	22-14W		21.77	12	
15.875	27	12	22-12W		21.17	10	TM3R - 27
		11	22-11W		20.78	9	
		16	TM2EI 27-16W		25.4	16	
		14	27-14W		25.4	14	
		12	27-12W		23.89	11	
		11	27-11W		23.09	10	
		10	27-10W		25.40	10	
		9	27-9W		22.58	8	
19.05B	38.5	8	27-8W		22.23	7	TM3R - 38
		/	27-7W		21.77	6	
		6	27-6W		21.17	5	
		11	TM2EI 38-11W		34.64	15	
		6	38-6W		33.67	8	
		5	38-5W		30.49	6	
		4.5	38-4.5W		33.67	6	
		-	38-15W		-	-	

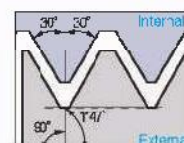
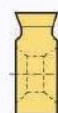
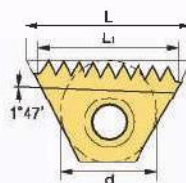
● Applicable holders D49

All inserts except TMI10 code have 2 cutting edges

● Stock item

D Thread Milling Inserts

NPT



Defined by : USAS B2.1:1968
Tolerance class : Standard NPT (mm)

External / Internal

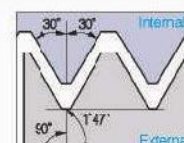
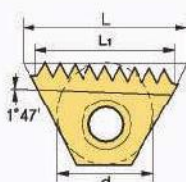
Insert Size		Pitch (tpi)	Designation		L1	Tooth	Tool holder	
d	L		External + Internal	PC9070T			RH	LH
9.525	16	18	TM2E 16-18NPT *		14.11	10	TMSRT - 16	TMSLT - 16
		14	TM2EI 16-14NPT		14.51	8		
		11.5	16-11.5NPT		13.25	6		
9.525B	22	14	TM2EI 22-14NPT		21.77	12	TMSRT - 22	TMSLT - 22
15.875	27	11.5	TM2EI 27-11.5NPT	●	24.30	1*	TM/SP - 27	TM/SL - 27
		8	27-8NPT	●	22.23	7		
19.05B	38.5	11.5	TM2EI 38-11.5NPT		35.34	16	TM/SP - 38	TM/SL - 38
		9	38-8NPT		31.75	10		

➔ Applicable holders D49

* TM2E16-18NPT is for external threading

● : Stock item

NPTF



Defined by : ANSI 1.20.3-1976
Tolerance class : Standard NPTF (mm)

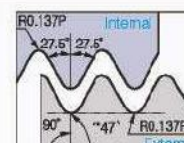
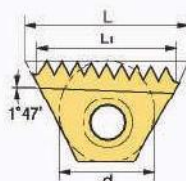
External / Internal

Insert Size		Pitch (tpi)	Designation		L1	Tooth	Tool holder	
d	L		External + Internal	PC9070T			RH	LH
9.525	16	14	TM2EI 16-14NPTF	●	14.51	8	TMSRT - 16	TMSLT - 16
		11.5	16-11.5NPTF		13.25	6		
9.525B	22	14	TM2EI 22-14NPTF		21.77	12	TMSRT - 22	TMSLT - 22
		11.5	22-11.5NPTF		19.38	9		
15.875	27	11.5	TM2EI 27-11.5NPTF		24.30	1*	TM/SP - 27	TM/SL - 27
		8	27-8NPTF		22.23	7		
19.05B	38.5	11.5	TM2EI 38-11.5NPTF		35.34	16	TM/SP - 38	TM/SL - 38
		9	38-8NPTF		31.75	10		

➔ Applicable holders D49

● : Stock item

BSPT



Defined by : B.S 21:1985
Tolerance class : Standard BSPT (mm)

External / Internal

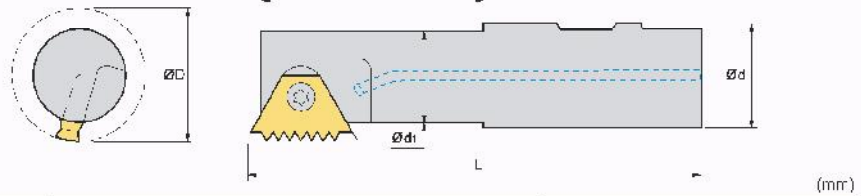
Insert Size		Pitch (tpi)	Designation		L1	Tooth	Tool holder	
d	L		External + Internal	PC9070T			RH	LH
8.35	11	~9	TM2EI 11-19BSPT		9.36	7	TM3R - 10	TM/SL - 10
9.525	16	~4	TM2EI 16-14BSPT		14.51	8	TMSRT - 16	TMSLT - 16
		~1	16-11BSPT		13.85	6		
15.875	27	~1	TM2EI 27-11BSPT		23.09	~0	TM/SP - 27	TM/SL - 27

➔ Applicable holders D49

● : Stock item



Standard Type

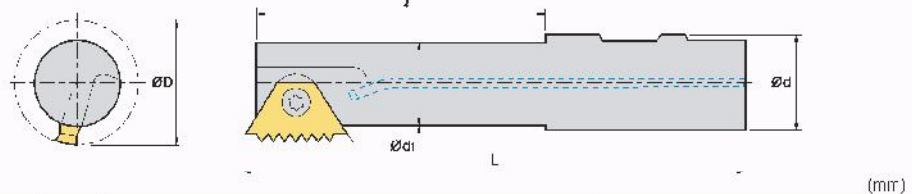


Insert Size	Designation		Stock	ØD	Ød	Ød1	ℓ	L	Screw	Wrench
d										
6.0	TMSR	12-10		9.0	12	6.8	12.0	69.0	STM10	TW0:P
		20-10		9.0	20	6.8	17.0	84.0		
6.35	TMSR	12-11	●	11.5	12	8.9	12.0	70.0	STM11	TW08P
		20-11	●	11.5	20	8.9	20.0	85.0		
9.525	TMSR	16-16		17.0	16	13.6	22.0	90.0	STM1622	TW10P
		20-16	●	20.0	20	16.6	43.0	95.0		
9.525B	TMSR	16-22		17.0	16	13.6	29.0	79.5	STM1622	TW10P
		20-22		19.0	20	15.5	29.0	81.5		
		25-22		19.0	25	15.5	30.0	92.3		
	TMSRW	25-22	●	22.0	25	18.6	30.0	90.8		
15.875	TMSR	25-27		30.0	25	24.0	52.0	110.0	STM27	TW25L
	TMSL	25-27		30.0	25	24.0	52.0	110.0		
	TMSR	32-27		37.0	32	31.0	58.0	120.0		
19.0b	TMSR	32-38		35.0	32	27.0	53.0	115.0	STM38	TW30I
		40-38		46.0	40	38.0	63.0	135.0		

Applicable inserts D44 ~ D48

● : Stock item

Long Type

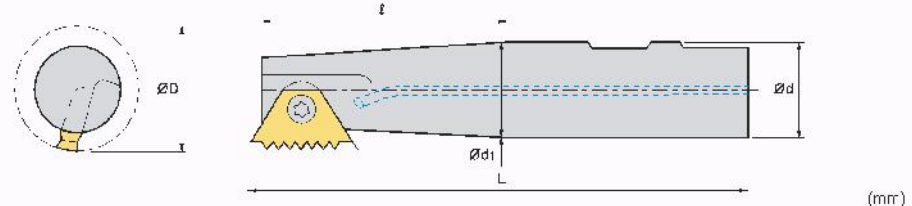


Insert Size	Designation		Stock	ØD	Ød	Ød1	ℓ	L	Screw	Wrench
d										
6.35	TMSRL	25-11		11.5	25	8.9	17.0	~25.0	STM11	TW08P
9.525B	TMSRL	25-16	●	22.0	25	18.6	25.0	~25.0	STM1622	TW10P
9.525B	TMSRL	20-22	●	19.0	20	15.5	44.0	96.5	STM1622	TW10P
		25-22		22.0	25	18.6	63.5	~25.0		
15.875	TMSRL	25-27		30.0	25	24.0	92.0	~50.0	STM27	TW25L
		32-27		37.0	32	31.0	98.0	~60.0		
19.05R	TMSRL	40-38		46.0	40	38.0	93.0	~68.0	STM38	TW30I

Applicable inserts D44 ~ D48

● : Stock item

Tapered Type



Insert Size	Designation		Stock	ØD	Ød	Ød1	ℓ	L	Screw	Wrench
d										
9.525	TMSRT	16-16		15.5	16	12.5	22.0	90.0	STM1622	TW10P
		20-16		19.0	20	15.0	23.0	65.0	STM16	
9.525R	TMSRT	16-22		17.0	16	13.5	29.0	79.5	STM1622	TW10P
		20-22		19.0	20	15.5	29.0	81.5		
15.875	TMSRT	32-27		37.0	32	31.0	58.0	120.0	STM27	TW25L

Applicable inserts D44 ~ D48

Solid Threading Endmills code system

STM D 3T 03 012 L034 - I 0.35 ISO

1	2	3	4	5	6	7	8	9
Type	Flute style	No. of Flutes	Shank Dia.	Cutting Dia.	Cutting edge Length	Type of Tool	Pitch	Standard
1 Type STM D 3T 03 012 L034 - I 0.35 ISO Solid Threading Endmill	2 Flute style STM D 3T 03 012 L034 - I 0.35 ISO HC : Heli Cool HCR : Heli Radial Cooling HCC : Heli Cool Chamfering HCD : Heli Cool C/F & Drilling D : Deep Threading	3 No. of Flutes STM D 3T 03 012 L034 - I 0.35 ISO 3T : 3 Flutes 2L : 4 Flutes, Left Flutes	4 Shank Dia. STM D 3T 03 012 L034 - I 0.35 ISO 03 : 3.0	5 Cutting Dia. STM D 3T 03 012 L034 - I 0.35 ISO 012 : 1.20	6 Cutting edge Length STM D 3T 03 012 L034 - I 0.35 ISO L034 : 3.4	7 Type of Tool STM D 3T 03 012 L034 - I 0.35 ISO I : Internal	8 Pitch STM D 3T 03 012 L034 - I 0.35 ISO mm : 0.35 ~ 3.0 tpi : 72 ~ 12	9 Standard STM D 3T 03 012 L034 - I 0.35 ISO ISO Metric American UN Cutting edge Length UNJ Whit Worth (BSW, BSF, BSP, BSB) National Pipe Thread (NPT) National Pipe Thread (NPTF) British Standard Pipe Thread (BSPT)

TM-INFO User Guide

CNC Program Composition
TM-INFO composes CNC program for Thread Milling process in a short time

- **Multilingual**
- **Window operation**



1 Select thread type

2 Select thread standard

3 Select thread type

4 Input thread parameter

5 Select working way

6 Select tool

7 Confirm the working data & controller

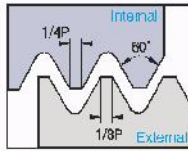
download
Pls. visit our web-site to download.
<http://www.korloy.com>



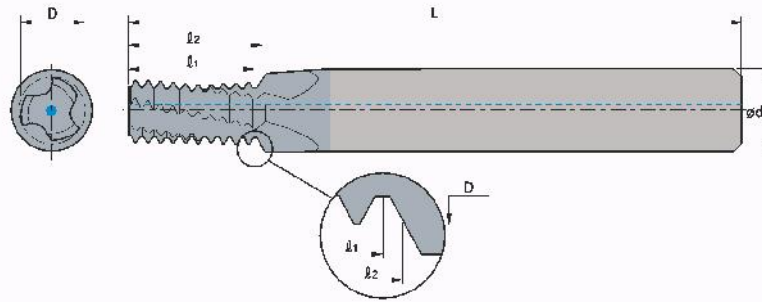
ISO Metric

Helical Flutes with Thru-Hole Coolant

Internal



Defined by : R262 (DIN 13)
Tolerance class : 6H

($\varnothing \leq 1.5 \times \text{Thread Diameter}$)

Thread		Pitch (mm)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	$\varnothing d$	D	L	$\varnothing_1$	$\varnothing_2$			
M3×0.5	M3.5~M16×0.5	0.5	STMHC	04024L04-I0.50ISO	4	2.40	45	4.5	4.7	3	9	2.5
M4×0.7		0.7		04031L06-I0.70ISO	4	3.15	45	6.3	6.6	3	9	3.3
M5×0.8		0.8		04039L07-I0.80ISO	4	3.90	45	7.2	7.6	3	9	4.2
M6×1.0	M8~M40×1.0	1.0		06048L09-I1.00ISO	6	4.80	57	9.0	9.5	3	9	5.0
M8×1.25		1.25		08065L13-I1.25ISO	8	6.50	61	12.5	13.1	3	10	6.8
M10×1.5	M12~M48×1.5	1.5		10082L15-I1.50ISO	10	8.20	73	15.0	15.7	3	10	8.5
M12×1.75		1.75		10099L18-I1.75ISO	10	9.90	73	17.5	18.4	4	10	10.2
M14×2.0	M17~M80×2.0	2.0		12116L21-I2.00ISO	12	11.60	73	20.0	21.0	4	10	12.0
M16×2.0	M17~M80×2.0	2.0		14136L25-I2.00ISO	14	13.60	92	24.0	25.0	4	12	14.0

($\varnothing \leq 2 \times \text{Thread Diameter}$)

Thread		Pitch (mm)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	$\varnothing d$	D	L	$\varnothing_1$	$\varnothing_2$			
M3×0.5	M3.5~M16×0.5	0.5	STMHC	04024L06-I0.50ISO	4	2.40	45	6.0	6.2	3	12	2.5
	M4×0.5	0.5		04032L08-I0.50ISO	4	3.20	45	8.0	8.2	3	16	3.5
	M5×0.5	0.5		06042L10-I0.50ISO	6	4.20	57	10.0	10.2	3	20	4.5
M4×0.7		0.7		04031L08-I0.70ISO	4	3.15	45	6.4	6.7	3	12	3.3
	M6×0.75	0.75		06050L12-I0.75ISO	6	5.00	57	12.0	12.4	3	16	5.3
M5×0.8		0.8		04039L10-I0.80ISO	4	3.90	45	10.4	10.8	3	13	4.2
M6×1.0	M8~M40×1.0	1.0		06048L12-I1.00ISO	6	4.80	57	12.0	12.6	3	12	5.0
	M8×1.0	1.0		08067L16-I1.00ISO	8	6.70	61	16.0	16.5	3	16	7.0
	M10×1.0	1.0		10087L20-I1.00ISO	10	8.70	73	20.0	20.5	3	20	9.0
	M12×1.0	1.0		12107L24-I1.00ISO	12	10.70	73	24.0	24.5	4	24	11 C
M8×1.25		1.25		08065L16-I1.25ISO	8	6.50	61	16.2	16.9	3	13	6.8
	M10×1.25	1.25		10085L20-I1.25ISO	10	8.50	73	20.0	20.6	3	16	8.8
M10×1.5	M12~M48×1.5	1.5		10082L20-I1.50ISO	10	8.20	73	19.5	20.2	3	13	8.5
	M12×1.5	1.5		10099L24-I1.50ISO	10	9.90	73	24.0	24.7	4	16	10.5
	M14×1.5	1.5		12119L29-I1.50ISO	12	11.90	90	28.5	29.2	4	19	12.5
	M16×1.5	1.5		14139L32-I1.50ISO	14	13.90	92	31.5	32.2	4	21	14.5
M12×1.75		1.75		10099L25-I1.75ISO	10	9.90	73	24.5	25.4	4	14	10.2
M14×2.0	M17~M80×2.0	2.0		12116L29-I2.00ISO	12	11.60	90	28.0	29.0	4	14	12 C
M16×2.0	M17~M80×2.0	2.0		14136L33-I2.00ISO	14	13.60	92	32.0	33.0	4	16	14 C
M18×2.5		2.5		16148L36-I2.50ISO	16	14.80	92	35.0	36.2	4	14	15.5
M20×2.5		2.5		18171L41-I2.50ISO	18	17.10	102	40.0	41.2	4	16	17.5
M24×3.0		3.0		20199L49-I3.00ISO	20	19.90	102	48.0	49.5	4	16	21 C

* Bore Diameter applies to smallest thread Dia

Maximum thread length = $\varnothing_2$

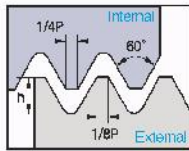
Pitch

●: Stock item

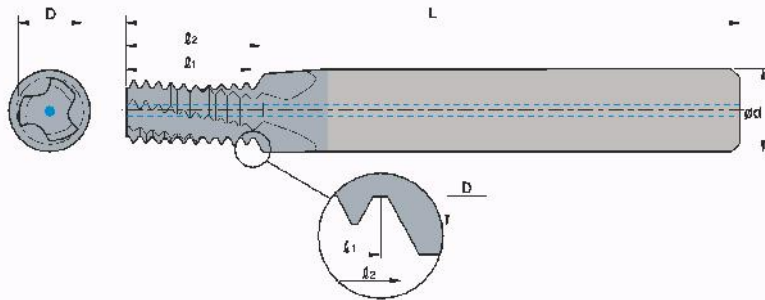
American UN

Helical Flutes with Thru-Hole Coolant

Internal



Defined by : ANSI B1.1.74
Tolerance class : 2B



($\ell \leq 1.5 \times \text{Thread Diameter}$)

Thread			Pitch (tpi)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia
UNC	UNF	UNEF		Internal	PC9070M	Ød	D	L	ℓ1	ℓ2			
No.10~24	5/16" 3/8"×24	9/16"~11/16"×24	24	STMHC	04035L07-I24UNC	4	3.58	45	7.4	7.9	3	7	3.8
No.10~24	5/16" 3/8"×24	9/16"~11/16"×24	24		06041L08-I24UNC	6	4.15	57	8.5	9.0	3	8	4.6
1/4"×20	7/16" 1/2"×20	3/4"~1"×20	20		06048L09-I20UNC	6	4.88	57	8.9	9.5	3	7	5.2
5/16"×18	9/16" 5/8"×18	11/16"~1 11/16"×18	18		08061L11-I18UNC	8	6.15	61	11.3	12.0	3	8	6.5
3/8"×16	3/4"×16		16		08076L15-I16UNC	8	7.65	61	14.3	15.1	3	9	8.0
7/16"×14	7/8"×14		14		10090L17-I14UNC	10	9.00	73	16.3	17.2	3	9	9.3
1/2"×13			13		12104L20-I13UNC	12	10.35	73	19.5	20.5	4	10	10.8
9/16"×12	1"~1 1/2"×12		12		12118L22-I12UNC	12	11.80	73	21.2	22.2	4	10	12.3

($\ell \leq 2 \times \text{Thread Diameter}$)

Thread			Pitch (tpi)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia
UNC	UNF	UNEF		Internal	PC9070M	Ød	D	L	ℓ1	ℓ2			
	No.10~32	No. 12~3/8"×32	32	STMHC	04038L09-I32UNF	4	3.80	45	9.5	9.9	3	12	4.0
		No. 12~3/8"×32	32		06044L11-I32UNEF	6	4.40	57	11.1	11.5	3	14	4.7
	No.12, 1/4"×20	7/16" 1/2"×20	20		06043L11-I28UNF	6	4.30	57	10.9	11.3	3	12	4.6
	1/4"×28	7/16" 1/2"×28	28		06052L13-I28UNF	6	5.15	57	12.7	13.1	3	14	5.6
		7/16" 1/2"×28	28		10099L22-I28UNEF	10	9.90	73	21.8	22.2	3	24	10.2
No.10~24	5/16" 3/8"×24	9/16"~11/16"×24	24		04035L10-I24UNC	4	3.58	45	9.5	10.0	3	9	3.8
No.12~24	5/16" 3/8"×24	9/16"~11/16"×24	24		06041L11-I24UNC	6	4.15	57	10.6	11.1	3	10	4.5
	5/16" 3/8"×24	9/16"~11/16"×24	24		08066L16-I24UNF	8	6.68	61	15.9	16.4	3	15	6.8
	3/8"×24	9/16"~11/16"×24	24		10082L19-I24UNF	10	8.20	73	19.0	19.6	3	18	8.5
		9/16"~11/16"×24	24		14129L29-I24UNEF	14	12.90	92	28.6	29.1	4	27	13.2
1/4"×20	7/16" 1/2"×20	3/4"~1"×20	20		06048L13-I20UNC	6	4.88	57	12.7	13.3	3	10	5.2
	7/16" 1/2"×20	3/4"~1"×20	20		10096L22-I20UNF	10	9.60	73	21.6	22.2	3	17	9.8
	1/2"×20	3/4"~1"×20	20		12111L26-I20UNF	12	11.10	80	25.1	26.0	3	20	11.5
		3/4"~1"×20	20		18174L38-I20UNEF	18	17.40	102	38.1	38.7	4	30	17.8
5/16"×18	9/16" 5/8"×18	11/16"~1 11/16"×18	18		08061L16-I18UNC	8	6.15	61	15.5	16.2	3	11	6.5
	9/16" 5/8"×18	11/16"~1 11/16"×18	18		14125L28-I18UNF	14	12.50	92	28.2	28.9	4	20	12.8
	5/8"×18	11/16"~1 11/16"×18	18		16141L31-I18UNF	16	14.10	92	31.0	31.7	4	22	14.5
3/8"×16	3/4"×16		16		08076L19-I16UNC	8	7.65	61	19.0	19.9	3	12	8.0
	3/4"×16		16		18170L38-I16UNF	18	17.00	102	38.1	38.9	4	24	17.5
7/16"×14	7/8"×14		14		10090L22-I14UNC	10	9.00	73	21.3	22.7	3	12	9.3
	7/8"×14		14		20199L44-I14UNF	20	19.90	102	43.5	44.4	4	24	20.5
1/2"×13			13		12104L26-I13UNC	12	10.35	80	25.4	26.4	4	13	10.8
9/16"×12	1"~1 1/2"×12		12		12118L28-I12UNC	12	11.80	80	27.5	28.6	4	13	12.3
	1"~1 1/2"×12		12		20199L51-I12UNF	20	19.90	102	50.8	51.9	4	24	23.5
5/8"×11			11		14131L33-I11UNC	14	13.10	92	32.3	33.5	4	14	13.5
3/4"×10			10		16159L39-I10UNC	16	15.90	92	38.1	39.1	4	15	16.5
7/8"×9			9		20190L46-I9UNC	20	19.00	102	45.2	46.6	4	16	19.5
1"×8			8		20199L52-I8UNC	20	19.90	102	50.8	52.4	4	16	22.0

* Bore Diameter applies to smallest thread Dia

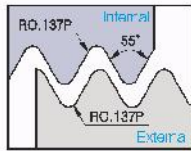
Maximum thread length = $\ell_2 - \frac{\text{Pitch}}{4}$

● : Stock Item

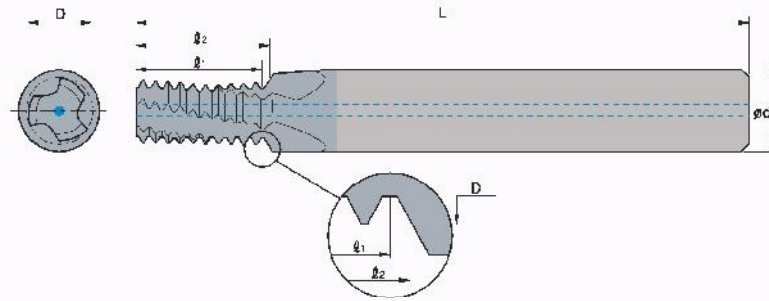
Whitworth

Helical Flutes with Thru-Hole Coolant

External / Internal



Defined by : B.S. 84 : 1956,
DIN 259 : ISO228/1 : 1982
Tolerance class : Medium class A

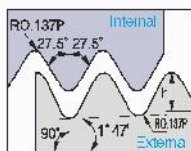
($\phi_2 \leq 2 \times \text{Thread Diameter}$)

Thread		Pitch (tpi)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia. mm
BSW	BSF		External / Internal	PC9070M	Ød	D	L	Ø1	Ø2			
	1/4"×26	26	STMHC	06050L13-EI26BSF	6	5.00	57	12.7	13.2	3	13	5.3
	5/16"×22	22		08063L16-EI22BSF	8	6.35	51	16.2	16.7	3	14	6.7
1/4"×20	3/8"×20	20		06044L13-EI20BSW	6	4.45	57	12.7	13.3	3	10	5.0
	3/8"×20	20		08076L19-EI20BSF	8	7.65	51	19.0	19.7	3	15	8.2
5/16"×18	7/16"×18	18		06059L16-EI18BSW	6	5.85	57	15.5	16.2	3	11	6.5
	7/16"×18	18		10092L23-EI18BSF	10	9.20	73	22.6	23.3	3	16	9.7
3/8"×16	1/2" 9/16"×16	16		08072L19-EI16BSW	8	7.20	51	19.0	19.8	3	12	7.9
	1/2" 9/16"×16	16		12105L26-EI16BSF	12	10.50	90	25.4	26.2	4	16	11.1
	9/16"×16	16		14122L29-EI16BSF	14	12.15	92	28.6	29.4	4	18	12.6
7/16"×14	5/8" 11/16"×14	14		10085L22-EI14BSW	10	8.50	73	21.8	22.7	3	12	9.2
	5/8" 11/16"×14	14		14134L31-EI14BSF	14	13.40	92	30.8	31.7	4	17	14.0
	11/16"×14	14		16150L35-EI14BSF	16	15.00	92	34.5	35.4	4	19	15.6
1/2"×12	3/4"×12	12		10096L26-EI12BSW	10	9.65	73	25.4	26.5	3	12	10.5
9/16"×12	3/4"×12	12		12113L28-EI12BSW	12	11.25	90	27.5	28.6	4	13	12.1
	3/4"×12	12		18162L39-EI12BSF	18	16.20	102	38.1	39.2	4	18	16.6
5/8"×11	7/8"×11	11		14126L33-EI11BSW	14	12.60	92	32.3	33.5	4	14	13.4
11/16"×11		11		16142L35-EI11BSW	16	14.20	92	34.6	35.8	4	15	15.0

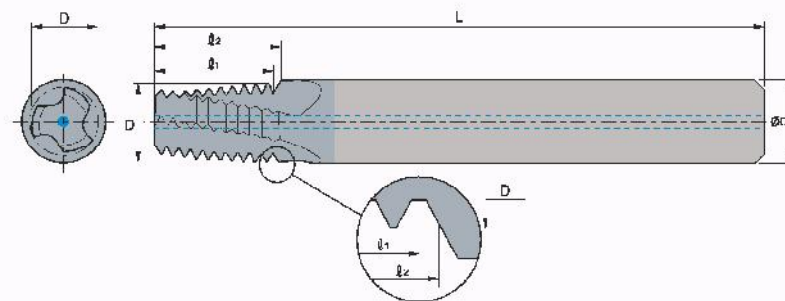
BSPT

Helical Flutes with Thru-Hole Coolant

External / Internal



Defined by : B.S. 21 : 1985
Tolerance class : Standard BSPI



Thread		Pitch (tpi)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia. mm
Standard			Internal	PC9070M	Ød	D	L	Ø1	Ø2			
1/16"×28		28	STMHC	06059L10-EI28BSPT	6	5.90	57	10.0	10.2	3	11	6.7
1/8"×20		20		08076L10-EI20BSPT	8	7.65	51	10.0	10.2	3	11	8.7
1/4"×19		19		10099L15-EI19BSPT	10	9.90	73	14.7	15.4	3	11	11.8
3/8"×19		19		12111L15-EI19BSPT	12	11.15	73	14.7	15.4	4	11	15.2
1/2" 3/4"×14		14		16142L22-EI14BSPT	16	14.25	92	21.8	22.7	4	12	19.0
1" 1 1/2" 2" 2 1/2"×11		11		20196L28-EI11BSPT	20	19.60	102	27.7	28.9	4	12	30.7

* Bore Diameter applies to smallest thread Dia

Maximum thread length = $\frac{\phi_2 - \phi_1}{4}$ Pitch

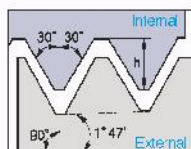
● : Stock item

D Solid Threading Endmills

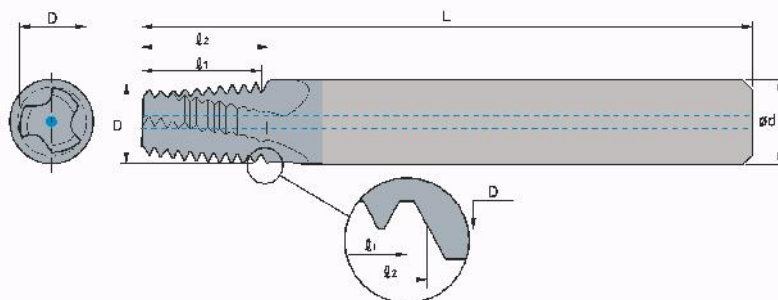
NPT

Helical Flutes with Thru-Hole Coolant

External / Internal



Defined by : USAS B2.1:1968
Tolerance class : Standard NPT

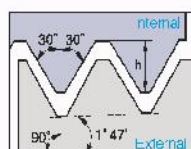


Thread	Pitch (tpi)	Designation		Dimensions (mm)					No. of Flute	Tooth	*Bore Dia. mm
		Internal	PC9070M	Ød	D	L	l1	l2			
1/16"×27	27	STMHC	06059L09-EI27NPT	6	5.90	57	9.4	9.9	3	1C	6.3
1/8"×27	27		08076L09-EI27NPT	8	7.65	61	9.4	9.9	3	1C	8.5
1/4"×18	18		10099L14-EI18NPT	10	9.90	73	14.1	14.8	3	1C	11.1
3/8"×18	18		12111L14-EI18NPT	12	11.15	73	14.1	14.8	4	1C	14.5
1/2" 3/4"×14	14		16142L19-EI14NPT	16	14.25	92	19.1	19.0	4	1C	17.7, 23.0
1" 1 1/4" 1 1/2" 2"×11.5	11.5		20196L23-EI11.5NPT	20	19.60	102	22.1	23.2	4	1C	29.0, 37.7, 44.0, 55.0
2 1/2"×8; 3"×8	8		20196L33-EI8NPT	20	19.60	102	31.7	33.3	4	1C	66.5, 82.1

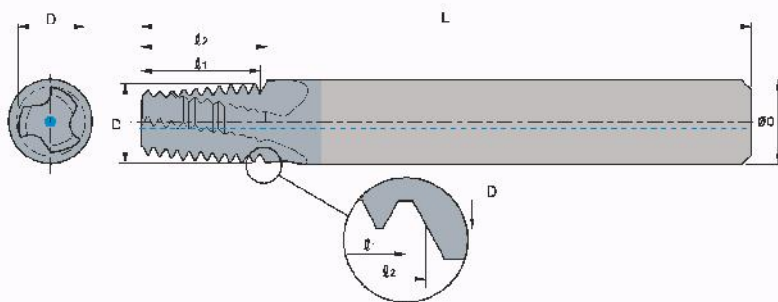
NPTF

Helical Flutes with Thru-Hole Coolant

External / Internal



Defined by : ANSI 1.20.3-1978
Tolerance class : Standard NPTF



Thread	Pitch (tpi)	Designation		Dimensions (mm)					No. of Flute	Tooth	*Bore Dia. mm
		Internal	PC9070M	Ød	D	L	l1	l2			
1/16"×27	27	STMHC	06059L09-EI27NPTF	6	5.90	57	9.4	9.9	3	1C	6.3
1/8"×27	27		08076L09-EI27NPTF	8	7.65	61	9.4	9.9	3	1C	8.5
1/4"×18	18		10099L14-EI18NPTF	10	9.90	73	14.1	14.8	3	1C	11.1
3/8"×18	18		12111L14-EI18NPTF	12	11.15	73	14.1	14.8	4	1C	14.5
1/2" 3/4"×14	14		16142L19-EI14NPTF	16	14.25	92	19.1	19.0	4	1C	17.7, 23.4
1" 1 1/4" 1 1/2" 2"×11.5	11.5		20196L23-EI11.5NPTF	20	19.60	102	22.1	23.2	4	1C	29.0, 37.7, 43.7, 55.6
2 1/2"×8; 3"×8	8		20196L33-EI8NPTF	20	19.60	102	31.7	33.3	4	1C	66.5, 82.1

* Bore Diameter applies to smallest thread Dia.

Maximum thread length = $l_2 - \frac{\text{Pitch}}{4}$

● : Stock item



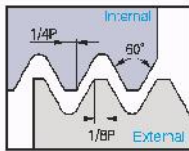
D

Threading

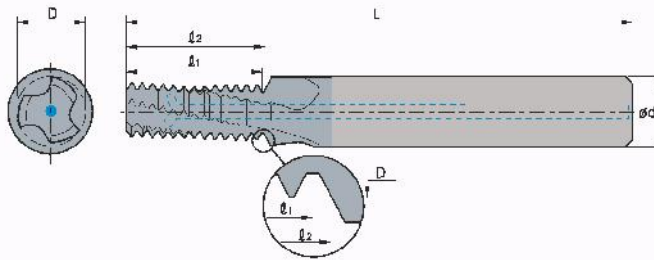
ISO Metric

Helical Flutes with Radial Cooling

Internal



Defined by : R262 (DIN 13)
Tolerance class : 6H

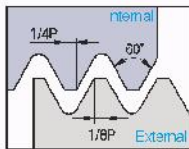
($\geq 2 \times$ Thread Diameter)

Thread		Pitch (mm)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	Ød	D	L	Ø ₁	Ø ₂			
M6×1.0	M8~M40×1.0	1.0	STMHCR 06048L12-I1.00ISO		6	4.8	57	12.0	12.5	3	12	5.0
	M10×1.0	1.0	10087L20-I1.00ISO		10	8.7	73	20.0	20.5	3	20	9.0
	M12×1.0	1.0	12107L24-I1.00ISO		12	10.7	73	24.0	24.5	4	24	11 C
M8×1.25		1.25	08065L16-I1.25ISO		8	6.5	64	16.3	16.9	3	13	6.8
M10×1.5	M12~M48×1.5	1.5	10082L20-I1.50ISO		10	8.2	73	19.5	20.3	3	13	8.5
	M12×1.5	1.5	10099L24-I1.50ISO		10	9.9	73	24.0	24.8	4	16	10.5
	M14×1.5	1.5	12119L29-I1.50ISO		12	11.9	84	28.5	29.3	4	19	12.5
	M16×1.5	1.5	14139L32-I1.50ISO		14	13.9	94	31.5	32.3	4	21	14.5
M12×1.75		1.75	10099L25-I1.75ISO		10	9.9	73	24.5	25.4	4	14	10.2

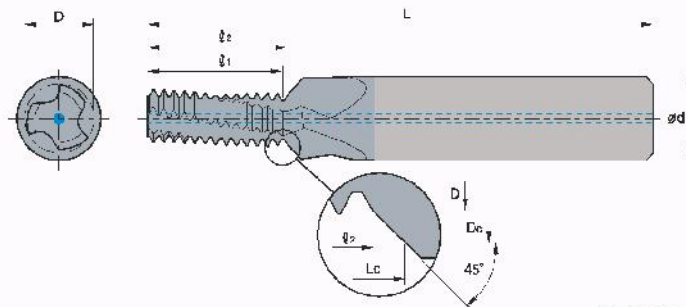
ISO Metric

Helical Flutes with Thru-Hole Coolant - Thru & Chamfer

Internal



Defined by : R262 (DIN 13)
Tolerance class : 6H

($\geq 2 \times$ Thread Diameter)

Thread		Pitch (mm)	Designation		Dimensions (mm)					No. of Flute	Tooth	Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	Ød	D	Dc	L	Ø ₁			
M6×1.0	M8~M40×1.0	1.0	STMHCC 08048L12-I1.00ISO		8	4.8	6.3	61	12.0	12.5	13.3	5.0
	M10×1.0	1.0	12087L20-I1.00ISO		12	8.7	10.3	73	20.0	20.5	21.3	9.0
	M12×1.0	1.0	14107L24-I1.00ISO		14	10.7	12.3	8C	24.0	24.5	25.3	11 C
M8×1.25		1.25	10065L16-I1.25ISO		10	6.5	8.3	73	16.3	16.9	17.8	6.8
M10×1.5	M12~M48×1.5	1.5	12082L20-I1.50ISO		12	8.2	10.3	8C	19.5	20.3	21.3	8.5
	M12×1.5	1.5	14099L24-I1.50ISO		14	9.9	12.3	8C	24.0	24.8	26.0	10.5
	M14×1.5	1.5	16119L29-I1.50ISO		16	11.9	14.3	9C	28.5	29.3	30.5	12.5
	M16×1.5	1.5	18139L32-I1.50ISO		18	13.9	16.3	9C	31.5	32.3	33.5	14.5
M12×1.75		1.75	14099L25-I1.75ISO		14	9.9	12.3	8C	24.5	25.4	26.6	10.2

* Bore Diameter applies to smallest thread Dia

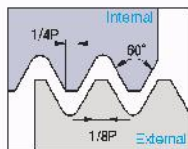
Maximum thread length = $\frac{L_2 - \frac{Pitch}{4}}$

● : Stock item

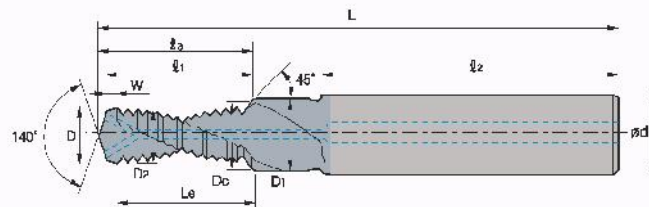
ISO Metric

Drill, Chamfer & Thread with Thru-Hole Coolant

Internal



Defined by : R262 (DIN 13)
Tolerance class : 6H



Thread	Pitch (mm)	Designation		Dimensions (mm)												No. of Flute	Tooth
ISO 2D M Coarse		Internal	PC9070M	L	Ø3	Ø1	Ø2	W	Le	D	Ød	D1	Dc	D2	z	zt	
M6×1.0	1.0	STMHCD-	IM6×1.0ISO-2D	62.0	14.5	13.7	36	1.0	12.7	5.0	8	6.6	6.3	4.65	2	11	
M8×1.25	1.25		IM8×1.25ISO-2D	74.0	18.2	17.1	40	1.3	15.8	6.8	10	9.0	8.3	6.45	2	11	
M10×1.5	1.5		IM10×1.5ISO-2D	79.0	23.4	22.1	45	1.5	20.6	8.5	12	11.0	10.3	8.08	2	12	
M12×1.75	1.75		IM12×1.75ISO-2D	89.0	27.1	25.5	45	1.5	24.0	10.3	14	13.5	12.3	9.74	2	12	

Thread	Pitch (mm)	Designation		Dimensions (mm)												No. of Flute	Tooth
ISO 2.5D M Coarse		Internal	PC9070M	L	Ø3	Ø1	Ø2	W	Le	D	Ød	D1	Dc	D2	z	zt	
M6×1.0	1.0	STMHCD-	IM6×1.0ISO-2.5D	62.0	16.5	15.7	36	1.0	14.7	5.0	8	6.6	6.3	4.65	2	13	
M8×1.25	1.25		IM8×1.25ISO-2.5D	74.0	23.2	22.1	40	1.3	20.8	6.8	10	9.0	8.3	6.45	2	15	
M10×1.5	1.5		IM10×1.5ISO-2.5D	79.0	27.9	26.6	45	1.5	25.1	8.5	12	11.0	10.3	8.08	2	15	

Maximum thread length = $L_2 - \frac{\text{Pitch}}{1}$

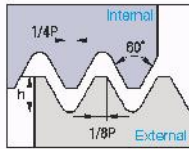
● : Stock item



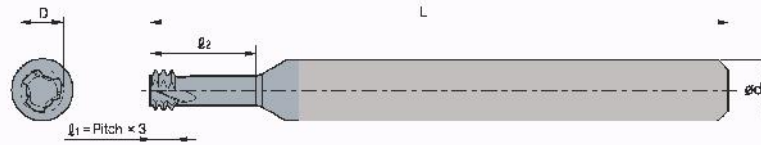
ISO Metric

Deep Threading

Internal



Defined by : R262 (DIN 13)
Tolerance class : 6H



($d_2 \leq 2 \times \text{Thread Diameter}$)

Thread		Pitch (mm)	Designation		Dimensions (mm)				No. of Flute	Tooth	Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	$\varnothing d$	D	L	d_2			
M1.6x0.35		0.35	STMD3T	03012L034-I0.35ISO	3	1.20	30	3.4	3	3	1.25
M2x0.4		0.4		06015L042-I0.4ISO	6	1.55	57	4.2	3	3	1.6
M2.5x0.45		0.45		06016L046-I0.45ISO	6	1.65	57	4.6	3	3	1.75
M2.5x0.45		0.45		06019L052-I0.45ISO	6	1.95	57	5.2	3	3	2.05
M3x0.5	M3.5~M16x0.5	0.5		06024L062-I0.5ISO	6	2.40	57	6.2	3	3	2.5
M3.5x0.6		0.6		06027L073-I0.6ISO	6	2.75	57	7.3	3	3	2.9
M4x0.7		0.7		06031L083-I0.7ISO	6	3.15	57	8.3	3	3	3.3
M5x0.8		0.8		06040L104-I0.8ISO	6	4.05	57	10.4	3	3	4.2
M6x1.0	M8~M10x1.0	1.0		06048L125-I1.0ISO	6	4.80	57	12.5	3	3	5.0
M8x1.25		1.25		08065L166-I1.25ISO	8	6.50	63	16.6	3	3	6.8
M10x1.5	M12~M48x1.5	1.5		10082L208-I1.5ISO	10	8.20	73	20.8	3	3	8.5
M12x1.75		1.75		10099L250-I1.75ISO	10	9.90	73	25.0	3	3	10.3

3d ($d_2 \leq 3 \times \text{Thread Diameter}$)

Thread		Pitch (mm)	Designation		Dimensions (mm)				No. of Flute	Tooth	Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	$\varnothing d$	D	L	d_2			
M1.6x0.35		0.35	STMD3T	03012L050-I0.35ISO	3	1.20	30	5.0	3	3	1.25
M2x0.4		0.4		06015L062-I0.4ISO	6	1.55	57	6.2	3	3	1.6
M2.5x0.45		0.45		06019L077-I0.45ISO	6	1.95	57	7.0	3	3	2.05
M3x0.5	M3.5~M16x0.5	0.5		06024L092-I0.5ISO	6	2.40	57	9.2	3	3	2.5
M4x0.7		0.7		06031L123-I0.7ISO	6	3.15	57	12.3	3	3	3.3
M5x0.8		0.8		06040L154-I0.8ISO	6	4.05	57	15.4	3	3	4.2
M6x1.0	M8~M40x1.0	1.0		06048L185-I1.0ISO	6	4.80	57	18.5	3	3	5.0
M8x1.25		1.25		08065L246-I1.25ISO	8	6.50	63	24.6	3	3	6.8

* Bore Diameter applies to smallest thread Dia

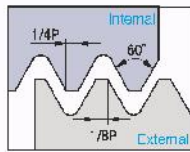
Maximum thread length = $d_2 - \frac{\text{Pitch}}{4}$

● : Stock item

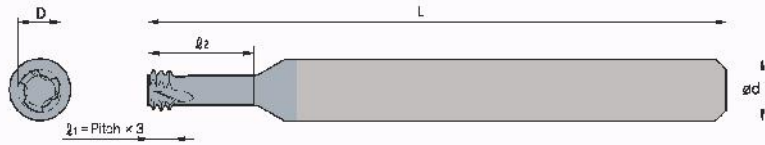
American UN

Deep Threading

Internal



Defined by : ANSI B1.1.74
Tolerance class : 2B



($d_2 \leq 2 \times \text{Thread Diameter}$)

Thread		Pitch (tpi)	Designation		Dimensions (mm)				No. of Flute z	Tooth zt	*Bore Dia. mm
UNC	UNF		Internal	PC9070M	ϕd	D	L	d_2			
No.1~64	No.1~72	72	STMD3T	06014L039-I72UN	6	1.45	57	3.9	3	3	1.6
	No.2~64	64		06014L042-I64UN	6	1.40	57	4.2	3	3	1.5
No.2~56	No.3~56	56		06016L050-I56UN	6	1.65	57	5.0	3	3	1.8
No.3~48	No.4~48	48		06019L060-I48UN	6	1.90	57	6.0	3	3	2.1
No.4, No.5~40	No.6~40	40		06021L060-I40UN	6	2.10	57	6.0	3	3	2.3
No.5~40	No.6~40	40		06024L072-I40UN	6	2.45	57	7.2	3	3	2.6
No.6, No.8~32	No.8~36	36		06033L087-I36UN	6	3.30	57	8.7	3	3	3.5
	No.10~32	32		06025L074-I32UN	6	2.55	57	7.4	3	3	2.8
No.8~32	No.10~32	32		06032L100-I32UN	6	3.20	57	10.0	3	3	3.5
No.10~24	1/4" x 28	28		06052L132-I28UN	6	5.25	57	13.2	3	3	5.5
	5/16" x 24	24		06035L102-I24UN	6	3.58	57	10.2	3	3	3.9
1/4" x 20	5/16" x 24	24		08066L165-I24UN	8	6.68	63	16.5	3	3	6.9
	7/16" x 20	20		06049L134-I20UN	6	4.88	57	13.4	3	3	5.2
3/8" x 16	7/16" x 20	20		01009SL230-I20UN	10	9.55	73	23.0	3	3	9.9
7/16" x 14		14		08067L191-I16UN	8	6.70	63	19.1	3	3	8.0
				10090L233-I14UN	10	9.00	73	23.3	3	3	9.4

($d_2 \leq 3 \times \text{Thread Diameter}$)

Thread		Pitch (tpi)	Designation		Dimensions (mm)				No. of Flute z	Tooth zt	*Bore Dia. mm
UNC	UNF		Internal	PC9070M	ϕd	D	L	d_2			
No.4, No.5~40	No.1~72	72	STMD3T	06014L057-I72UN	6	1.45	57	5.75	3	3	1.6
	No.6~40	40		06021L090-I40UN	6	2.10	57	9.0	3	3	2.3
No.5~40	No.6~40	40		06024L100-I40UN	6	2.45	57	10.0	3	3	2.6
No.6, No.8~32	No.10~32	32		06025L110-I32UN	6	2.55	57	11.0	3	3	2.8
No.8~32	No.10~32	32		06032L130-I32UN	6	3.20	57	13.0	3	3	3.4
	1/4" x 28	28		06052L196-I28UN	6	5.25	57	19.6	3	3	5.5
	5/16" x 24	24		08066L245-I24UN	8	6.68	63	24.5	3	3	6.9
1/4" x 20	7/16" x 20	20		06048L198-I20UN	6	4.88	57	19.8	3	3	5.1

* Bore Diameter applies to smallest thread Dia

Maximum thread length = $d_2 - \frac{\text{Pitch}}{4}$

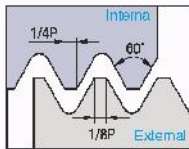
● : Stock item



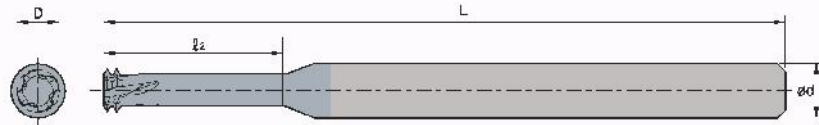
ISO Metric

Deep Threading for Hard Materials(~HRC62)

Internal



Defined by : R262 (DIN 13)
Tolerance class : 6H



($L_2 \leq 2 \times \text{Thread Diameter}$)

Thread		Pitch (mm)	Designation		Dimensions (mm)				No. of Flute z	Tooth zt	*Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	ød	D	L	L2			
M2×0.4		0.4	STMD2L	06015L042-I0.4ISO	6	1.55	76	4.60	4	2	1.6
M2.2×0.45		0.45		06016L046-I0.45ISO	6	1.65	76	5.05	4	2	1.8
M2.5×0.45		0.45		06019L052-I0.45ISO	6	1.95	76	5.65	4	2	2.05
M3×0.5	M3.5-M16×0.5	0.5		06024L062-I0.5ISO	6	2.40	76	6.75	4	2	2.55
M3.5×0.6		0.6		06027L073-I0.6ISO	6	2.75	76	7.90	4	2	2.95
M4×0.7		0.7		06031L083-I0.7ISO	6	3.15	76	9.05	4	2	3.35
M5×0.8		0.8		06040L104-I0.8ISO	6	4.05	76	11.20	4	2	4.3
M6×1.0	M8-M40×1.0	1.0		06048L125-I1.0ISO	6	4.80	76	13.50	4	2	5.1
M8×1.25		1.25		08065L166-I1.25ISO	8	6.50	80	17.65	4	2	6.8
M10×1.5	M12-M48×1.5J	1.5		08079L208-I1.50ISO	8	7.90	80	22.30	4	2	8.6
M12×1.75		1.75		10099L250-I1.75ISO	10	9.90	101	26.75	4	2	10.4

($L_2 \leq 3 \times \text{Thread Diameter}$)

Thread		Pitch (mm)	Designation		Dimensions (mm)				No. of Flute z	Tooth zt	*Bore Dia. mm
M Coarse	M Fine		Internal	PC9070M	ød	D	L	L2			
M2×0.4		0.4	STMD2L	06015L062-I0.4ISO	6	1.55	76	6.60	4	2	1.6
M2.2×0.45		0.45		06019L077-I0.45ISO	6	1.95	76	8.15	4	2	2.05
M3×0.5	M3.5-M16×0.5	0.5		06024L092-I0.5ISO	6	2.40	76	9.75	4	2	2.55
M4×0.7		0.7		06031L123-I0.7ISO	6	3.15	76	13.05	4	2	3.35
M5×0.8		0.8		06040L154-I0.8ISO	6	4.05	76	16.20	4	2	4.3
M6×1.0	M8-M40×1.0	1.0		06048L185-I1.0ISO	6	4.80	76	19.50	4	2	5.1
M8×1.25		1.25		08065L246-I1.25ISO	8	6.50	80	26.85	4	2	6.8

* Bore Diameter applies to smallest thread Dia

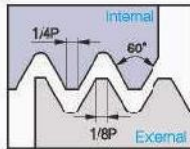
$$\text{Maximum thread length} = L_2 - \frac{\text{Pitch}}{4}$$

● : Stock item

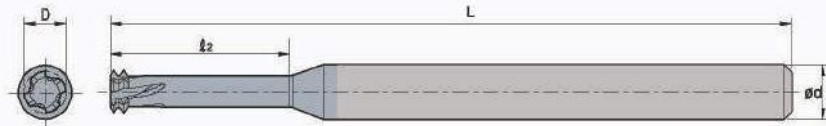
American UN

Deep Threading for Hard Materials(~HRC62)

Internal



Defined by : ANSI D1.1.74
Tolerance class : 2B



($L_2 \leq 2 \times \text{Thread Diameter}$)

Thread		Pitch (tpi)	Designation		Dimensions (mm)				No. of Flute	Tooth	*Bore Dia. mm
UNC	UNF		Internal	PC9070M	Ød	D	L	L2			
No.2~56	No.3~56	56	STMD2L	06016L050-I56UN	6	1.65	76	5.45	4	2	1.80
No.3~48	No.4~48	48			6	1.90	76	6.53	4	2	2.10
No.4~40, No.5~40	No.6~40	40			6	2.10	76	6.64	4	2	2.35
No.5~40	No.6~40	40			6	2.45	76	7.84	4	2	2.65
	No.8~36	36			6	3.30	76	9.41	4	2	3.55
No.6~32 ; No.8~32	No.10~32	32			6	2.55	76	8.20	4	2	2.85
No.6~32	No.10~32	32			6	3.20	76	10.79	4	2	3.60
	1/4"x28	28			6	5.25	76	14.11	4	2	5.55
No.10~24	5/16"x24	24			6	3.58	76	11.26	4	2	3.90
	3/16"x24	24			8	6.68	76	17.56	4	2	7.00
1/4"x20	7/16"x20	20			6	4.88	76	14.67	4	2	5.20
	7/16"x20	20			10	9.55	101	24.27	4	2	9.90
3/8"x16		16			8	7.65	80	21.29	4	2	8.00
7/16"x14		14			10	9.00	101	25.11	4	2	9.50
1/2"x13		13			10	9.90	101	27.55	4	2	10.90

($L_2 \leq 3 \times \text{Thread Diameter}$)

Thread		Pitch (tpi)	Designation		Dimensions (mm)				No. of Flute	Tooth	*Bore Dia. mm
UNC	UNF		Internal	PC9070M	Ød	D	L	L2			
No.4~40, No.5~40	No.6~40	40	STMD2L	06021L090-I40UN	6	2.10	76	9.64	4	2	2.35
No.5~40	No.6~40	40			6	2.45	76	10.61	4	2	2.65
No.6~32, No.8~32	No.10~32	32			6	2.55	76	11.79	4	2	2.85
No.6~32	No.10~32	32			6	3.20	76	13.79	4	2	3.50
	1/4"x28	28			6	5.25	76	20.51	4	2	5.55
	5/16"x24	24			8	6.68	80	25.56	4	2	7.00
1/4"x20	7/16"x20	20			6	4.88	76	21.07	4	2	5.20
7/16"x14		14			10	9.00	101	35.31	4	2	9.50

* Bore Diameter applies to smallest thread Dia

Maximum thread length = $L_2 - \frac{F_{d1}}{4}$

● : Stock item



