

THREAD MILLING

INDEXABLE AND SOLID CARBIDE

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D

» THREAD MILLING IDENTIFICATION GUIDE



THREAD MILLING CUTTERS

FOR THREADING ON CNC MILLING MACHINES BY USING HELICAL INTERPOLATION PROGRAMS

- ADVANTAGES:**
- ▶ Thread is produced in one tool pass
 - ▶ Same tool holder and insert can produce both right hand and left hand threads
 - ▶ A single insert and tool holder can produce a given thread on many diameters (External and Internal)
 - ▶ Prismatic shape ensures exact and reliable clamping in the tool holder
 - ▶ Most inserts are double sided, having two cutting edges
 - ▶ Longer tool life due to a special multi-layer coating process
 - ▶ Capable of producing tapered threads
 - ▶ Improved productivity due to increased cutting speeds and multitooth type carbide inserts
 - ▶ Threading to within one pitch of the bottom in a blind hole
 - ▶ Considerably less expensive than using taps and dies, lowering tooling costs
 - ▶ Since lower machine power is required, a smaller machine can produce larger threads in a single operation with less idle time and tool changes

Product Identification

Inserts					Cutters						
	E	12	UN		S	R	1180	J	21	C	2
Insert Size A	E = External I = Internal - = EXT. + INT.	Thread Pitch	Thread Profile ISO UN WHIT NPT NPTF BSPT	Carbide Grades MT5 MT7	R = Right Hand L = Left Hand	Cutting Diameter Inch: 1180 = 1.18"	Length of Tool Holder	Insert Size A	Carbide Shank	No. of Inserts	
12								12			
14								14			
21								21			
30								30			
40								40			

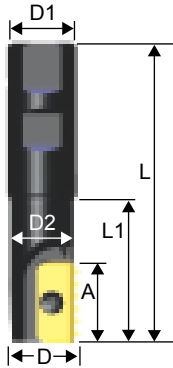


INDEXABLE THREAD MILLING CUTTERS

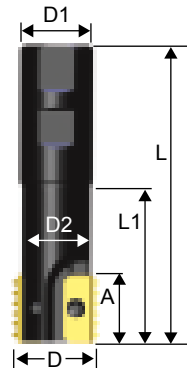
SINGLE, DOUBLE AND MULTI-INSERT

► Minimum bore should be one-third greater than D

**SINGLE INSERT
COOLANT-THRU**

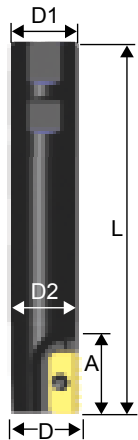


**DOUBLE INSERT
COOLANT-THRU**

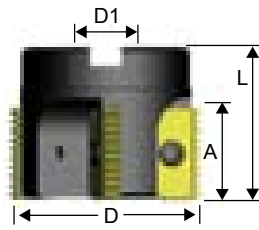


**SINGLE INSERT
COOLANT-THRU**

Long Carbide Shank



MULTI-INSERT



Single Insert Cutters

Type	Insert Size A=mm	D Inch	D1 Inch	D2 Inch	L Inch	L1 Inch	Code 570-
SR0500F14	14	0.50	0.75	0.37	2.95	0.70	900
SR0540F14	14	0.54	0.75	0.38	2.98	0.77	901
SR0570H14	14	0.57	0.75	0.41	3.20	1.00	902
SR0670H14	14	0.67	0.75	0.53	3.35	1.18	903
SR0790H21	21	0.79	0.75	0.61	3.66	1.57	904
SR1140J30	30	1.14	1.00	0.91	4.25	1.85	905
SR1730M40	40	1.73	1.50	1.38	6.02	3.19	906

Double Insert Cutters (2 Inserts)

Type	Insert Size A=mm	D Inch	D1 Inch	D2 Inch	L Inch	L1 Inch	Code 570-
SR0790H14-2	14	0.79	0.75	0.63	3.66	1.57	910
SR1180J21-2	21	1.18	1.00	0.94	4.25	1.97	911
SR1580L30-2	30	1.57	1.25	1.18	5.12	2.80	912
SR1970M40-2	40	1.97	1.50	1.49	6.02	3.35	913

Single Insert Cutters (Carbide Shank/Long Length)

Type	Insert Size A=mm	D Inch	D1 Inch	D2 Inch	L Inch	Code 570-
SR0500J14C	14	0.50	0.375	0.375	6.0	920
SR0620K14C	14	0.62	0.500	0.500	7.0	921
SR0820M21C	21	0.82	0.625	0.625	8.0	922

► For holders with long overhang reduce cutting speed and feed rate between 20% to 40%

Multi-Insert Cutters

Type	Insert Size A=mm	D Inch	D1 Inch	L Inch	No. of Inserts	Code 570-
SR2480C21-5	21	2.48	0.75	1.97	5	914
SR2480C30-4	30	2.48	0.75	1.97	4	915
SR3150D30-4	30	3.15	1.00	2.16	4	916
SR3940D30-4	30	3.94	1.25	2.36	4	917
SR3150D40-4	40	3.15	1.00	2.56	4	918
SR3940E40-4	40	3.94	1.25	2.76	4	919

Accessories

Insert Size A=mm	Insert Screw	Code 570-	Torx® Key	Code 570-
14	S14	890	K14	895
21	S21	891	K21	896
30	S30	892	K30	897
40	S40	893	K40	898

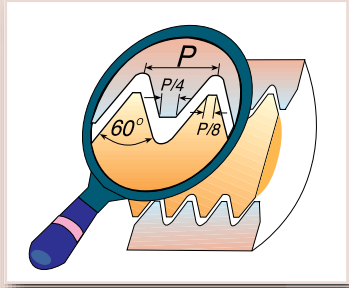
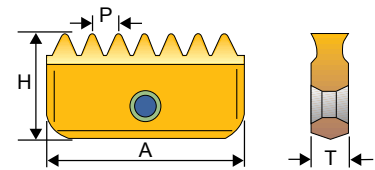
► FOR INSERTS, SEE PAGES: D3-D4



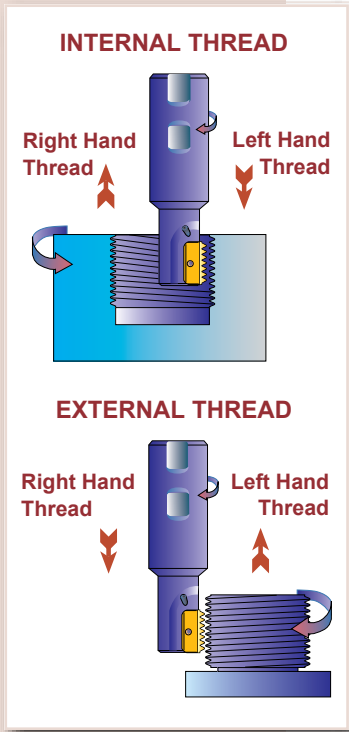
INDEXABLE THREAD MILLING INSERTS

UN AND ISO

▶ Thread Milling operation is applicable for thread cutting in non-symmetrical parts, utilizing the advantage of Helical Interpolation programs of modern machining centers.



Insert Dimensions					
Insert Size A		H		T	
Inch	mm	Inch	mm	Inch	mm
0.551	14	0.295	7.5	0.122	3.1
0.827	21	0.472	12.0	0.185	4.7
1.181	30	0.630	16.0	0.217	5.5
1.575	40	0.787	20.0	0.248	6.3



UN									
Pitch TPI	Style	Insert Size = A 14 mm (0.551")		Insert Size = A 21 mm (0.827")		Insert Size = A 30 mm (1.181")		Insert Size = A 40 mm (1.575")	
		Insert Reference	Code 570-	Insert Reference	Code 570-	Insert Reference	Code 570-	Insert Reference	Code 570-
32	External	14E 32 UN	700						
32	Internal	14I 32 UN	750						
28	External	14E 28 UN	701						
28	Internal	14I 28 UN	751						
24	External	14E 24 UN	702	21E 24 UN	712				
24	Internal	14I 24 UN	752	21I 24 UN	762				
20	External	14E 20 UN	703	21E 20 UN	713	30E 20 UN	723		
20	Internal	14I 20 UN	753	21I 20 UN	763	30I 20 UN	773		
18	External	14E 18 UN	704	21E 18 UN	714	30E 18 UN	724		
18	Internal	14I 18 UN	754	21I 18 UN	764	30I 18 UN	774		
16	External	14E 16 UN	705	21E 16 UN	715	30E 16 UN	725	40E 16 UN	735
16	Internal	14I 16 UN	755	21I 16 UN	765	30I 16 UN	775	40I 16 UN	785
14	External	14E 14 UN	706	21E 14 UN	716	30E 14 UN	726	40E 14 UN	736
14	Internal	14I 14 UN	756	21I 14 UN	766	30I 14 UN	776	40I 14 UN	786
12	External	14E 12 UN	707	21E 12 UN	717	30E 12 UN	727	40E 12 UN	737
12	Internal	14I 12 UN	757	21I 12 UN	767	30I 12 UN	777	40I 12 UN	787
10	External			21E 10 UN	718	30E 10 UN	728	40E 10 UN	738
10	Internal			21I 10 UN	768	30I 10 UN	778	40I 10 UN	788
8	External					30E 8 UN	729	40E 8 UN	739
8	Internal			21I 8 UN	769	30I 8 UN	779	40I 8 UN	789
6	External					30E 6 UN	730	40E 6 UN	740
6	Internal					30I 6 UN	780	40I 6 UN	790

ISO									
Pitch TPI	Style	Insert Size = A 14 mm (0.551")		Insert Size = A 21 mm (0.827")		Insert Size = A 30 mm (1.181")		Insert Size = A 40 mm (1.575")	
		Insert Reference	Code 570-	Insert Reference	Code 570-	Insert Reference	Code 570-	Insert Reference	Code 570-
0.5	Internal	14I 0.5 ISO	850						
0.75	External	14E 0.75 ISO	801						
0.75	Internal	14I 0.75 ISO	851						
1.0	External	14E 1.0 ISO	802	21E 1.0 ISO	812				
1.0	Internal	14I 1.0 ISO	852	21I 1.0 ISO	862				
1.25	External	14E 1.25 ISO	803						
1.25	Internal	14I 1.25 ISO	853						
1.5	External	14E 1.5 ISO	804	21E 1.5 ISO	814	30E 1.5 ISO	824	40E 1.5 ISO	834
1.5	Internal	14I 1.5 ISO	854	21I 1.5 ISO	864	30I 1.5 ISO	874	40I 1.5 ISO	884
2.0	External	14E 2.0 ISO	805	21E 2.0 ISO	815	30E 2.0 ISO	825	40E 2.0 ISO	835
2.0	Internal	14I 2.0 ISO	855	21I 2.0 ISO	865	30I 2.0 ISO	875	40I 2.0 ISO	885
2.5	External	14E 2.5 ISO	806	21E 2.5 ISO	816				
2.5	Internal	14I 2.5 ISO	856	21I 2.5 ISO	866				
3.0	External			21E 3.0 ISO	817	30E 3.0 ISO	827	40E 3.0 ISO	837
3.0	Internal			21I 3.0 ISO	867	30I 3.0 ISO	877	40I 3.0 ISO	887
4.0	External					30E 4.0 ISO	828	40E 4.0 ISO	838
4.0	Internal					30I 4.0 ISO	878	40I 4.0 ISO	888

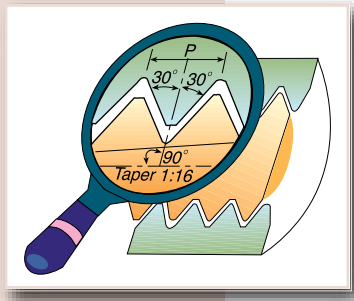
- ▶ FOR TOOL HOLDERS, SEE PAGE D2
- ▶ FOR CUTTING PARAMETERS, SEE PAGE D6



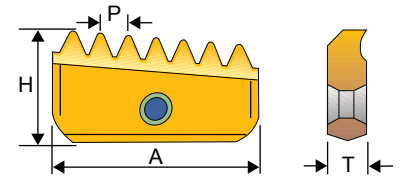
INDEXABLE THREAD MILLING INSERTS

NPT

- ▶ Conical pipe thread inserts are single-sided and may be used for both external and internal threading.
- ▶ Thread Milling operation is applicable for thread cutting in non-symmetrical parts, utilizing the advantage of Helical Interpolation programs of modern machining centers.



Insert Dimensions					
Insert Size A		H		T	
Inch	mm	Inch	mm	Inch	mm
0.551	14	0.295	7.5	0.122	3.1
0.827	21	0.472	12.0	0.185	4.7
1.181	30	0.630	16.0	0.217	5.5
1.575	40	0.787	20.0	0.248	6.3

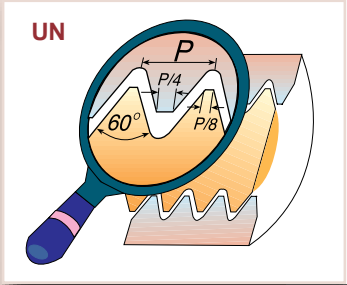


NPT - External and Internal Thread Milling Inserts								
Pitch TPI	Insert Size = A 14 mm (0.551")		Insert Size = A 21 mm (0.8927")		Insert Size = A 30 mm (1.181")		Insert Size = A 40 mm (1.575")	
	Insert Reference	Code 570-	Insert Reference	Code 570-	Insert Reference	Code 570-	Insert Reference	Code 570-
18	14-18 NPT	791						
14	14-14 NPT	792	21-14 NPT	793				
11.5			21-11.5 NPT	794	30-11.5 NPT	795	40-11.5 NPT	797
8					30-8 NPT	796	40-8 NPT	798

- ▶ FOR TOOL HOLDERS, SEE PAGE D2
- ▶ FOR CUTTING PARAMETERS, SEE PAGE D6

SOLID CARBIDE THREAD MILLING CUTTERS

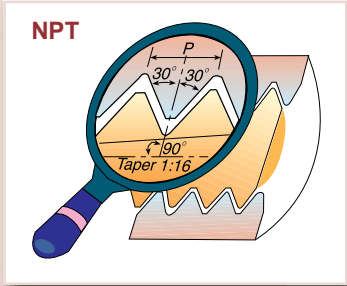
UN AND NPT



- ▶ Carbide grade MT7 for internal threading
(Sub-micron grade with Titanium Aluminum Nitride multi-layer coating - ISO K10-K20)
- ▶ To be run at medium to high cutting speeds as a general purpose grade for all materials

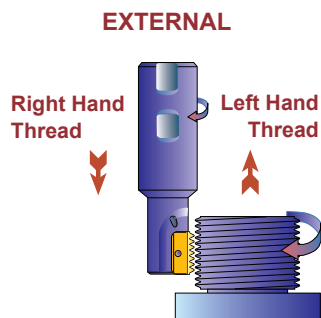
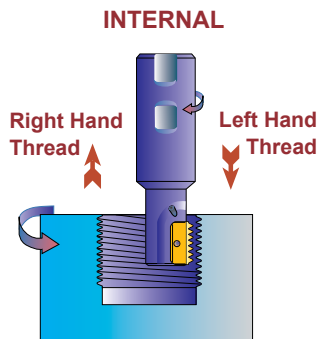


UN with Coolant-Thru										
Pitch TPI	Standard Tap Size			Ø d Inch	Internal Thread					Code 570-
	UNC	UNF	UNEF		Ø D Inch	No. of Flutes	I Inch	L Inch	Description	
32	8	10	12	1/4	0.126	3	0.27	2.50	MTB0250C02 32 UN	120
28		1/4		1/4	0.197	3	0.44	2.50	MTB0250C04 28 UN	122
28			7/16 - 1/2	1/4	0.250	3	0.56	2.50	MTB0250C05 28 UN	124
24		5/16		5/16	0.260	3	0.56	2.50	MTB0312C05 24 UN	126
24		3/8	9/16 - 5/8	5/16	0.312	4	0.81	2.50	MTB0312D08 24 UN	128
20	1/4			1/4	0.185	3	0.48	2.50	MTB0250C04 20 UN	130
20		7/16		5/16	0.312	3	0.83	2.50	MTB0312C08 20 UN	132
20		1/2		3/8	0.375	4	0.88	3.00	MTB0375D08 20 UN	134
20			3/4 - 1	1/2	0.500	5	1.07	4.00	MTB0500E10 20 UN	136
18	5/16			1/4	0.220	3	0.58	2.50	MTB0250C05 18 UN	138
18		9/16 - 5/8	1-1/8 - 1-5/8	1/2	0.445	4	1.03	4.00	MTB0500D10 18 UN	140
16	3/8			5/16	0.264	3	0.66	2.50	MTB0312C06 16 UN	142
16		3/4		1/2	0.500	4	1.22	4.00	MTB0500D12 16 UN	144
14	7/16			5/16	0.303	3	0.82	2.50	MTB0312C08 14 UN	146
14	2-1/2	7/8		5/8	0.625	5	1.46	4.00	MTB0625E14 14 UN	148
13	1/2			3/8	0.362	3	0.89	3.00	MTB0375C08 13 UN	150
12	9/16			1/2	0.413	3	1.04	4.00	MTB0500C10 12 UN	152
12		1 - 1-1/2		5/8	0.625	5	1.63	4.00	MTB0625E16 12 UN	154
11	5/8			1/2	0.449	3	1.14	4.00	MTB0500C11 11 UN	156
10	3/4			5/8	0.567	4	1.35	4.00	MTB0625D13 10 UN	158
9	7/8			5/8	0.625	3	1.50	4.00	MTB0625C15 9 UN	160



NPT with Coolant-Thru										
Pitch TPI	Standard Tap Size	Ø d Inch	Internal Thread					Code 570-		
			Ø D Inch	No. of Flutes	I Inch	L Inch	Description			
27	1/8	5/16	0.299	3	0.43	2.50	MTB0312C04 27 NPT	060		
18	1/4 - 3/8	3/8	0.375	4	0.64	3.00	MTB0375D06 18 NPT	061		
14	1/2 - 3/4	5/8	0.610	4	0.89	4.00	MTB0625D08 14 NPT	062		
11.5	1 - 2	3/4	0.750	4	1.17	4.00	MTB0750D11 11.5 NPT	063		
8	≥ 2-1/2	3/4	0.750	4	1.56	4.00	MTB0750D15 8 NPT	064		

THREAD MILLING INFORMATION GUIDE



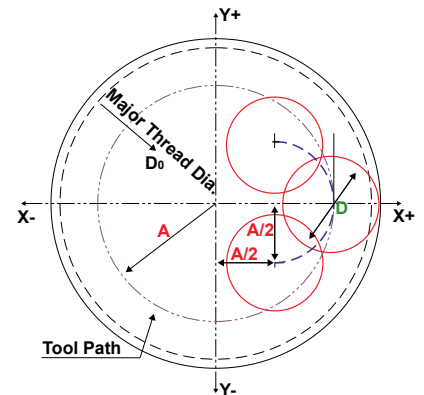
- ▶ Carbide grade MT7 (Sub-micron grade with Titanium Aluminum Nitride multi-layer coating - ISO K10-K20)
- ▶ Thread milling is good for thread cutting in asymmetrical parts, utilizing the advantages of helical interpolation programs of modern machining centers

NOTE

RECOMMENDED FEED RATE: 0.002" - 0.006" (0.05 - 0.15 mm)
 Cutting speed is shown in range terms. In most standard cases choosing a speed in the middle of the range would be a good choice for a start.
 For hard metals reduce cutting speed.

Speed Selection

ISO	Materials	Grade
		MT7 ft/min
P	Low and Medium Carbon Steels	380-920
	High Carbon Steels	430-660
	Alloy Steels, Treated Steels	340-590
M	Stainless Steels	430-620
	Cast Steels	490-620
K	Cast Iron	260-560
N	Non-ferrous and Aluminum	590-1120
S	Synthetics, Duroplastics, Thermoplastics	380-1500
	Nickel Alloys, Titanium Alloys	80-300



General Program

```
G90 G00 G54 G43 H1X0 Y0 Z10 S ---
G00 Z- (to thread depth)
G01 G91 G41 D1 X(A/2) Y-(A/2) Z0 F ---
G03 X(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G03 X0 Y0 I-(A) J0 Z(pitch)
G03 X-(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G01 G40 X-(A/2) Y-(A/2) Z0
G90 X0 Y0 Z0
```

EXAMPLE: Internal Thread

INTERNAL: 1-1/4 - 12UN x 0.71 depth
TOOL HOLDER: 570-904
CUTTING DIAMETER: 0.79
INSERT: 21 I 12 UN (570-767)
PITCH = 1/12 = 0.0833"
 $\frac{\text{PITCH}}{8} = 0.0104"$
DEPTH: 0.71
 $A = (1.25 - 0.79)/2 = 0.23"$
 $\frac{A}{2} = 0.1150"$

```
G90 G00 G54 G43 H1X0 Y0 Z 0.39 S2800
G00 Z- 0.71
G01 G91 G41X 0.1150 Y-0.1150 Z0 F3.35 D1
G03 X0.1150 Y0.1150 R0.1150 Z0.0104
G03 X0 Y0 I-0.23 J0 Z0.0833
G03 X-0.1150 Y0.1150 R0.1150 Z0.0104
G01 G40 X-0.1150 Y-0.1150 Z0
G90 G0 X0 Y0 Z0
```

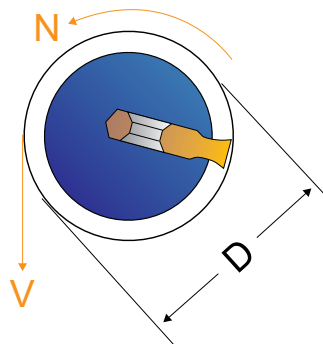
Thread Milling CNC Program for Internal Thread

Right hand thread (climb milling) from bottom up. Program is based on tool center. This method of programming needs no tool radius compensation value, other than an offset for wear.

$$A = \frac{D_0 - D}{2}$$

A = Radius of tool path
D₀ = Major thread diameter
D = Cutting diameter

Conversion of Cutting Speed to Rotational Speed



EXAMPLE: V=120 m/min (394 ft/min)
 D=30 mm (1.18")
 D=Cutting Diameter

Conversion of selected cutting speed to rotational speed is calculated by the following formula:

ISO

$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 1.25} = 1,274 \text{ RPM}$$

ANSI

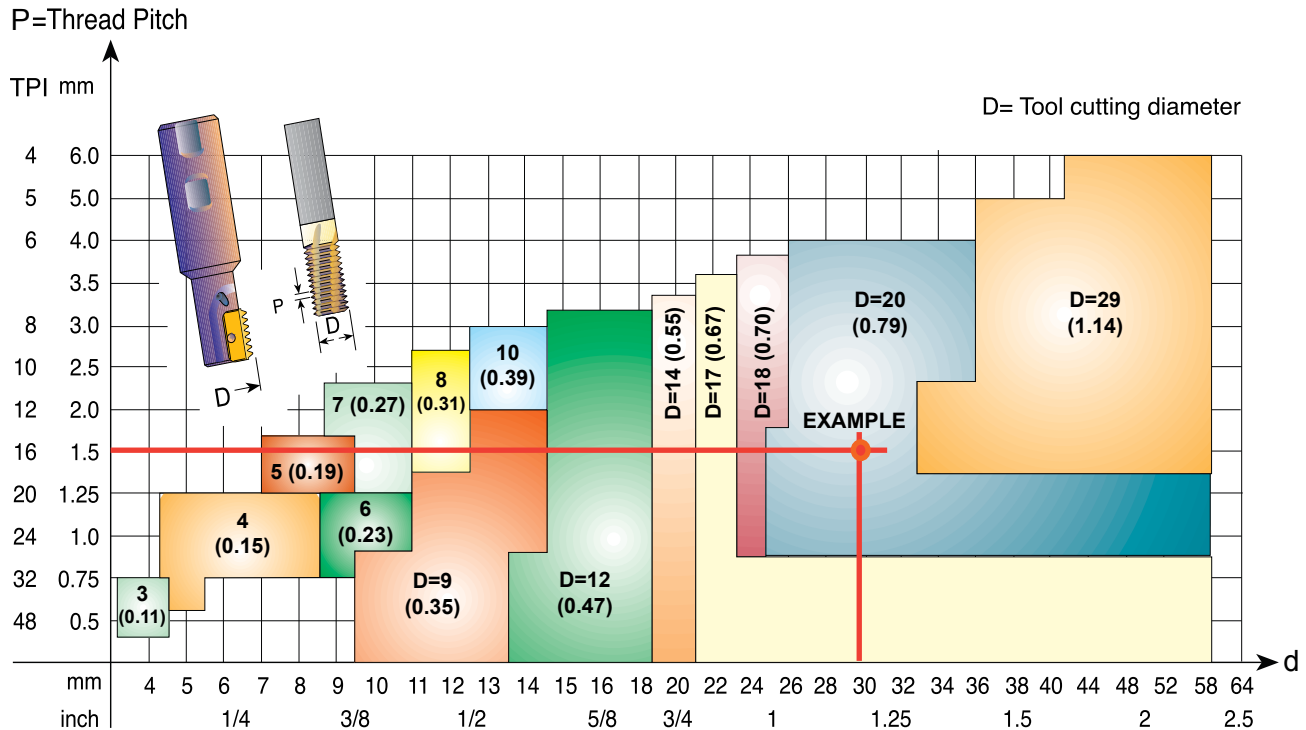
$$N = \frac{V}{0.262 \times D} = \frac{394}{0.262 \times 1.18} = 1,274 \text{ RPM}$$

THREAD MILLING INFORMATION GUIDE

THREAD MILLING CUTTER TOOL SELECTION

FOR INDEXABLE AND SOLID CARBIDE THREAD MILLING CUTTERS

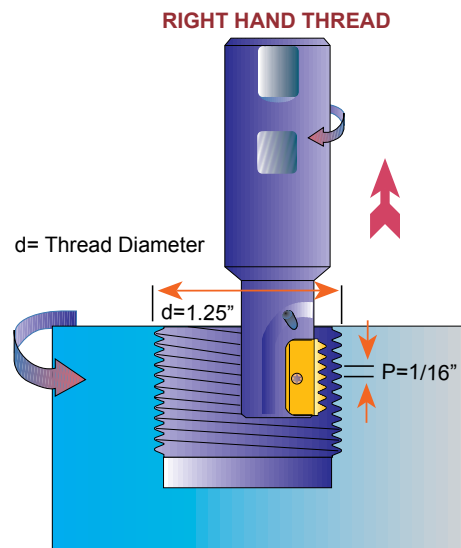
- ▶ The following chart is meant to provide a fairly accurate visual selection tool for internal threading
- ▶ This chart is suitable for the following thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT



Any tool having a small cutting diameter can produce large diameter threads.

EXAMPLE: Internal thread 1-1/4 x 16UN

- ▶ Find a milling tool to produce $d=1.25''$ internal right hand UN thread having thread pitch $P=1/16''$
- ▶ As can be seen from the chart above, the two red lines intersect at selected tool having cutting diameter of $D=0.79''$
- ▶ **CHOSEN:** Holder SR0790H21 (570-904)
Insert 21116UNMT7 (570-765)



NOTE

TO ASSIST YOU,
a CD-ROM is available on request. This will help guide you to tool selection, machining recommendations, and a CNC program generator for most thread milling tools.

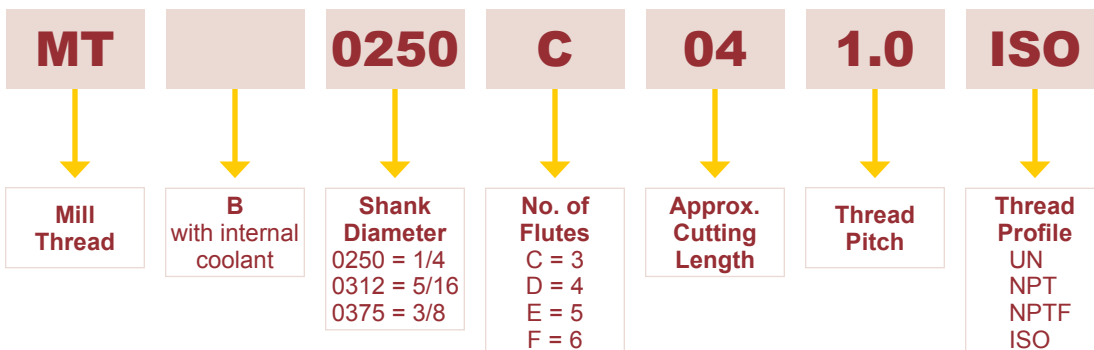
» THREAD MILLING INFORMATION GUIDE



RECOMMENDED CUTTING PARAMETERS

ISO	Materials	Cutting Speed ft/min	Feed inch/tooth										
			Cutting ØD										
			Ø3/32	Ø1/8	Ø5/32	Ø1/4	Ø5/16	Ø3/8	Ø1/2	Ø5/8	Ø3/4	Ø1	Ø1.25
P	Low and medium carbon steels	330-820	0.0012	0.0014	0.0020	0.002	0.003	0.003	0.004	0.005	0.005	0.007	0.009
	High carbon steels	360-590	0.0009	0.0011	0.0010	0.002	0.002	0.003	0.003	0.004	0.005	0.006	0.007
	Alloy steels, treated steels	300-520	0.0008	0.0009	0.0010	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.005
M	Stainless steels	360-560	0.0008	0.0009	0.0010	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.005
	Cast steels	430-560	0.0008	0.0009	0.0010	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.005
K	Cast iron	230-500	0.0012	0.0014	0.0020	0.002	0.003	0.003	0.004	0.005	0.005	0.007	0.009
N	Aluminum	520-980	0.0012	0.0014	0.0020	0.002	0.003	0.003	0.004	0.005	0.005	0.007	0.009
	Synthetics, duroplastics, thermoplastics	330-1300	0.0020	0.0024	0.0030	0.004	0.004	0.004	0.005	0.006	0.007	0.009	0.010
S	Nickel alloys, titanium alloys	70-760	0.0008	0.0008	0.0008	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002

PRODUCT IDENTIFICATION

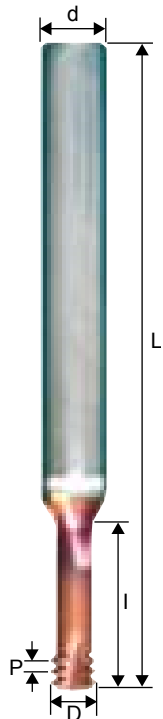


MINIATURE THREAD MILLING CUTTERS

UN AND ISO

► Carbide grade MT7 for internal threading (Sub-micron grade with Titanium Aluminum Nitride multi-layer coating - ISO K10-K20)

UN AND ISO INTERNAL THREADING

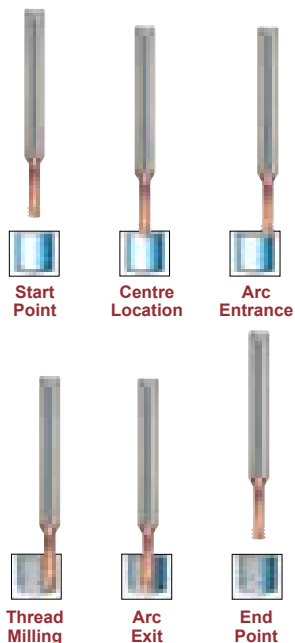


UN for Thread Depth up to 2xD1									
Pitch TPI	Standard Tap Size		Ø d Inch	Internal Thread				Description	Code 570-
	UNC	UNF		Ø D Inch	No. of Flutes	I Inch	L Inch		
72		1	1/4	0.057	3	0.15	2.5	MTS0250C15 72 UN	165
64	1	2	1/4	0.055	3	0.15	2.5	MTS0250C15 64 UN	166
56	2	3	1/4	0.065	3	0.17	2.5	MTS0250C17 56 UN	167
48	3	4	1/4	0.075	3	0.20	2.5	MTS0250C20 48 UN	168
40	4		1/4	0.083	3	0.25	2.5	MTS0250C25 40 UN	169
40	5	6	1/4	0.096	3	0.28	2.5	MTS0250C28 40 UN	170
36		8	1/4	0.130	3	0.35	2.5	MTS0250C35 36 UN	171
32	6		1/4	0.100	3	0.28	2.5	MTS0250C28 32 UN	172
32	8		1/4	0.126	3	0.37	2.5	MTS0250C37 32 UN	173
28		1/4	1/4	0.197	3	0.57	2.5	MTS0250C57 28 UN	174
24	10, 12		1/4	0.138	3	0.42	2.5	MTS0250C42 24 UN	175
24		5/16	5/16	0.260	3	0.67	2.5	MTS0312C67 24 UN	176
20	1/4		1/4	0.187	3	0.55	2.5	MTS0250C55 20 UN	177

UN for Thread Depth up to 3xD1									
Pitch TPI	Standard Tap Size		Ø d Inch	Internal Thread				Description	Code 570-
	UNC	UNF		Ø D Inch	No. of Flutes	I Inch	L Inch		
40	5	6	1/4	0.096	3	0.38	2.5	MTS0250C38 40 UN	180
32	8		1/4	0.126	3	0.49	2.5	MTS0250C49 32 UN	181
28		1/4	1/4	0.197	3	0.75	2.5	MTS0250C75 28 UN	182
24		5/16	5/16	0.260	3	0.94	2.5	MTS0312C94 24 UN	183
20	1/4		1/4	0.187	3	0.75	2.5	MTS0250C75 20 UN	184

ISO for Thread Depth up to 2xD1									
Pitch TPI	D1	Ø d Inch	Internal Thread				Description	Code 570-	
			Ø D Inch	No. of Flutes	I Inch	L Inch			
0.4	M2	1/4	0.061	3	0.18	2.5	MTS0250C18 0.4 ISO	185	
0.45	M2.2	1/4	0.065	3	0.20	2.5	MTS0250C20 0.45 ISO	186	
0.45	M2.5	1/4	0.077	3	0.22	2.5	MTS0250C22 0.45 ISO	187	
0.5	M3	1/4	0.093	3	0.26	2.5	MTS0250C26 0.5 ISO	188	
0.6	M3.5	1/4	0.108	3	0.30	2.5	MTS0250C30 0.6 ISO	189	
0.7	M4	1/4	0.122	3	0.35	2.5	MTS0250C35 0.7 ISO	190	
0.8	M5	1/4	0.150	3	0.49	2.5	MTS0250C49 0.8 ISO	191	
1.0	M6	1/4	0.183	3	0.55	2.5	MTS0250C55 1.0 ISO	192	
1.25	M8	1/4	0.234	3	0.71	2.5	MTS0250C71 1.25 ISO	193	

ISO for Thread Depth up to 3xD1									
Pitch TPI	D1	Ø d Inch	Internal Thread				Description	Code 570-	
			Ø D Inch	No. of Flutes	I Inch	L Inch			
0.45	M2.5	1/4	0.077	3	0.30	2.5	MTS0250C30 0.45 ISO	194	
0.5	M3	1/4	0.093	3	0.37	2.5	MTS0250C37 0.5 ISO	195	
0.7	M4	1/4	0.122	3	0.49	2.5	MTS0250C49 0.7 ISO	196	
0.8	M5	1/4	0.150	3	0.63	2.5	MTS0250C63 0.8 ISO	197	
1.0	M6	1/4	0.183	3	0.79	2.5	MTS0250C79 1.0 ISO	198	
1.25	M8	1/4	0.234	3	0.94	2.5	MTS0250C94 1.25 ISO	199	



MINIATURE THREAD MILLING INFORMATION GUIDE

RECOMMENDED CUTTING PARAMETERS

- ▶ Solid Carbide Grade MT7 (Sub-micron grade with Titanium Aluminum Nitride multi-layer coating - ISO K10-K20)
- ▶ To be run at medium to high cutting speeds
- ▶ General purpose for all materials

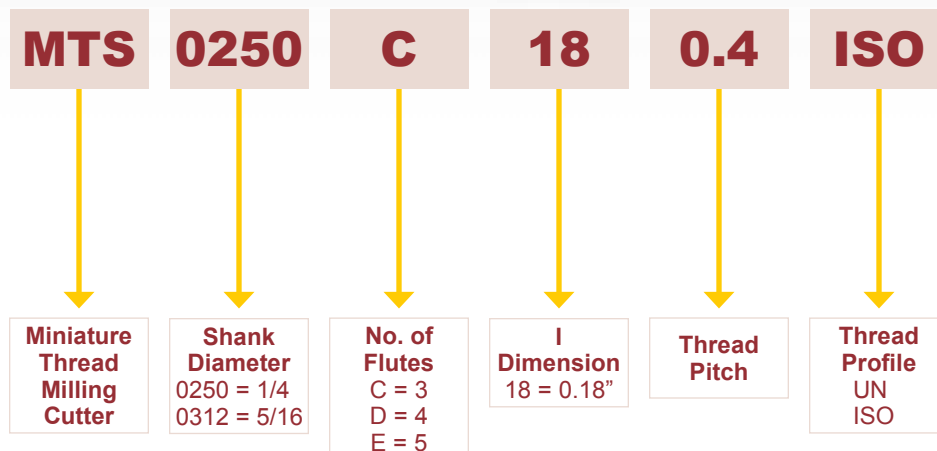
ADVANTAGES: Specially designed solid carbide thread mills for the production of internal threads in very small bores. Due to the unique tool design, accurate geometries and high quality sub-micron carbide grade with Titanium Aluminum Nitride (TiAlN) coating, the following are achieved:

- ▶ Threading from 0-80UNF (bore diameter 0.05)
- ▶ Working in high cutting speed
- ▶ Short machine time
- ▶ Low cutting forces thanks to the short profile
- ▶ No broken taps
- ▶ Threading up to shoulder in blind holes
- ▶ Machining of hardened materials



ISO	Materials	Cutting Speed ft/min	Feed inch/tooth												
			Cutting ØD												
			Ø0.06	Ø0.08	Ø0.12	Ø0.16	Ø0.20	Ø0.24	Ø0.28	Ø0.31	Ø0.35	Ø0.39	Ø0.47	Ø0.55	Ø0.59
P	Low and medium carbon steels	200-390	0.0018	0.0021	0.0028	0.0035	0.0043	0.0050	0.0057	0.0060	0.0062	0.0064	0.0067	0.0070	0.0071
	High carbon steels	200-300	0.0016	0.0019	0.0024	0.0030	0.0035	0.0041	0.0046	0.0050	0.0054	0.0057	0.0062	0.0067	0.0069
	Alloy steels, treated steels	160-260	0.0015	0.0017	0.0019	0.0021	0.0024	0.0026	0.0028	0.0033	0.0037	0.0041	0.0047	0.0052	0.0055
M	Stainless steels	200-300	0.0011	0.0013	0.0016	0.0019	0.0022	0.0025	0.0026	0.0031	0.0035	0.0038	0.0044	0.0049	0.0051
	Cast steels	230-300	0.0015	0.0017	0.0019	0.0021	0.0024	0.0026	0.0028	0.0033	0.0037	0.0041	0.0047	0.0052	0.0055
K	Cast iron	130-260	0.0018	0.0021	0.0028	0.0035	0.0043	0.0050	0.0057	0.0060	0.0062	0.0064	0.0067	0.0070	0.0071
N	Aluminum	260-490	0.0018	0.0021	0.0028	0.0035	0.0043	0.0050	0.0057	0.0060	0.0062	0.0064	0.0067	0.0070	0.0071
	Synthetics, duroplastics, thermoplastics	160-660	0.0038	0.0042	0.0049	0.0056	0.0063	0.0070	0.0073	0.0074	0.0075	0.0075	0.0077	0.0078	0.0078
S	Nickel alloys, titanium alloys	70-130	0.0011	0.0013	0.0015	0.0017	0.0020	0.0022	0.0024	0.0025	0.0026	0.0027	0.0029	0.0031	0.0031

PRODUCT IDENTIFICATION



THREAD MILLING INSERTS AND TOOL HOLDERS

- ▶ Threading on CNC milling machines by using helical interpolation programs
- ▶ Prismatic shape of insert's tail ensures exact and reliable clamping in the tool holder
- ▶ Most inserts are double sided with two cutting edges
- ▶ Longer tool life due to a special multi-layer coating process

SOLID CARBIDE THREAD MILL

- ▶ Sub-micron grade with Titanium Aluminum Nitride multi-layer coating (ISO K10-K20)
- ▶ Ideal at medium to high cutting speeds
- ▶ Suitable for general purpose applications and for all materials
- ▶ Spiral flutes allow smooth cutting action
- ▶ Shorter machining time due to multi spiral flutes (three to six)
- ▶ 2.2 mm and larger cutting diameters
- ▶ Longer tool life due to special multi-layer coating

THREAD MILLS WITH COOLANT-THRU

- ▶ Coolant fluid washes the chips out of hole
- ▶ Increased tool life

