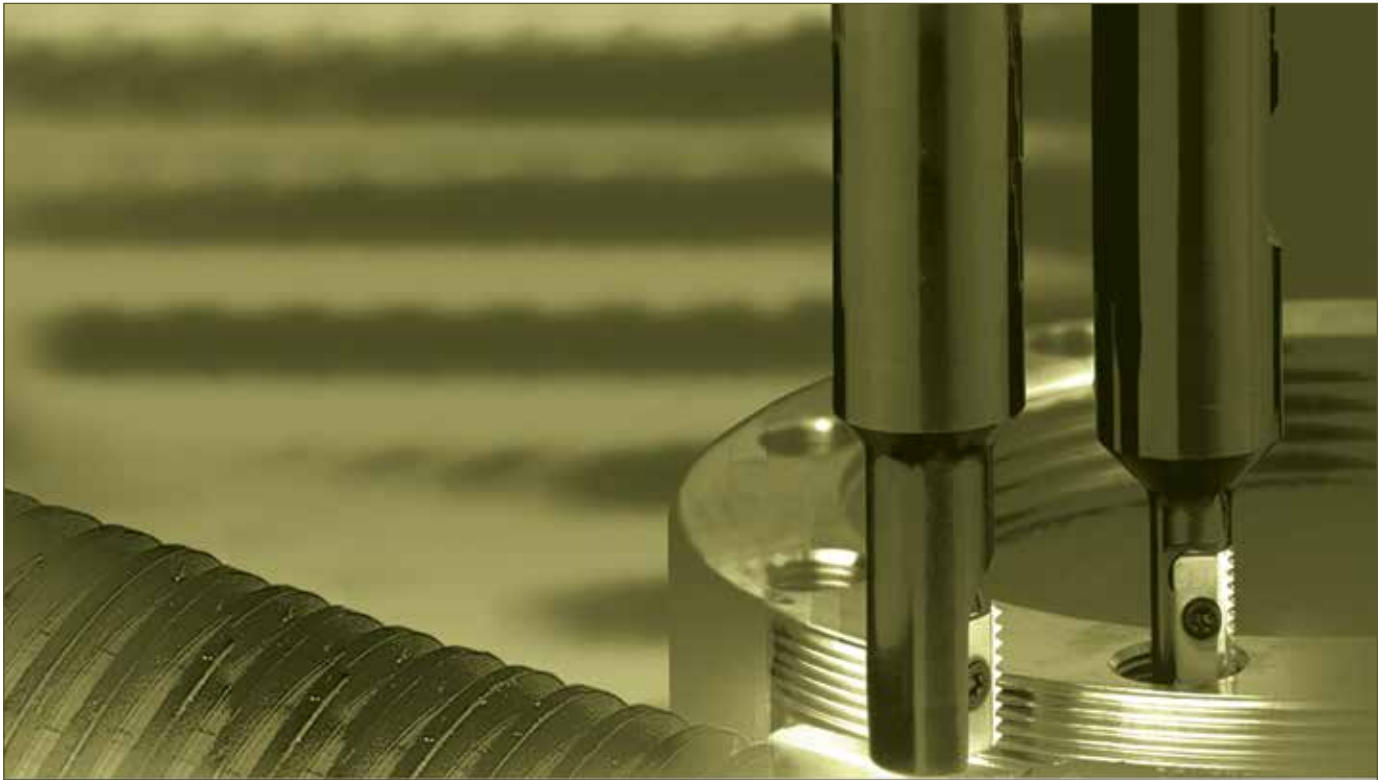


## Thread Milling Identification Guide



### 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																		
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; background-color: #ccc; margin: 0 auto;"></div> <p>Insert Size A</p> <table border="0"> <tr><td>12</td></tr> <tr><td>14</td></tr> <tr><td>21</td></tr> <tr><td>30</td></tr> <tr><td>40</td></tr> </table> </div> <div style="text-align: center;"> <p><b>E</b></p> <p>E = External I = Internal - = EXT. + INT.</p> </div> <div style="text-align: center;"> <p><b>12</b></p> <p>Thread Pitch</p> </div> <div style="text-align: center;"> <p><b>UN</b></p> <p>Thread Profile</p> <table border="0"> <tr><td>ISO</td></tr> <tr><td>UN</td></tr> <tr><td>WHIT</td></tr> <tr><td>NPT</td></tr> <tr><td>NPTF</td></tr> <tr><td>BSPT</td></tr> </table> </div> <div style="text-align: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; background-color: #ccc; margin: 0 auto;"></div> <p>Carbide Grades</p> <table border="0"> <tr><td>MT5</td></tr> <tr><td>MT7</td></tr> </table> </div> </div>	12	14	21	30	40	ISO	UN	WHIT	NPT	NPTF	BSPT	MT5	MT7	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; background-color: #ccc; margin: 0 auto;"></div> <p>R = Right Hand L = Left Hand</p> </div> <div style="text-align: center;"> <p><b>R</b></p> </div> <div style="text-align: center;"> <p><b>1180</b></p> <p>Cutting Diameter</p> <p>Inch: 1180 = 1.18"</p> </div> <div style="text-align: center;"> <p><b>J</b></p> <p>Length of Tool Holder</p> </div> <div style="text-align: center;"> <p><b>21</b></p> <p>Insert Size A</p> <table border="0"> <tr><td>12</td></tr> <tr><td>14</td></tr> <tr><td>21</td></tr> <tr><td>30</td></tr> <tr><td>40</td></tr> </table> </div> <div style="text-align: center;"> <p><b>C</b></p> <p>Carbide Shank</p> </div> <div style="text-align: center;"> <p><b>2</b></p> <p>No. of Inserts</p> </div> </div>	12	14	21	30	40
12																			
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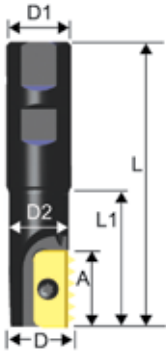
## Indexable Thread Milling Cutters



### Single, Double & Multi-Insert

- Minimum bore should be one-third greater than D

Single Insert  
Coolant-Thru



### Single Insert Cutters

Type	Insert Size A=mm	D (Inch)	D1 (Inch)	D2 (Inch)	L (Inch)	L1 (Inch)	Code
SR0500F14	14	0.50	0.75	0.37	2.95	0.70	570900
SR0540F14	14	0.54	0.75	0.38	2.98	0.77	570901
SR0570H14	14	0.57	0.75	0.41	3.20	1.00	570902
SR0670H14	14	0.67	0.75	0.53	3.35	1.18	570903
SR0790H21	21	0.79	0.75	0.61	3.66	1.57	570904
SR1140J30	30	1.14	1.00	0.91	4.25	1.85	570905
SR1730M40	40	1.73	1.50	1.38	6.02	3.19	570906

Single Insert  
Coolant-Thru  
Long Carbide Shank

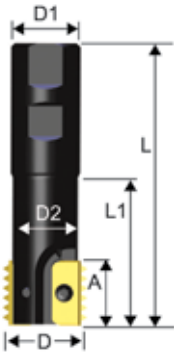


### Single Insert Cutters (Carbide Shank/Long Length)

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

Type	Insert Size A=mm	D (Inch)	D1 (Inch)	D2 (Inch)	L (Inch)	Code
SR0500J14C	14	0.50	0.375	0.375	6.0	570920
SR0620K14C	14	0.62	0.500	0.500	7.0	570921
SR0820M21C	21	0.82	0.625	0.625	8.0	570922

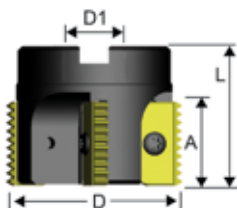
Double Insert  
Coolant-Thru



### Double Insert Cutters (2 Inserts)

Type	Insert Size A=mm	D (Inch)	D1 (Inch)	D2 (Inch)	L (Inch)	L1 (Inch)	Code
SR0790H14-2	14	0.79	0.75	0.63	3.66	1.57	570910
SR1180J21-2	21	1.18	1.00	0.94	4.25	1.97	570911
SR1580L30-2	30	1.57	1.25	1.18	5.12	2.80	570912
SR1970M40-2	40	1.97	1.50	1.49	6.02	3.35	570913

Multi-Insert



### Multi-Insert Shell Mill Cutters

Type	Insert Size A=mm	D (Inch)	D1 (Inch)	L (Inch)	No. of Inserts	Code
SR2480C21-5	21	2.48	0.75	1.97	5	570914
SR2480C30-4	30	2.48	0.75	1.97	4	570915
SR3150D30-4	30	3.15	1.00	2.16	4	570916
SR3940D30-4	30	3.94	1.25	2.36	4	570917
SR3150D40-4	40	3.15	1.00	2.56	4	570918
SR3940E40-4	40	3.94	1.25	2.76	4	570919

## Indexable Thread Milling Cutters



### Indexable Thread Milling Cutter Accessories

#### Insert Screws

#### Torx® Keys

Insert Size A=mm	Insert Screw	Code
14	S14	570890
21	S21	570891
30	S30	570892
40	S40	570893

Insert Size A=mm	Torx® Key	Code
14	K14	570895
21	K21	570896
30	K30	570897
40	K40	570898

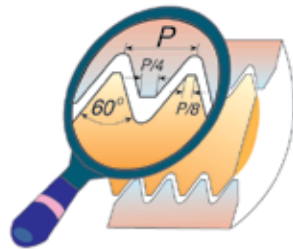
## Indexable Thread Milling Inserts



### UN, ISO & NPT – Internal & External

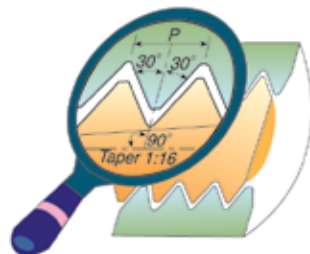
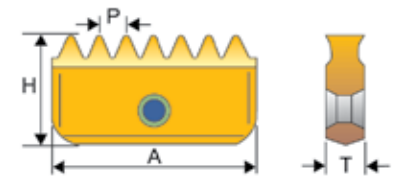


**CARMEX series inserts also fit STELLRAM, ISCAR, GREENFIELD, STS, and XACTFORM/DURAMET**



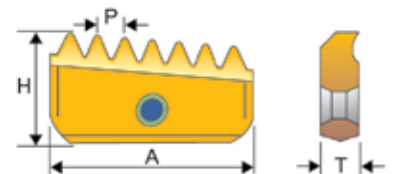
**UN and ISO:** Thread milling operation is applicable for thread cutting in non-symmetrical parts, utilizing the advantage of helical interpolation programs of modern machining centers

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



**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



### UN

Pitch (TPI)	A Insert Size	Internal		External	
		Insert Reference	Code	Insert Reference	Code
32	14 mm (0.551")	14I 32 UN	570750	14E 32 UN	570700
28	14 mm (0.551")	14I 28 UN	570751	14E 28 UN	570701
24	14 mm (0.551")	14I 24 UN	570752	14E 24 UN	570702
20	14 mm (0.551")	14I 20 UN	570753	14E 20 UN	570703
18	14 mm (0.551")	14I 18 UN	570754	14E 18 UN	570704
16	14 mm (0.551")	14I 16 UN	570755	14E 16 UN	570705
14	14 mm (0.551")	14I 14 UN	570756	14E 14 UN	570706
12	14 mm (0.551")	14I 12 UN	570757	14E 12 UN	570707
24	21 mm (0.827")	21I 24 UN	570762	21E 24 UN	570712
20	21 mm (0.827")	21I 20 UN	570763	21E 20 UN	570713

## Indexable Thread Milling Inserts



UN, ISO & NPT – Internal & External (continued)

UN (continued)

Pitch (TPI)	A Insert Size	Internal		External	
		Insert Reference	Code	Insert Reference	Code
18	21 mm (0.827")	21I 18 UN	570764	21E 18 UN	570714
16	21 mm (0.827")	21I 16 UN	570765	21E 16 UN	570715
14	21 mm (0.827")	21I 14 UN	570766	21E 14 UN	570716
12	21 mm (0.827")	21I 12 UN	570767	21E 12 UN	570717
10	21 mm (0.827")	21I 10 UN	570768	21E 10 UN	570718
8	21 mm (0.827")	21I 8 UN	570769	–	–
20	30 mm (1.181")	30I 20 UN	570773	30E 20 UN	570723
18	30 mm (1.181")	30I 18 UN	570774	30E 18 UN	570724
16	30 mm (1.181")	30I 16 UN	570775	30E 16 UN	570725
14	30 mm (1.181")	30I 14 UN	570776	30E 14 UN	570726
12	30 mm (1.181")	30I 12 UN	570777	30E 12 UN	570727
10	30 mm (1.181")	30I 10 UN	570778	30E 10 UN	570728
8	30 mm (1.181")	30I 8 UN	570779	30E 8 UN	570729
6	30 mm (1.181")	30I 6 UN	570780	30E 6 UN	570730
16	40 mm (1.575")	40I 16 UN	570785	40E 16 UN	570735
14	40 mm (1.575")	40I 14 UN	570786	40E 14 UN	570736
12	40 mm (1.575")	40I 12 UN	570787	40E 12 UN	570737
10	40 mm (1.575")	40I 10 UN	570788	40E 10 UN	570738
8	40 mm (1.575")	40I 8 UN	570789	40E 8 UN	570739
6	40 mm (1.575")	40I 6 UN	570790	40E 6 UN	570740

### ISO

Pitch (TPI)	A Insert Size	Internal		External	
		Insert Reference	Code	Insert Reference	Code
0.5	14 mm (0.551")	14I 0.5 ISO	570850	–	–
0.75	14 mm (0.551")	14I 0.75 ISO	570851	14E 0.75 ISO	570801
1.0	14 mm (0.551")	14I 1.0 ISO	570852	14E 1.0 ISO	570802
1.25	14 mm (0.551")	14I 1.25 ISO	570853	14E 1.25 ISO	570803
1.5	14 mm (0.551")	14I 1.5 ISO	570854	14E 1.5 ISO	570804
2.0	14 mm (0.551")	14I 2.0 ISO	570855	14E 2.0 ISO	570805
2.5	14 mm (0.551")	14I 2.5 ISO	570856	14E 2.5 ISO	570806
1.0	21 mm (0.827")	21I 1.0 ISO	570862	21E 1.0 ISO	570812
1.5	21 mm (0.827")	21I 1.5 ISO	570864	21E 1.5 ISO	570814
2.0	21 mm (0.827")	21I 2.0 ISO	570865	21E 2.0 ISO	570815
2.5	21 mm (0.827")	21I 2.5 ISO	570866	21E 2.5 ISO	570816
3.0	21 mm (0.827")	21I 3.0 ISO	570867	21E 3.0 ISO	570817
1.5	30 mm (1.181")	30I 1.5 ISO	570874	30E 1.5 ISO	570824
2.0	30 mm (1.181")	30I 2.0 ISO	570875	30E 2.0 ISO	570825
3.0	30 mm (1.181")	30I 3.0 ISO	570877	30E 3.0 ISO	570827
4.0	30 mm (1.181")	30I 4.0 ISO	570878	30E 4.0 ISO	570828
1.5	40 mm (1.575")	40I 1.5 ISO	570884	40E 1.5 ISO	570834
2.0	40 mm (1.575")	40I 2.0 ISO	570885	40E 2.0 ISO	570835
3.0	40 mm (1.575")	40I 3.0 ISO	570887	40E 3.0 ISO	570837
4.0	40 mm (1.575")	40I 4.0 ISO	570888	40E 4.0 ISO	570838

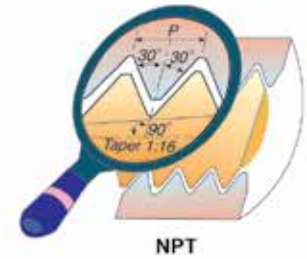
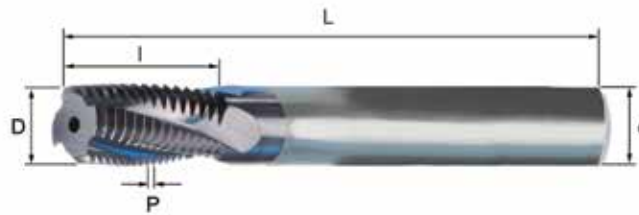
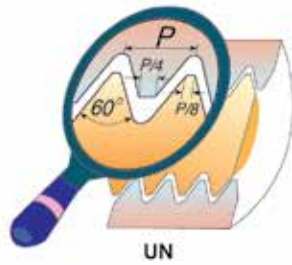
### NPT

Pitch (TPI)	A Insert Size	Insert Reference	Code
18	14 mm (0.551")	14-18 NPT	570791
14	14 mm (0.551")	14-14 NPT	570792
14	21 mm (0.827")	21-14 NPT	570793
11.5	21 mm (0.827")	21-11.5 NPT	570794
11.5	30 mm (1.181")	30-11.5 NPT	570795
8	30 mm (1.181")	30-8 NPT	570796
11.5	40 mm (1.575")	40-11.5 NPT	570797
8	40 mm (1.575")	40-8 NPT	570798

## Thread Milling Cutters



### Solid Carbide – Helical – UN & NPT



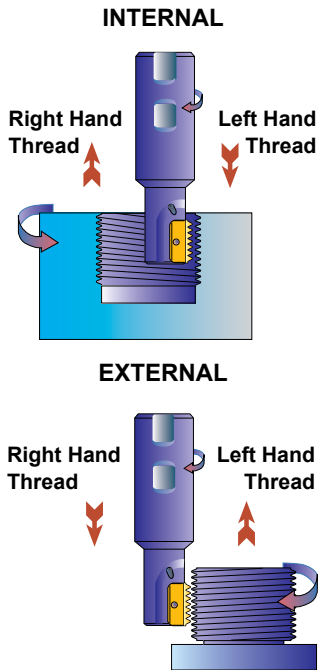
### UN with Coolant-Thru

Pitch (TPI)	Standard Tap Size UNC	Standard Tap Size UNF	Standard Tap Size UNEF	Ød (Inch)	ØD (Inch)	No. of Flutes	l (Inch)	L (Inch)	Description	Code
32	8	10	12	1/4	0.126	3	0.27	2.50	MTB0250C02 32 UN	570120
28	-	1/4	-	1/4	0.197	3	0.44	2.50	MTB0250C04 28 UN	570122
28	-	-	7/16 - 1/2	1/4	0.250	3	0.56	2.50	MTB0250C05 28 UN	570124
24	-	5/16	-	5/16	0.260	3	0.56	2.50	MTB0312C05 24 UN	570126
24	-	3/8	9/16 - 5/8	5/16	0.312	4	0.81	2.50	MTB0312D08 24 UN	570128
20	1/4	-	-	1/4	0.185	3	0.48	2.50	MTB0250C04 20 UN	570130
20	-	7/16	-	5/16	0.312	3	0.83	2.50	MTB0312C08 20 UN	570132
20	-	1/2	-	3/8	0.375	4	0.88	3.00	MTB0375D08 20 UN	570134
20	-	-	3/4 - 1	1/2	0.500	5	1.07	4.00	MTB0500E10 20 UN	570136
18	5/16	-	-	1/4	0.220	3	0.58	2.50	MTB0250C05 18 UN	570138
18	-	9/16 - 5/8	1-1/8 - 1-5/8	1/2	0.445	4	1.03	4.00	MTB0500D10 18 UN	570140
16	3/8	-	-	5/16	0.264	3	0.66	2.50	MTB0312C06 16 UN	570142
16	-	3/4	-	1/2	0.500	4	1.22	4.00	MTB0500D12 16 UN	570144
14	7/16	-	-	5/16	0.303	3	0.82	2.50	MTB0312C08 14 UN	570146
14	2-1/2	7/8	-	5/8	0.625	5	1.46	4.00	MTB0625E14 14 UN	570148
13	1/2	-	-	3/8	0.362	3	0.89	3.00	MTB0375C08 13 UN	570150
12	9/16	-	-	1/2	0.413	3	1.04	4.00	MTB0500C10 12 UN	570152
12	-	1 - 1-1/2	-	5/8	0.625	5	1.63	4.00	MTB0625E16 12 UN	570154
11	5/8	-	-	1/2	0.449	3	1.14	4.00	MTB0500C11 11 UN	570156
10	3/4	-	-	5/8	0.567	4	1.35	4.00	MTB0625D13 10 UN	570158
9	7/8	-	-	5/8	0.625	3	1.50	4.00	MTB0625C15 9 UN	570160

### NPT with Coolant-Thru

Pitch (TPI)	Standard Tap Size (Inch)	Ød (Inch)	ØD (Inch)	No. of Flutes	l (Inch)	L (Inch)	Description	Code
27	1/8	5/16	0.299	3	0.43	2.50	MTB0312C04 27 NPT	570060
18	1/4 - 3/8	3/8	0.375	4	0.64	3.00	MTB0375D06 18 NPT	570061
14	1/2 - 3/4	5/8	0.610	4	0.89	4.00	MTB0625D08 14 NPT	570062
11.5	1 - 2	3/4	0.750	4	1.17	4.00	MTB0750D11 11.5 NPT	570063
8	2-1/2 and larger	3/4	0.750	4	1.56	4.00	MTB0750D15 8 NPT	570064

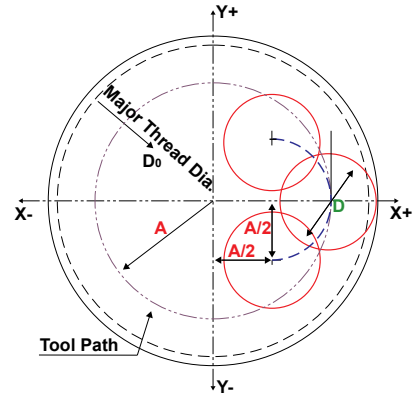
## Thread Milling Information Guide



- ▶ 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
		<b>MT7</b>
		ft/min
<b>P</b>	Low and Medium Carbon Steels	380-920
	High Carbon Steels	430-660
	Alloy Steels, Treated Steels	340-590
<b>M</b>	Stainless Steels	430-620
	Cast Steels	490-620
<b>K</b>	Cast Iron	260-560
<b>N</b>	Non-ferrous and Aluminum	590-1120
	Synthetics, Duroplastics, Thermoplastics	380-1500
<b>S</b>	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"
PITCH
8 = 0.0104"
DEPTH: 0.71
A = (1.25 - 0.79)/2 = 0.23"
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  
 D<sub>0</sub> = 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**

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

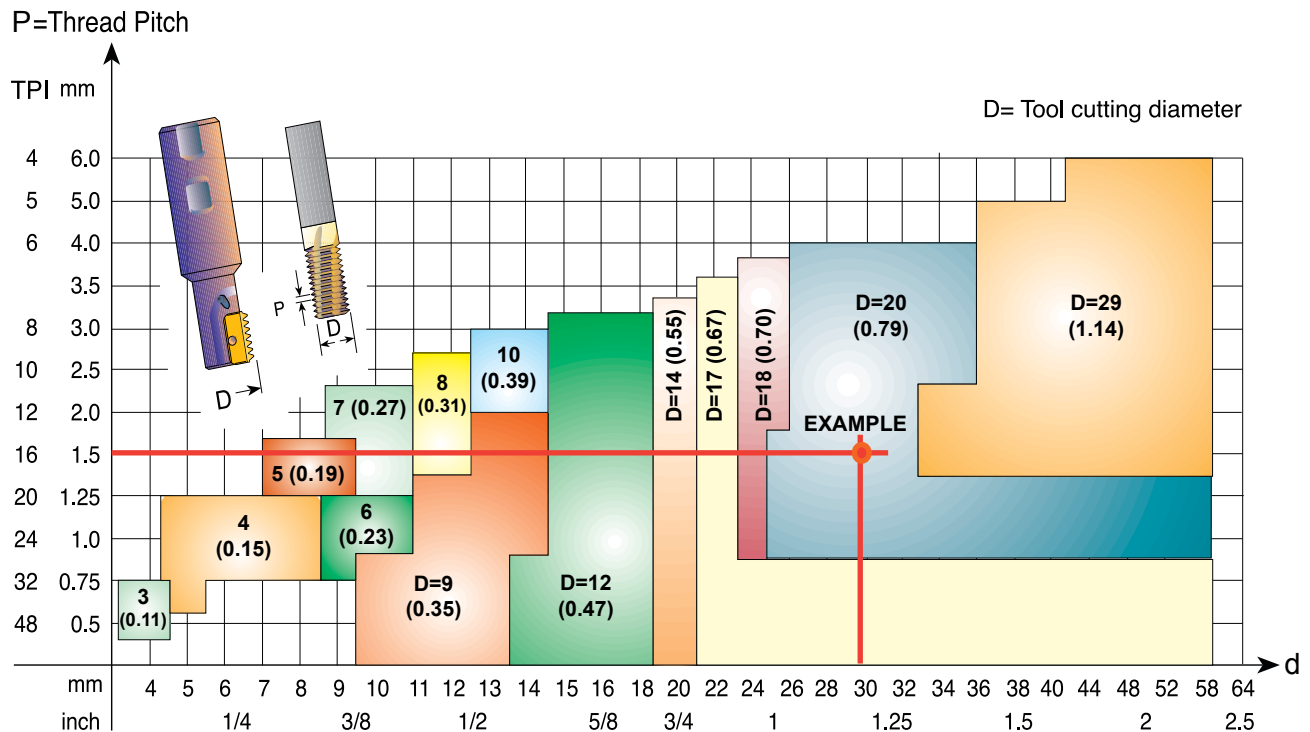
**ANSI**

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

## Thread Milling Cutter Tool Selection

For Indexable and Solid Carbide Thread Milling Cutters

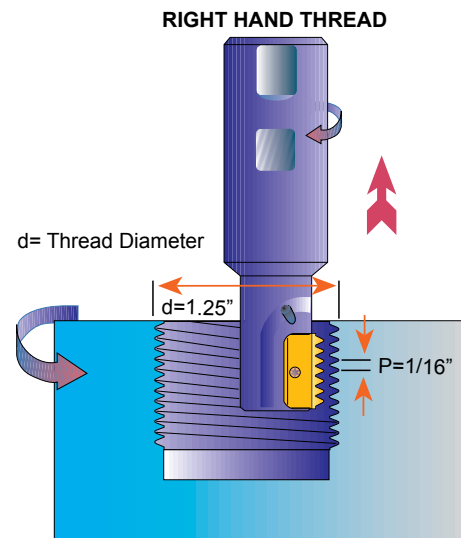
- ▶ The following chart is meant to provide a fairly accurate visual selection tool for internal threading
- ▶ This chart is suitable for the following thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT



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

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

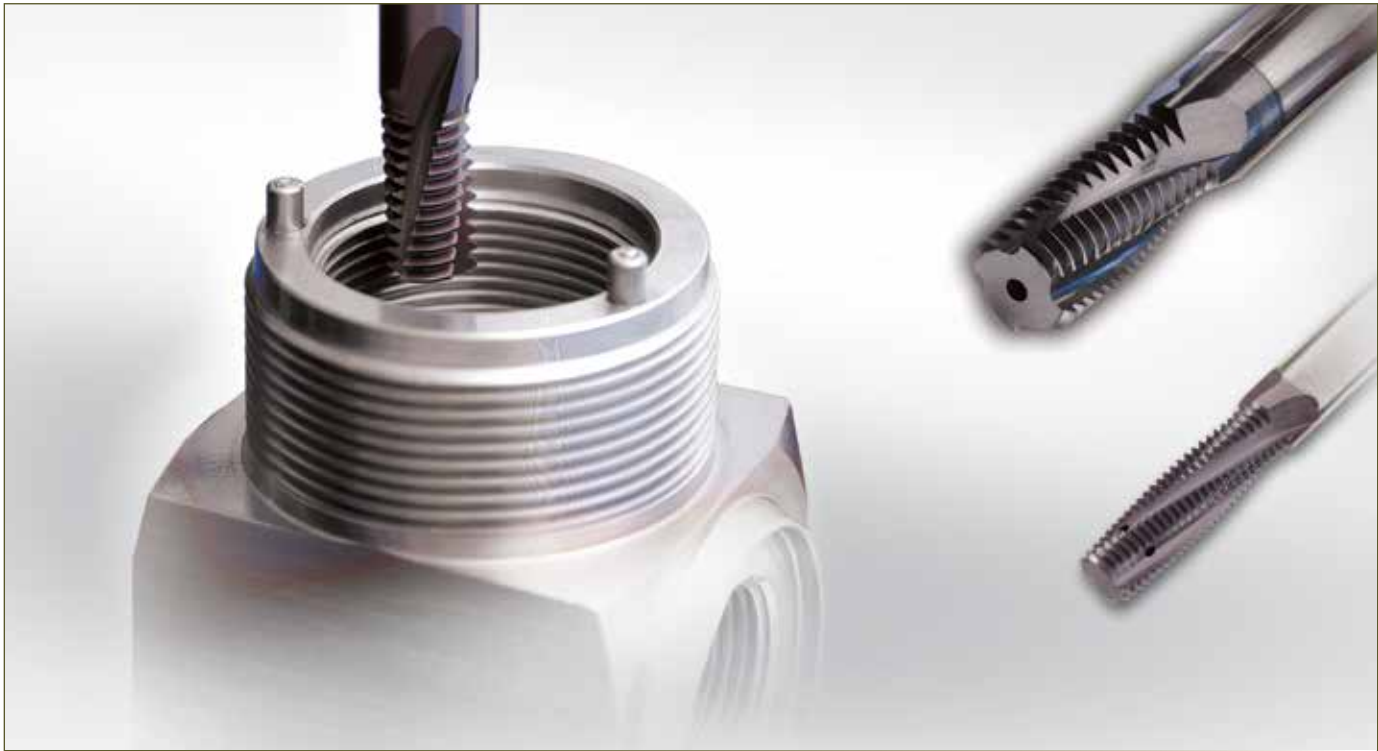
- ▶ Find a milling tool to produce  $d=1.25$ " internal right hand UN thread having thread pitch  $P=1/16$ "
- ▶ As can be seen from the chart above, the two red lines intersect at selected tool having cutting diameter of  $D=0.79$ "
- ▶ **CHOSEN:** Holder SR0790H21 (570-904)  
Insert 21116UNMT7 (570-765)



### 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.

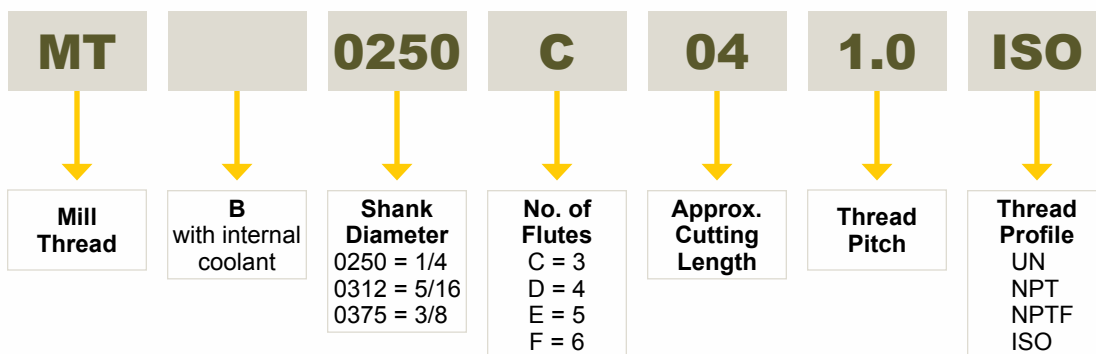
## Thread Milling Information Guide



### 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

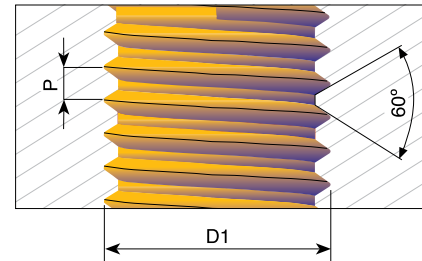
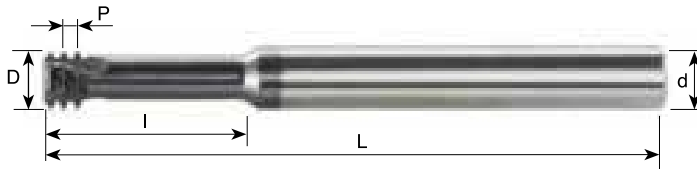




## Miniature Thread Milling Cutters



### UN & Metric/ISO



### UN for Thread Depth up to 2xD1

Pitch (TPI)	Standard Tap Size UNC	Standard Tap Size UNF	Ød (Inch)	ØD (Inch)	No. of Flutes	l (Inch)	L (Inch)	Description	Code
72	-	1	1/4	0.057	3	0.15	2.5	MTS0250C15 72 UN	570165
64	1	2	1/4	0.055	3	0.15	2.5	MTS0250C15 64 UN	570166
56	2	3	1/4	0.065	3	0.17	2.5	MTS0250C17 56 UN	570167
48	3	4	1/4	0.075	3	0.20	2.5	MTS0250C20 48 UN	570168
40	4	-	1/4	0.083	3	0.25	2.5	MTS0250C25 40 UN	570169
40	5	6	1/4	0.096	3	0.28	2.5	MTS0250C28 40 UN	570170
36	-	8	1/4	0.130	3	0.35	2.5	MTS0250C35 36 UN	570171
32	6	-	1/4	0.100	3	0.28	2.5	MTS0250C28 32 UN	570172
32	8	-	1/4	0.126	3	0.37	2.5	MTS0250C37 32 UN	570173
28	-	1/4	1/4	0.197	3	0.57	2.5	MTS0250C57 28 UN	570174
24	10, 12	-	1/4	0.138	3	0.42	2.5	MTS0250C42 24 UN	570175
24	-	5/16	5/16	0.260	3	0.67	2.5	MTS0312C67 24 UN	570176
20	1/4	-	1/4	0.187	3	0.55	2.5	MTS0250C55 20 UN	570177

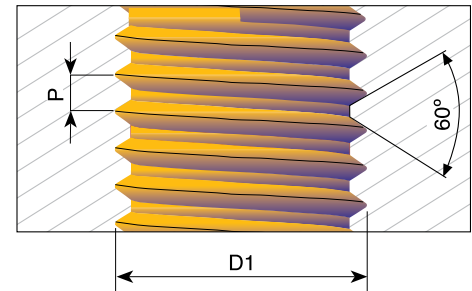
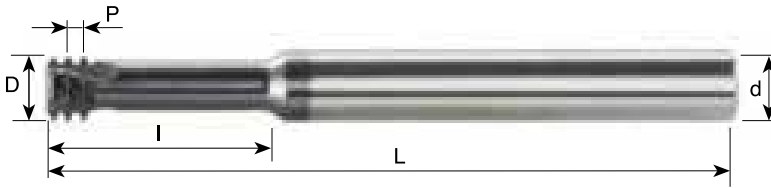
### UN for Thread Depth up to 3xD1

Pitch (TPI)	Standard Tap Size UNC	Standard Tap Size UNF	Ød (Inch)	ØD (Inch)	No. of Flutes	l (Inch)	L (Inch)	Description	Code
40	5	6	1/4	0.096	3	0.38	2.5	MTS0250C38 40 UN	570180
32	8	-	1/4	0.126	3	0.49	2.5	MTS0250C49 32 UN	570181
28	-	1/4	1/4	0.197	3	0.75	2.5	MTS0250C75 28 UN	570182
24	-	5/16	5/16	0.260	3	0.94	2.5	MTS0312C94 24 UN	570183
20	1/4	-	1/4	0.187	3	0.75	2.5	MTS0250C75 20 UN	570184

## Miniature Thread Milling Cutters



UN & Metric/ISO (continued)



### Metric/ISO for Thread Depth up to 2xD1

Pitch (TPI)	D1	Ød (Inch)	ØD (Inch)	No. of Flutes	I (Inch)	L (Inch)	Description	Code
0.4	M2	1/4	0.061	3	0.18	2.5	MTS0250C18 0.4 ISO	570185
0.45	M2.2	1/4	0.065	3	0.20	2.5	MTS0250C20 0.45 ISO	570186
0.45	M2.5	1/4	0.077	3	0.22	2.5	MTS0250C22 0.45 ISO	570187
0.5	M3	1/4	0.093	3	0.26	2.5	MTS0250C26 0.5 ISO	570188
0.6	M3.5	1/4	0.108	3	0.30	2.5	MTS0250C30 0.6 ISO	570189
0.7	M4	1/4	0.122	3	0.35	2.5	MTS0250C35 0.7 ISO	570190
0.8	M5	1/4	0.150	3	0.49	2.5	MTS0250C49 0.8 ISO	570191
1.0	M6	1/4	0.183	3	0.55	2.5	MTS0250C55 1.0 ISO	570192
1.25	M8	1/4	0.234	3	0.71	2.5	MTS0250C71 1.25 ISO	570193

### Metric/ISO for Thread Depth up to 3xD1

Pitch (TPI)	D1	Ød (Inch)	ØD (Inch)	No. of Flutes	I (Inch)	L (Inch)	Description	Code
0.45	M2.5	1/4	0.077	3	0.30	2.5	MTS0250C30 0.45 ISO	570194
0.5	M3	1/4	0.093	3	0.37	2.5	MTS0250C37 0.5 ISO	570195
0.7	M4	1/4	0.122	3	0.49	2.5	MTS0250C49 0.7 ISO	570196
0.8	M5	1/4	0.150	3	0.63	2.5	MTS0250C63 0.8 ISO	570197
1.0	M6	1/4	0.183	3	0.79	2.5	MTS0250C79 1.0 ISO	570198
1.25	M8	1/4	0.234	3	0.94	2.5	MTS0250C94 1.25 ISO	570199

## 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

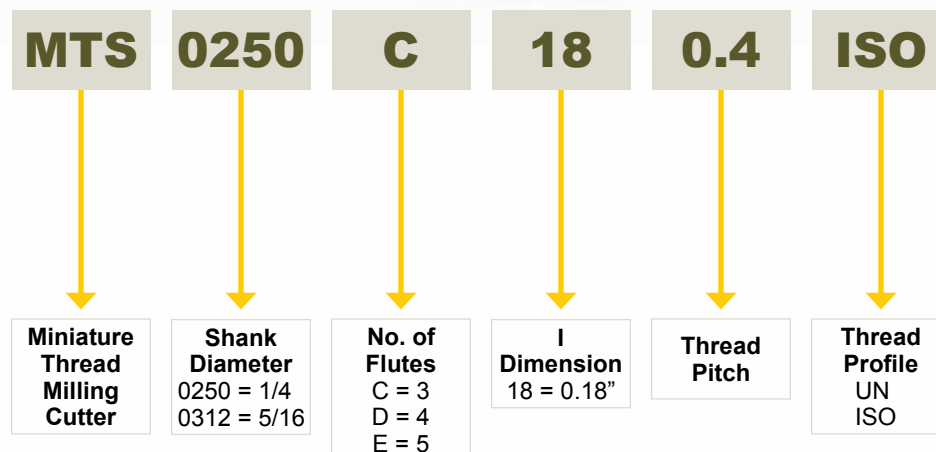
**ADVANTAGES:** Specially designed solid carbide thread mills for the production of internal threads in very small bores. Due to the unique tool design, accurate geometries and high quality sub-micron carbide grade with Titanium Aluminum Nitride (TiAlN) coating, the following are achieved:

- ▶ 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
<b>P</b>	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
<b>M</b>	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
<b>K</b>	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
<b>N</b>	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
<b>S</b>	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 Information Guide

### 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