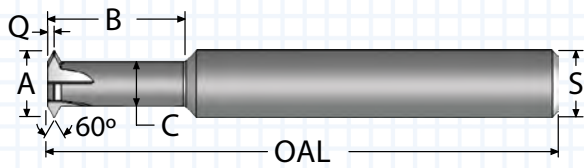


UN THREAD MILLS

SINGLE PROFILE (SPTM) - SOLID CARBIDE



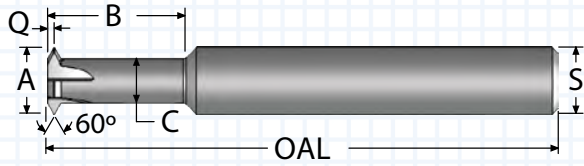
Fine and coarse threads ranging from #00 to 1¼ + can be milled using the 21 varieties of these single profile thread mills.

MIN INTERNAL THREAD*	"A" TOOL DIA.	"B" LENGTH OF CUT	"C" NECK DIA.	"Q" LENGTH	"S" SHANK DIA.	OAL	FLUTES	INTERNAL LIMITS TPI	EXTERNAL LIMITS TPI	ORDER #		EDP #	
										UNCOATED	AlTiN+	UNCOATED	AlTiN+
INTERNAL OR EXTERNAL THREADS													
#00	0.032	0.060	0.018	0.005	0.1250	1.50	2	90 to 120	----	SPTM032	SPTM032A	120001	120067
#00	0.032	0.100	0.018	0.005	0.1250	1.50	2	90 to 120	----	SPTM032L	SPTM032LA	120004	120070
#0	0.040	0.090	0.022	0.006	0.1250	1.50	2	80 to 100	90 to 100	SPTM040	SPTM040A	120007	120073
#0	0.040	0.109	0.022	0.006	0.1250	1.50	2	80 to 100	90 to 100	SPTM040ML	SPTM040MLA	120013	120079
#0	0.040	0.125	0.022	0.006	0.1250	1.50	2	80 to 100	90 to 100	SPTM040L	SPTM040LA	120010	120076
#1	0.050	0.100	0.028	0.007	0.1250	1.50	3	64 to 80	72 to 80	SPTM050	SPTM050A	120016	120082
#1	0.050	0.125	0.028	0.007	0.1250	1.50	3	64 to 80	72 to 80	SPTM050ML	SPTM050MLA	120022	120088
#1	0.050	0.150	0.028	0.007	0.1250	1.50	3	64 to 80	72 to 80	SPTM050L	SPTM050LA	120019	120085
#1	0.050	0.210	0.028	0.007	0.1250	1.50	3	64 to 80	72 to 80	SPTM050XL	SPTM050XLA	120020	120086
#2	0.059	0.125	0.034	0.008	0.1250	1.50	3	56 to 80	72 to 80	SPTM059	SPTM059A	120025	120091
#2	0.059	0.165	0.034	0.008	0.1250	1.50	3	56 to 80	72 to 80	SPTM059ML	SPTM059MLA	120031	120097
#2	0.059	0.200	0.034	0.008	0.1250	1.50	3	56 to 80	72 to 80	SPTM059L	SPTM059LA	120028	120094
#2	0.059	0.250	0.034	0.008	0.1250	1.50	3	56 to 80	72 to 80	SPTM059XL	SPTM059XLA	120029	120095
#2	0.060	0.125	0.034	0.009	0.1875	2.00	3	56 to 80	72 to 80	SPTM060	SPTM060A	120100	120214
#2	0.060	0.165	0.034	0.009	0.1875	2.00	3	56 to 80	72 to 80	SPTM060ML	SPTM060MLA	120106	120220
#2	0.060	0.200	0.034	0.009	0.1875	2.00	3	56 to 80	72 to 80	SPTM060L	SPTM060LA	120103	120217
#3	0.072	0.150	0.040	0.010	0.1875	2.00	3	48 to 80	56 to 80	SPTM072	SPTM072A	120109	120223
#3	0.072	0.250	0.040	0.010	0.1875	2.00	3	48 to 80	56 to 80	SPTM072L	SPTM072LA	120112	120226
#3	0.072	0.300	0.040	0.010	0.1875	2.00	3	48 to 80	56 to 80	SPTM072XL	SPTM072XLA	120113	120227
#4	0.080	0.190	0.045	0.011	0.1875	2.00	3	40 to 80	48 to 80	SPTM080	SPTM080A	120115	120229
#4	0.080	0.250	0.045	0.011	0.1875	2.00	3	40 to 80	48 to 80	SPTM080ML	SPTM080MLA	120121	120235
#4	0.080	0.300	0.045	0.011	0.1875	2.00	3	40 to 80	48 to 80	SPTM080L	SPTM080LA	120118	120232
#4	0.080	0.375	0.045	0.011	0.1875	2.00	3	40 to 80	48 to 80	SPTM080XL	SPTM080XLA	120119	120233
#5	0.090	0.200	0.048	0.013	0.1875	2.00	3	36 to 56	40 to 56	SPTM090	SPTM090A	120422	120425
#5	0.090	0.300	0.048	0.013	0.1875	2.00	3	36 to 56	40 to 56	SPTM090L	SPTM090LA	120431	120434
#5	0.090	0.400	0.048	0.013	0.1875	2.00	3	36 to 56	40 to 56	SPTM090XL	SPTM090XLA	120440	120443
#6	0.098	0.250	0.050	0.015	0.1875	2.00	3	32 to 56	36 to 56	SPTM098	SPTM098A	120124	120238
#6	0.098	0.330	0.050	0.015	0.1875	2.00	3	32 to 56	36 to 56	SPTM098ML	SPTM098MLA	120130	120244
#6	0.098	0.400	0.050	0.015	0.1875	2.00	3	32 to 56	36 to 56	SPTM098L	SPTM098LA	120127	120241
#8	0.120	0.300	0.070	0.016	0.1875	2.00	3	32 to 56	32 to 56	SPTM120	SPTM120A	120133	120247
#8	0.120	0.400	0.070	0.016	0.1875	2.00	3	32 to 56	32 to 56	SPTM120ML	SPTM120MLA	120139	120253
#8	0.120	0.500	0.070	0.016	0.1875	2.00	3	32 to 56	32 to 56	SPTM120L	SPTM120LA	120136	120250
#10	0.138	0.400	0.075	0.020	0.1875	2.00	3	24 to 48	28 to 48	SPTM138	SPTM138A	120142	120256
#10	0.138	0.500	0.075	0.020	0.1875	2.00	3	24 to 48	28 to 48	SPTM138ML	SPTM138MLA	120148	120262
#10	0.138	0.600	0.075	0.020	0.1875	2.00	3	24 to 48	28 to 48	SPTM138L	SPTM138LA	120145	120259
#12	0.160	0.400	0.080	0.025	0.1875	2.00	3	20 to 48	24 to 48	SPTM160	SPTM160A	120151	120265
#12	0.160	0.650	0.080	0.025	0.1875	2.00	3	20 to 48	24 to 48	SPTM160L	SPTM160LA	120154	120268

*Single profile thread mills can cut any larger diameter internal thread within the TPI limits

UN THREAD MILLS

SINGLE PROFILE (SPTM) - SOLID CARBIDE



- Solid carbide provides maximum tool rigidity
- Long reach tools are available from stock
- Cuts UNC, UNF, UNEF, and UNS threads
- Cuts UNJ threads (internal only)

MIN INTERNAL THREAD*	"A" TOOL DIA.	"B" LENGTH OF CUT	"C" NECK DIA.	"Q" LENGTH	"S" SHANK DIA.	OAL	FLUTES	INTERNAL LIMITS TPI	EXTERNAL LIMITS TPI	ORDER #		EDP #	
										UNCOATED	AITiN+	UNCOATED	AITiN+
										INTERNAL OR EXTERNAL THREADS			
1/4	0.182	0.400	0.104	0.025	0.2500	2.50	4	18 to 48	24 to 48	SPTM182	SPTM182A	120271	120301
1/4	0.182	0.530	0.104	0.025	0.2500	2.50	4	18 to 48	24 to 48	SPTM182ML	SPTM182MLA	120277	120307
1/4	0.182	0.650	0.104	0.025	0.2500	2.50	4	18 to 48	24 to 48	SPTM182L	SPTM182LA	120274	120304
1/4	0.182	0.800	0.104	0.025	0.2500	2.50	4	18 to 48	24 to 48	SPTM182XL	SPTM182XLA	120275	120305
5/16	0.240	0.500	0.153	0.028	0.2500	2.50	4	16 to 48	20 to 48	SPTM240	SPTM240A	120280	120310
5/16	0.240	0.800	0.153	0.028	0.2500	2.50	4	16 to 48	20 to 48	SPTM240L	SPTM240LA	120283	120313
5/16	0.240	1.100	0.153	0.028	0.2500	2.50	4	16 to 48	20 to 48	SPTM240XL	SPTM240XLA	120284	120314
3/8	0.290	0.600	0.192	0.031	0.3750	3.00	4	14 to 48	18 to 48	SPTM290	SPTM290A	120316	120340
3/8	0.290	1.000	0.192	0.031	0.3750	3.00	4	14 to 48	18 to 48	SPTM290L	SPTM290LA	120319	120343
3/8	0.290	1.400	0.192	0.031	0.3750	3.00	4	14 to 48	18 to 48	SPTM290XL	SPTM290XLA	120320	120344
7/16	0.332	0.700	0.220	0.035	0.3750	3.00	4	14 to 48	16 to 48	SPTM332	SPTM332A	120450	120453
7/16	0.332	1.100	0.220	0.035	0.3750	3.00	4	14 to 48	16 to 48	SPTM332L	SPTM332LA	120459	120462
7/16	0.332	1.500	0.220	0.035	0.3750	3.00	4	14 to 48	16 to 48	SPTM332XL	SPTM332XLA	120468	120471
1/2	0.372	0.850	0.240	0.041	0.3750	3.00	4	12 to 48	12 to 48	SPTM372	SPTM372A	120322	120346
1/2	0.372	1.250	0.240	0.041	0.3750	3.00	4	12 to 48	12 to 48	SPTM372L	SPTM372LA	120325	120349
1/2	0.372	1.750	0.240	0.041	0.3750	4.00	4	12 to 48	12 to 48	SPTM372XL	SPTM372XLA	120326	120350
5/8	0.488	0.850	0.340	0.046	0.5000	3.50	5	11 to 32	11 to 32	SPTM488	SPTM488A	120352	120364
5/8	0.488	1.350	0.340	0.046	0.5000	3.50	5	11 to 32	11 to 32	SPTM488L	SPTM488LA	120355	120367
5/8	0.488	2.000	0.340	0.046	0.5000	4.00	5	11 to 32	11 to 32	SPTM488XL	SPTM488XLA	120356	120368
3/4	0.595	1.250	0.430	0.051	0.6250	4.00	6	10 to 32	10 to 32	SPTM595	SPTM595A	120370	120382
3/4	0.595	2.000	0.430	0.051	0.6250	4.00	6	10 to 32	10 to 32	SPTM595L	SPTM595LA	120373	120385
3/4	0.595	2.750	0.430	0.051	0.6250	5.00	6	10 to 32	10 to 32	SPTM595XL	SPTM595XLA	120374	120386
7/8	0.695	1.500	0.490	0.063	0.7500	5.00	6	8 to 24	8 to 24	SPTM695	SPTM695A	120388	120412
7/8	0.695	2.500	0.490	0.063	0.7500	5.00	6	8 to 24	8 to 24	SPTM695L	SPTM695LA	120391	120415
7/8	0.695	3.250	0.490	0.063	0.7500	6.00	6	8 to 24	8 to 24	SPTM695XL	SPTM695XLA	120392	120416
1 1/4	0.745	1.500	0.400	0.107	0.7500	5.00	6	4 to 8	6 to 10	SPTM745	SPTM745A	120394	120418
1 1/4	0.745	2.500	0.400	0.107	0.7500	5.00	6	4 to 8	6 to 10	SPTM745L	SPTM745LA	120397	120421
1 1/4	0.745	3.250	0.400	0.107	0.7500	6.00	6	4 to 8	6 to 10	SPTM745XL	SPTM745XLA	120398	120423

*Single profile thread mills can cut any larger diameter internal thread within the TPI limits

THREAD MILLS
UN

SINGLE POINT

INDEXABLE TOOLS

PORT - CAVITY

SPECIALTY

THREAD MILL FEED AND SPEED CHART

MATERIAL	HB/Rc	SPEED SFM* UNCOATED	SPEED SFM ALTiN+	FEED (INCHES PER TOOTH)					
				TOOL DIAMETER					
				.032 - .056	.059 - .090	.100 - .190	.200 - .350	.370 - .595	.600+
CAST IRON	160 HB	100-220	200-425	.0004-.001	.0004-.0008	.0004-.0014	.0004-.002	.0004-.0035	.0004-.006
CARBON STEEL	18 Rc	100-200	190-425	.0003-.001	.0003-.0008	.0003-.0014	.0003-.002	.0003-.005	.0003-.006
ALLOY STEEL	20 Rc	80-200	200-375	.0003-.001 2 Passes	.0003-.0008 3 Passes	.0003-.0014	.0003-.0024	.0003-.005	.0003-.006
TOOL STEEL	20 Rc	80-175	175-250	.0003-.0004 2 Passes	.0003-.0005 3 Passes	.0003-.0005	.0003-.0009	.0003-.0026	.0003-.004
300 STAINLESS STEEL	150 HB	90-120	120-255	.0003-.0005 2 Passes	.0003-.0006 3 Passes	.0003-.0007	.0003-.002	.0003-.0035	.0003-.0045
400 STAINLESS STEEL	195 HB	90-150	140-375	.0003-.0005 2 Passes	.0003-.0006 3 Passes	.0003-.0007	.0003-.002	.0003-.0026	.0003-.0045
HIGH TEMP ALLOY (Ni & Co BASE)	20 Rc	50-125	100-125	.0003-.0004 3 Passes	.0003-.00045 3 Passes	.0003-.0005 2 Passes	.0003-.0009	.0003-.0026	.0003-.004
TITANIUM	25 Rc	50-130	100-170	.0003-.0004 3 Passes	.0003-.00045 3 Passes	.0003-.001 2 Passes	.0003-.0009	.0003-.0015	.0003-.003
HEAT TREATED ALLOYS (38-45Rc)	40 Rc	50-90	90-150	.0003-.0004 3 Passes	.0003-.00045 3 Passes	.0003-.0005 2 Passes	.0003-.0008	.0003-.001	.0003-.0025
ALUMINUM	100 HB	100-800	100-1200	.0005-.0015	.0005-.002	.0005-.0025	.0005-.003	.0005-.006	.0005-.009
BRASS, ZINC	80 HB	200-350	200-750	.0005-.0015	.0005-.002	.0005-.0025	.0005-.003	.0005-.006	.0005-.009

*SFM = Surface Feet per Minute

**Parameters are a starting point based on machinability rating at hardness listed.
Check machinability rating of the material to be machined and adjust accordingly.**

THREAD MILL FEED AND SPEED APPLICATION



It may be necessary to use more radial depth passes than shown on the chart when cutting an unfavorable length-to-diameter ratio, coarse pitches, or hard materials. When cutting a thread with two passes, cut approximately **65% of the thread on the first pass and 35 percent on the finish pass.** For three passes, use a **50/30/20** ratio. For four passes, use a **40/27/20/13** ratio. The idea is to equalize the side cutting pressure.

Thread mills can sometimes be used to cut multiple start threads. Call engineering for assistance.

Thread mills can be cut off for shorter thread depths or necked back for deeper thread depths. Call for price and delivery.

In order to apply the Feed and Speed chart appropriately, it is necessary to understand that machining centers will apply the feed rate at the centerline of the spindle. It is correct to use a normal calculation and the following Feed & Speed Chart when cutting in a straight line; however, it is incorrect when cutting an internal thread. Therefore, the feed rate must be recalculated.

The following is an example of how to apply the feed rate correctly:

The tool is a TM290-24A cutting a 3/8-24 thread in stainless steel.

The outside diameter of the tool is 0.290.

The surface foot per minute (SFM) is 150.

The chip per tooth is 0.001. The tool has four flutes.

The revolutions per minute (RPM) equal the SFM x 3.82 divided by the outside diameter of the tool.

In this example: **$(150 \times 3.82) / 0.290$** , which equals 1975 RPM.

The RPM x feed (chip per tooth) x the number of flutes equals the Non-Adjusted Feed Rate or NAFR.

In this example: **$1975 \times 0.001 \times 4 = 7.9$ NAFR**

The major diameter of the thread is 0.375. We will call this D.

The outside diameter of the tool is 0.290. We will call this d.

We will call the Adjusted Feed Rate the AFR.

The formula for the AFR for internal interpolation is **$AFR = NAFR \times (D-d) \div D$**

In this example: **$AFR = 7.9 \times (0.375 - 0.290) \div 0.375$**

Therefore, the Adjusted Feed Rate equals 1.79. This is the feed rate that will equal 0.001 chip per tooth in the above example. This is the feed rate that must be used in the CNC program.