ThreadMills USA, LLC

Helical Carbide Threadmills at an Affordable Price

MADE IN THE USA

Sub-Micrograin Carbide
TiALN Coating Standard, Others Available
CNC Ground
Superior Threads vs. Tapping
One Tool Cuts RH & LH Threads
Helical Flutes

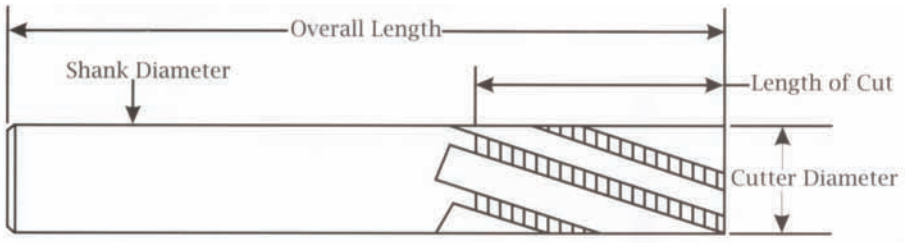
PRICE & QUALITY
A Combination
That Cannot Be Beat.

Helical Carbide Threadmills at an Affordable Price

UN Thread Forms

Minimum Thread Size & Pitch	Part Number	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
#2-56	TM08656	56	3*	0.065	0.125	0.125	2.000
#4-40	TM12540	40	3*	0.085	0.125	0.175	2.000
#6-32	TM13832	32	3	0.100	0.125	0.218	2.000
#8-32	TM16432	32	3	0.115	0.125	0.250	2.000
#10-32	TM19032	32	3	0.120	0.125	0.312	2.000
#10-28	TM19028	28	3	0.120	0.125	0.312	2.000
1/4-28	TM25028	28	3	0.180	0.187	0.500	2.500
#10-24	TM19024	24	3	0.120	0.125	0.312	2.000
5/16-24	TM31224	24	3	0.235	0.250	0.625	2.500
3/8-24	TM37524	24	4	0.285	0.312	0.750	3.000
1/4-20	TM25020	20	3	0.180	0.187	0.500	2.500
7/16-20	TM43720	20	4	0.335	0.375	0.875	3.500
5/16-18	TM31218	18	3	0.235	0.250	0.625	2.500
9/16-18	TM56218	18	4	0.370	0.375	0.875	3.500
3/8-16	TM37516	16	4	0.285	0.312	0.750	3.000
3/4-16	TM75016	16	4	0.490	0.500	1.250	3.500
7/16-14	TM43714	14	4	0.305	0.312	0.750	3.000
7/8-14	TM87514	14	4	0.490	0.500	1.250	3.500
1/2-13	TM50013	13	4	0.350	0.375	0.875	3.500
9/16-12	TM56212	12	4	0.370	0.375	0.875	3.500
3/4-12	TM75012	12	4	0.495	0.500	1.250	3.500
1”-12	TM10012	12	6	0.745	0.750	1.500	4.000
5/8-11	TM62511	11	4	0.470	0.500	1.250	3.500
3/4-10	TM75010	10	4	0.495	0.500	1.250	3.500
7/8-9	TM87509	9	4	0.620	0.625	1.375	4.000
1”-8	TM10008	8	4	0.620	0.625	1.375	4.000
1-1/8 & 1-1/4-7	TM12507	7	5	0.745	0.750	1.572	4.5000

*** These 3 Items Are Straight Flute.**



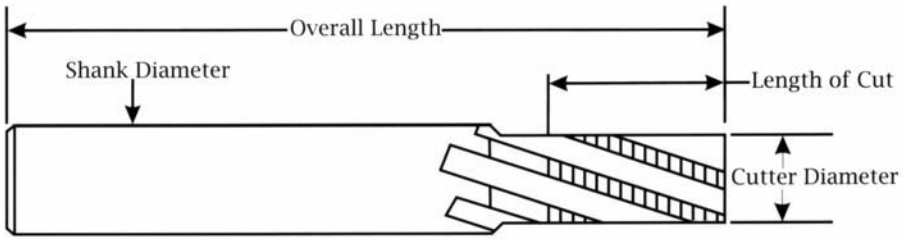
Special Threadmills Are Available on Request - 2 Week Delivery on Most Special Threadmills.

Resharpening Service Also Available for ThreadMills USA Products.

Heavy Duty Threadmills

Heavy Duty Geometry for Tough Materials
(40+ RC Steels, Aerospace Alloys, Etc.)

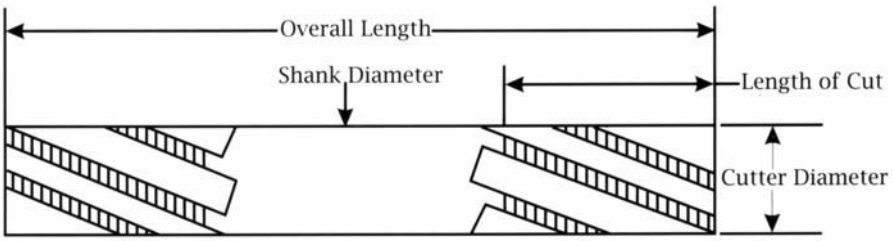
Minimum Thread Size & Pitch	Part Number	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
#10-32	HDTM19032	32	3	0.150	0.187	0.312	2.500
#10-24	HDTM19024	24	3	0.145	0.187	0.312	2.500
1/4-20	HDTM25020	20	3	0.195	0.250	0.500	2.500
5/16-18	HDTM31218	18	3	0.245	0.312	0.625	3.000
3/8-16	HDTM37516	16	4	0.300	0.375	0.750	3.500
1/2-13	HDTM50013	13	4	0.400	0.500	0.875	3.500



Double End Threadmills

Short Length (UN Thread)

Minimum Thread Size & Pitch	Part Number	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
#10-32	TM19032DE	32	3	0.120	0.125	0.220	2.000
1/4-20	TM25020DE	20	3	0.180	0.187	0.350	2.500
5/16-18	TM31218DE	18	3	0.235	0.250	0.390	2.500
3/8-16	TM37516DE	16	4	0.285	0.312	0.440	3.000
1/2-13	TM50013DE	13	4	0.350	0.375	0.620	3.500



Metric Threadmills

Minimum Thread Size & Pitch	Part Number	Pitch (mm)	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
M3 X .5MM	TM30050	0.50	3*	0.085	0.125	0.178	2.000
M4 X .7MM	TM40070	0.70	3	0.115	0.125	0.276	2.000
M4.5	TM45075	0.75	3	0.120	0.125	0.178	2.000
M8	TM80075	0.75	3	0.235	0.250	0.625	2.500
M5	TM50080	0.8	3	0.120	0.125	0.312	2.000
M6	TM60100	1	3	0.170	0.187	0.500	2.500
M12	TM12100	1	4	0.360	0.375	0.875	3.500
M8	TM80125	1.25	3	0.235	0.250	0.625	2.500
M10	TM10150	1.5	4	0.300	0.312	0.312	3.000
M14	TM14150	1.5	4	0.370	0.375	0.875	3.500
M18	TM18150	1.5	4	0.490	0.500	1.250	3.500
M12	TM12175	1.75	4	0.360	0.375	0.875	3.500
M16	TM16200	2	4	0.470	0.500	1.250	3.500
M20	TM20250	2.5	4	0.495	0.500	1.250	3.500
M24	TM24300	3	4	0.620	0.625	1.375	4.000

NPT & NPTF Threadmills

Minimum Thread Size & Pitch	Part Number	Pitch	Flutes	Large End Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
1/16- & 1/8 NPT	TM27NPT	27	4	0.245	0.250	0.437	2.500
1/4 & 3/8 NPT	TM18NPT	18	4	0.305	0.312	0.625	3.000
1/2 & 3/4 NPT	TM14NPT	14	4	0.495	0.500	0.875	3.500
1”-2” NPT	TM11NPT	11.5	4	0.620	0.625	1.125	4.000
2-1/2” - 6” NPT	TM8NPT	8	4	0.745	0.750	1.500	5.000
1/16- & 1/8 NPTF	TM27NPTF	27	3	0.245	0.250	0.437	2.500
1/4 & 3/8 NPTF	TM18NPTF	18	4	0.305	0.312	0.625	3.000
1/2 & 3/4 NPTF	TM14NPTF	14	4	0.495	0.500	0.875	3.500
1”-2” NPTF	TM11NPTF	11.5	4	0.620	0.625	1.125	4.000
2-1/2” - 6” NPTF	TM8NPTF	8	4	0.745	0.750	1.500	5.000

BSPT & BSPP Threadmills

Minimum Thread Size & Pitch	Part Number	Pitch	Flutes	Large End Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
1/16 & 1/8 BSPT	TM28BSPT	28	3	0.240	0.250	0.393	2.500
1/4 & 3/8 BSPT	TM19BSPT	19	4	0.310	0.312	0.580	3.000
1/2 & 3/4 BSPT	TM14BSPT	14	4	0.470	0.500	0.787	3.500
1”-2” BSPT	TM11BSPT	11	4	0.620	0.625	1.546	4.000
1/16 & 1/8 BSPP	TM28BSPP	28	3	0.240	0.250	0.572	2.500
1/4 & 3/8 BSPP	TM19BSPP	19	4	0.310	0.312	0.737	3.000
1/2 & 3/4 BSPP	TM14BSPP	14	4	0.470	0.500	1.143	3.500
1”-2” BSPP	TM11BSPP	11	4	0.620	0.625	1.365	4.000

Threadmills Programming Help Sheet For UN Internal Threads

When programming threadmills the start position in X and Y should be at the center of the drilled hole. The Z start position will be at the top of the part. All the programming is done in incremental mode since we dfo not know the absolute hole position. All the cutting will be climb milling.

When programming the machine will go through the following sequences:

(0-1) Feed Z in at 50 IPM to the full thread depth plus 1/8 of the pitch.

(1-2) FeedX and Y to position 2 (Clear dia.) and activate the cutter comp.

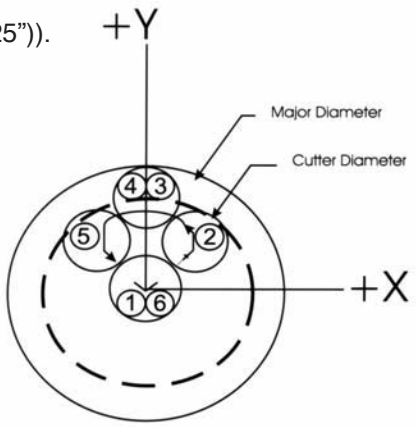
(2-3) Feed CCW thru 45 degrees at the programmed feedrate in X, Y and Z to ramp out to the major dia.
(The Z move will be out of the part and equal to 1/8 of the pitch (45/360) degrees = 1/8)).

(3-4) Feed CCW around the entire circle to cut the threads in one revolution.
(The Z move will be out of the part and equal to the pitch (ex. 16 pitch = .0625")).

(4-5) Feed the CCW thru 45 degrees to ramp out of the part to clear the diameter.
(The Z move will be out of the part and equal to 1/8 of the pitch).

(5-6) Move the cutter back to the centerline at 50 IPM and delete the clutter comp.

The last move is to rapid Z out to the top of the part and then go back to absolute" mode.



This is a generic program that may not be suitable for all machines. Please make sure that your machine is capable of helical interpolation. The vast majority of CNC machines manufactured in the last ten years have the helical interpolation capability. Machines manufactured before that usually supplied it as an option, which can be enabled with a parameter. The best way to see if your machine is capable is to MDI the part program below into the machine and see if it will make the moves.

It is generally recommended to cut fine threads in one pass and coarse threads in two passes in soft steels and non-ferrous materials. On harder steels, you will need two passes on fine threads and three passes on coarse threads.

For a chart showing number of passes for different materials email rickk@threadmillsusa.com

Sample Program For A 3/8-16 x 3/4 Deep Thread With A .285" Dia. Threadmill

N05	M3S3521						
N10	G01G91			Z-.7578			F50.00
N15	G41	X.0225	Y.0225	D(Offset #)			F4.85
N20	G03	X-.0225	Y.0225	Z.0078	i .0025	j 0	F4.85
N25	G03	X0	Y0	Z.0625	i 0	j-.045	F4.85
N30	G03	X-.0225	Y-.0225	Z.0078	i 0	j-.0225	F9.70
N35	G01G40	X.0225	Y-.0225				F50.00
N40	G00			Z.6797			
N45	G90						

An EXCEL sheet, which calculates all of these values is available at no charge. Please email Rick at rickk@threadmillsusa.com for a copy. Please provide us with the *Material Type*, *Depth of Full thread Into the Part*, and *Thread Type (e.g. 3/8-16)*.

Speed and Feed Chart For
Thread*Mills* USA Tools

Material Type	Specific Grades	Speed SFM	CUTTER DIAMETER (in) 1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
			CHIPLOAD PER TOOTH (in)							
Low Carbon & Leaded Steels <25Rc	1005-1029	500	0.0003	0.0006	0.001	0.0013	0.0017	0.002	0.0027	0.0035
	12L14	500								
Medium Carbon & Alloy Steels 25-35 Rc	1030-1050	450	0.0003	0.0006	0.001	0.0012	0.0015	0.0018	0.0025	0.0032
	4130,4140,4340	450								
Medium Carbon & Alloy Steels 36-46 Rc	1040, 4130, 4140	250	0.0003	0.0004	0.0007	0.0009	0.0012	0.0015	0.002	0.0025
	4340, 52100	250								
Aluminum Alloys	6061, 6066	1200	0.0004	0.0008	0.0012	0.0017	0.0021	0.0025	0.0035	0.0042
Brass	Free Machining	1000	0.0004	0.0007	0.001	0.0015	0.0018	0.0022	0.003	0.0037
Titanium & Titanium Alloys	Commercially Pure	350	0.0003	0.0005	0.0007	0.0009	0.0012	0.0015	0.0021	0.0028
	6AL4V	250	0.0003	0.0004	0.0006	0.0008	0.0011	0.0013	0.0018	0.0022
Nickel Alloys	Inconel 718, Waspaloy	80	0.0003	0.0004	0.0005	0.0007	0.0009	0.0012	0.0016	0.0022
	Hastelloy	100	0.0003	0.0004	0.0005	0.0007	0.0009	0.0012	0.0016	0.0022
	Monel 400 series	200	0.0003	0.0006	0.0008	0.0011	0.0013	0.0018	0.0022	0.0028
	Monel 500 series	140	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.002	0.0025
Stainless Steels	300 series	350	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.002	0.0025
	400 series	400	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.002	0.0025
	15-5PH, 17-4PH	250	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.002	0.0025
	Nitronic 32,33,40,50,60	150	0.0003	0.0004	0.0005	0.0007	0.001	0.0014	0.0018	0.0022
Cast Iron	Gray	500	0.0004	0.0006	0.0009	0.0011	0.0014	0.002	0.002	0.0025
	Ductile	425	0.0005	0.0007	0.001	0.0013	0.0017	0.0025	0.002	0.0025
	Malleable	400	0.0004	0.0008	0.0009	0.0011	0.0014	0.002	0.002	0.0025
Tool Steels	H10, H12, A2	325	0.0003	0.0004	0.0007	0.0009	0.0012	0.0015	0.002	0.0024
	D2	225	0.0003	0.0004	0.0007	0.0009	0.0012	0.0015	0.002	0.0024

When cutting and internal thread, the linear feedrate to be reduced to compensate for the ratio of the tool's cutting diameter to the major diameter being cut. If you do not compensate, the feedrate that the cutting edge sees will be much greater and tool failure will occur. The threadmilling feedrate is equal to: ((major dia. - cutter dia.) / major diameter) x linear feedrate.

Example:
If you are using a .285 dia. cutter to do a 3/8-16 thread and the values in the feed and speed chart above tell you that you should be running at a linear feedrate of 24 inches per minute then:

Your adjusted feedrate for threadmilling an internal thread is:
((Major dia. - Cutter dia.) x Major dia.) x linear feedrate or (.375 - .285) / .375) x 24 IPM = 5.76 inches per minute.

If you program the center of the cutter to cut at 5.76 inches per minute, the OD of the cutter will be cutting at a feed of 24 IPM.

Thread*Mills* USA, LLC.
4185-B Crosstowne Court - Evans, Georgia 30809
Phone: (706) 447-4545 - Fax: (706) 447-4550

www.threadmillsusa.com
Sales Info: bobc@threadmillsusa.com