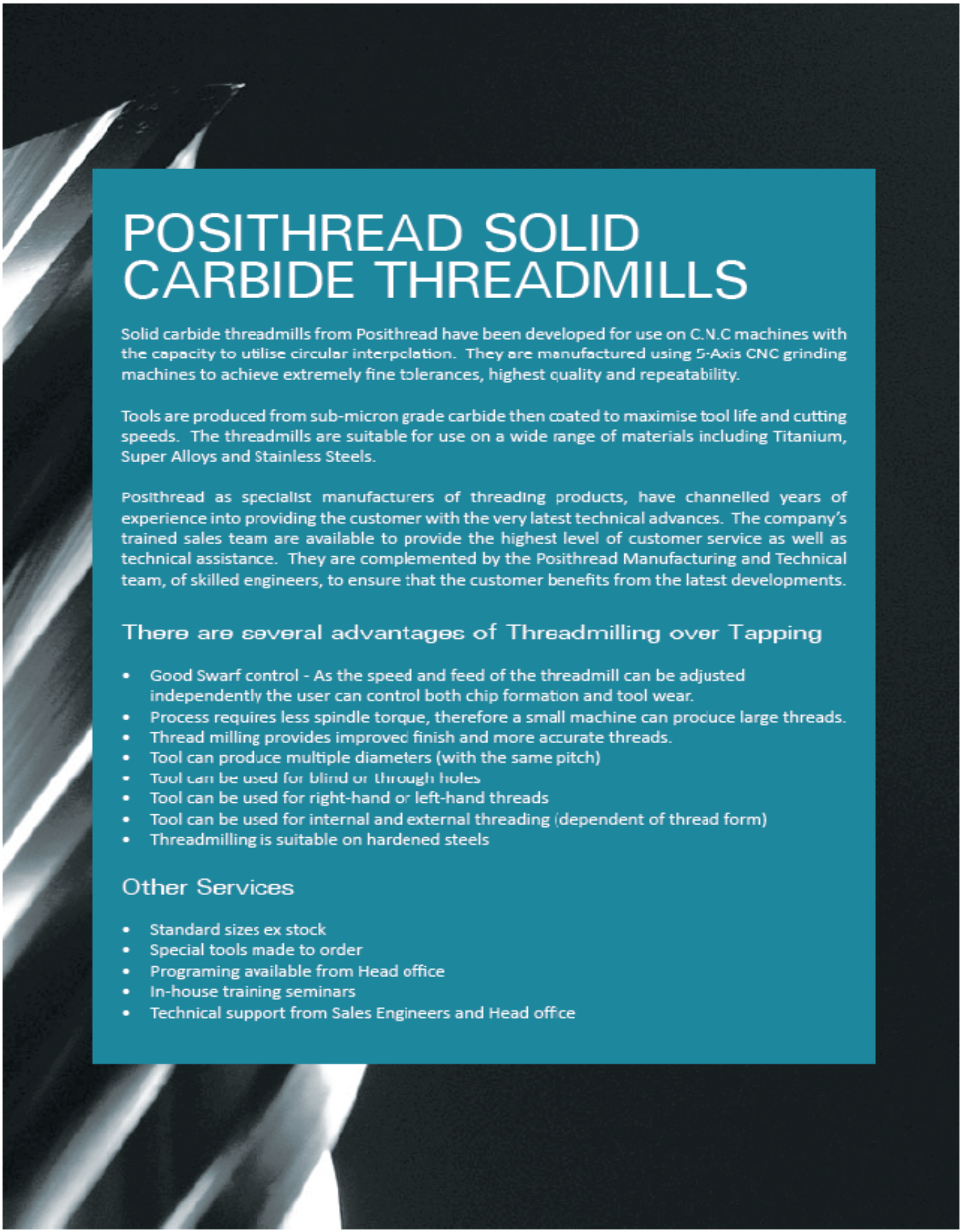
POSITHREAD

THREADMILLING CATALOGUE

solid carbide



POSITHREAD SOLID CARBIDE THREADMILLS

Solid carbide threadmills from Posithread have been developed for use on C.N.C machines with the capacity to utilise circular interpolation. They are manufactured using 5-Axis CNC grinding machines to achieve extremely fine tolerances, highest quality and repeatability.

Tools are produced from sub-micron grade carbide then coated to maximise tool life and cutting speeds. The threadmills are suitable for use on a wide range of materials including Titanium, Super Alloys and Stainless Steels.

Posithread as specialist manufacturers of threading products, have channelled years of experience into providing the customer with the very latest technical advances. The company's trained sales team are available to provide the highest level of customer service as well as technical assistance. They are complemented by the Posithread Manufacturing and Technical team, of skilled engineers, to ensure that the customer benefits from the latest developments.

There are several advantages of Threadmilling over Tapping

- Good Swarf control - As the speed and feed of the threadmill can be adjusted independently the user can control both chip formation and tool wear.
- Process requires less spindle torque, therefore a small machine can produce large threads.
- Thread milling provides improved finish and more accurate threads.
- Tool can produce multiple diameters (with the same pitch)
- Tool can be used for blind or through holes
- Tool can be used for right-hand or left-hand threads
- Tool can be used for internal and external threading (dependent of thread form)
- Threadmilling is suitable on hardened steels

Other Services

- Standard sizes ex stock
- Special tools made to order
- Programing available from Head office
- In-house training seminars
- Technical support from Sales Engineers and Head office

Threadmill Nomenclature

1	2	3	4	5	6	7	8
TMR	N	16	139	L40	2.5	ISO	C

1 - Line

TMR	-	Helical Flutes
PMR	-	Helical Flutes
TMS	-	Straight Flutes

2 - Tool Type

E	-	External Thread
N	-	Internal Thread
X	-	External and Internal

3 - Tool Shank Dia.

04	-	4.0 mm
06	-	6.0 mm
08	-	8.0 mm
10	-	10.0 mm
12	-	12.0 mm
14	-	14.0 mm
16	-	16.0 mm
18	-	18.0 mm
20	-	20.0 mm

4 - Cutting Dia.

139	-	13.9 mm

5 - Cutting Length

L40	-	40.0 mm

6 - Thread Pitch/TPI

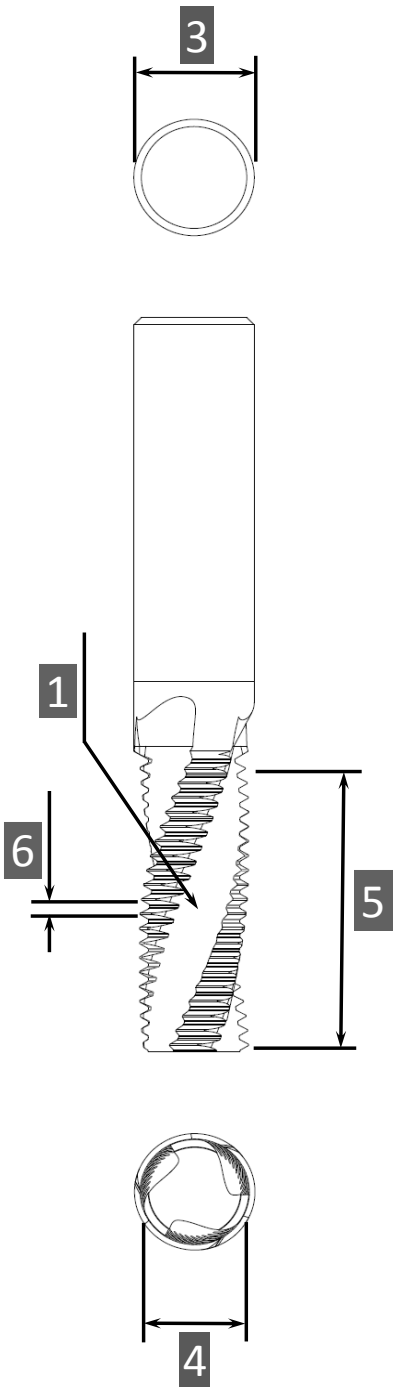
2.5	-	2.5 mm
10	-	10 TPI

7 - Thread Form

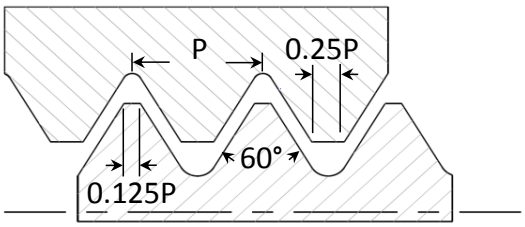
ISO	-	ISO
UNC	-	Unified Coarse
UNF	-	Unified Fine
UNEF	-	Unified Extra Fine
BSW	-	British Standard Whitworth
BSF	-	British Standard Fine
BSP	-	British Standard Pipe
BSPT	-	British Standard Pipe Taper
NPT	-	National Pipe Thread
NPTF	-	National Pipe Thread Fuel
ACME	-	General Purpose Acme

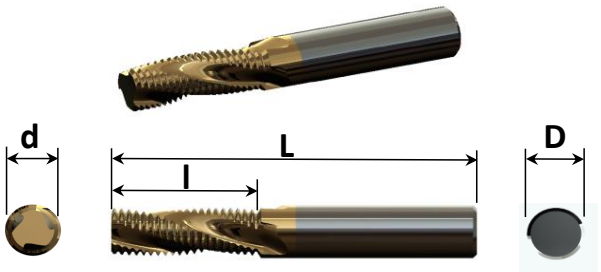
8- Through Hole Coolant

C	-	With Coolant



ISO Metric





STRAIGHT AND HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
ISO	mm	Catalogue Number	d	l	D	L	Pitches	Flutes
M3	0.50	TMSN 03 021 L05 0.5ISO	2.10	4.5	3.0	38	9	3
M4	0.70	TMSN 03 026 L06 0.7ISO	2.60	6.3	3.0	38	9	3
M4.5	0.75	TMRN 04 030 L08 0.75ISO	3.00	7.5	4.0	50	10	3
M5	0.80	TMRN 04 034 L08 0.8ISO	3.40	8.0	4.0	50	10	3
M6	1.00	TMRN 06 040 L10 1.0ISO	4.00	10.0	6.0	58	10	3
M8	1.25	TMRN 06 055 L14 1.25ISO	5.50	13.8	6.0	58	11	3
M10	1.50	TMRN 08 071 L17 1.5ISO	7.10	16.5	8.0	64	11	3
M12	1.75	TMRN 10 086 L21 1.75ISO	8.60	21.0	10.0	73	12	3
M14-M16	2.00	TMRN 10 099 L26 2.0ISO	9.90	26.0	10.0	73	13	3
M18-M22	2.50	TMRN 14 134 L35 2.5ISO	13.40	35.0	14.0	84	14	4
M24	3.00	TMRN 16 159 L39 3.0ISO	15.90	39.0	16.0	100	13	4

HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
ISO Fine	mm	Catalogue Number	d	l	D	L	Pitches	Flutes
M6	0.75	TMRN 06 045 L11 0.75ISO	4.50	10.5	6.0	58	14	3
M8	1.00	TMRN 06 059 L14 1.0ISO	5.90	14.0	6.0	58	13	3
M10-12	1.25	TMRN 08 074 L19 1.25ISO	7.40	18.8	8.0	64	15	3
M14-M16-M18	1.50	TMRN 10 099 L26 1.5ISO	9.90	25.5	10.0	73	17	3
M16-M18	1.50	TMRN 12 119 L29 1.5ISO	11.90	28.5	12.0	84	19	3
M20-M33	2.00	TMRN 16 159 L46 2.0ISO	15.90	46.0	16.0	100	23	4

STRAIGHT AND HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
ISO	mm	Catalogue Number	d	l	D	L	Pitches	Flutes
M3	0.50	TMSN 03 021 L05 0.5ISO-C	2.10	4.5	3.0	38	9	3
M4	0.70	TMSN 03 026 L06 0.7ISO-C	2.60	6.3	3.0	38	9	3
M4.5	0.75	TMRN 04 030 L08 0.75ISO-C	3.00	7.5	4.0	50	10	3
M5	0.80	TMRN 04 034 L08 0.8ISO-C	3.40	8.0	4.0	50	10	3
M6	1.00	TMRN 06 040 L10 1.0ISO-C	4.00	10.0	6.0	58	10	3
M8	1.25	TMRN 06 055 L14 1.25ISO-C	5.50	13.8	6.0	58	11	3
M10	1.50	TMRN 08 071 L17 1.5ISO-C	7.10	16.5	8.0	64	11	3
M12	1.75	TMRN 10 086 L21 1.75ISO-C	8.60	21.0	10.0	73	12	3
M14-M16	2.00	TMRN 10 099 L26 2.0ISO-C	9.90	26.0	10.0	73	13	3
M18-M22	2.50	TMRN 14 134 L35 2.5ISO-C	13.40	35.0	14.0	84	14	4
M24	3.00	TMRN 16 159 L39 3.0ISO-C	15.90	39.0	16.0	100	13	4

HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
ISO Fine	mm	Catalogue Number	d	l	D	L	Pitches	Flutes
M6	0.75	TMRN 06 045 L11 0.75ISO-C	4.50	10.5	6.0	58	14	3
M8	1.00	TMRN 06 059 L14 1.0ISO-C	5.90	14.0	6.0	58	13	3
M10-12	1.25	TMRN 08 074 L19 1.25ISO-C	7.40	18.8	8.0	64	15	3
M14-M16-M18	1.50	TMRN 10 099 L26 1.5ISO-C	9.90	25.5	10.0	73	17	3
M16-M18	1.50	TMRN 12 119 L29 1.5ISO-C	11.90	28.5	12.0	84	19	3
M20-M33	2.00	TMRN 16 159 L46 2.0ISO-C	15.90	46.0	16.0	100	23	4

All threadmills can be used to machine threads on larger diameter components.

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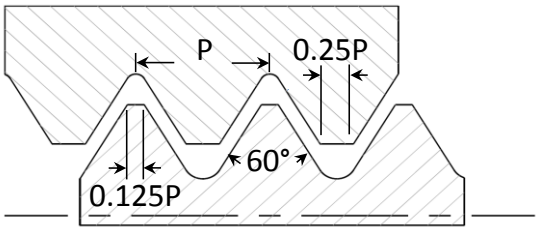

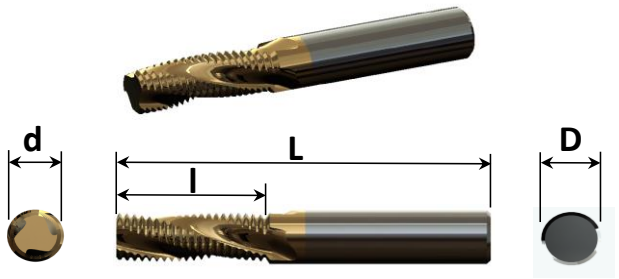

HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
UNC	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
No.12	24	TMRN 06 041 L09 24UNC	4.2	9.0	6.0	62	8	3
1/4"	20	TMRN 06 047 L10 20UNC	4.7	10.2	6.0	58	8	3
5/16"	18	TMRN 06 053 L13 18UNC	5.3	12.7	6.0	58	9	3
3/8"	16	TMRN 08 065 L14 16UNC	6.5	14.3	8.0	64	9	3
7/16"	14	TMRN 08 079 L18 14UNC	7.9	18.1	8.0	64	10	3
1/2"	13	TMRN 10 089 L21 13UNC	8.9	21.4	10.0	73	11	3
9/16"	12	TMRN 10 099 L23 12UNC	9.9	23.3	10.0	73	11	3
5/8"	11	TMRN 12 114 L28 11UNC	11.4	27.8	12.0	84	12	3
3/4"	10	TMRN 16 144 L31 10UNC	14.4	30.5	16.0	100	12	4
7/8"	9	TMRN 16 159 L37 9UNC	15.9	36.7	16.0	100	13	4
1"	8	TMRN 20 192 L38 8UNC	19.2	38.1	20.0	120	12	5

STRAIGHT AND HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
UNF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
No.8	36	TMSN 04 030 L06 36UNF	3.0	6.4	4.0	50	9	2
No.10	32	TMRN 04 030 L06 32UNF	3.0	6.4	4.0	50	9	3
No.12	28	TMRN 04 036 L08 28UNF	3.6	8.2	4.0	50	9	3
1/4"	28	TMRN 06 045 L10 28UNF	4.5	10.0	6.0	58	11	3
5/16" 3/8"	24	TMRN 06 058 L15 24UNF	5.8	14.8	6.0	58	14	3
7/16" 1/2"	20	TMRN 10 085 L23 20UNF	8.5	22.9	10.0	73	18	3
9/16" 5/8"	18	TMRN 12 113 L25 18UNF	11.3	25.4	12.0	84	18	4
3/4"	16	TMRN 16 156 L37 16UNF	15.6	36.5	16.0	100	23	4
7/8"	14	TMRN 16 159 L40 14UNF	15.9	39.9	16.0	100	22	4
1" 1 1/2"	12	TMRN 16 159 L38 12UNF	15.9	38.1	16.0	100	18	4

HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
UNEF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
7/16" 1/2"	28	TMRN 10 090 L24 28UNEF	9.0	23.6	10.0	73	26	3
9/16" 11/16"	24	TMRN 12 117 L30 24UNEF	11.7	29.6	12.0	84	28	4
3/4" 1"	20	TMRN 16 159 L39 20UNEF	15.9	39.4	16.0	100	31	4

All threadmills can be used to machine threads on larger diameter components.

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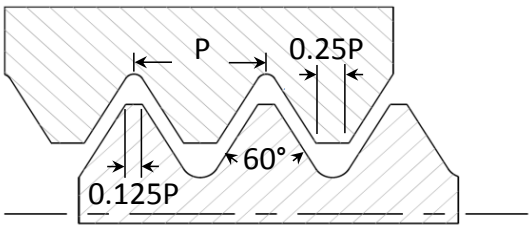
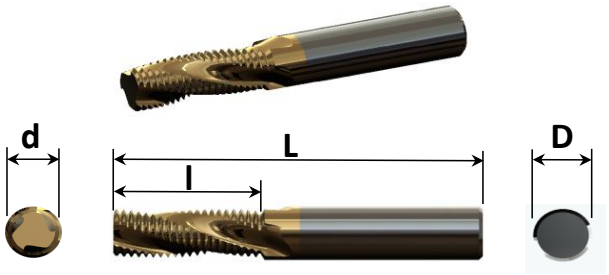




HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
UNC	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
No.12	24	TMRN 06 041 L09 24UNC-C	4.2	9.0	6.0	62	8	3
1/4"	20	TMRN 06 047 L10 20UNC-C	4.7	10.2	6.0	58	8	3
5/16"	18	TMRN 06 053 L13 18UNC -C	5.3	12.7	6.0	58	9	3
3/8"	16	TMRN 08 065 L14 16UNC -C	6.5	14.3	8.0	64	9	3
7/16"	14	TMRN 08 079 L18 14UNC-C	7.9	18.1	8.0	64	10	3
1/2"	13	TMRN 10 089 L21 13UNC-C	8.9	21.4	10.0	73	11	3
9/16"	12	TMRN 10 099 L23 12UNC-C	9.9	23.3	10.0	73	11	3
5/8"	11	TMRN 12 114 L28 11UNC-C	11.4	27.8	12.0	84	12	3
3/4"	10	TMRN 16 144 L31 10UNC-C	14.4	30.5	16.0	100	12	4
7/8"	9	TMRN 16 159 L37 9UNC-C	15.9	36.7	16.0	100	13	4
1"	8	TMRN 20 192 L38 8UNC-C	19.2	38.1	20.0	120	12	5

STRAIGHT AND HELICAL FLUTE WITH THROUGH HOLE COOLANT

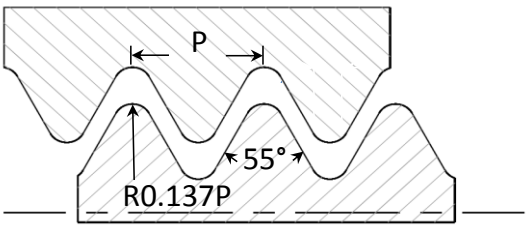
Thread	Pitch/TPI		Threadmill Dimensions in mm					
UNF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
No.8	36	TMSN 04 030 L06 36UNF-C	3.0	6.4	4.0	50	9	2
No.10	32	TMRN 04 030 L06 32UNF-C	3.0	6.4	4.0	50	9	3
No.12	28	TMRN 04 036 L08 28UNF-C	3.6	8.2	4.0	50	9	3
1/4"	28	TMRN 06 045 L10 28UNF-C	4.5	10.0	6.0	58	11	3
5/16" 3/8"	24	TMRN 06 058 L15 24UNF-C	5.8	14.8	6.0	58	14	3
7/16" 1/2"	20	TMRN 10 085 L23 20UNF-C	8.5	22.9	10.0	73	18	3
9/16" 5/8"	18	TMRN 12 113 L25 18UNF-C	11.3	25.4	12.0	84	18	4
3/4"	16	TMRN 16 156 L37 16UNF-C	15.6	36.5	16.0	100	23	4
7/8"	14	TMRN 16 159 L40 14UNF-C	15.9	39.9	16.0	100	22	4
1" 1 1/2"	12	TMRN 16 159 L38 12UNF-C	15.9	38.1	16.0	100	18	4

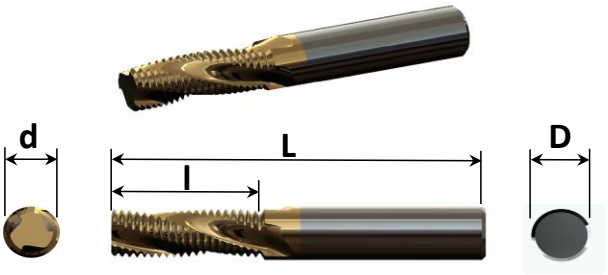
HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
UNEF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
7/16" 1/2"	28	TMRN 10 090 L24 28UNEF-C	9.0	23.6	10.0	73	26	3
9/16" 11/16"	24	TMRN 12 117 L30 24UNEF-C	11.7	29.6	12.0	84	28	4
3/4" 1"	20	TMRN 16 159 L39 20UNEF-C	15.9	39.4	16.0	100	31	4

All threadmills can be used to machine threads on larger diameter components.

WHITWORTH





HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSW	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/4"	20	TMRX 06 040 L11 20BSW	4.0	11.4	6.0	58	9	3
5/16"	18	TMRX 06 053 L14 18BSW	5.3	14.1	6.0	58	10	3
3/8"	16	TMRX 08 065 L16 16BSW	6.5	15.9	8.0	64	10	3
7/16"	14	TMRX 08 076 L18 14BSW	7.8	18.1	8.0	64	10	3
1/2" 9/16"	12	TMRX 10 086 L23 12BSW	8.6	23.3	10.0	73	11	3
5/8" 11/16"	11	TMRX 12 112 L25 11BSW	11.2	25.4	12.0	84	11	3

HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
5/16"	22	TMRX 06 055 L14 22BSF	5.5	13.9	6.0	58	12	3
3/8"	20	TMRX 08 068 L17 20BSF	6.8	16.5	8.0	64	13	3
7/16"	18	TMRX 08 079 L18 18BSF	7.9	18.3	8.0	64	13	3
1/2" 9/16"	16	TMRX 10 093 L22 16BSF	9.3	22.2	10.0	73	14	3
5/8" 11/16"	14	TMRX 12 119 L29 14BSF	11.9	29.0	12.0	84	15	3
3/4"	12	TMRX 16 145 L34 12BSF	14.5	33.9	16.0	100	16	4
7/8"	11	TMRX 16 159 L37 11BSF	15.9	36.8	16.0	100	16	4

HELICAL FLUTE WITH THROUGH HOLE COOLANT

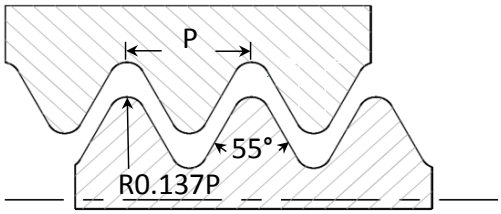
Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSW	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/4"	20	TMRX 06 040 L11 20BSW-C	4.0	11.4	6.0	58	9	3
5/16"	18	TMRX 06 053 L14 18BSW-C	5.3	14.1	6.0	58	10	3
3/8"	16	TMRX 08 065 L16 16BSW-C	6.5	15.9	8.0	64	10	3
7/16"	14	TMRX 08 076 L18 14BSW-C	7.8	18.1	8.0	64	10	3
1/2" 9/16"	12	TMRX 10 086 L23 12BSW-C	8.6	23.3	10.0	73	11	3
5/8" 11/16"	11	TMRX 12 112 L25 11BSW-C	11.2	25.4	12.0	84	11	3

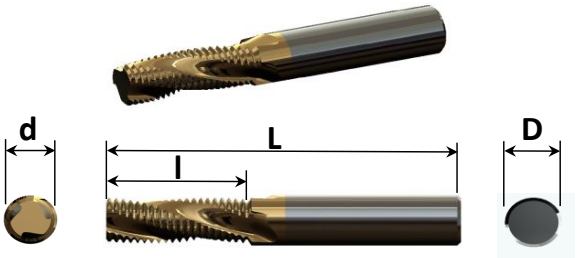
HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
5/16"	22	TMRX 06 055 L14 22BSF-C	5.5	13.9	6.0	58	12	3
3/8"	20	TMRX 08 068 L17 20BSF-C	6.8	16.5	8.0	64	13	3
7/16"	18	TMRX 08 079 L18 18BSF-C	7.9	18.3	8.0	64	13	3
1/2" 9/16"	16	TMRX 10 093 L22 16BSF-C	9.3	22.2	10.0	73	14	3
5/8" 11/16"	14	TMRX 12 119 L29 14BSF-C	11.9	29.0	12.0	84	15	3
3/4"	12	TMRX 16 145 L34 12BSF-C	14.5	33.9	16.0	100	16	4
7/8"	11	TMRX 16 159 L37 11BSF-C	15.9	36.8	16.0	100	16	4

All threadmills can be used to machine threads on larger diameter components.

BSP





HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSP	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	28	TMRX 06 059 L09 28BSP	5.9	9.1	6.0	58	10	3
1/8"	28	TMRX 08 076 L15 28BSP	7.6	15.4	8.0	64	17	3
1/4" 3/8"	19	TMRX 08 079 L13 19BSP	7.9	13.4	8.0	64	10	3
3/8"	19	TMRX 10 099 L21 19BSP	9.9	21.4	10.0	73	16	3
1/2" 5/8"	14	TMRX 12 119 L18 14BSP	11.9	18.1	12.0	84	10	4
3/4" 7/8"	14	TMRX 16 159 L38 14BSP	15.9	38.1	16.0	100	21	4
1"- 6"	11	TMRX 16 159 L42 11BSP	15.9	41.6	16.0	100	18	4
1" - 6"	11	TMRX 20 199 L42 11BSP	19.9	41.6	20.0	120	18	4

STRAIGHT FLUTE

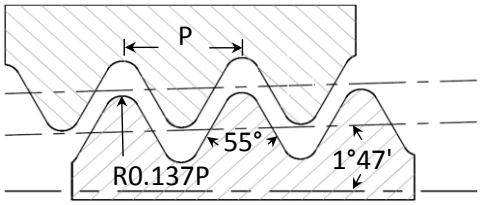
Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSP	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	28	TMSX 06 059 L09 28BSP	5.9	9.1	6.0	58	10	3
1/4" 3/8"	19	TMSX 08 079 L13 19BSP	7.9	13.4	8.0	64	10	3
1/2"	14	TMSX 12 119 L18 14BSP	11.9	18.1	12.0	84	10	4
1"	11	TMSX 16 159 L42 11BSP	15.9	41.6	16.0	100	18	4

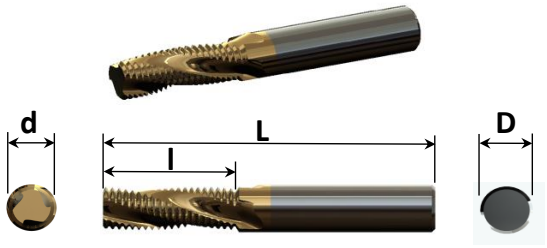
HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
Whitworth BSP	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	28	TMRX 06 059 L09 28BSP-C	5.9	9.1	6.0	58	10	3
1/8"	28	TMRX 08 076 L15 28BSP-C	7.6	15.4	8.0	64	17	3
1/4" 3/8"	19	TMRX 08 079 L13 19BSP -C	7.9	13.4	8.0	64	10	3
3/8"	19	TMRX 10 099 L21 19BSP-C	9.9	21.4	10.0	73	16	3
1/2" 5/8"	14	TMRX 12 119 L18 14BSP-C	11.9	18.1	12.0	84	10	4
3/4" 7/8"	14	TMRX 16 159 L38 14BSP-C	15.9	38.1	16.0	100	21	4
1"- 6"	11	TMRX 16 159 L42 11BSP-C	15.9	41.6	16.0	100	18	4
1" - 6"	11	TMRX 20 199 L42 11BSP-C	19.9	41.6	20.0	120	18	4

All threadmills can be used to machine threads on larger diameter components.

BSPT





HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
BSPT	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	28	TMRX 06 059 L09 28BSPT	5.9	9.1	6.0	58	11	3
1/8"	28	TMRX 08 076 L10 28BSPT	7.6	10.0	8.0	64	11	4
1/4"	19	TMRX 08 079 L13 19BSPT	7.9	13.0	8.0	64	11	4
1/4" 3/8"	19	TMRX 10 099 L15 19BSPT	9.9	14.7	10.0	73	11	4
1/2"	14	TMRX 12 119 L18 14BSPT	11.9	18.1	12.0	84	10	4
1/2" 3/4" 7/8"	14	TMRX 16 159 L22 14BSPT	15.9	21.8	16.0	100	12	4
1" - 4"	11	TMRX 16 159 L37 11BSPT	15.9	36.9	16.0	100	18	4
2" - 6"	11	TMRX 20 199 L42 11BSPT	19.9	41.6	20	120	18	4

STRAIGHT FLUTE

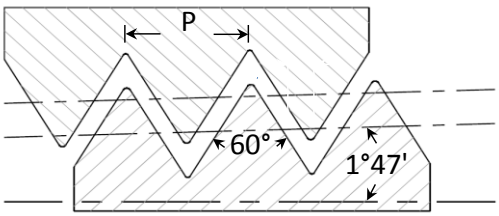
Thread	Pitch/TPI		Threadmill Dimensions in mm					
BSPT	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	28	TMSX 06 059 L09 28BSPT	5.9	9.1	6.0	58	11	3
1/8"	28	TMSX 08 076 L10 28BSPT	7.6	10.0	8.0	64	11	4
1/4"	19	TMSX 08 079 L13 19BSPT	7.9	13.0	8.0	64	11	4
1/4" 3/8"	19	TMSX 10 099 L15 19BSPT	9.9	14.7	10.0	73	11	4
1/2"	14	TMSX 12 119 L18 14BSPT	11.9	18.1	12.0	84	10	4
1/2" 3/4" 7/8"	14	TMSX 16 159 L22 14BSPT	15.9	21.8	16.0	100	12	4
1" - 4"	11	TMSX 16 159 L37 11BSPT	15.9	36.9	16.0	100	18	4
2" - 6"	11	TMSX 20 199 L42 11BSPT	19.9	41.6	20	120	18	4

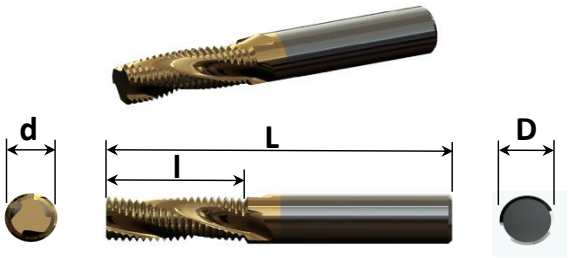
HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
BSPT	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	28	TMRX 06 059 L09 28BSPT-C	5.9	9.1	6.0	58	11	3
1/8"	28	TMRX 08 076 L10 28BSPT-C	7.6	10.0	8.0	64	11	4
1/4"	19	TMRX 08 079 L13 19BSPT-C	7.9	13.0	8.0	64	11	4
1/4" 3/8"	19	TMRX 10 099 L15 19BSPT-C	9.9	14.7	10.0	73	11	4
1/2"	14	TMRX 12 119 L18 14BSPT-C	11.9	18.1	12.0	84	10	4
1/2" 3/4" 7/8"	14	TMRX 16 159 L22 14BSPT-C	15.9	21.8	16.0	100	12	4
1" - 4"	11	TMRX 16 159 L37 11BSPT-C	15.9	36.9	16.0	100	18	4
2" - 6"	11	TMRX 20 199 L42 11BSPT-C	19.9	41.6	20	120	18	4

All threadmills can be used to machine threads on larger diameter components.

NPT





HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
NPT	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	27	TMRX 06 059 L09 27NPT	5.9	9.4	6.0	58	10	3
1/8"	27	TMRX 08 076 L09 27NPT	7.6	9.4	8.0	64	10	4
1/4" 3/8"	18	TMRX 08 079 L14 18NPT	7.9	14.1	8.0	64	10	4
3/8"	18	TMRX 10 099 L14 18NPT	9.9	14.1	10.0	73	10	4
1/2" 3/4"	14	TMRX 12 119 L20 14NPT	11.9	20.0	12.0	84	11	4
1/2" 3/4"	14	TMRX 16 159 L20 14NPT	15.9	20.0	16.0	100	11	4
1" - 2"	11.5	TMRX 16 159 L27 11.5NPT	15.9	26.5	16.0	100	12	4
2 1/2" - 4"	8	TMRX 20 199 L45 8NPT	19.9	44.5	20.0	120	14	4

STRAIGHT FLUTE

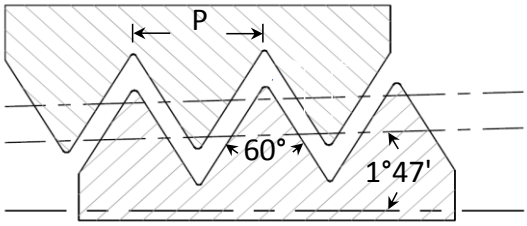
Thread	Pitch/TPI		Threadmill Dimensions in mm					
NPT	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	27	TMSX 06 059 L09 27NPT	5.9	9.4	6.0	58	10	3
1/8"	27	TMSX 08 076 L09 27NPT	7.6	9.4	8.0	64	10	4
1/4" 3/8"	18	TMSX 08 079 L14 18NPT	7.9	14.1	8.0	64	10	4
3/8"	18	TMSX 10 099 L14 18NPT	9.9	14.1	10.0	73	10	4
1/2" 3/4"	14	TMSX 12 119 L20 14NPT	11.9	20.0	12.0	84	11	4
1/2" 3/4"	14	TMSX 16 159 L20 14NPT	15.9	20.0	16.0	100	11	4
1" - 2"	11.5	TMSX 16 159 L27 11.5NPT	15.9	26.5	16.0	100	12	4
2 1/2" - 4"	8	TMSX 20 199 L45 8NPT	19.9	44.5	20.0	120	14	4

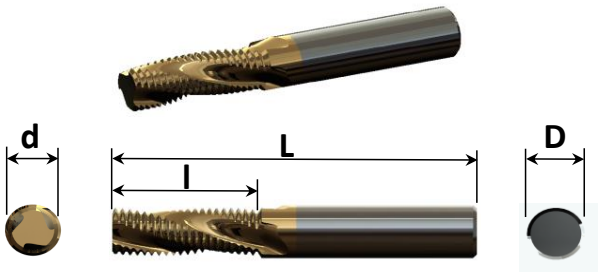
HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
NPT	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	27	TMRX 06 059 L09 27NPT-C	5.9	9.4	6.0	58	10	3
1/8"	27	TMRX 08 076 L09 27NPT-C	7.6	9.4	8.0	64	10	4
1/4" 3/8"	18	TMRX 08 079 L14 18NPT-C	7.9	14.1	8.0	64	10	4
3/8"	18	TMRX 10 099 L14 18NPT-C	9.9	14.1	10.0	73	10	4
1/2" 3/4"	14	TMRX 12 119 L20 14NPT-C	11.9	20.0	12.0	84	11	4
1/2" 3/4"	14	TMRX 16 159 L20 14NPT-C	15.9	20.0	16.0	100	11	4
1" - 2"	11.5	TMRX 16 159 L27 11.5NPT-C	15.9	26.5	16.0	100	12	4
2 1/2" - 4"	8	TMRX 20 199 L45 8NPT-C	19.9	44.5	20.0	120	14	4

All threadmills can be used to machine threads on larger diameter components.

NPTF





HELICAL FLUTE

Thread	Pitch/TPI		Threadmill Dimensions in mm					
NPTF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	27	TMRX 06 059 L09 27NPTF	5.9	9.4	6.0	58	10	3
1/8"	27	TMRX 08 076 L09 27NPTF	7.6	9.4	8.0	64	10	4
1/4" 3/8"	18	TMRX 08 079 L14 18NPTF	7.9	14.1	8.0	64	10	4
3/8"	18	TMRX 10 099 L14 18NPTF	9.9	14.1	10.0	73	10	4
1/2" 3/4"	14	TMRX 12 119 L20 14NPTF	11.9	20.0	12.0	84	11	4
1/2" 3/4"	14	TMRX 16 159 L20 14NPTF	15.9	20.0	16.0	100	11	4
1" - 2"	11.5	TMRX 16 159 L27 11.5NPTF	15.9	26.5	16.0	100	12	4
2 1/2" - 4"	8	TMRX 20 199 L45 8NPTF	19.9	44.5	20.0	120	14	4

STRAIGHT FLUTE

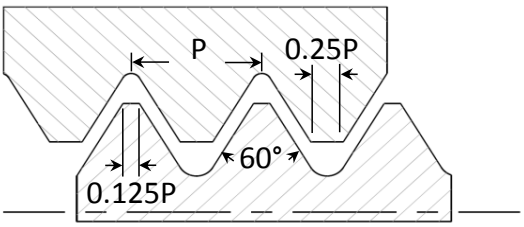
Thread	Pitch/TPI		Threadmill Dimensions in mm					
NPTF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	27	TMSX 06 059 L09 27NPTF	5.9	9.4	6.0	58	10	3
1/8"	27	TMSX 08 076 L09 27NPTF	7.6	9.4	8.0	64	10	4
1/4" 3/8"	18	TMSX 08 079 L14 18NPTF	7.9	14.1	8.0	64	10	4
3/8"	18	TMSX 10 099 L14 18NPTF	9.9	14.1	10.0	73	10	4
1/2" 3/4"	14	TMSX 12 119 L20 14NPTF	11.9	20.0	12.0	84	11	4
1/2" 3/4"	14	TMSX 16 159 L20 14NPTF	15.9	20.0	16.0	100	11	4
1" - 2"	11.5	TMSX 16 159 L27 11.5NPTF	15.9	26.5	16.0	100	12	4
2 1/2" - 4"	8	TMSX 20 199 L45 8NPTF	19.9	44.5	20.0	120	14	4

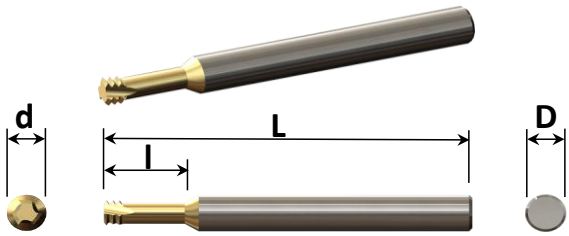
HELICAL FLUTE WITH THROUGH HOLE COOLANT

Thread	Pitch/TPI		Threadmill Dimensions in mm					
NPTF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/16" 1/8"	27	TMRX 06 059 L09 27NPTF-C	5.9	9.4	6.0	58	10	3
1/8"	27	TMRX 08 076 L09 27NPTF-C	7.6	9.4	8.0	64	10	4
1/4" 3/8"	18	TMRX 08 079 L14 18NPTF-C	7.9	14.1	8.0	64	10	4
3/8"	18	TMRX 10 099 L14 18NPTF-C	9.9	14.1	10.0	73	10	4
1/2" 3/4"	14	TMRX 12 119 L20 14NPTF-C	11.9	20.0	12.0	84	11	4
1/2" 3/4"	14	TMRX 16 159 L20 14NPTF-C	15.9	20.0	16.0	100	11	4
1" - 2"	11.5	TMRX 16 159 L27 11.5NPTF-C	15.9	26.5	16.0	100	12	4
2 1/2" - 4"	8	TMRX 20 199 L45 8NPTF-C	19.9	44.5	20.0	120	14	4

All threadmills can be used to machine threads on larger diameter components.

ISO UN





HELICAL FLUTE

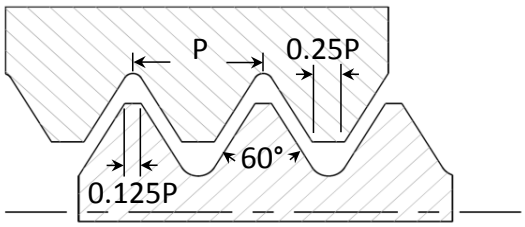
Thread		Pitch/TPI		Threadmill Dimensions in mm					
ISO Coarse	ISO Fine	mm	Catalogue Number	d	l	D	L	Pitches	Flutes
M3	M3.5-M16	0.5	PMRN 06 024 L08 0.5ISO	2.40	8.3	6.0	58	3	3
M3.5		0.6	PMRN 06 028 L10 0.6ISO	2.75	9.7	6.0	58	3	3
M4		0.7	PMRN 06 032 L11 0.7ISO	3.15	11.1	6.0	58	3	3
M5		0.8	PMRN 06 041 L14 0.8ISO	4.05	13.7	6.0	58	3	3
M6	M8-M40	1.0	PMRN 06 048 L17 1.0ISO	4.80	16.5	6.0	58	3	3
M8		1.25	PMRN 08 065 L22 1.25ISO	6.50	21.9	8.0	64	3	3
M10	M12-M48	1.5	PMRN 10 082 L27 1.5ISO	8.20	27.3	10.0	73	3	3
M12		1.75	PMRN 10 099 L33 1.75ISO	9.90	32.6	10.0	73	3	3
M16		2.0	PMRN 12 119 L43 2.0ISO	11.90	43.0	12.0	84	3	3
M20		2.5	PMRN 16 159 L54 2.5ISO	15.90	53.8	16.0	100	3	3

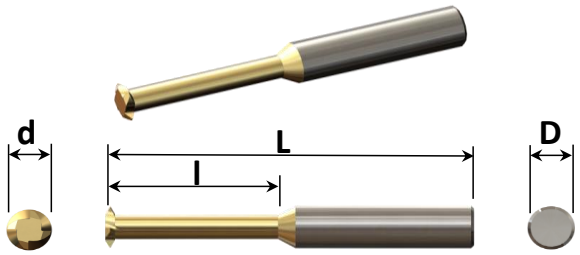
HELICAL FLUTE

Thread		Pitch/TPI		Threadmill Dimensions in mm					
UNC	UNF	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
No.3-48	No.4-48	48	PMRN 06 019 L07 48UNC	1.90	7.1	6.0	58	3	3
No.4-40	No.6-40	40	PMRN 06 021 L08 40UNC	2.10	8.1	6.0	58	3	3
No.5-40	No.6-40	40	PMRN 06 025 L09 40UNC	2.45	8.9	6.0	58	3	3
	No.8-36	36	PMRN 06 033 L12 36UNF	3.30	11.5	6.0	58	3	3
No.6-32		32	PMRM 06 026 L10 32UNC	2.55	10.0	6.0	58	3	3
No.8-32	No.10-32	32	PMRN 06 032 L12 32UNC	3.20	11.6	6.0	58	3	3
	1/4"x28	28	PMRN 06 053 L17 28UNF	5.25	17.2	6.0	58	3	3
No.10-24	5/16"x24	24	PMRN 06 036 L14 24UNC	3.58	13.7	6.0	58	3	3
	5/16"x24	24	PMRN 08 067 L21 24UNF	6.68	21.4	8.0	64	3	3
1/4"x20	7/16"x20	20	PMRN 06 049 L18 20UNC	4.88	17.8	6.0	58	3	3
	7/16"x20	20	PMRN 10 096 L30 20UNF	9.55	29.7	10.0	73	3	3
3/8"x16		16	PMRN 08 067 L26 16UNC	6.70	26.2	8.0	64	3	3
7/16"x14		14	PMRN 10 090 L31 14UNC	9.00	30.5	10.0	73	3	3

All threadmills can be used to machine threads on larger diameter components.

PARTIAL PROFILE

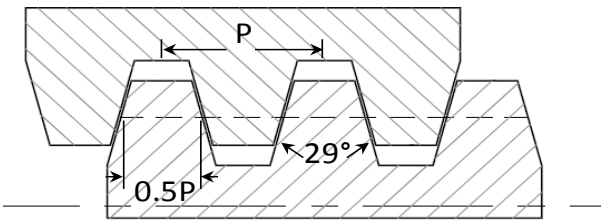


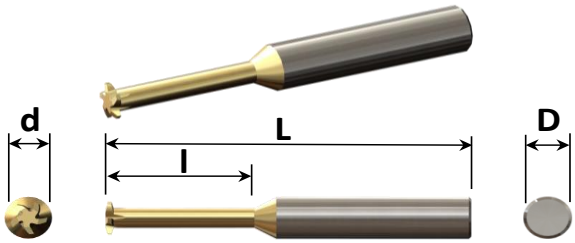


Thread Ø	Pitch	Pitch		Threadmill Dimensions in mm					
Minimum	mm	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
Ø > 6.0	Int 0.5-0.8 Ext 0.4-0.8	56-28 64-32	PMRN 06 059 L20 A60	5.90	20.0	6.0	58	1	4
Ø > 9.0			PMRN 08 079 L28 A60	7.90	28.0	8.0	64	1	4
Ø > 13.0			PMRN 12 119 L38 A60	11.90	38.0	12.0	84	1	5
Ø > 10.0	Int 1.0-1.75 Ext 0.8-1.5	28-14 32-16	PMRN 08 079 L30 B60	7.90	30.0	8.0	64	1	4
Ø > 12.0			PMRN 10 099 L35 B60	9.90	35.0	10.0	73	1	4
Ø > 14.0			PMRN 12 119 L39 B60	11.90	39.0	12.0	84	1	5
Ø > 16.0	Int 2.0-3.0 Ext 1.75-2.5	13-8 15-10	PMRN 12 119 L40 C60	11.90	40.0	12.0	84	1	5
Ø > 18.0			PMRN 16 140 L45 C60	14.00	45.0	16.0	100	1	5
Ø > 20.0			PMRN 16 159 L50 C60	15.90	50.0	16.0	100	1	5

All threadmills can be used to machine threads on larger diameter components.

ACME





Thread	Pitch/TPI		Threadmill Dimensions in mm					
ACME	TPI	Catalogue Number	d	l	D	L	Pitches	Flutes
1/4	16	PMRN 06 043 L09 16ACME	4.30	8.9	6.00	58	1	4
1/4	16	PMRN 06 043 L13 16ACME	4.30	12.7	6.00	58	1	4
5/16	14	PMRN 06 051 L13 14ACME	5.10	12.7	6.00	58	1	4
5/16	14	PMRN 06 051 L19 14ACME	5.10	19.1	6.00	58	1	4
3/8 - 7/16	12	PMRN 06 059 L15 12ACME	5.90	15.2	6.00	58	1	4
3/8 - 7/16	12	PMRN 06 059 L23 12ACME	5.90	22.9	6.00	58	1	4
1/2	10	PMRN 08 079 L19 10ACME	7.90	19.1	8.00	64	1	4
1/2	10	PMRN 08 079 L31 10ACME	7.90	30.5	8.00	64	1	4
5/8	8	PMRN 12 102 L20 8ACME	10.20	20.3	12.00	84	1	5
5/8 8	8	PMRN 12 102 L33 8ACME	10.20	33.0	12.00	84	1	5
3/4 - 7/8	6	PMRN 12 119 L20 6ACME	11.90	20.3	12.00	84	1	5
3/4 - 7/8	6	PMRN 12 119 L33 6ACME	11.90	33.0	12.00	84	1	5
1 - 1 1/4	5	PMRN 16 157 L32 5ACME	15.70	31.8	16.00	100	1	5
1 - 1 1/4	5	PMRN 16 157 L45 5ACME	15.70	44.5	16.00	100	1	5
1 3/8 - 1 3/4	4	PMRN 18 179 L38 4ACME	17.90	38.1	18.00	100	1	5
1 3/8 - 1 3/4	4	PMRN 18 179 L64 4ACME	17.90	63.5	18.00	100	1	5

All threadmills can be used to machine threads on larger diameter components.

Recommended Cutting Speeds and Feeds

Material Groups	Cutting Speeds	Feed / Tooth fz		
Material	Metres/Min	TMRN	TMSN/PMRN	TMRN - C
Low/Med. Carbon Steel	140 - 230	0.030 - 0.070	0.010 - 0.050	0.050 - 0.150
High Carbon Steel	120 - 200	0.030 - 0.070	0.010 - 0.050	0.050 - 0.150
Stainless Steel	60 - 170	0.030 - 0.070	0.010 - 0.050	0.050 - 0.150
Cast Iron	120 - 180	0.030 - 0.070	0.007 - 0.020	0.050 - 0.150
Non Ferrous 400	150 - 300	0.040 - 0.100	0.020 - 0.075	0.080- 0.250
Nickel Chrome Alloys	20 - 50	0.020 - 0.050	0.015 - 0.035	0.040 - 0.100
Titanium Alloys	80 - 120	0.020 - 0.050	0.015 - 0.035	0.040 - 0.110
Iron Based Alloys	20 - 50	0.020 - 0.050	0.015 - 0.035	0.040 - 0.120
Cobalt Based Alloys	20 - 50	0.020 - 0.050	0.015 - 0.035	0.040 - 0.130

The Cutting speed and feed on the tool arc path to the start of the thread cut must be equal to the that of the threading cycle.

Diameter Correction Factors

Threadmill Diameter (d)	Correction Factor
Up to 4.0mm Ø	0.5 x fz
4.0-8.0mm Ø	0.75 x fz
8.0-12.0mm Ø	0.9 x fz
Over 12.0mm Ø	As per Table

Example:

Cutting Stainless Steel at the mid of recommended Speed and Feeds.
with a TMRN 08 079 L18 14UNC

Feed from Table x Correction Factor	*Actual Feed*
0.05 x 0.75	fz = 0.038

There are many factors that can effect the recommended Speeds and Feeds, work holding, job overhang, machine rigity and machine age are a few examples. All these factors should be taken into consideration when programing the threadmilling tool.

Machining Recommendations

Operation

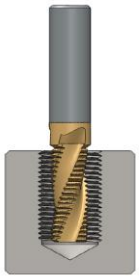
The bore for internal threads, or the outside diameter for external threads, should be produced to the minor diameter for internal and major diameter for external threads, prior to the thread milling operation. For internal threads it is preferable to start the threading operation from the bottom of the hole and feed outwards, this reduces the possibility of damage by the swarf produced and 'climb milling' is recommended When entering into the cut it is recommended that the tool is introduced to the cut on a radial path taking 45° to reach full depth of thread, simultaneously the tool should move 1/8 pitch of the thread in the z axis t prevent thread thinning.

1

Start Position.
E.g. X0, Y0, Z0

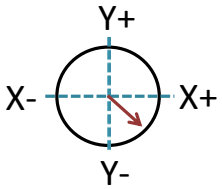
2

Rapid feed down to thread length plus one pitch.
E.g. Z minus



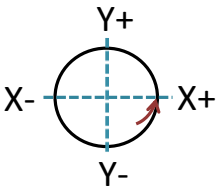
3

Feed in to within 0.05mm of minor diameter of thread.



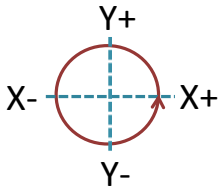
4

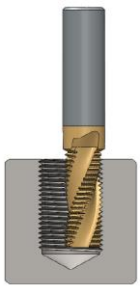
Arc on to full depth of thread over 45° simultaneously moving up 0.125 x pitch at pre



5

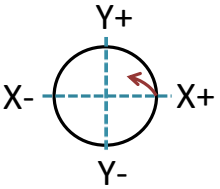
Complete one circular movement to machine thread, while moving up 1 x pitch.





6

Arc off over 45° to No 3 position while moving up 0.125 x pitch.



7

Rapid back to Start Position
E.g. X0, Y0, Z0

Machining Recommendations

To calculate Speed and Feed

(1) Calculate R.P.M. of cutter

N = R.P.M.
V = Recommended Cutting Speed
d = Diameter of cutter

$$N = \frac{1000 \times V}{d \times \Pi}$$ = Required R.P.M.

(2) Calculate Feed per revolution

F1 = Feed at cutting edge
fz = Recommended feed per tooth
Z = Number of teeth (flutes)
N = R.P.M.
F1 = fz x Z x N = Feed in mm/min at cutting edge

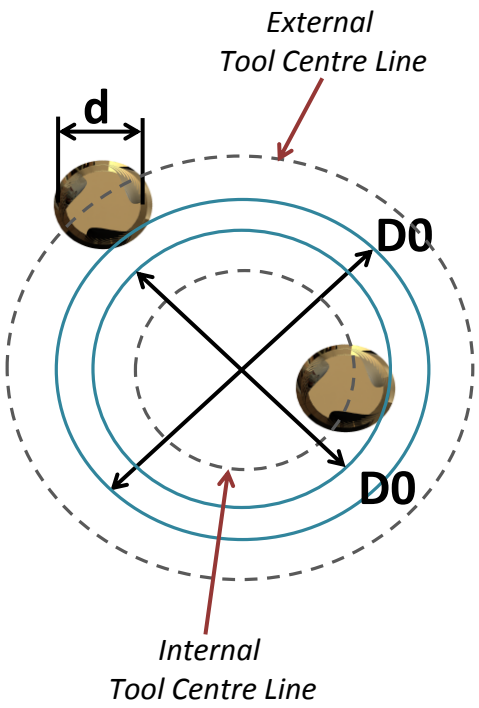
(3) Calculate feed at tool centre line Internal Threads

F2 = Feed at centre line of cutter
F1 = Feed at cutting edge
D0 = Major diameter of component
d = Cutter diameter

$$F2 = \frac{F1 \times (D0 - d)}{D0}$$ = Feed at cutter centre line mm/min.

(4) Calculate feed at tool centre line External Threads

$$F2 = \frac{F1 \times (D0 + d)}{D0}$$



Program example (Fanuc)

Thread: M24x3 24.0 x 3.0 x 39.0
Tool: TMRN 16 159 L39 3.0ISO
Material: Stainless Steel
T00 M06
G21 S1450 M03
G00 G90 X0.000 Y0.000 M08
G43 H00 Z0.000
G91
(Fast feed to depth)
G01 X0.000 Y0.000 Z-39.000 F902.2
(Feed to arc in start adding rad comp)
G01 X2.025 Y-2.025 Z0.000 F152 G41 D00
(Arc on)
G03 X2.025 Y2.025 I0.0000 J2.0250 Z0.678 F152
(Machine thread)
G03 X0.000 Y0.000 I-4.0500 J0.0000 Z3.000 F152
(Arc out)
G03 X-2.025 Y2.025 I-2.0250 J0.0000 Z0.678 F152
(Fast feed to centre removing rad comp)
G01 X-2.025 Y-2.025 Z0.000 F451.1 G40 D00
(Fast feed to start)
G00 X0.000 Y0.000 Z34.644 F0.0
M05
(Tool change)

Programs can vary with different CNC controls.

Machining Taper Threads

Prior to the thread milling operation Posithread recommend that the bore is machined to the finished taper minor diameter size. When thread milling taper threads in order to machine an accurately finished part, the tool path must be programmed to achieve this angle.

The angle for BSPT and NPT threads is 1:16 or 1° 47′ 24″. This angle is produced on the thread mill cutter, but in operation the tool moves in a vertical straight line in Z axis. In order to correct the error the use of quadrant move programming is required. Therefore the X and Y axis arc positions are compensated for every 90° movement of the tool. The amount moved in each quadrant is:

$$\frac{\text{Pitch} \times \text{Tan } 1° 47' 24''}{4}$$

For a 14NPT thread the quadrant movement X and Y = 0.0142 mm

SGS

POSITHREAD

POSI-THREAD UK LTD 4-5 BRIDGE WATER ROAD HERTBURN INDUSTRIAL ESTATE WASHINGTON TYNE & WEAR NE37 2SG ENGLAND
t +44 (0)191 417 8178 f +44 (0)191 415 3120 info@posithread.co.uk www.posithread.co.uk