POSITHREAD

THREADMILLING

TOOLING FOR OIL & GAS ▪ AUTOMOTIVE ▪ AEROSPACE ▪ GENERAL ENGINEERING

POSITHREAD

THREAD MILLING CATALOGUE

TMR	N	16	139	L40	2.5	ISO	C	-	PTC2
1	2	3	4	5	6	7	8	9	10

1| LINE OF THREADMILL	
TMR	HELICAL FLUTE
TMRN	HELICAL FLUTE WITH NECK RELIEF
TMD	DRILL-THREADMILL-CHAMFER
TMS	STRAIGHT FLUTE
PMS	STRAIGHT FLUTE
PMR	HELICAL FLUTE
HMR	HELICAL IN-FLUTE COOLANT

2| TOOL TYPE	
E	EXTERNAL THREAD
N	INTERNAL THREAD
X	EXTERNAL & INTERNAL THREAD

3| SHANK DIAMETER	
04	4.00 mm
06	6.00 mm
08	8.00 mm
10	10.00 mm
12	12.00 mm
14	14.00 mm
16	16.00 mm
18	18.00 mm
20	20.00 mm

4| CUTTING DIAMETER	
139	13.90 mm

5| CUTTING LENGTH	
L40	40.00 mm

6| THREAD PITCH/TPI	
2.5	2.5 mm PITCH
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 PIIPE THREAD FUEL
ACME	GENERAL PURPOSE ACME

8| THROUGH HOLE COOLANT	
C	WITH THROUGH HOLE COOLANT

9| NUMBER OF TEETH/LEFT HAND	
1T	1 TOOTH
2T	2 TOOTH
2TL	2 TOOTH LEFT HAND CUTTING
3T	3 TOOTH

10| COATING GRADE	
PTC2 *TiN*	HELICAL, DEEP THREADING, PIXMILL, PIXIHD, TMDN, STRAIGHT
PTP *TiCN*	INDEXABLE

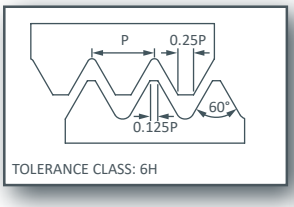
HELICAL

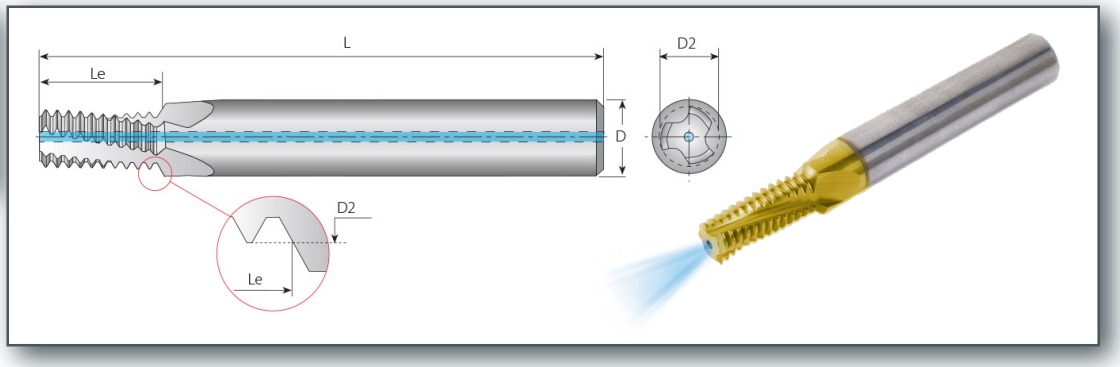
ISO

HELICAL FLUTES THRU-HOLE COOLANT

DIN13 60° INCLUSIVE

INTERNAL





1.5 x Ø (Le ≤ 1.5 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	Le	Z	Zt	mm
M8x1.25	-	1.25	**TMRN 08 065 L13 1.25ISO-C**	8	6.50	61	13.13	3	10	6.80
M10x1.5	M12-M48x1.5	1.50	**TMRN 10 082 L15 1.5ISO-C**	10	8.20	73	15.70	3	10	8.50
M12x1.75	-	1.75	**TMRN 10 099 L18 1.75ISO-C**	10	9.90	73	18.38	4	10	10.20

2.0 x Ø (Le ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	Le	Z	Zt	mm
M3x0.5	M3.5-M16x0.5	0.50	**TMRN 04 024 L06 0.5IS0-C**	4	2.40	45	6.20	3	12	2.50
M4x0.7	-	0.70	**TMRN 04 031 L08 0.7IS0-C**	4	3.15	45	8.70	3	12	3.30
-	M6x0.75	0.75	**TMRN 06 050 L12 0.75ISO-C**	6	5.00	57	12.40	3	16	5.30
M5x0.8	-	0.80	**TMRN 04 039 L10 0.8IS0-C**	4	3.90	45	10.80	3	13	4.20
M6x1.0	M8-M40x1.0	1.00	**TMRN 06 048 L12 1.0IS0-C**	6	4.80	57	12.50	3	12	5.00
-	M8x1.0	1.00	**TMRN 08 067 L16 1.0ISO-C**	8	6.70	61	16.50	3	16	7.00
-	M10x1.0	1.00	**TMRN 10 087 L20 1.0ISO-C**	10	8.70	73	20.50	3	20	9.00
-	M12x1.0	1.00	**TMRN 12 107 L24 1.0ISO-C**	12	10.70	73	24.50	4	24	11.00
M8x1.25	-	1.25	**TMRN 08 065 L16 1.25IS0-C**	8	6.50	61	16.90	3	13	6.80
-	M10x1.25	1.25	**TMRN 10 085 L20 1.25ISO-C**	10	8.50	73	20.60	3	16	8.80
M10x1.5	M12xM48x1.5	1.50	**TMRN 10 082 L20 1.5IS0-C**	10	8.20	73	20.20	3	13	8.50
-	M12x1.5	1.50	**TMRN 10 099 L24 1.5ISO-C**	10	9.90	73	24.70	4	16	10.50
-	M16x1.5	1.50	**TMRN 14 139 L32 1.5ISO-C**	14	13.90	92	32.20	4	21	14.50
M12x1.75	-	1.75	**TMRN 10 099 L25 1.75IS0-C**	10	9.90	73	25.40	4	14	10.20
M14x2.0	M17-M80x2.0	2.00	**TMRN 12 116 L29 2.0ISO-C**	12	11.60	80	29.90	4	14	12.00
M16x2.0	M17-M80x2.0	2.00	**TMRN 14 136 L33 2.0IS0-C**	14	13.60	92	33.00	4	16	14.00
M20x2.5	-	2.50	**TMRN 18 171 L41 2.5IS0-C**	18	17.10	102	41.20	4	16	17.50
M24x3.0	-	3.00	**TMRN 20 199 L49 3.0ISO-C**	20	19.90	102	49.50	4	16	21.00

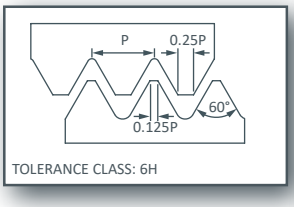
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

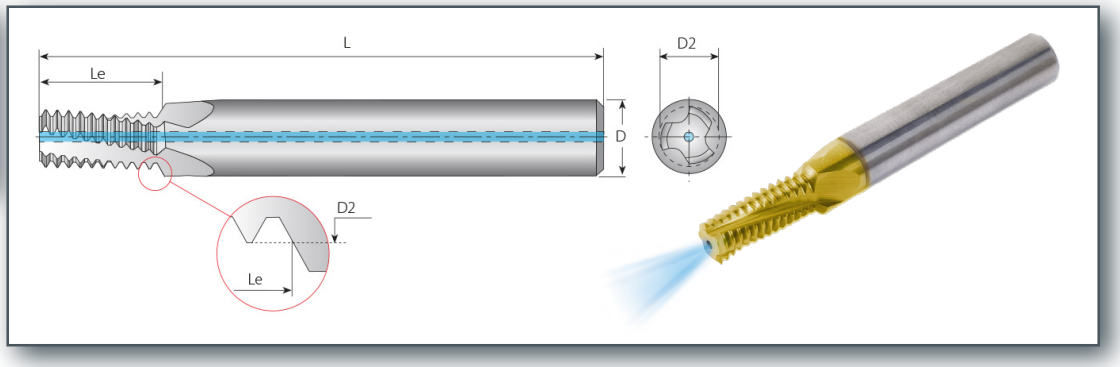
ISO

DIN13 60° INCLUSIVE

HELICAL FLUTES THRU-HOLE COOLANT

INTERNAL





3.0 x Ø (Le ≤ 3.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	Le	Z	Zt	mm
M3x0.5	M3.5-M16x0.5	0.50	**TMRN 04 024 L09 0.5ISO-C**	4	2.40	45	9.25	3	18	2.50
M4x0.7	-	0.70	**TMRN 04 031 L12 0.7ISO-C**	4	3.15	47	12.95	3	18	3.30
M5x0.8	-	0.80	**TMRN 04 039 L15 0.8ISO-C**	4	3.90	50	15.60	3	19	4.20
M6x1.0	M8-M40x1.0	1.00	**TMRN 06 048 L18 1.0ISO-C**	6	4.80	60	18.50	3	18	5.00
M8x1.25	-	1.25	**TMRN 08 065 L25 1.25ISO-C**	8	6.50	66	25.63	3	20	6.80
M10x1.5	M12xM48x1.5	1.50	**TMRN 10 082 L30 1.5ISO-C**	10	8.20	75	30.75	3	20	8.50
M12x1.75	-	1.75	**TMRN 10 099 L36 1.75ISO-C**	10	9.90	86	37.63	4	21	10.20
M16x2.0	M17-M80x2.0	2.00	**TMRN 14 136 L48 2.0ISO-C**	14	13.60	108	49.00	4	24	14.00

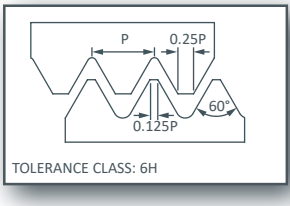
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

ISO

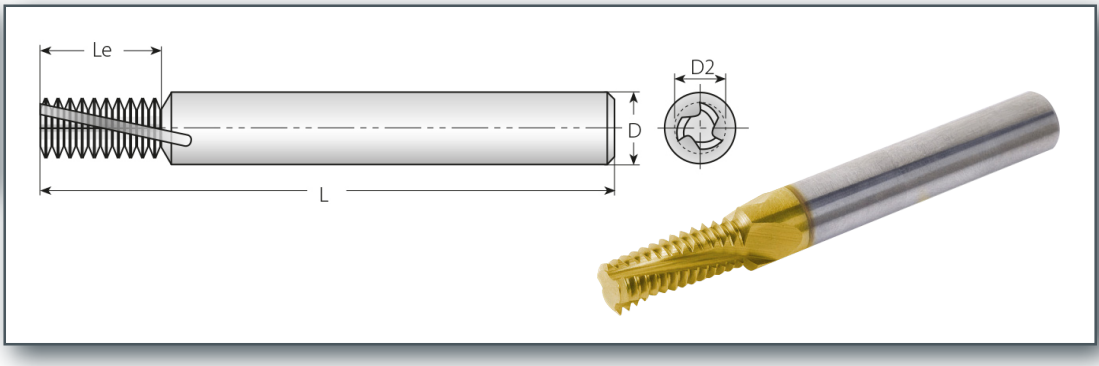
DIN13 60° INCLUSIVE

HELICAL FLUTES

INTERNAL



TOLERANCE CLASS: 6H



2.0 x Ø (Le ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	Le	Z	Zt	mm
M3x0.5	M3.5-M16x0.5	0.50	**TMRN 04 022 L06 0.5ISO**	4	2.20	45	6.00	3	12	2.50
-	M5x0.5	0.50	**TMRN 04 039 L10 0.5ISO**	4	3.90	45	10.00	3	20	4.50
M4x0.7		0.70	**TMRN 04 028 L08 0.7ISO**	4	2.80	45	8.00	3	12	3.30
	M6x0.75	0.75	**TMRN 04 039 L12 0.75ISO**	4	3.90	45	12.00	3	16	5.30
M5x0.8		0.80	**TMRN 04 035 L10 0.8ISO**	4	3.50	45	10.40	3	13	4.20
M6x1.0	M8-M40x1.0	1.00	**TMRN 04 039 L12 1.0ISO**	4	3.90	45	12.00	3	12	5.00
	M8x1.0	1.00	**TMRN 06 059 L16 1.0ISO**	6	5.90	57	16.00	3	16	7.00
	M10x1.0	1.00	**TMRN 08 079 L20 1.0ISO**	8	7.90	63	20.00	3	20	9.00
	M12x1.0	1.00	**TMRN 10 099 L24 1.0ISO**	10	9.90	73	24.00	3	24	11.00
M8x1.25		1.25	**TMRN 06 058 L16 1.25ISO**	6	5.80	57	16.25	3	13	6.80
-	M10x1.25	1.25	**TMRN 08 077 L20 1.25ISO**	8	7.70	63	20.00	3	16	8.80
M10x1.5	M12-M48x1.5	1.50	**TMRN 08 077 L21 1.5ISO**	8	7.70	63	21.00	3	14	8.50
	M12x1.5	1.50	**TMRN 10 094 L24 1.5ISO**	10	9.40	73	24.00	4	16	10.50
	M16x1.5	1.50	**TMRN 12 119 L33 1.5ISO**	12	11.90	83	33.00	4	22	14.50
M12x1.75		1.75	**TMRN 10 087 L24 1.75ISO**	10	8.70	73	24.50	4	14	10.20
M14x2.0	M17-80x2.0	2.00	**TMRN 10 099 L28 2.0ISO**	10	9.90	73	28.00	4	14	12.00
M16x2.0	M17-M80x2.0	2.00	**TMRN 12 119 L32 2.0ISO**	12	11.90	83	32.00	4	16	14.00
M18-M22x2.5		2.50	**TMRN 16 139 L40 2.5ISO**	16	13.90	92	40.00	5	16	15.50
M24x3.0		3.00	**TMRN 16 159 L42 3.0ISO**	16	15.90	92	42.00	4	14	21.00

*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

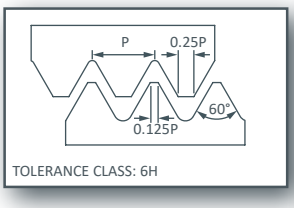
HELICAL

ISO

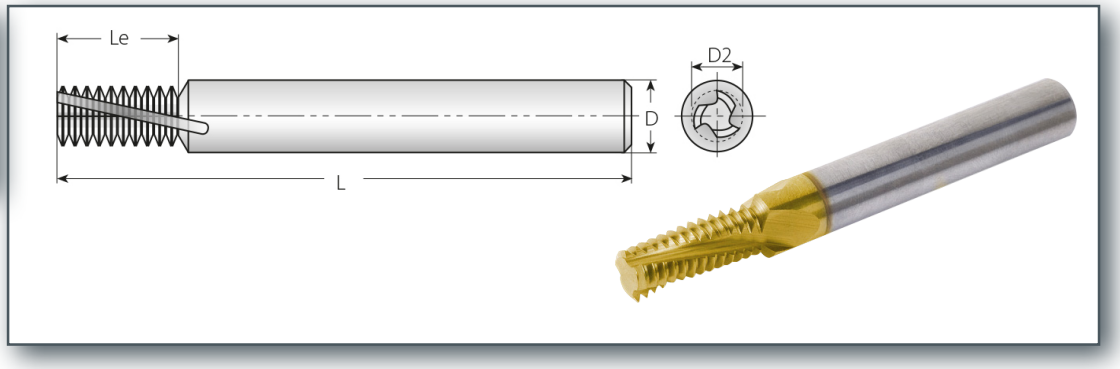
DIN13 60° INCLUSIVE

HELICAL FLUTES

EXTERNAL



TOLERANCE CLASS: 6H



HELICAL

3.0 x Ø (Le ≤ 3.0 x Thread Diameter)

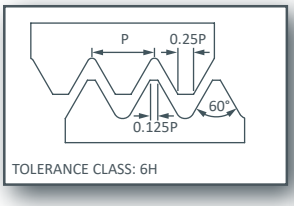
THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH
M COARSE	M FINE	mm		D	D2	L	Le	Z	Zt
M6x1.0	-	1.00	**TMRE 04 039 L12 1.0ISO**	4	3.90	45	12	3	12
M10x1.5	-	1.50	**TMRE 08 079 L21 1.5ISO**	8	7.90	63	21	3	14

ISO

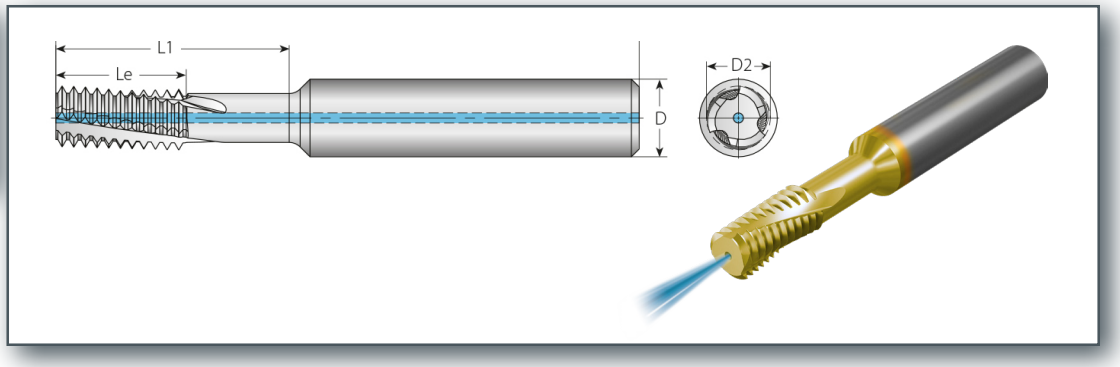
DIN13 60° INCLUSIVE

HELICAL FLUTES WITH RELIEF NECK THRU-HOLE COOLANT

INTERNAL



TOLERANCE CLASS: 6H



THRU-HOLE COOLANT

3.0 x Ø (Le ≤ 3.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm					NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	Le	L1	Z	Zt	mm
M6x1.0	M8-M40x1.0	1.00	**TMRNN 06 048 L18 1.0ISO-C**	6	4.80	60	10.00	18	3	10	5.00
M8x1.25	-	1.25	**TMRNN 08 065 L24 1.25ISO-C**	8	6.50	66	13.75	24	3	11	6.80
M10x1.5	M12-M48x1.5	1.50	**TMRNN 10 082 L30 1.5ISO-C**	10	8.20	75	16.50	30	3	11	8.50

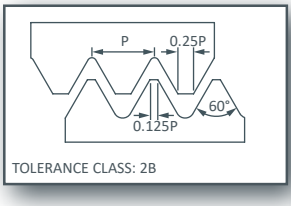
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

UNIFIED

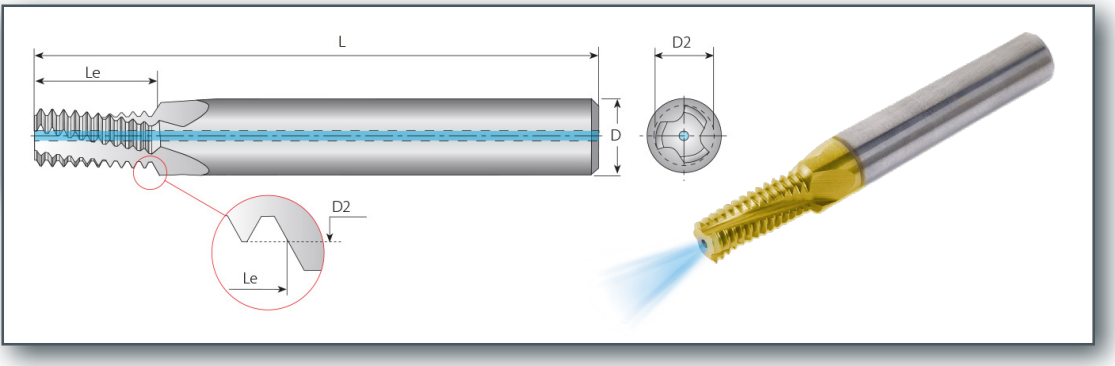
ASME/ANSI B1.1:74 - 60° INCLUSIVE

HELICAL FLUTES THRU-HOLE COOLANT

INTERNAL



TOLERANCE CLASS: 2B



2.0 x Ø (Le ≤ 2.0 x Thread Diameter)

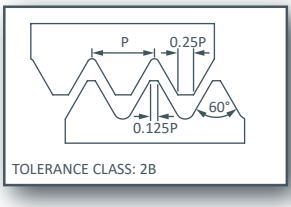
THREAD			PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
UNC	UNF	UNEF	TPI		D	D2	L	Le	Z	Zt	mm
-	No.10-32	No.12-3/8"x32	32	**TMRN 04 038 L9 32UNF-C**	4	3.80	45	9.93	3	12	4.00
1/4"x20	7/16", 1/2"x20	3/4"-1"x20	20	**TMRN 06 048 L13 20UNC-C**	6	4.88	57	13.34	3	10	5.20
3/8"x16	3/4"x16	-	16	**TMRN 08 076 L19 16UNC-C**	8	7.65	61	19.85	3	12	8.00
3/4"x10	-	-	10	**TMRN 16 159 L39 10UNC-C**	16	15.90	92	39.37	4	15	16.50

UNIFIED

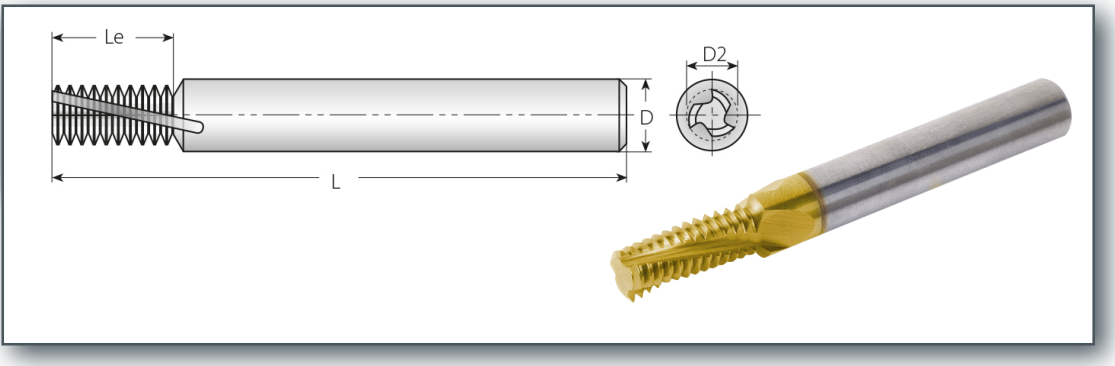
ASME/ANSI B1.1:74 - 60° INCLUSIVE

HELICAL FLUTES

INTERNAL



TOLERANCE CLASS: 2B



2.0 x Ø (Le ≤ 2.0 x Thread Diameter)

THREAD			PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
UNC	UNF	UNEF	TPI		D	D2	L	Le	Z	Zt	mm
-	1/4"x28	7/16", 1/2x28	28	**TMRN 06 046 L13 28UNF**	6	4.60	57	12.70	3	14	5.50
-	7/16", 1/2"x20	3/4"-1"x20	20	**TMRN 10 085 L23 20UNF**	10	8.50	73	22.90	4	18	9.80
3/8"x16	3/4"x16	-	16	**TMRN 08 067 L19 16UNC**	8	6.70	63	19.10	3	12	8.00
-	7/8"x14	-	14	**TMRN 16 159 L40 14UNF**	16	15.90	100	39.30	4	22	18.00
5/8"x11	-	-	11	**TMRN 12 110 L32 11UNC**	12	11.00	83	32.30	4	14	13.50
1"x8	-	-	8	**TMRN 20 170 L51 8UNC**	20	17.0	104	50.80	4	16	22.00

*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

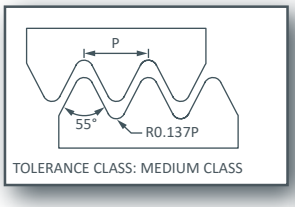
HELICAL

BSP (G)

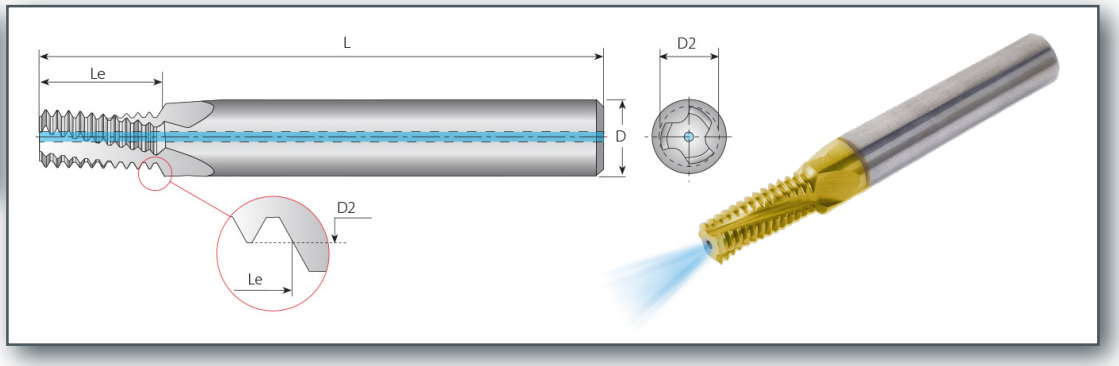
HELICAL FLUTES THRU-HOLE COOLANT

BS2779:1956 - 55° INCLUSIVE

EXTERNAL X INTERNAL



TOLERANCE CLASS: MEDIUM CLASS



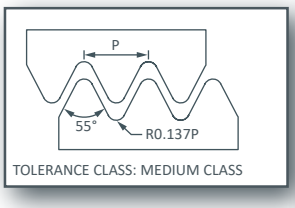
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
STANDARD	TPI		D	D2	L	Le	Z	Zt	mm
1/4", 3/8"x19	19	**TMRX 12 110 L27 19BSP-C**	12	11.00	80	27.41	4	20	11.80
1/2"-7/8"x14	14	**TMRX 18 179 L42 14BSP-C**	18	17.90	102	42.63	4	23	19.00

BSP (G)

HELICAL FLUTES

BS2779:1956 - 55° INCLUSIVE

EXTERNAL X INTERNAL



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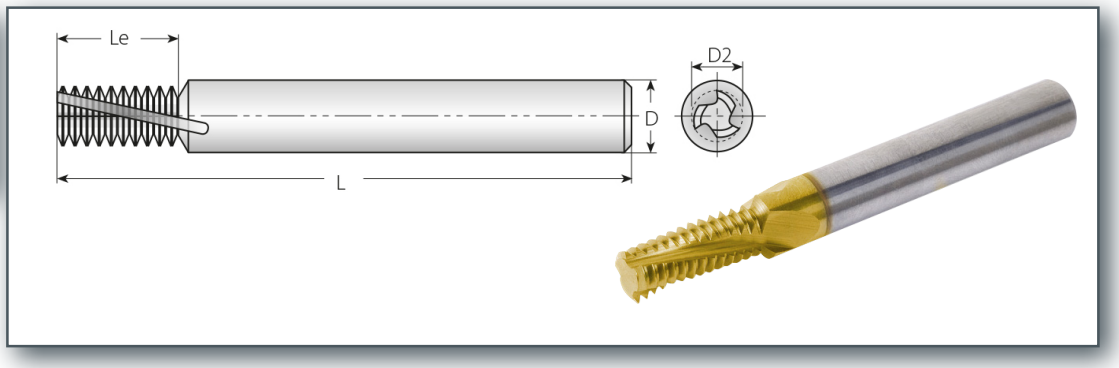


THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
STANDARD	TPI		D	D2	L	Le	Z	Zt	mm
1/8"x28	28	**TMRX 08 077 L20 28BSP**	8	7.70	63	20.00	3	22.00	8.70
1/2"x19, 3/8"x19	19	**TMRX 10 099 L27 19BSP**	10	9.90	73	26.70	4	19.00	11.80
1/2", 3/4"x14	14	**TMRX 16 157 L44 14BSP**	16	15.70	92	43.50	5	23.00	19.00
1", 1 1/2", 2", 2 1/2"x11	11	**TMRX 20 199 L42 11BSP**	20	19.90	104	41.60	5	18.00	30.70

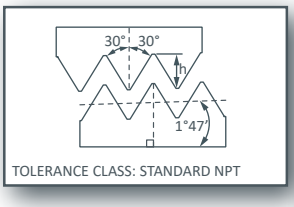
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

NPT

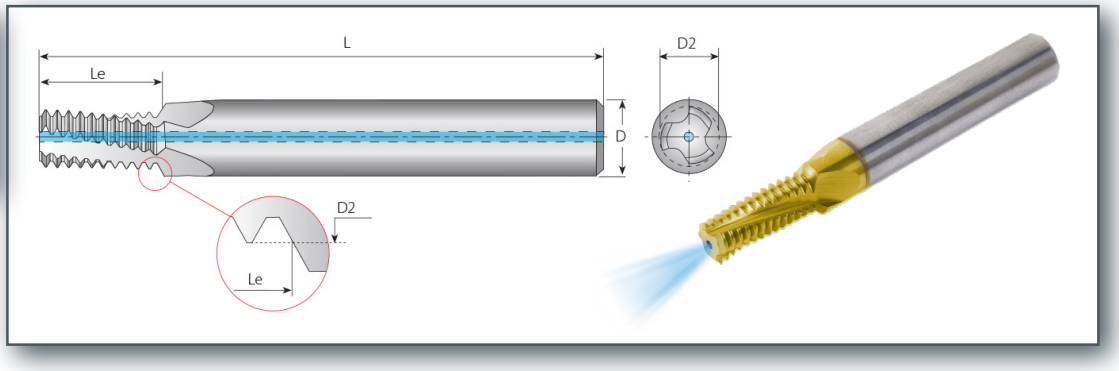
ASME/ANSI B1.20.1 60° INCLUSIVE 1/16 TAPER

HELICAL FLUTES THRU-HOLE COOLANT

*EXTERNAL **X** INTERNAL*



TOLERANCE CLASS: STANDARD NPT



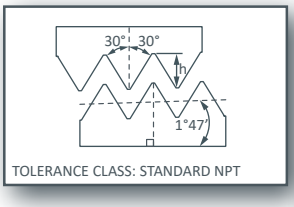
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
STANDARD	TPI		D	D2	L	Le	Z	Zt	mm
1/16"x27	27	TMRX 06 059 L09 27NPT-C	6	5.90	57	9.90	3	10	6.30
1/8"x27	27	TMRX 08 076 L09 27NPT-C	8	.65	61	9.90	3	10	8.50
1/4"x18	18	TMRX 10 099 L14 18NPT-C	10	9.90	73	14.80	3	10	11.10
3/8"x18	18	TMRX 12 112 L14 18NPT-C	12	11.15	73	14.80	4	10	14.50
1/2", 3/4"x14	14	TMRX 16 142 L19 14NPT-C	16	14.25	92	19.00	4	10	17.7, 23.0
1", 1 1/4", 1 1/2", 2"x11.5	11.5	TMRX 20 196 L23 11.5NPT-C	20	19.60	102	23.20	4	10	29.0,37.7, 44.0. 56.0
2 1/2", 3"x8	8	TMRX 20 196 L33 8NPT-C	20	19.60	102	33.30	4	10	66.5, 82.1

NPT

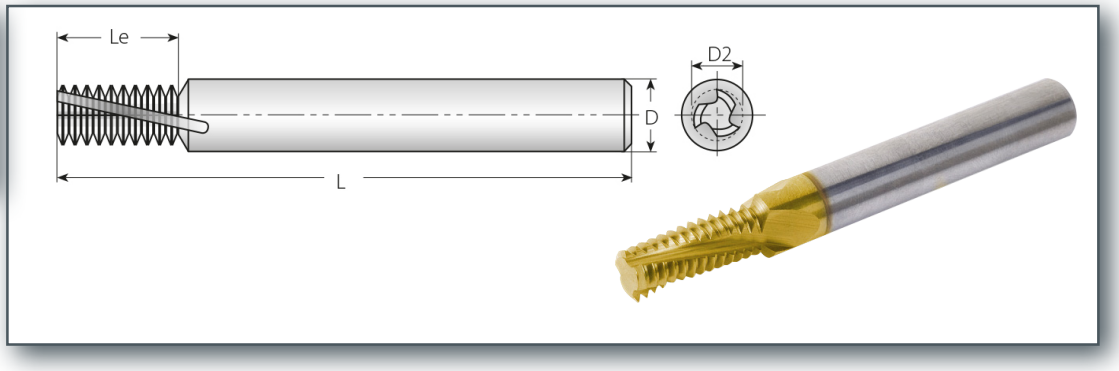
ASME/ANSI B1.20.1 60° INCLUSIVE 1/16 TAPER

HELICAL FLUTES

*EXTERNAL **X** INTERNAL*



TOLERANCE CLASS: STANDARD NPT



THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
STANDARD	TPI		D	D2	L	Le	Z	Zt	mm
1/16"x27	27	TMRX 06 053 L09 27NPT	6	5.30	57	9.40	3	10	6.30
1/8"x27	27	TMRX 08 075 L09 27NPT	8	7.50	63	9.40	4	10	8.50
1/4"x18	18	TMRX 10 094 L14 18NPT	10	9.40	73	14.10	4	10	11.10
3/8"x18	18	TMRX 12 119 L14 18NPT	12	11.90	83	14.10	4	10	14.50
1/2", 3/4"x14	14	TMRX 12 119 L20 14NPT	12	11.90	84	20.00	4	11	17.7, 23.0
1/2", 3/4"x14	14	TMRX 16 155 L25 14NPT	16	15.50	92	25.40	5	14	17.7, 23.0
1", 1 1/4", 1 1/2", 2"x11.5	11.5	TMRX 20 199 L33 11.5NPT	20	19.90	104	33.10	5	15	29.0-56.0
2 1/2", 3"x8	8	TMRX 20 199 L38 8NPT	20	19.90	104	38.10	4	12	66.50

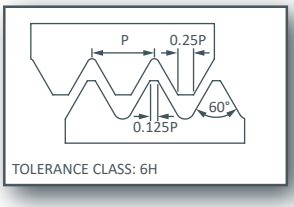
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

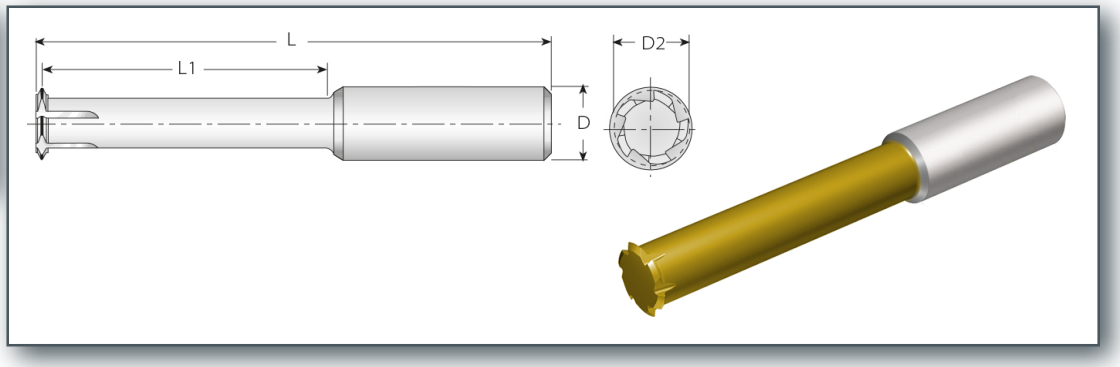
ISO

DIN13 60° INCLUSIVE

LONG REACH TOOLS

INTERNAL





3.0 x Ø (L1 ≤ 3.0 x Thread Diameter)

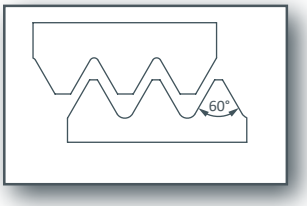
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	mm		D	D2	L	L1	Z	Zt	mm
M6x1.0	1.00	**PMRN 08 041 L19 1.0ISO 1T**	8	4.1	63	19	3	1	5
M8x1.25	1.25	**PMRN 10 058 L26 1.25ISO 1T**	10	5.8	73	26	3	1	6.8
M10x1.5	1.50	**PMRN 10 077 L32 1.5ISO 1T**	10	7.7	73	32	3	1	8.5
M12x1.75	1.75	**PMRN 12 087 L38 1.75ISO 1T**	12	8.7	83	38	4	1	10.2

PARTIAL PROFILE

60° INCLUSIVE

LONG REACH TOOLS

INTERNAL



THREAD			PITCH		DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH
M COARSE	M FINE	UN, UNS, UNF, UNEF	mm	TPI		D	D2	L	L1	Z	Zt
M5x0.8	M5x0.5 M5x0.75	No.10-56UNS, No.10-48UNS, No.10-40UNS, No.10-36UNS, No.10-32UNF	0.5-0.8	32-56	**PMRN 04 039 L16 A60 1T**	4	3.9	45	16	4	1
M6x1.0	M6x0.5, M6X0.75	No.12-56UNS, No.12-48UNS, 1/4-40UNS, 1/4-36UNS, 1/4-32UNEF, 1/4-28UNF, 1/4-27UNS, 1/4-24UNS	0.5-1.0	24-56	**PMRN 06 049 L20 B60 1T**	6	4.85	51	20	5	1
M8x1.25	M7x0.5, M7x0.75, M7.5x1.0	5/16-48UNS, 5/16-40UNS, 5/16-36UNS, 5/16-32UNEF, 5/16-28UN, 5/16-27UNS, 5/16-24UNS, 5/16-20UN	0.5-1.25	20-48	**PMRN 06 059 L25 F60 1T**	6	5.9	64	25	5	1
M10x1.5	M10x1.0, M10X1.25	3/8-24UNF, 3/8-20UN, 7/16-18UNS, 7/16-16UN	1.0-1.50	16-24	**PMRN 08 079 L32 C60 1T**	8	7.9	63	32	6	1
M12x1.75	M12x1.0, M12X1.25, M12x1.5	1/2-24UNS, 1/2-20UNS, 1/2-18UNS, 1/2-16UNS, 1/2-14UNS	1.0-1.75	14-24	**PMRN 10 099 L38 D60 1T**	10	9.9	73	38	6	1

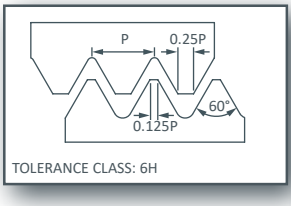
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

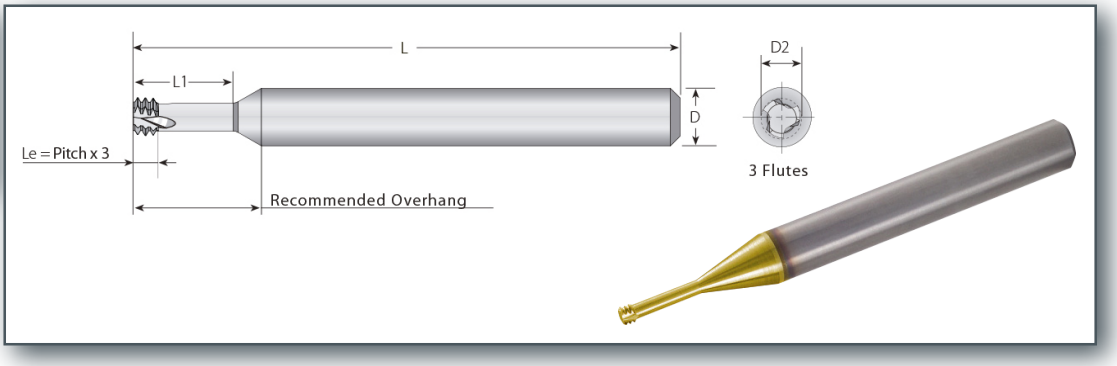
ISO

DIN13 60° INCLUSIVE

MINIATURE THREADMILLS

INTERNAL





2.0 x Ø (L1 ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	mm
M1.6x0.35	-	0.35	PMRN 03 012 L3 0.35ISO 3T	3.00	1.20	30.00	3.40	3	3	1.25
M2x0.4	-	0.40	PMRN 06 015 L4 0.4ISO 3T	6.00	1.55	57.00	4.20	3	3	1.60
M2.5x0.45	-	0.45	PMRN 06 019 L5 0.45ISO 3T	6.00	1.95	57.00	5.20	3	3	2.05
M3x0.5	M3.5-M16x0.5	0.50	PMRN 06 024 L6 0.5ISO 3T	6.00	2.40	57.00	6.25	3	3	2.50
M4x0.7	-	0.70	PMRN 06 031 L8 0.7ISO 3T	6.00	3.15	57.00	8.35	3	3	3.30
M5x0.8	-	0.80	PMRN 06 040 L10 0.8ISO 3T	6.00	4.05	57.00	10.40	3	3	4.20
M6x1.0	M8-M40x1.0	1.00	PMRN 06 048 L12 1.0ISO 3T	6.00	4.80	57.00	12.50	3	3	5.00
M8x1.25	-	1.25	PMRN 08 065 L16 1.25ISO 3T	8.00	6.50	63.00	16.60	3	3	8.50
M10x1.5	M12-M48x1.5	1.50	PMRN 10 082 L20 1.5ISO 3T	10.00	8.20	73.00	20.80	3	3	8.50
M12x1.75	-	1.75	PMRN 10 099 L25 1.75ISO 3T	10.00	9.90	83.00	25.00	3	3	10.30
M16x2.0	-	2.00	PMRN 12 119 L33 2.0ISO 3T	12.00	11.90	83.00	33.00	3	3	14.00

3.0 x Ø (L1 ≤ 3.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	mm
M1.6x0.35	-	0.35	PMRN 03 012 L5 0.35ISO 3T	3	1.20	30	5.00	3	3	1.25
M2x0.4	-	0.40	PMRN 06 015 L6 0.4ISO 3T	6	1.55	57	6.20	3	3	1.60
M2x0.4	-	0.40	PMRN 03 015 L6 0.4ISO 3T	3	1.55	30	6.20	3	3	1.60
M2.5x0.45	-	0.45	PMRN 03 019 L7 0.45ISO 3T	3	1.95	30	7.70	3	3	2.05
M2.5x0.45	-	0.45	PMRN 06 019 L7 0.45ISO 3T	6	1.95	57	7.70	3	3	2.05
M3x0.5	M3.5-M16x0.5	0.50	PMRN 03 024 L9 0.5ISO 3T	3	2.40	30	9.20	3	3	2.50
M3x0.5	M3.5-M16x0.5	0.50	PMRN 06 024 L9 0.5ISO 3T	6	2.40	57	9.25	3	3	2.50
M4x0.7	-	0.70	PMRN 06 031 L12 0.7ISO 3T	6	3.15	57	12.30	3	3	3.30
M5x0.8	-	0.80	PMRN 06 040 L15 0.8ISO 3T	6	4.05	57	15.40	3	3	4.20
M6x1.0	M8-M40x1.0	1.00	PMRN 06 048 L18 1.0ISO 3T	6	4.80	57	18.50	3	3	5.00
M8x1.25	-	1.25	PMRN 08 065 L24 1.25ISO 3T	8	6.50	63	24.60	3	3	6.80

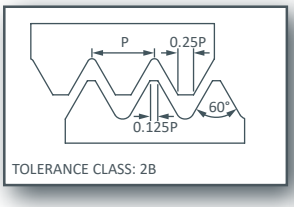
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

UNIFIED

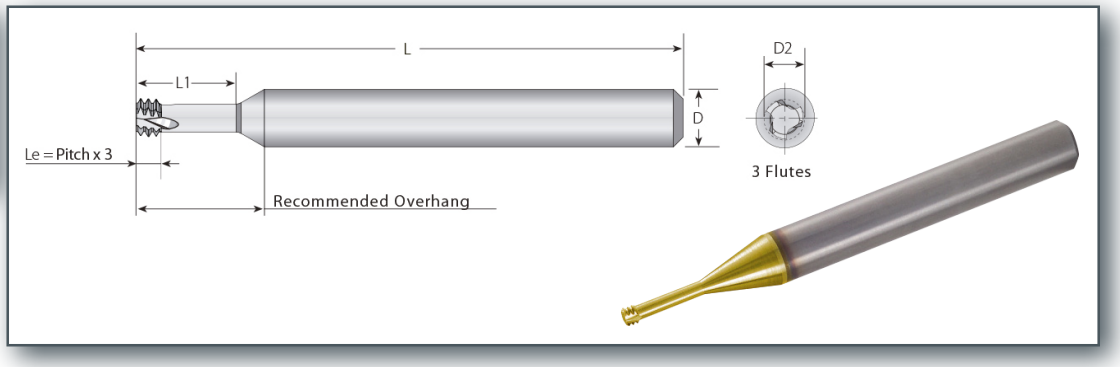
ASME/ANSI B1.1 - 60° INCLUSIVE

MINIATURE THREADMILLS

INTERNAL



TOLERANCE CLASS: 2B



2.0 x Ø (Le ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
UNC	UNF	TPI		D	D2	L	L1	Z	Zt	mm
No.2-56	No.3-56	56	**PMRN 06 016 L5 56UN 3T**	6	1.65	57	5.00	3	3	1.80
No.4, No.5-40	No.6-40	40	**PMRN 06 021 L6 40UN 3T**	6	2.10	57	6.00	3	3	2.30
No.6, No.8-32	No.10-32	32	**PMRN 06 025 L7 32UN 3T**	6	2.55	57	7.41	3	3	2.80
No.8-32	No.10-32	32	**PMRN 06 032 L10 32UN 3T**	6	3.20	57	10.00	3	3	3.50
-	1/4"x28	28	**PMRN 06 052 L13 28UN 3T**	6	5.25	57	13.20	3	3	5.50
No.10-24	5/16"x24	24	**PMRN 06 035 L10 24UN 3T**	6	3.58	57	10.20	3	3	3.90
1/4"x20	7/16"x20	20	**PMRN 06 048 L13 20UN 3T**	6	4.88	57	13.40	3	3	5.20

3.0 x Ø (L1 ≤ 3.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
UNC	UNF	TPI		D	D2	L	L1	Z	Zt	mm
-	No.1-72	72	**PMRN 03 014 L5 72UN 3T**	3	1.45	30	5.75	3	3	1.60
No.2-56	No.3-56	56	**PMRN 03 016 L7 56UN 3T**	3	1.65	30	7.00	3	3	1.80
No.4, No.5-40	No.6-40	40	**PMRN 03 021 L9 40UN 3T**	3	2.10	30	9.00	3	3	2.30
No.4, No.5-40	No.6-40	40	**PMRN 06 021 L9 40UN 3T**	6	2.10	57	9.00	3	3	2.30
No.6, No.8-32	No.10-32	32	**PMRN 03 025 L11 32UN 3T**	3	2.55	30	11.00	3	3	2.80
No.6, No.8-32	No.10-32	32	**PMRN 06 025 L11 32UN 3T**	6	2.55	57	11.00	3	3	2.80
No.8-32	No.10-32	32	**PMRN 06 032 L13 32UN 3T**	6	3.20	57	13.00	3	3	3.40
-	1/4"x28	28	**PMRN 06 052 L19 28UN 3T**	6	5.25	57	19.60	3	3	5.50
-	5/16"x24	24	**PMRN 08 066 L24 24UN 3T**	8	6.67	63	24.50	3	3	6.90
1/4"x20	7/16"x20	20	**PMRN 06 048 L19 20UN 3T**	6	4.88	57	19.80	3	3	5.10

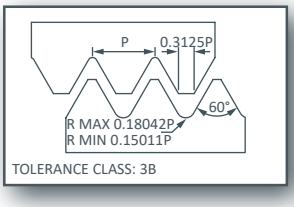
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

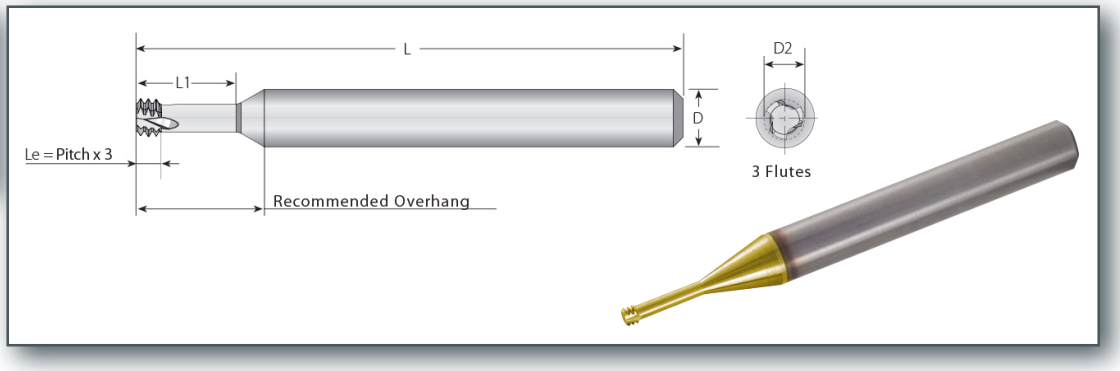
UNJ

MINIATURE THREADMILLS

BS A 346:2000 60° INCLUSIVE

INTERNAL





3.0 x Ø (L1 ≤ 3.0 x Thread Diameter)

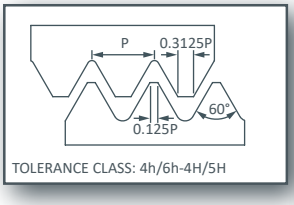
THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
UNJC	UNJF	TPI		D	D2	L	L1	Z	Zt	mm
0.138"(#6)	0.190"(#10)	32	**PMRN 06 027 L11 32UNJ 3T**	6	2.70	57	11.00	3	3	2.80
-	0.250"(1/4")	28	**PMRN 06 054 L19 28UNJ 3T**	6	5.40	57	19.50	3	3	5.60
-	0.3125"(5/16")	24	**PMRN 08 067 L24 24UNJ 3T**	8	6.70	63	24.10	3	3	7.00
-	0.4375"(7/16")	20	**PMRN 10 096 L33 20UNJ 3T**	10	9.60	73	33.50	3	3	10.00

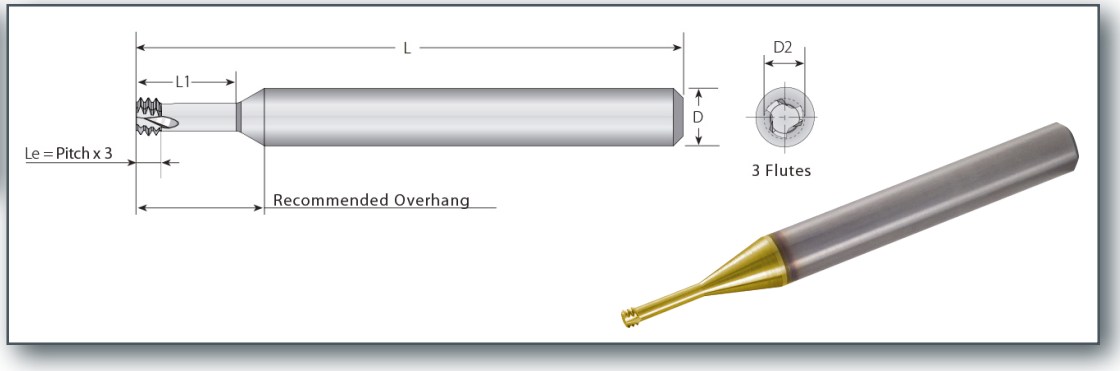
MJ

MINIATURE THREADMILLS

ISO 5855 60° INCLUSIVE

INTERNAL





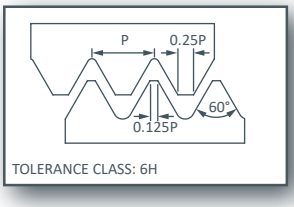
3.0 x Ø (L1 ≤ 3.0 x Thread Diameter)

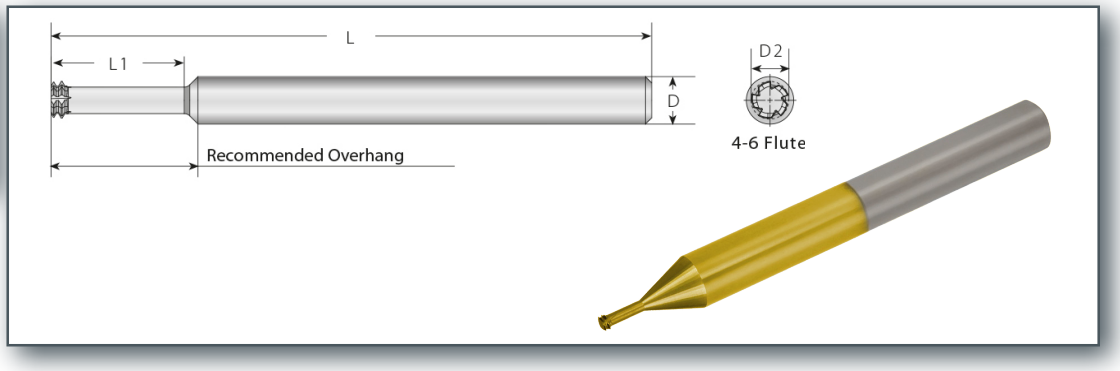
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
STANDARD	mm		D	D2	L	L1	Z	Zt	mm
MJ4x0.7	0.70	**PMRN 06 031 L12 0.7MJ 3T**	6	3.15	57	12.30	3	3	3.40
MJ5x0.8	0.80	**PMRN 06 040 L15 0.8MJ 3T**	6	4.05	57	15.40	3	3	4.30
MJ6x1.0	1.00	**PMRN 06 048 L18 1.0MJ 3T**	6	4.80	57	18.50	3	3	5.10
MJ8x1.25	1.25	**PMRN 08 065 L24 1.25MJ 3T**	8	6.50	63	24.50	3	3	6.90

*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

ISO
DIN13 60° INCLUSIVE

MINIATURE THREADMILLS FOR HARD MATERIALS
INTERNAL LEFT HAND





2.0 x Ø (L1 ≤ 2.0 x Thread Diameter)

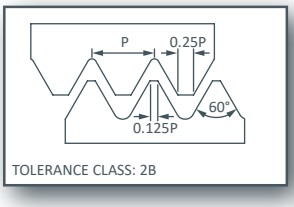
THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	mm
M4x0.7	-	0.70	PMSN 06 031 L8 0.7ISO 2TL	6	3.15	76	9.05	4	2	3.35
M5x0.8	-	0.80	PMSN 06 040 L10 0.8ISO 2TL	6	4.05	76	11.20	4	2	4.30
M6x1.0	M8-M40x1.0	1.00	PMSN 06 048 L12 1.0ISO 2TL	6	4.80	76	13.50	5	2	5.10
M10x1.5	M12-M48x1.50	1.50	PMSN 08 079 L20 1.5ISO 2TL	8	7.90	80	22.30	6	2	8.60

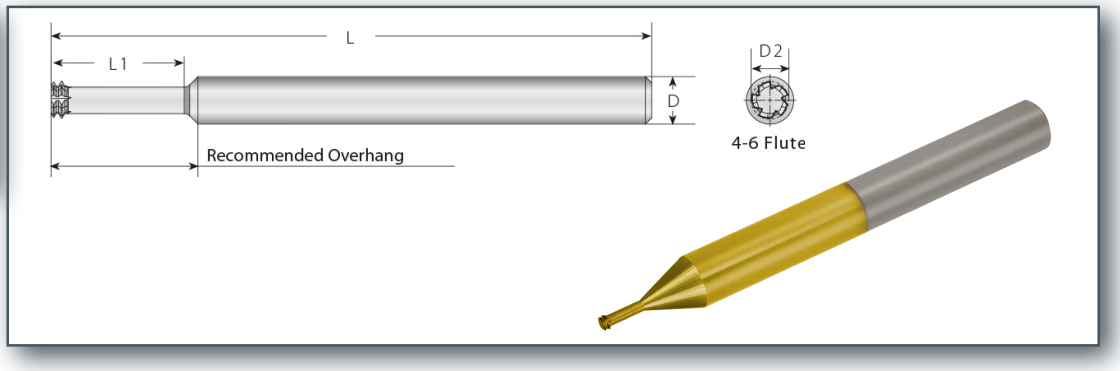
3.0 x Ø (L1 ≤ 3.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	mm
M3x0.5	M3.5-M16x0.5	0.50	PMSN 06 024 L9 0.5ISO 2TL	6	2.40	76	9.75	4	2	2.55
M4x0.7	-	0.70	PMSN 06 031 L12 0.7ISO 2TL	6	3.15	76	13.05	4	2	3.35
M5x0.8	-	0.80	PMSN 06 040 L15 0.8ISO 2TL	6	4.05	76	16.20	4	2	4.30
M6x1.0	M8-M40x1.0	1.00	PMSN 06 048 L18 1.0ISO 2TL	6	4.80	76	19.50	5	2	5.10
M8x1.25	-	1.25	PMSN 08 065 L24 1.25ISO 2TL	8	6.50	80	25.85	5	2	6.80

UNIFIED
ASME/ANSI B1.1 - 60° INCLUSIVE

MINIATURE THREADMILLS FOR HARD MATERIALS
INTERNAL LEFT HAND





2.0 x Ø (L1 ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	BORE*
UNC	UNF	TPI		D	D2	L	L1	Z	Zt	mm
-	No.10-32	32	PMSN 06 037 L10 32UN 2TL	6	3.7	76	10.8	4	2	4.17

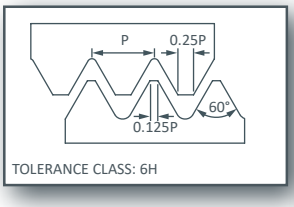
*BORE DIAMETER APPLIES TO SMALLEST THREAD DIAMETER

ISO

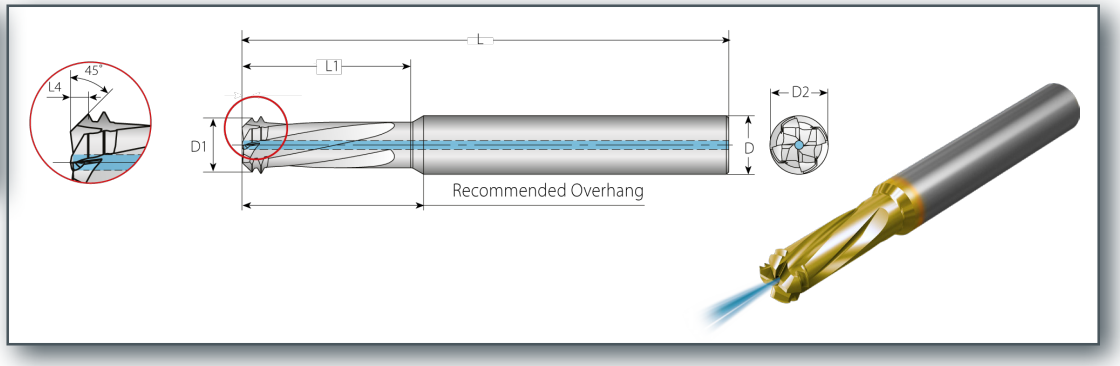
DIN13 60° INCLUSIVE

DRILLING, THREAD MILLING & CHAMFERING

INTERNAL LEFT HAND



TOLERANCE CLASS: 6H



WITH THRU-COOLANT

2.0 x Ø (L1 ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH		
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	L4	D1
M10x1.5	M11-M15x1.5	1.50	**TMDN 08 078 L23 1.5ISO-C 2TL**	8	7.8	64	23	4	2	1.12	7.24

WITHOUT THRU-COOLANT

2.0 x Ø (L1 ≤ 2.0 x Thread Diameter)

THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH		
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	L4	D1
M4x0.7	-	0.70	**TMDN 06 032 L9 0.7ISO 2TL**	6	3.2	58	9.2	3	2	0.57	2.88
M5x0.8	-	0.80	**TMDN 06 039 L11 0.8ISO 2TL**	6	3.9	58	11.5	3	2	0.7	3.51

WITHOUT THRU-COOLANT

2.5 x Ø (L1 ≤ 2.5 x Thread Diameter)

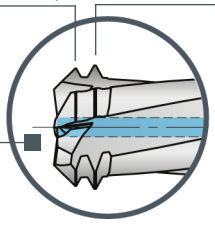
THREAD		PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH		
M COARSE	M FINE	mm		D	D2	L	L1	Z	Zt	L4	D1
M3x0.5	M4x0.5	0.50	**TMDN 06 024 L8 0.5ISO 2TL**	6	2.4	58	8.5	3	2	0.4	2.08
M4x0.7	-	0.70	**TMDN 06 032 L11 0.7ISO 2TL**	6	3.2	58	11.2	3	1	0.57	2.88
M5x0.8	-	0.80	**TMDN 06 039 L14 0.8ISO 2TL**	6	3.9	58	14.4	3	1	0.7	3.51

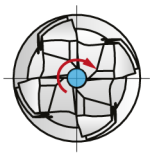
1ST TOOTH: PARTIAL PROFILE (ROUGHING)

2ND TOOTH: FULL PROFILE (FINISHING)

TWO CUTTING TEETH:
PARTIAL PROFILE FOR LEADING TOOTH FOLLOWED BY FULL PROFILE FOR FINISHING

THE WORK DIRECTION SHOULD BE FROM THE TOP TO THE BOTTOM (CLIMB MILLING)

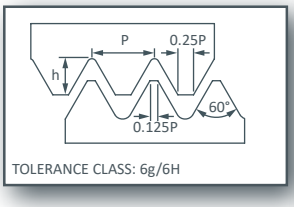




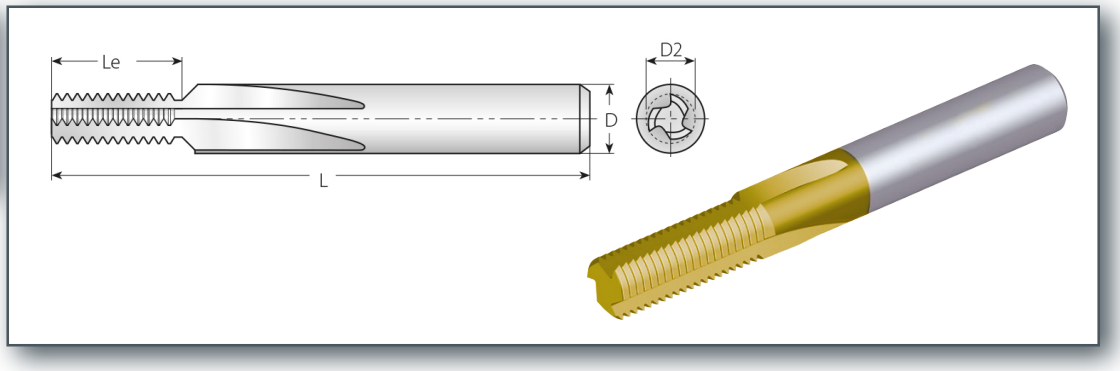
TM**DN** TOOLS ARE LEFT HANDED FOR CNC USED M04 CODE

ISO
DIN13 60° INCLUSIVE

STRAIGHT FLUTES
EXTERNAL



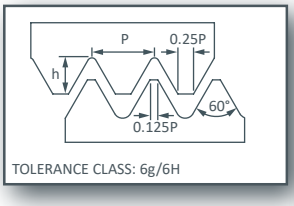
TOLERANCE CLASS: 6g/6H



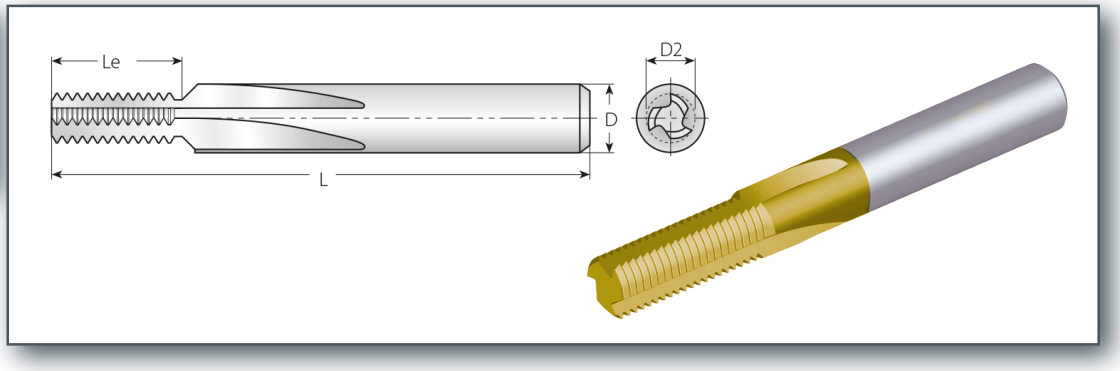
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	
MIN DIA.	mm		D	D2	L	Le	Z	Zt	h mm
M4.5	0.75	**TMSE 08 079 L19 0.75ISO**	8	7.9	63	19.5	3	26	0.46
M6	1.00	**TMSE 10 099 L24 1.0ISO**	10	9.9	72	24	5	24	0.61

ISO
DIN13 60° INCLUSIVE

STRAIGHT FLUTES
INTERNAL



TOLERANCE CLASS: 6g/6H



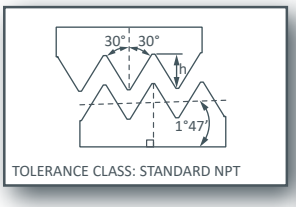
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	
MIN DIA.	mm		D	D2	L	Le	Z	Zt	h mm
M8	0.75	**TMSN 06 059 L15 0.75ISO**	6	5.9	57	15	3	20	0.43
M16	1.50	**TMSN 10 099 L24 1.5ISO**	10	9.9	72	24	5	16	0.87
M18	1.50	**TMSN 12 119 L30 1.5ISO**	12	11.9	83	30	5	20	0.87

NPT

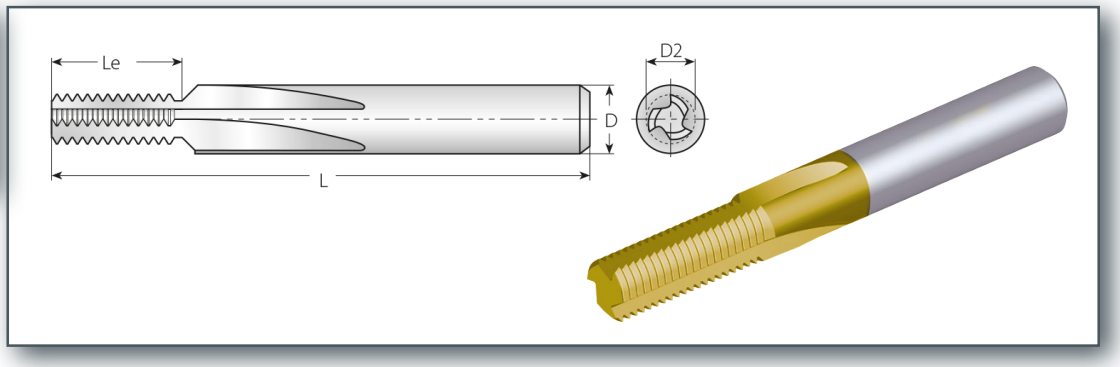
STRAIGHT FLUTES

ASME/ANSI B1.20.1 60° INCLUSIVE 1/16 TAPER

*EXTERNAL **X** INTERNAL*



TOLERANCE CLASS: STANDARD NPT



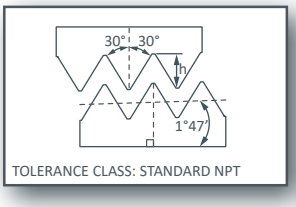
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	
MIN DIA.	TPI		D	D2	L	Le	Z	Zt	h mm
1/4"	18	**TMSX 08 079 L14 18NPT**	8	7.90	63	14.11	3	10	1.01
1/2"	14	**TMSX 12 119 L20 14NPT**	12	11.90	83	19.96	5	11	1.33

BSP (G)

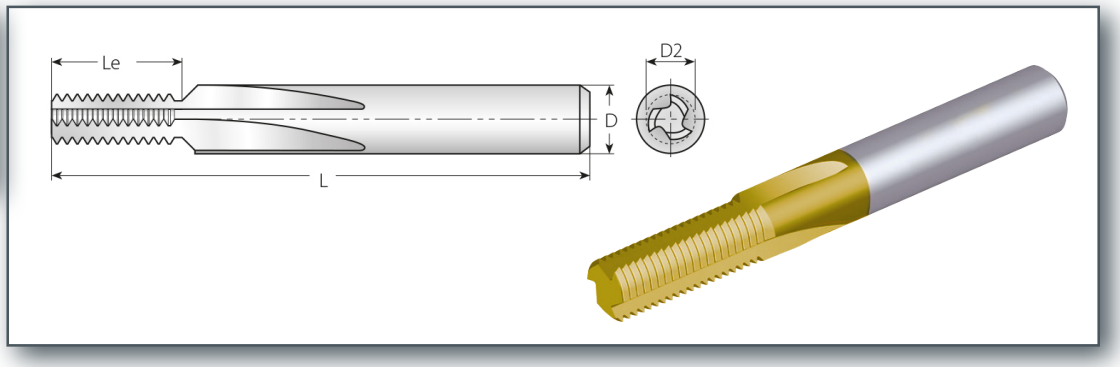
STRAIGHT FLUTES

BS2779:1956 - 55° INCLUSIVE

*EXTERNAL **X** INTERNAL*



TOLERANCE CLASS: STANDARD NPT

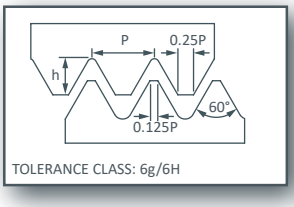


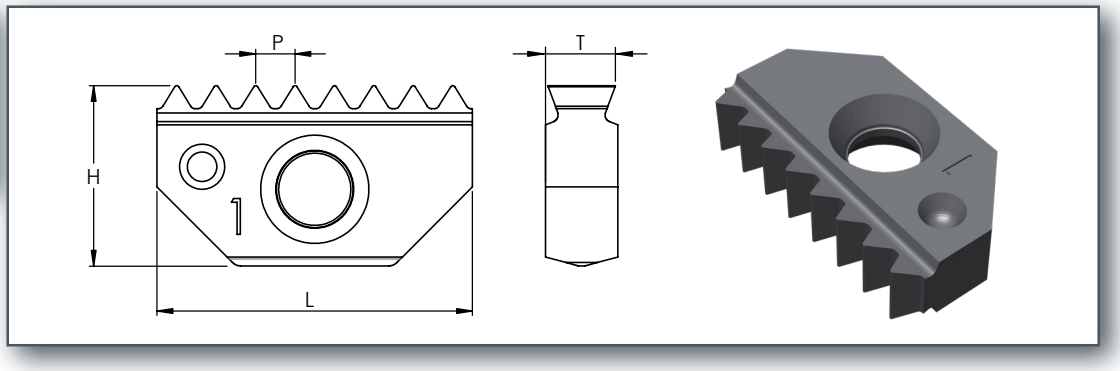
THREAD	PITCH	DESCRIPTION	DIMENSIONS mm				NO. OF FLUTES	NO. OF TEETH	
MIN DIA.	TPI		D	D2	L	Le	Z	Zt	h mm
1/4"	19	**TMSX 08 079 L19 19BSP PTC2**	8	7.90	63	18.72	5	14	0.86
1/2"	14	**TMSX 12 119 L29 14BSP PTC2**	12	11.90	83	29.03	5	16	1.16

ISO

DOUBLE SIDED

DIN13 60° INCLUSIVE





EXTERNAL

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
mm				L	H	T
1.00	PTM14	PTM14 E 1.0ISO	14	14	8	3.1
1.25		PTM14 E 1.25ISO	11			
1.50		PTM14 E 1.5ISO	9			
2.00		PTM14 E 2.0ISO	7			
1.50	PTM21	PTM21 E 1.5ISO	14	21	12.65	4.65
2.00		PTM21 E 2.0ISO	10			
3.00		PTM21 3.0ISO	7			

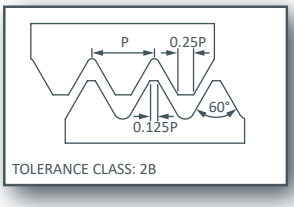
INTERNAL

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
mm				L	H	T
1.00	PTM14	PTM14 N 1.0ISO	14	14	8	3.10
1.25		PTM14 N 1.25ISO	11			
1.50		PTM14 N 1.5ISO	9			
1.75		PTM14 N 1.75ISO	8			
2.00		PTM14 N 2.0ISO	7			
2.50		PTM14 N 2.5ISO	5			
1.50	PTM21	PTM21 N 1.5ISO	14	21	12.65	4.65
2.00		PTM21 N 2.0ISO	10			
3.00		PTM21 N 3.0ISO	7			
3.50		PTM21 N 3.5ISO	6			

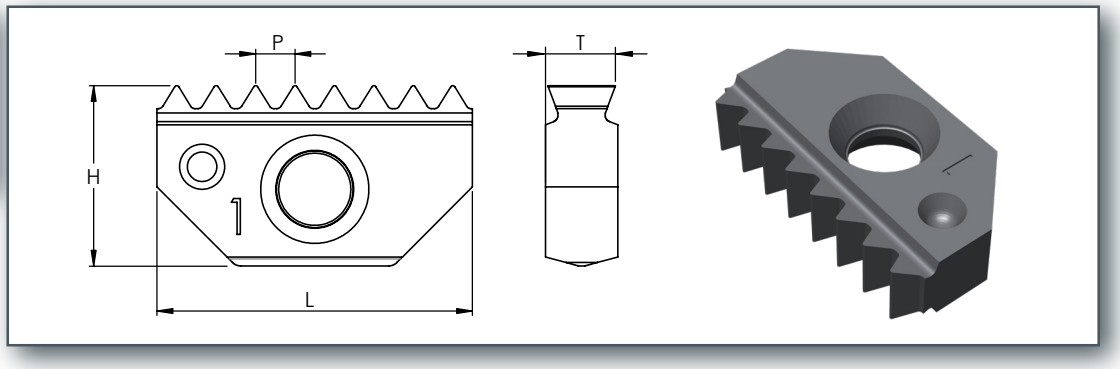
UNIFIED

DOUBLE SIDED

ASME/ANSI B1.1:74 - 60° INCLUSIVE



TOLERANCE CLASS: 2B



EXTERNAL

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
24	PTM14	PTM14 E 24UN	13	14	8	3.10
20		PTM14 E 20UN	11			
18		PTM14 E 18UN	9			
16		PTM14 E 16UN	8			
14		PTM14 E 14UN	7			
12		PTM14 E 12UN	6			
20	PTM21	PTM21 E 20UN	11	21	12.65	4.65
18		PTM21 E 18UN	9			
16		PTM21 E 16UN	8			
14		PTM21 E 14UN	7			
12		PTM21 E 12UN	6			
10		PTM21 E 10UN	5			

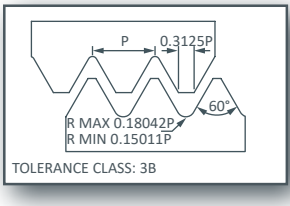
INTERNAL

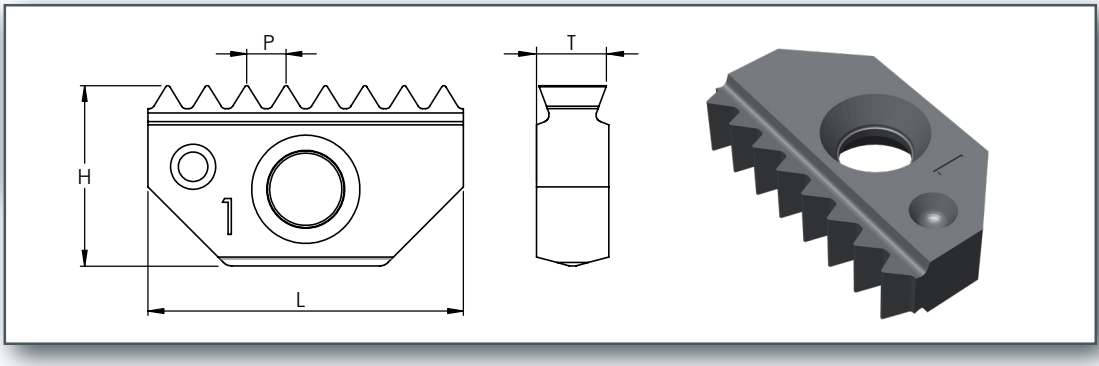
PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
32	PTM14	PTM14 N 32UN	17	14	8	3.10
20		PTM14 N 20UN	11			
18		PTM14 N 18UN	9			
16		PTM14 N 16UN	8			
14		PTM14 N 14UN	7			
12		PTM14 N 12UN	6			
10		PTM14 N 10UN	5			
20	PTM21	PTM21 N 20UN	16	21	12.65	4.65
18		PTM21 N 18UN	14			
16		PTM21 N 16UN	13			
14		PTM21 N 14UN	11			
12		PTM21 N 12UN	9			
8		PTM21 N 8UN	6			

UNJ

DOUBLE SIDED

BS A 346:2000 60° INCLUSIVE





***EX**TERNAL*

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
20	PTM14	**PTM14 E 20UNJ**	16	14	8	3.10
18		**PTM14 E 18UNJ**	14			
16		**PTM14 E 16UNJ**	13			
12		**PTM14 E 12UNJ**	9			

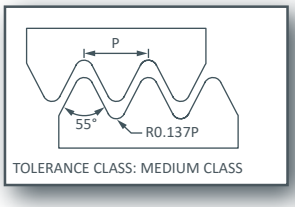
***IN**TERNAL*

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
16	PTM14	**PTM14 N 16UNJ**	8	14	8	3.10
12		**PTM14 N 12UNJ**	6			

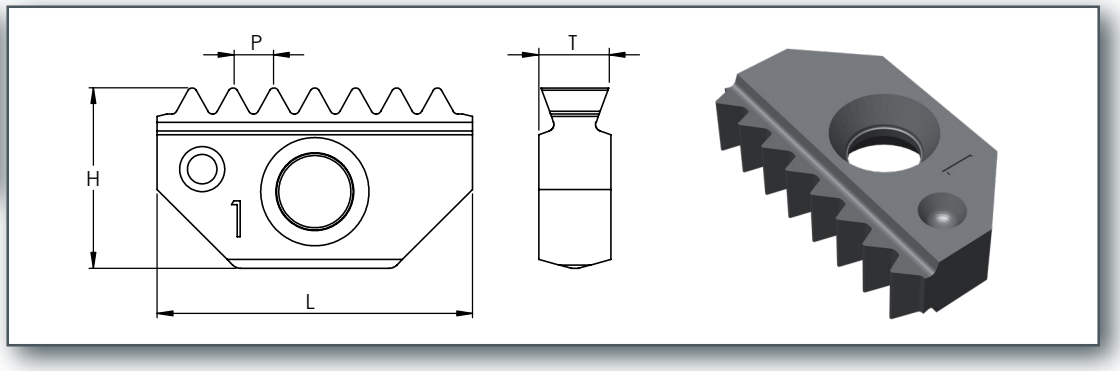
WHITWORTH

DOUBLE SIDED

DIN2999/BS84 - 55° INCLUSIVE



TOLERANCE CLASS: MEDIUM CLASS



*EXTERNAL **X** INTERNAL*

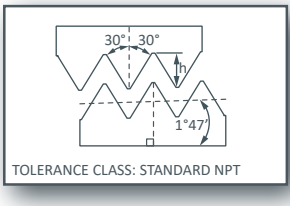
PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
19	PTM14	**PTM14 X 19W**	10	14	8	3.10
18		**PTM14 X 18W**	9			
16		**PTM14 X 16W**	8			
14		**PTM14 X 14W**	7			
12		**PTM14 X 12W**	6			
11		**PTM14 X 11W**	6			
14	PTM21	**PTM21 X 14W**	11	21	12.65	4.65
11		**PTM21 X 11W**	9			

INDEXABLE

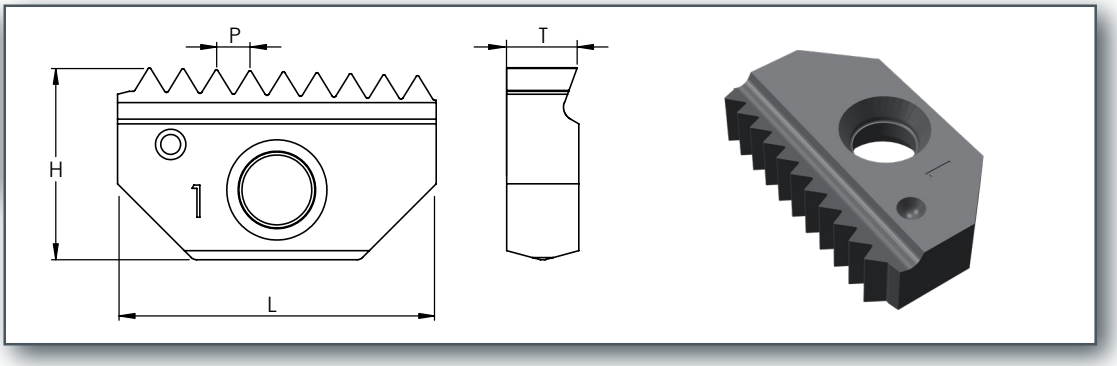
NPT

SINGLE SIDED

ASME/ANSI B1.20.1 60° INCLUSIVE 1/16 TAPER



TOLERANCE CLASS: STANDARD NPT



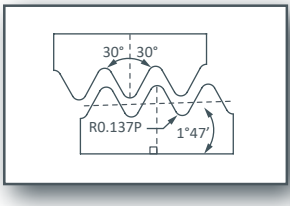
EXTERNAL ***X*** *INTERNAL*

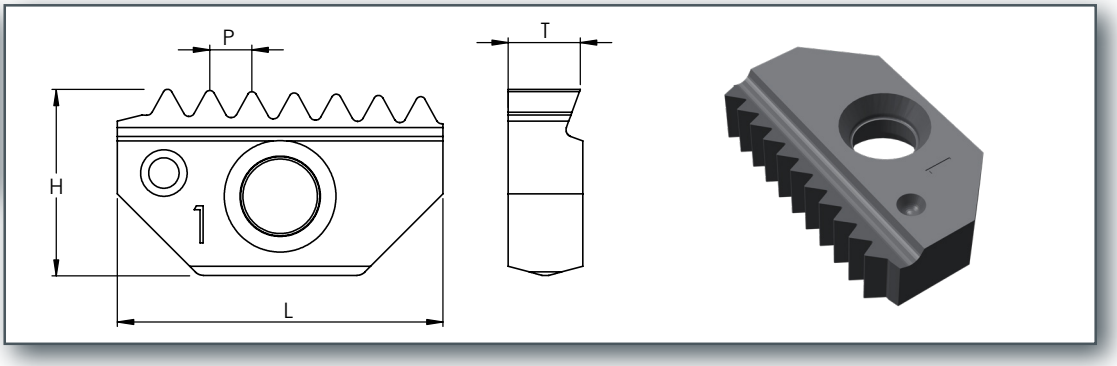
PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
14	PTM14	**PTM14 XS 14NPTF**	7	14	8	3.10
14	PTM21	**PTM21 XS 14NPTF**	11	21	12.65	4.65
11.5		**PTM21 XS 11.5NPTF**	9			

BSPT

SINGLE SIDED

BS21 55° INCLUSIVE 1/16 TAPER





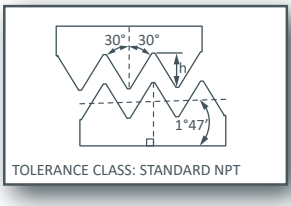
EXTERNAL ***X*** *INTERNAL*

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
19	PTM14	**PTM14 XS 19BSPT**	10	14	8	3.10
14		**PTM14 XS 14BSPT**	7			
11	PTM21	**PTM21 XS 11BSPT**	6	21	12.65	4.65

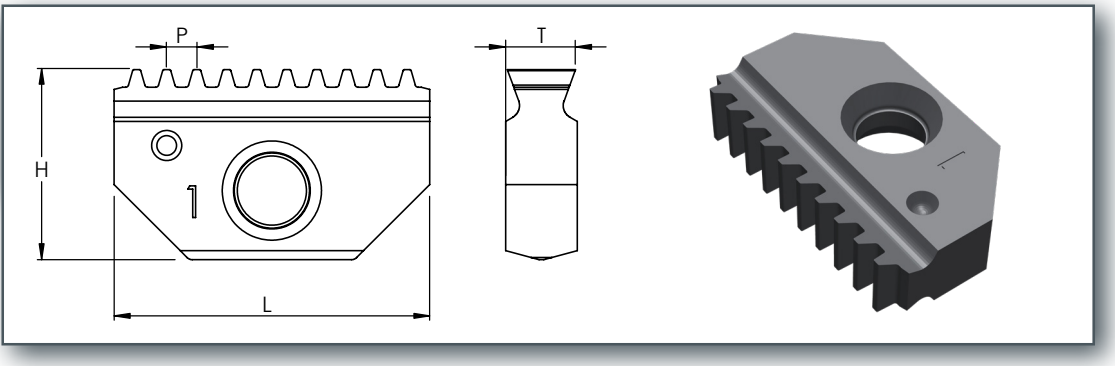
ACME

DOUBLE SIDED

ASME/ANSI B1.5 29° INCLUSIVE



TOLERANCE CLASS: STANDARD NPT



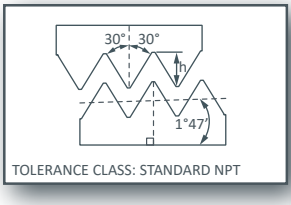
INTERNAL

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
TPI				L	H	T
12	PTM21	PTM21 N 12ACME	9	21	12.65	4.65
10		PTM21 N 10ACME	8			

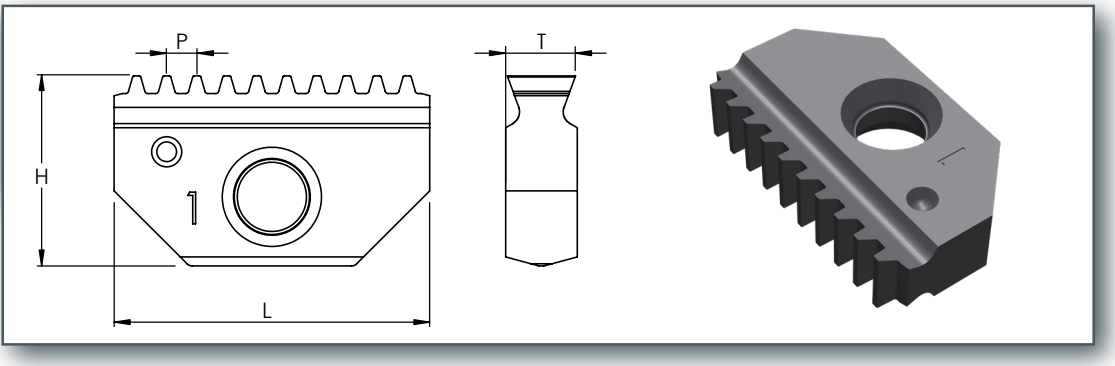
TRAPEZOIDAL

DOUBLE SIDED

DIN103/BS5346 30° INCLUSIVE



TOLERANCE CLASS: STANDARD NPT

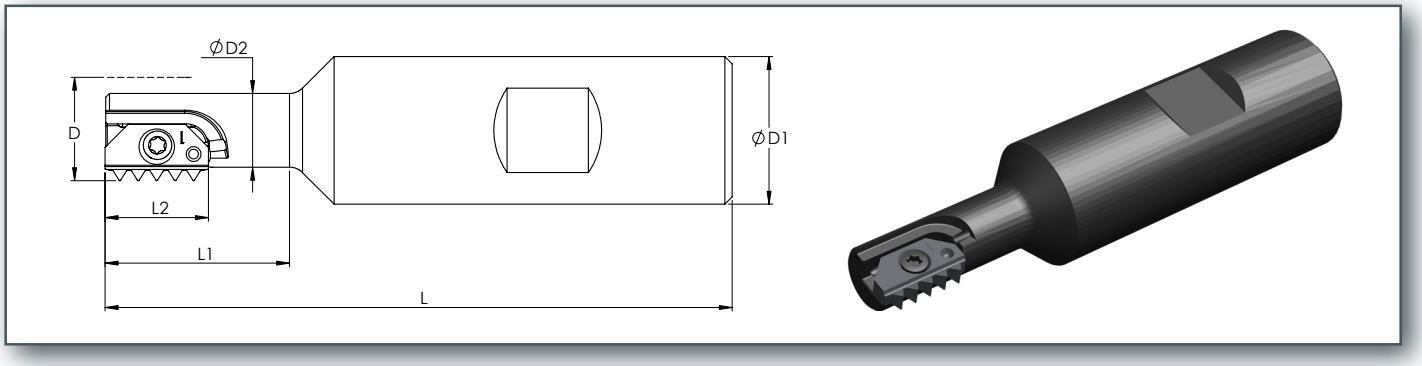


INTERNAL

PITCH	BLANK	DESCRIPTION	NO. OF TEETH	DIMENSIONS mm		
mm				L	H	T
2.00	PTM21	PTM21 N 2.0TR	9	21	12.65	4.65
2.50		PTM21 N 2.5TR	8			

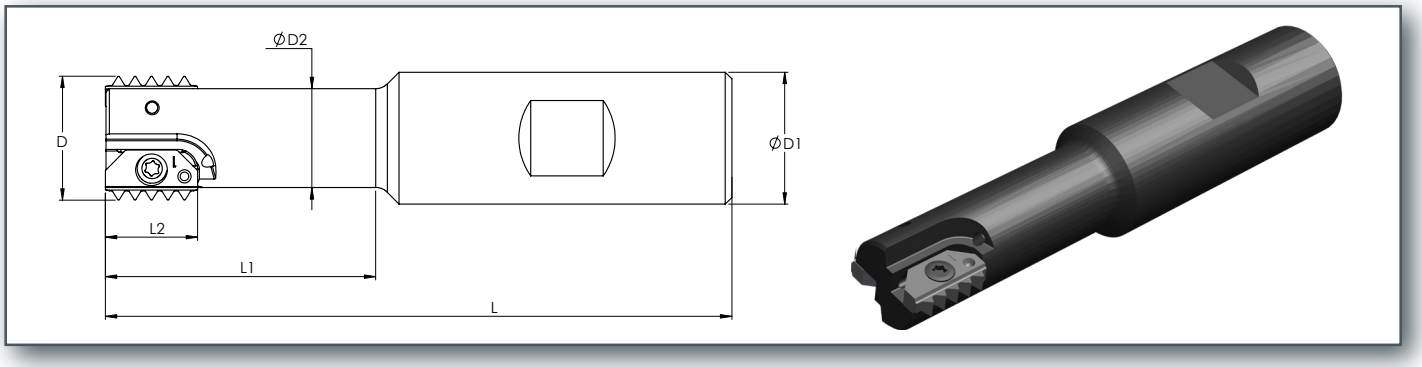
INDEXABLE

TIMR *SINGLE INSERT*



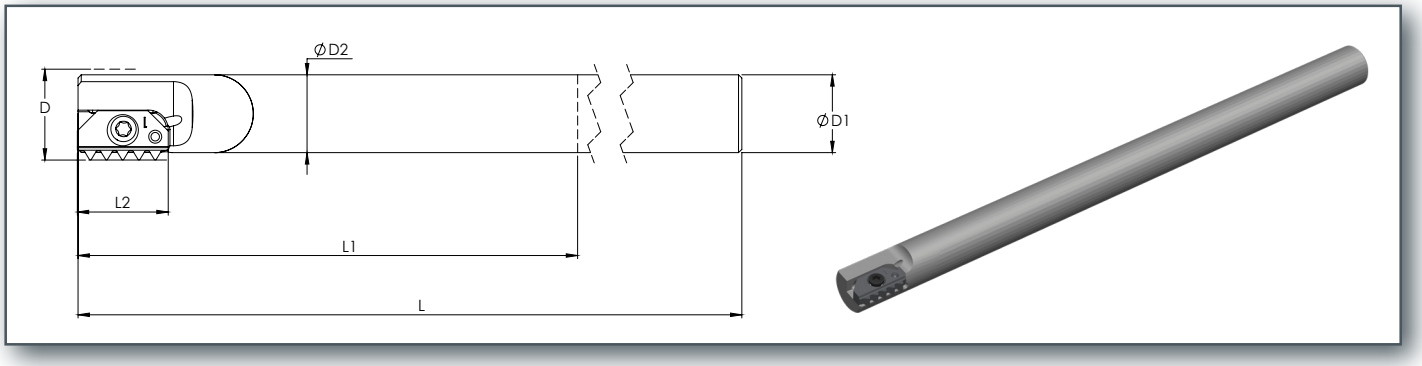
INSERT SIZE	TOOLHOLDER DESCRIPTION	DIMENSIONS mm						SPARES	
		D	D1	D2	L	L1	L2	SCREW	TORQ KEY
PTM14	TIMR2012-L20-14-1	12.20	20	8.4	75	20	14	PTS14N	T8
	TIMR2014-L25-14-1	14.50	20	10	85	25	14	PTS14N	T8
	TIMR2017-L30-14-1	17.00	20	12.8	85	30	14	PTS14N	T8
PTM21	TIMR2018-L30-21-1	18.00	20	13.7	95	30	21	PTS21N	TIP15
	TIMR2021-L40-21-1	21.00	20	16	95	40	21	PTS21N	TIP15
	TIMR2025-L70-21-1	25.00	20	20	120	70	21	PTS21N	TIP15

TIMR *DOUBLE INSERT*



INSERT SIZE	TOOLHOLDER DESCRIPTION	DIMENSIONS mm						SPARES	
		D	D1	D2	L	L1	L2	SCREW	TORQ KEY
PTM14	TIMR2020-L41-14-2	20	20	15	95	41	14	PTS14N	T8
PTM21	TIMR2530-L52-21-2	30	25	25	110	50	21	PTS21N	TIP15

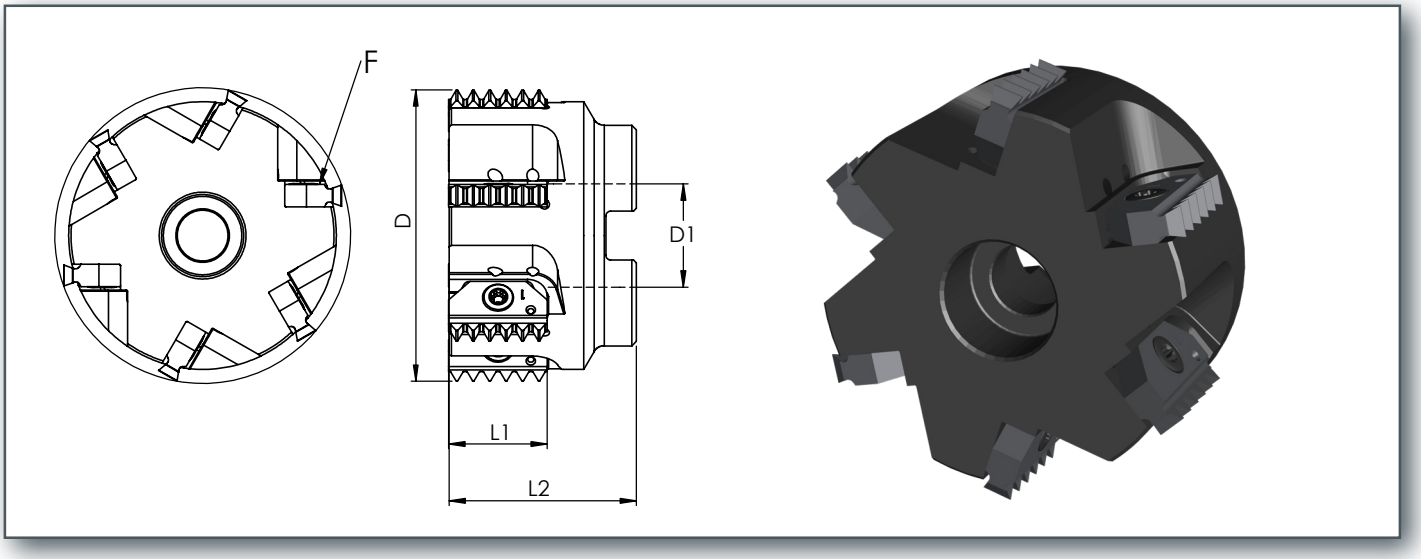
TIMRC CARBIDE SHANK — *SINGLE INSERT*



INSERT SIZE	TOOLHOLDER DESCRIPTION	DIMENSIONS mm						SPARES	
		D	D1	D2	L	L1	L2	SCREW	TORQ KEY
PTM14	**TIMRC1013C-L77-14-1**	13.70	10	10	110	77	14	PTS14N	T8
	TIMRC1013C-L120-14-1	13.70	10	10	155	120	14	PTS14N	T8
	TIMRC1215C-L132-14-1	15.20	12	12	175	132	14	PTS14N	T8
PTM21	**TIMRC1621C-L86-21-1**	21.00	16	16	130	86	21	PTS21N	TIP15
	TIMRC1621C-L157-21-1	21.00	16	16	200	157	21	PTS21N	TIP15

INDEXABLE

TIMRS — *SHELL MILL*



INSERT SIZE	TOOLHOLDER DESCRIPTION	DIMENSIONS mm				FLUTES	SPARES	
		D	D1	L1	L2	F	SCREW	TORQ KEY
PTM21	**TIMRS-D63-22-21-6**	63	22	21	40	6	PTS21N	TIP15

RECOMMENDED CUTTING SPEEDS PTP

INDEXABLE PTM

MATERIAL GROUP	MATERIAL		HARDNESS	CUTTING SPEED (m/min)	FEED (mm/tooth)
P	UNALLOYED STEEL	LOW CARBON (C = 0.1 - 0.25%)	125	100-210	0.05-0.3
		MEDIUM CARBON (C = 0.25 - 0.55%)	150	100-180	0.05-0.25
		HIGH CARBON (C = 0.55 - 0.85%)	170	100-170	0.05-0.2
	LOW ALLOY STEEL (ALLOYING ELEMENTS ≤5%)	NON HARDENED	180	90-160	0.05-0.25
		HARDENED	275	80-180	0.05-0.2
		HARDENED	350	70-140	0.05-0.15
	HIGH ALLOY STEEL (ALLOYING ELEMENTS >5%)	ANNEALED	200	60-130	0.05-0.2
		HARDENED	325	70-110	0.05-0.1
	CAST STEEL	LOW ALLOY (ALLOYING ELEMENTS <5%)	200	100-170	0.05-0.15
		HIGH ALLOY (ALLOYING ELEMENTS >5%)	225	70-120	0.05-0.1
M	STAINLESS STEEL FERRITIC	NON HARDENED	200	100-170	0.05-0.15
		HARDENED	330	100-170	0.05-0.1
	STAINLESS STEEL AUSTENITIC	AUSTENITIC	180	70-140	0.05-0.15
		SUPER AUSTENITIC	200	70-140	0.05-0.1
	STAINLESS STEEL CAST FERRITIC	NON HARDENED	200	70-140	0.05-0.15
		HARDENED	330	70-140	0.05-0.1
	STAINLESS STEEL CAST AUSTENITIC	AUSTENITIC	200	70-120	0.05-0.15
		HARDENED	330	70-120	0.05-0.1
K	MALLEABLE CAST IRON	FERRITIC (SHORT CHIPS)	130	60-130	0.02-0.8
		PEARLITIC (LONG CHIPS)	230	60-120	0.02-0.05
	GREY CAST IRON	LOW TENSILE STRENGTH	180	60-130	0.05-0.15
		HIGH TENSILE STRENGTH	260	60-120	0.05-0.1
	NODULAR SG IRON	FERRITIC	160	60-100	0.05-0.15
		PEARLITIC	260	60-125	0.05-0.1
N	ALUMINIUM ALLOYS WROUGHT	NON AGING	60	100-250	0.1-0.4
		AGED	100	100-180	0.1-0.3
	ALUMINIUM ALLOYS	CAST	75	150-400	0.1-0.3
		CAST AGED	90	150-280	0.05-0.25
		CAST Si 13-22%	130	80-150	0.1-0.3
	COPPER & COPPER ALLOYS	BRASS	90	120-210	0.1-0.3
		BRONZE & NON LEADED COPPER	100	120-210	0.05-0.25
S	HIGH TEMPERATURE ALLOYS	ANNEALED (IRON BASED)	200	20-45	0.05-0.1
		AGED (IRON BASED)	280	20-30	0.02-0.05
		ANNEALED (NICKLE OR COBALT BASED)	250	20-50	0.02-0.05
		AGED (NICKEL OR COBALT BASED)	350	10-15	0.02-0.05
	TITANIUM ALLOYS	PURE 99.5 Ti	400Rm	70-140	0.02-0.05
		a + ß ALLOYS	1050Rm	20-50	0.02-0.05
H	EXTRA HARD STEEL	HARDENED & TEMPERED	45-50HRc	20-45	0.01-0.03
			51-55HRc	20-45	0.01-0.02

RECOMMENDED CUTTING SPEEDS PTC2

TM SOLID

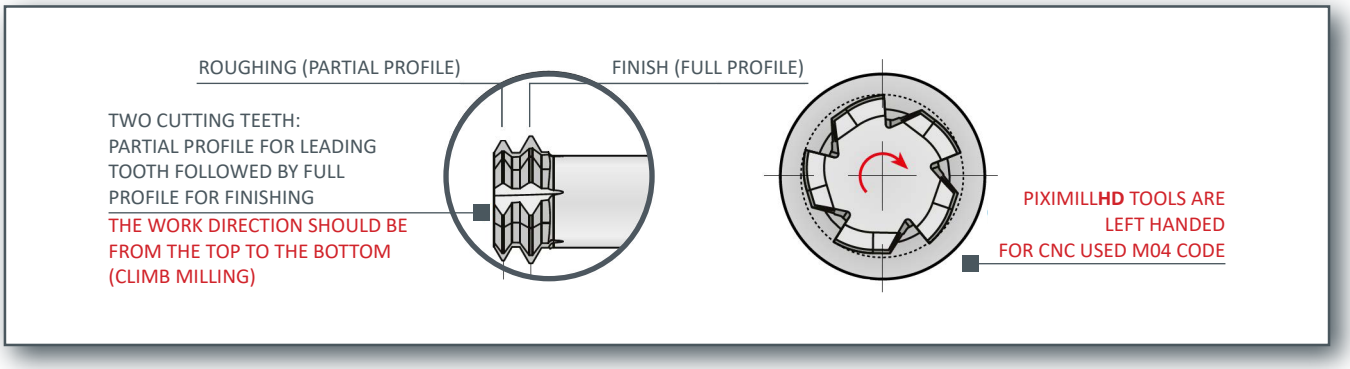
MATERIAL GROUP	MATERIAL		HARDNESS	CUTTING SPEEDS (m/min) HELICAL DEEP THREADING STRAIGHT THRU-COOLANT	CUTTING SPEEDS (m/min) PIXIMILLS	FEED (mm/tooth) HELICAL	FEED (mm/tooth) STRAIGHT	FEED (mm/tooth) DEEP THREADING	FEED (mm/tooth) THRU COOLANT	FEED (mm/tooth) PIXIMILLS
P	UNALLOYED STEEL	LOW CARBON (C = 0.1 - 0.25%)	125	50-180	60-120	0.03-0.08	0.03-0.08	0.10-0.35	0.03-0.08	0.02-0.16
		MEDIUM CARBON (C = 0.25 - 0.55%)	150	50-140	60-120	0.03-0.08	0.03-0.08	0.08-0.30	0.03-0.08	0.02-0.16
		HIGH CARBON (C = 0.55 - 0.85%)	170	50-120	60-90	0.03-0.08	0.03-0.06	0.08-0.30	0.03-0.08	0.02-0.16
	LOW ALLOY STEEL (ALLOYING ELEMENTS ≤5%)	NON HARDENED	180	60-170	60-90	0.03-0.08	0.03-0.07	0.08-0.30	0.03-0.08	0.02-0.16
		HARDENED	275	60-160	50-80	0.03-0.07	0.03-0.07	0.08-0.30	0.03-0.07	0.02-0.07
		HARDENED	350	60-150	50-80	0.02-0.05	0.02-0.04	0.05-0.15	0.02-0.06	0.02-0.03
	HIGH ALLOY STEEL (ALLOYING ELEMENTS >5%)	ANNEALED	200	40-90	50-80	0.03-0.07	0.03-0.07	0.10-0.24	0.03-0.07	0.02-0.09
		HARDENED	325	30-70	50-80	0.02-0.04	0.02-0.05	0.05-0.15	0.03-0.06	0.02-0.03
	CAST STEEL	LOW ALLOY (ALLOYING ELEMENTS <5%)	200	70-200	70-90	0.03-0.08	0.03-0.06	0.08-0.30	0.03-0.07	0.02-0.16
		HIGH ALLOY (ALLOYING ELEMENTS >5%)	225	60-150	60-80	0.03-0.05	0.03-0.06	0.05-0.15	0.03-0.07	0.02-0.03
M	STAINLESS STEEL FERRITIC	NON HARDENED	200	50-140	60-90	0.04-0.07	0.02-0.05	0.11-0.35	0.03-0.08	0.02-0.16
		HARDENED	330	50-110	50-80	0.02-0.06	0.01-0.03	0.05-0.24	0.03-0.06	0.02-0.03
	STAINLESS STEEL AUSTENITIC	AUSTENITIC	180	60-130	60-90	0.03-0.08	0.02-0.05	0.11-0.35	0.03-0.08	0.02-0.16
		SUPER AUSTENITIC	200	50-120	50-80	0.03-0.08	0.02-0.05	0.11-0.35	0.03-0.06	0.02-0.16
	STAINLESS STEEL CAST FERRITIC	NON HARDENED	200	50-150	60-90	0.03-0.08	0.02-0.05	0.11-0.35	0.03-0.06	0.02-0.16
		HARDENED	330	50-100	50-80	0.02-0.05	0.02-0.03	0.10-0.24	0.02-0.05	0.02-0.03
	STAINLESS STEEL CAST AUSTENITIC	AUSTENITIC	200	50-140	60-90	0.03-0.08	0.02-0.06	0.11-0.35	0.02-0.05	0.02-0.16
		HARDENED	330	50-90	50-80	0.02-0.05	0.01-0.03	0.10-0.24	0.02-0.04	0.02-0.03
K	MALLEABLE CAST IRON	FERRITIC (SHORT CHIPS)	130	60-150	50-80	0.03-0.08	0.03-0.08	0.05-0.15	0.03-0.08	0.02-0.03
		PEARLITIC (LONG CHIPS)	230	80-100	60-90	0.03-0.08	0.03-0.06	0.10-0.24	0.03-0.07	0.02-0.12
	GREY CAST IRON	LOW TENSILE STRENGTH	180	50-140	70-100	0.03-0.08	0.03-0.06	0.09-0.25	0.03-0.07	0.02-0.16
		HIGH TENSILE STRENGTH	260	40-110	60-90	0.02-0.06	0.02-0.05	0.10-0.24	0.03-0.07	0.02-0.12
	NODULAR SG IRON	FERRITIC	160	40-100	70-100	0.03-0.08	0.03-0.07	0.09-0.25	0.03-0.08	0.02-0.16
		PEARLITIC	260	40-90	60-90	0.02-0.06	0.02-0.05	0.02-0.05	0.03-0.07	0.02-0.12
N	ALUMINIUM ALLOYS WROUGHT	NON AGING	60	150-250	60-250	0.05-0.12	0.05-0.15	0.12-0.40	0.04-0.1	0.03-0.15
		AGED	100	100-220	60-150	0.05-0.12	0.03-0.1	0.10-0.32	0.03-0.1	0.03-0.16
	ALUMINIUM ALLOYS	CAST	75	80-150	60-250	0.05-0.12	0.05-0.15	0.10-0.32	0.03-0.1	0.03-0.16
		CAST AGED	90	90-160	60-150	0.05-0.12	0.03-0.1	0.10-0.30	0.06-0.12	0.02-0.16
		CAST Si 13-22%	130	150-250	250	0.05-0.12	0.05-0.15	0.10-0.32	0.05-0.12	0.03-0.15
	COPPER & COPPER ALLOYS	BRASS	90	150-250	60-250	0.06-0.13	0.05-0.15	0.12-0.40	0.05-0.12	0.03-0.16
		BRONZE & NON LEADED COPPER	100	100-220	60-150	0.05-0.12	0.03-0.1	0.10-0.32	0.05-0.12	0.03-0.15
S	HIGH TEMPERATURE ALLOYS	ANNEALED (IRON BASED)	200	30-50	60	0.03-0.07	0.02-0.04	0.11-0.35	0.03-0.7	0.02-0.16
		AGED (IRON BASED)	280	20-40	50	0.02-0.04	0.01-0.03	0.05-0.15	0.03-0.06	0.02-0.03
		ANNEALED (NICKLE OR COBALT BASED)	250	15-30	35	0.02-0.04	0.01-0.03	0.05-0.15	0.03-0.06	0.02-0.03
		AGED (NICKEL OR COBALT BASED)	350	15-25	30	0.02-0.04	0.01-0.03	0.05-0.15	0.02-0.05	0.02-0.03
	TITANIUM ALLOYS	PURE 99.5 Ti	400Rm	30-70	30-50	0.02-0.04	0.01-0.03	0.10-0.24	0.02-0.05	0.02-0.07
		a + ß ALLOYS	1050Rm	20-45	25-35	0.02-0.04	0.01-0.02	0.10-0.24	0.02-0.04	0.02-0.07
H	EXTRA HARD STEEL	HARDENED & TEMPERED	45-50HRc	15-35	45	0.02-0.03	0.02	0.03-0.06	0.02-0.03	-
			51-55HRc	15-30	30	0.02-0.03	0.01	0.03-0.06	0.02-0.03	-

RECOMMENDED CUTTING SPEEDS PTC2

PIXIMILLHD

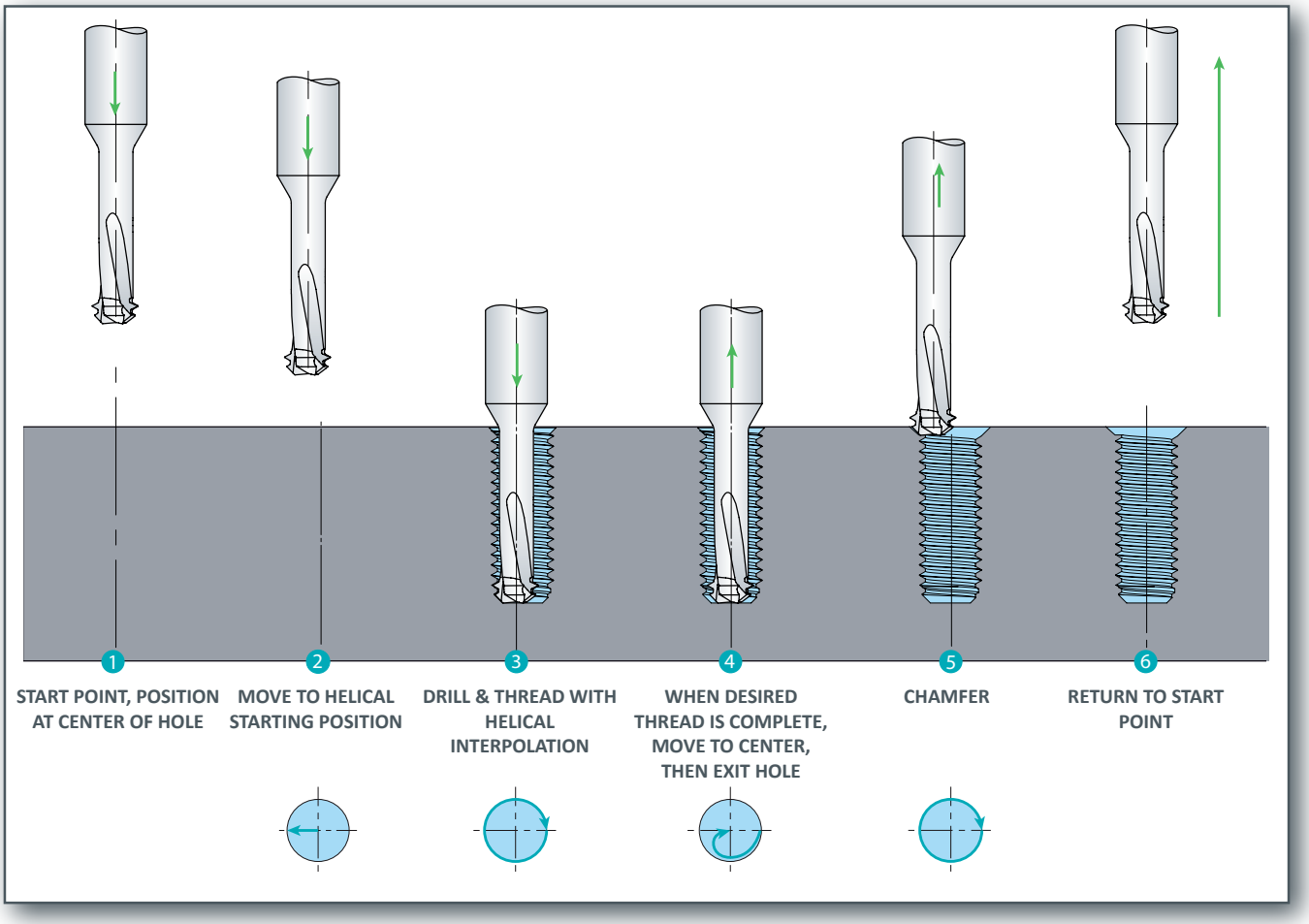
FEED (mm/tooth) BY CUTTING DIA. = D2

MATERIAL GROUP	MATERIAL		HARDNESS HB	SPEED (m/min)	1.5-2.5	2.5-5	5-7	7-9	9-11
P	LOW ALLOY STEEL (ALLOYING ELEMENTS ≤5%)	HARDENED	350	25-160	0.04	0.05	0.06	0.07	0.08
	HIGH ALLOY STEEL (ALLOYING ELEMENTS >5%)	HARDENED	325	25-180					
M	STAINLESS STEELFERRITIC	HARDENED	330	25-120	0.04	0.05	0.06	0.07	0.08
	STAINLESS STEELCAST FERRITIC	HARDENED	330	25-110					
	STAINLESS STEELCAST AUSTENITIC	HARDENED	330	25-100					
K	MALLEABLE CAST IRON	FERRITIC (SHORT CHIPS)	130	25-160	0.05	0.06	0.07	0.08	0.1
		PEARLITIC (LONG CHIPS)	230	25-150	0.04	0.05	0.06	0.07	0.08
	GREY CAST IRON	LOW TENSILE STRENGTH	180	25-130	0.05	0.06	0.07	0.08	0.1
		HIGH TENSILE STRENGTH	260	25-100	0.04	0.05	0.06	0.07	0.09
	NODULAR SG IRON	FERRITIC	160	25-125	0.04	0.05	0.06	0.07	0.09
		PEARLITIC	260	25-90	0.03	0.04	0.05	0.06	0.07
S	HIGH TEMPERATURE ALLOYS	ANNEALED (NICKLE OR COBALT BASED)	250	15-35	0.03	0.04	0.05	0.06	0.07
		AGED (NICKEL OR COBALT BASED)	350	15-30					
	TITANIUM ALLOYS	PURE 99.5 Ti	400Rm	25-70					
		a + ß ALLOYS	1050Rm	25-50					
H	EXTRA HARD STEEL	HARDENED & TEMPERED	45-50HRc	25-70	0.04	0.05	0.06	0.07	0.08
			51-55HRc	25-60	0.03	0.04	0.05	0.06	0.07
			56-62HRc	25-50	0.02	0.03	0.04	0.05	0.06

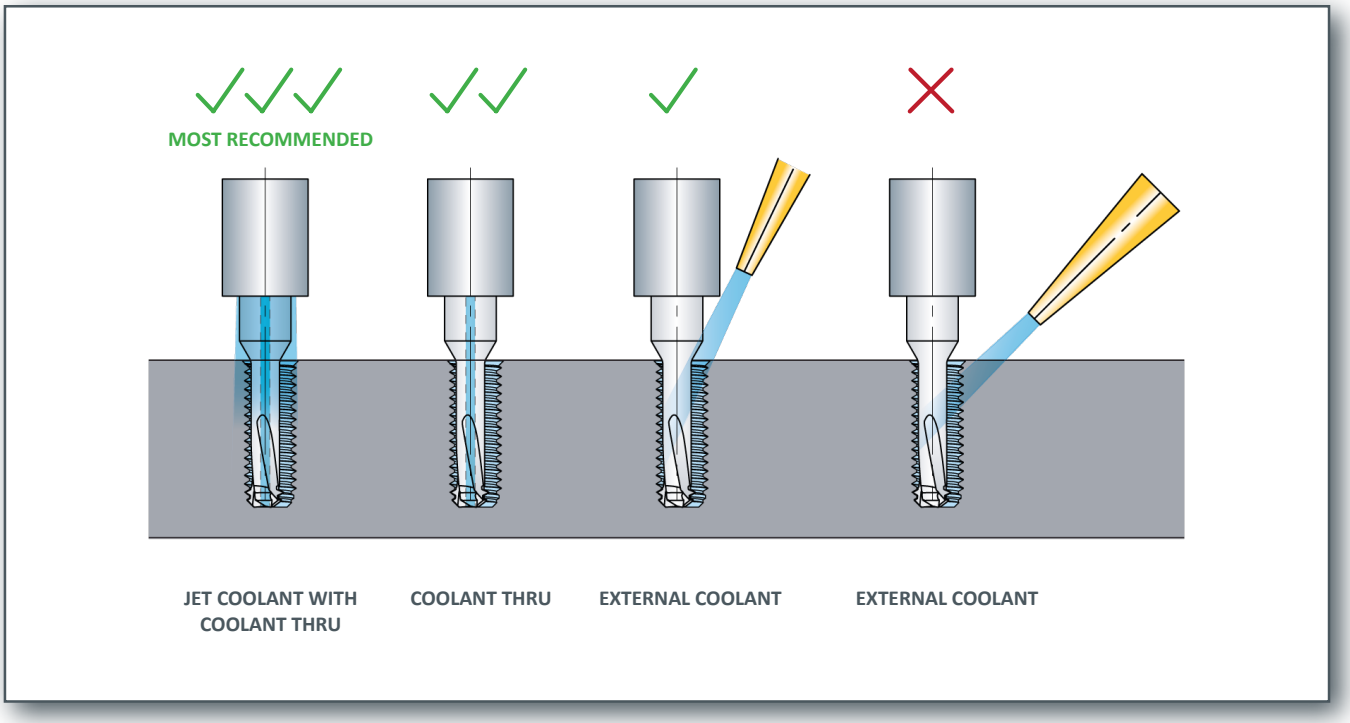


TECHNICAL

TMDN**THRILLER** OPERATING CYCLE



TMDN**THRILLER** COOLANT USE FOR BEST CHIP EVACUATION



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