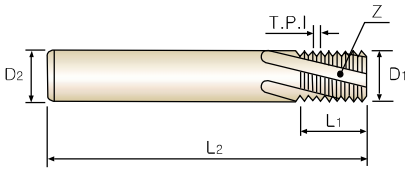
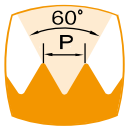
SOLID CARBIDE THREAD MILLS

TE SERIES

SOLID CARBIDE THREAD MILL FOR UNIFIED INTERNAL THREADS - ANSI B 1.1





▶ Material : Solid Carbide
▶ Shank : Plain Straight
▶ Spiral Angle : 15°

Unit : Inch

SIZE	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute	EDP No.
	TPI	D_1	D_2	L_1	L_2	Z	TiAlN
#2	56	**.065**	.125	.125	2.000	3	**TE080**
#3	48	**.075**	.125	.167	2.000	3	**TE120**
#5	44	**.095**	.125	.228	2.000	3	**TE220**
#4	40	**.085**	.125	.175	2.000	3	**TE160**
#8	36	**.115**	.125	.250	2.000	3	**TE300**
#6	32	**.100**	.125	.218	2.000	3	**TE240**
#8	32	**.115**	.125	.250	2.000	3	**TE280**
#10	32	**.120**	.125	.312	2.000	3	**TE340**
1/2	32	**.370**	.375	1.000	3.500	4	**TEF90**
#10	28	**.120**	.125	.312	2.000	3	**TEK90**
1/4	28	**.180**	.187	.500	2.500	3	**TE420**
1/2	28	**.370**	.375	1.000	3.500	4	**TE590**
#10	24	**.120**	.125	.312	2.000	3	**TE320**
5/16	24	**.235**	.250	.625	2.500	3	**TE460**
3/8	24	**.285**	.312	.750	3.000	4	**TE500**
1/2	24	**.370**	.375	1.000	3.500	4	**TE570**
1/4	20	**.180**	.187	.500	2.500	3	**TE400**
7/16	20	**.335**	.375	.875	3.500	4	**TE540**
1/2	20	**.370**	.375	1.000	3.500	4	**TE580**
5/16	18	**.235**	.250	.625	2.500	3	**TE440**
9/16	18	**.370**	.375	.875	3.500	4	**TE620**
3/8	16	**.285**	.312	.750	3.000	4	**TE480**
3/4	16	**.490**	.500	1.250	3.500	4	**TE720**
7/16	14	**.305**	.312	.750	3.000	4	**TE520**
7/8	14	**.490**	.500	1.250	3.500	4	**TE760**
1/2	13	**.350**	.375	.875	3.500	4	**TE560**
9/16	12	**.370**	.375	.875	3.500	4	**TE600**
3/4	12	**.495**	.500	1.250	3.500	4	**TE710**
5/8	11	**.470**	.500	1.250	3.500	4	**TE640**
3/4	10	**.495**	.500	1.250	3.500	4	**TE700**
7/8	9	**.620**	.625	1.375	4.000	4	**TE740**
1	8	**.620**	.625	1.375	4.000	4	**TE780**
1	12	**.745**	.750	1.500	4.000	5	**TE800**
1-1/8 & 1-1/4	7	**.745**	.750	1.572	4.500	5	**TE820**

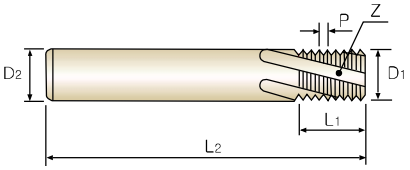
◎ : Excellent ○: Good

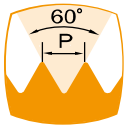
P			M	K	N	S	
Carbon Steels	Alloy Steels	Heat Treated Steels	Stainless Steels	Cast Iron	Non Ferrous Materials	Titanium Alloy	Chrome-Nickel Alloy
◎	◎	◎	○	◎	◎	○	○

SOLID CARBIDE THREAD MILLS

TD SERIES

SOLID CARBIDE THREAD MILL FOR METRIC INTERNAL THREADS - DIN 13





▶ Material : Solid Carbide
▶ Shank : Plain Straight
▶ Spiral Angle : 15°

Unit : Inch

SIZE	Pitch (mm)	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute	EDP No.
	P	D_1	D_2	L_1	L_2	Z	TiAlN
M3	0.50	**.085**	.125	.178	2.000	3	**TD200**
M4	0.70	**.115**	.125	.276	2.000	3	**TD240**
M4.5	0.75	**.120**	.125	.250	2.000	3	**TD260**
M8	0.75	**.235**	.250	.625	2.500	3	**TD380**
M5	0.80	**.120**	.125	.312	2.000	3	**TD280**
M6	1.00	**.170**	.187	.500	2.500	3	**TD310**
M12	1.00	**.360**	.375	.875	3.500	4	**TD530**
M8	1.25	**.235**	.250	.625	2.500	3	**TD360**
M10	1.50	**.300**	.312	.750	3.000	4	**TD420**
M14	1.50	**.370**	.375	.875	3.500	4	**TD550**
M18	1.50	**.490**	.500	1.250	3.500	4	**TD670**
M12	1.75	**.360**	.375	.875	3.500	4	**TD500**
M16	2.00	**.470**	.500	1.250	3.500	4	**TD600**
M20	2.50	**.495**	.500	1.250	3.500	4	**TD700**
M24	3.00	**.620**	.625	1.375	4.000	4	**TD780**

◎ : Excellent ○: Good

P			M	K	N	S	
Carbon Steels	Alloy Steels	Heat Treated Steels	Stainless Steels	Cast Iron	Non Ferrous Materials	Titanium Alloy	Chrome-Nickel Alloy
◎	◎	◎	○	◎	◎	○	○

SOLID CARBIDE THREAD MILLS

RECOMMENDED CUTTING SPEED

Application Program Available

Unit : Inch

Material	Cutting Speed (SFM)	Feed per Tooth (fz)	
		Cutter Diameter < 5/16	Cutter Diameter > 5/16
Low Carbon Steels Medium Carbon Steels	250 - 400	.0008 - .0016	.0016 - .0040
High Carbon Steels	250 - 350	.0008 - .0016	.0016 - .0040
Alloy Steels	250 - 300	.0008 - .0016	.0016 - .0040
Heat Treated Steels	200 - 300	.0008 - .0016	.0016 - .0040
Stainless Steels	150 - 250	.0004 - .0008	.0008 - .0024
Cast Iron	200 - 350	.0008 - .0016	.0016 - .0040
Chrome-Nickel Alloys Titanium Alloys	70 - 200	.0004 - .0008	.0008 - .0024
Non Ferrous Material	350 - 1000	.0012 - .0020	.0020 - .0040

RECOMMENDED CUTTING SPEED

Calculate R.P.M of cutter

$$N = \frac{12 \times SFM}{d \times \pi}$$

Calculate Feed per Revolution

$$F_1 = fz \times Z \times N$$

Calculate Feed at Tool Center Line

$$F_2 = \frac{F_1 \times (D - d)}{D}$$

N : R.P.M
SFM : Recommended Cutting Speed
d : Diameter of Cutter
fz : Recommended Feed per Tooth
Z : Number of Teeth
F_1 : Feed at Cutting Edge
F_2 : Feed at Center Line of Cutting
D : Major Diameter of Component

SOLID CARBIDE THREAD MILLS

RECOMMENDED CUTTING SPEED

Application Program Available

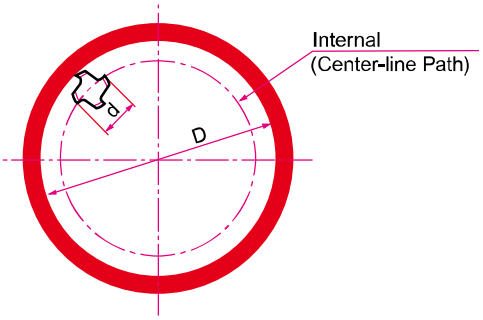
Program Data

G Codes for Thread Milling

G00	Fast Feed Linear	**G90**	Absolute Command
G01	Linear Movement	**G91**	Incremental Command
G02	Circular/Helical Interpolation C.W.	**M03**	Clockwise Rotation of Spindle
G03	Circular/Helical Interpolation A.C.W.	**M05**	Spindle Stop
G17	X, Y Plane (Vertical Machining)	**M08**	Coolant On
G18	Z, X Plane (Horizontal Machining)	**X**	Horizontal Co-ordinate
G19	Y, Z Plane (Using 90° Head)	**Y**	Horizontal Co-ordinate
G40	Cutter Radius Compensation Cancel	**Z**	Vertical Co-ordinate
G41	Cutter Radius Compensation Left	**I**	X Co-ordinate to Center of Arc Travel
G42	Cutter Radius Compensation Right	**J**	Y Co-ordinate to Center of Arc Travel
G43	Tool Length Compensation Plus	**S**	Spindle Speed R.P.M.
G49	Tool Length Compensation Cancel	**F**	Feed inch/min

CNC Internal Thread Milling

N10	G54	G90	G00	X…	Y…	
N20	G43	H10	Z0.250	M0.3	S…	
N30	G91	G00	Z-…(A3+0.250)			
N40	G41	G01	D26	X…(A6)	Y…(A5)	F…
N50	G03	X-…(A6)	Y…(A6)	Z…(A4)	I-…(A6)	J0
N60	G03	X0	Y0	Z…(A2)	I0	J-…(A1)
N70	G03	X-…(A6)	Y-…(A6)	Z…(A4)	I0	J-…(A6)
N80	G00	G40	X…(A6)	Y-…(A5)		
N90	G00	Z…(A7)				
N100	G90	G49	G00	Z8.0	M5	
N110	M30					



<Explanation of Parameters>

A1 : 1/2 Nominal Thread Diameter (D/2)

A2 : Thread Pitch(P)

A3 : Thread Depth

A4 : P/4(for climb milling and right-hand thread)

A5 : Beginning of Contour in Y (P/2)

A6 : Arc Off (A1 - A5)

A7 : A3 + 0.250 - P/2

H10 : Tool length compensation number

D26 : Tool radius compensation number