

Basic Major Diameter		Metric							Nominal diameter		
Inch	mm	Nominal diameter	standards	Coarse	pitch in mm		Taper	Inch	UNC	UNF	
		mm	ISO		Fine						
0.009800	0.250			0.07							
0.011400	0.290			0.08							
0.011800	0.300	0.3	DIN	0.075							
0.011800	0.300	0.3	1 st	0.08				UNM 0.30			
0.013000	0.330			0.09							
0.013800	0.350	0.35	2 nd	0.09				UNM 0.35			
0.014600	0.370										
0.015700	0.400	0.4	1 st DIN	0.1				UNM 0.40			
0.016500	0.420										
0.017700	0.450	0.45	2 nd	0.1				UNM 0.45			
0.018900	0.480										
0.019700	0.500	0.5	1 st DIN	0.125				UNM 0.50			
0.020900	0.530							#0000		160	
0.021300	0.540										
0.021700	0.550	0.55	2 nd	0.125				UNM 0.55			
0.023600	0.600	0.6	1 st DIN	0.15				UNM 0.60			
0.024400	0.620										
0.027600	0.700	0.7	2 nd DIN	0.175				UNM 0.70			
0.031100	0.790										
0.031500	0.800	0.8	1 st DIN	0.2				UNM 0.80			
0.034000	0.860							#000		120	
0.035400	0.900	0.9	2 nd DIN	0.225				UNM 0.90			
0.039400	1.000	1	1 st DIN	0.25	0.2			UNM 1.00			
0.043300	1.100	1.1	2 nd	0.25	0.2			UNM 1.10			
0.047000	1.190							#00		90, 96	
0.047200	1.200	1.2	1 st DIN	0.25	0.2			UNM 1.20			
0.051200	1.300										
0.055100	1.400	1.4	2 nd DIN	0.3	0.2			UNM 1.40			
0.059100	1.500	1.5		0.3							
0.060000	1.524							#0		80	
0.062500	1.590										
0.062900	1.600	1.6	1 st	0.35	0.2						
0.066900	1.700	1.7	DIN	0.35	0.2	0.25					
0.070900	1.800	1.8	2 nd	0.35	0.2	0.4					
0.073000	1.854							#1	64	72	
0.074800	1.900										
0.078100	1.980										
0.078700	2.000	2	1 st DIN	0.4	0.25	0.3					
0.086000	2.184							#2	56	64	
0.086600	2.200	2.2	2 nd	0.45	0.25						
0.090600	2.300	2.3	DIN	0.4	0.25	0.35					
0.093700	2.380										
0.098400	2.500	2.5	1 st	0.45	0.35						
0.099000	2.515							#3	48	56	

0.102400	2.600	2.6		DIN	0.45	0.25	0.35			
0.109400	2.780									
0.110200	2.800									
0.112000	2.845								#4	40 48
0.118100	3.000	3	1 st	DIN	0.5	0.35	0.6		#5	40 44
0.125000	3.175									
0.126000	3.200									
0.138000	3.500	3.5	2 nd	DIN	0.6	0.35	0.5		#6	32 40
0.141700	3.600									
0.156300	3.969									
0.157500	4.000	4	1 st	DIN	0.7	0.5	0.75			
0.161400	4.100									
0.164000	4.166								#8	32 36
0.177200	4.500	4.5	2 nd		0.75	0.5				
0.185000	4.700									
0.187500	4.762									
0.190000	4.826								#10	24 32
0.196900	5.000	5	1 st	DIN	0.8	0.5	0.75	0.9		
0.208700	5.300									
0.216000	5.486								#12	24 28
0.216500	5.500	5.5	3 rd		0.9	0.5				
0.218800	5.556									
0.236200	6.000	6	1 st	DIN	1	0.5	0.75			
0.248000	6.300	6.3			1					
0.250000	6.350								1/4	20 28
0.275600	7.000	7	3 rd	DIN	1	0.5	0.75			
0.281200	7.144									
0.304100	7.723									
0.310800	7.894								G1/16	
0.312500	7.940								5/16	18 24
0.315000	8.000	8	1 st	DIN	1.25	0.5	0.75	1	1	
0.354300	9.000	9	3 rd	DIN	1.25	0.75	1			
0.375000	9.530								3/8	16 24
0.383000	9.730									
0.390000	9.906								0.39	
0.393700	10.000	10	1 st	DIN	1.5	0.75	1	1.25	1	
0.404400	10.271								G1/8	
0.433100	11.000	11	3 rd	DIN	1.5	0.75	1	1.25		
0.437500	11.110								7/16	14 20
0.472400	12.000	12	1 st	DIN	1.75	1	1.25	1.5	1.5	

0.500000	12.700									1/2	13	20
0.518000	13.160											
0.534300	13.571									G1/4		
0.551200	14.000	14	2 nd	DIN	2	1	1.25	1.5				
0.562500	14.290									9/16	12	18
0.590600	15.000	15	3 rd	DIN		1	1.5					
0.625000	15.880									5/8	11	18
0.629900	16.000	16	1 st	DIN	2	1	1.5		1.5			
0.656000	16.662											
0.669300	17.000	17	3 rd	DIN		1	1.5					
0.671400	17.054									G3/8		
0.687500	17.460									11/16		
0.708700	18.000	18	2 nd	DIN	2.5	1	1.5	2	1.5			
0.750000	19.050									3/4	10	16
0.787400	20.000	20	1 st	DIN	2.5	1	1.5	2	1.5			
0.812500	20.640									13/16		
0.825000	20.955											
0.835600	21.222									G1/2		
0.866100	22.000	22	2 nd	DIN	2.5	1	1.5	2	1.5			
0.875000	22.230									7/8	9	14
0.902000	22.911											
0.937500	23.810									15/16		
0.944900	24.000	24	1 st	DIN	3	1	1.5	2				
0.984300	25.000	25	3 rd	DIN		1	1.5	2				
1.000000	25.400									1	8	12
1.023600	26.000	26	3 rd	DIN		1.5			1.5			
1.041000	26.441											
1.046000	26.568									G3/4		
1.062500	26.990									1 1/16		
1.063000	27.000	27	2 nd	DIN	3	1	1.5	2				
1.102400	28.000	28	3 rd	DIN		1	1.5	2				
1.125000	28.580									1 1/8	7	12
1.181100	30.000	30	1 st	DIN	3.5	1	1.5	2	3			
1.187500	30.160									1 3/16		
1.189000	30.200											
1.250000	31.750									1 1/4	7	12
1.259800	32.000	32	3 rd	DIN		1.5	2					
1.299200	33.000	33	2 nd	DIN	3.5	1.5	2	3				
1.332800	33.228									G1		
1.309000	33.249											
1.312500	33.340									1 5/16		
1.375000	34.930									1 3/8	6	12
1.378000	35.000	35	3 rd	DIN		1.5						
1.417300	36.000	36	1 st	DIN	4	1.5	2	3				

4.000000 101.600

4.330700 110.000 **110**

3

4

4

US

turns per inch

UNEF UNS NPT 4UN 6UN 8UN 12UN 16UN 20UN 28UN 32UN SPECIAL USE

317.5

282.22

254

254

203.2

203.2

169.33

145.14

127

112.89

101.6

101.6

101.6

84.7

	32, 36					
	36					
	36					
	30, 40					
	28, 30, 36, 40, 48, 56					
32	36, 40, 48, 56					
32	24, 27, 36, 40, 48, 56					
		27				
32	27, 36, 40, 48		20	28	24(C-J)	24(SAE-F)
32	18, 27, 36, 40		20	28	24(SAE-C-J)	
	27					
		27				
28	18, 24, 27	16		32	24(C)	20(SAE-J-F)

28	12, 14, 18, 24, 27			16			32	24(C)	20(SAE-J-F)
		18							
24	14, 27			16	20	28	32	24(C)	18(SAE-J)
24	14,27		12	16	20	28	32	24(C)	18(SAE-F)
		18							
24			12	16	20	28	32	20(C)	18(SAE-F)
20	14, 18, 24		12			28	32	16(SAE-J-F)	
20			12	16		28	32	18(C)	
		14							
20	10, 18, 24, 27		12	16		28	32	14(SAE-F-J)	
20			12	16		28	32	20(C-J)	16(SAE)
		14							
20	10, 14, 18, 24, 27			16		28	32	18(C)	14(NF)
		14							
18			8	12	16	20	28	14(F)	12(SAE-J)
18			8		16	20	28	18(C)	
18			8	12	16	20	28	12(SAE-J)	
18			8		16	20	28	12(SAE)	
		11.5							
18			8	12	16	20	28	12(SAE-J)	
18			8		16	20	28		

18		6	8	12	16	20	28	
18			8		16	20	28	
18		6	8	12	16	20		
18		6	8	12	16	20		12(SAE-J)
	11.5							
18		6	8	12	16	20		
16		6	8	12	16	20		
		6	8	12	16	20		12(SAE-J)
	11.5							
16		6	8	12	16	20		
		6	8	12	16	20		
	11.5							
		6	8	12	16	20		
		6	8	12	16	20		E 12(SAE-J)
		4	6	8	12	16	20	
			6	8	12	16	20	12(SAE-J)
		4	6	8	12	16	20	
			6	8	12	16	20	E 12(SAE-J)
		4	6	8	12	16		
			6	8	12	16		E
			6	8	12	16		E
		4	6	8	12	16		
			6	8	12	16		E
		4	6	8	12	16		
			6	8	12	16		E

6 8 12 16

E

British

Nominal diameter	pitch in turns per inch				
	Inch	BA	BSW	BSF BSPP	BSPF BSPT
25BA		363			
24BA		317			
23BA		282			
22BA		254			
21BA		230.91			
20BA		211.67			
19BA		181.43			
18BA		169.33			
17BA		149.41			
16BA		133.68			
15BA		120.95			
14BA		110.44			
13BA		101.6			
12BA		90.71			
11BA		81.93			
1/16			60		
10BA		72.57			
9BA		65.13			
5/64			56		
8BA		59.07			
3/32			48		
7BA		52.92			

7/64 48
6BA 47.93

1/8 40
5BA 43.05

4BA 38.49
5/32 32

3BA 34.8

2BA 31.36
3/16 24 32

1BA 28.22

7/32 24 28
0BA 25.4
GM1/8 28

1/4 20 26

9/32 20 26
G1/16 28

5/16 18 22

3/8 16 20
G1/8 28 28

7/16 14 18

1/2	12	16		
G1/4			19	19
9/16	12	16		
5/8	11	14		
G3/8			19	19
11/16	11	14		
3/4	10	12		
13/16	10	12		
G1/2			14	14
7/8	9	11		
G5/8			14	14
15/16	9			
1	8	10		
G3/4			14	14
1 1/8	7	9		
G7/8			14	14
1 1/4	7	9		
G1			11	11
1 3/8	6	8		

G1 1/8			11	
1 1/2	6	8		
1 5/8	6	8		
G1 1/4			11	11
G1 3/8			11	
1 3/4	5	7		
1 7/8	5			
G1 1/2			11	11
2	4.5	7		
2 1/4	4	6		
G2			11	11
2 1/2	4	6		
2 1/2	4	6		
2 1/2	4	6		

Metric - coarse & fine

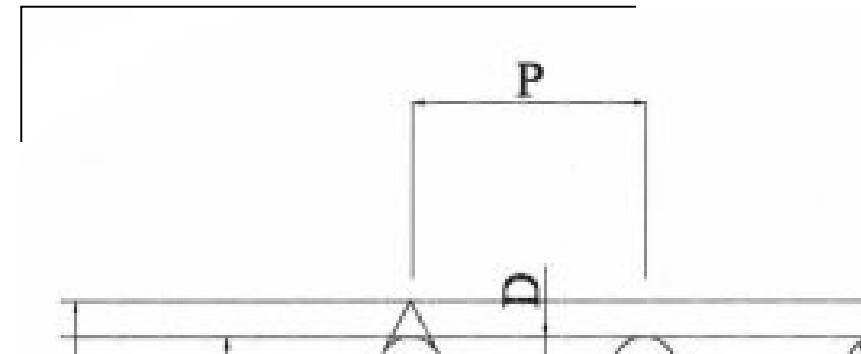
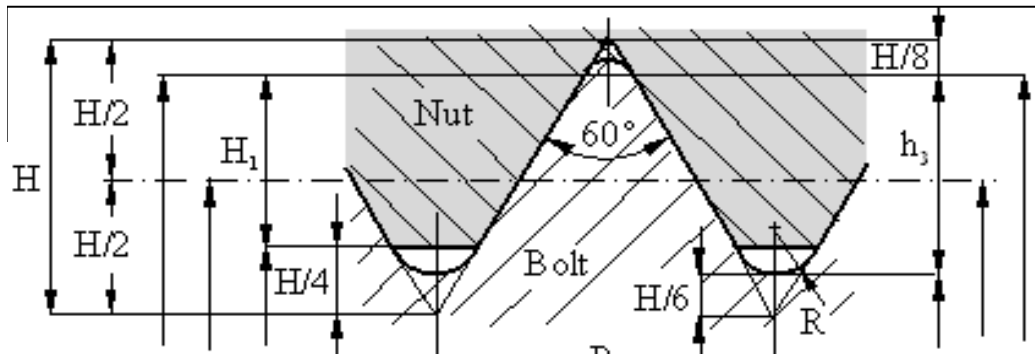
UNx threads have the same profile but generally a coarser pitch

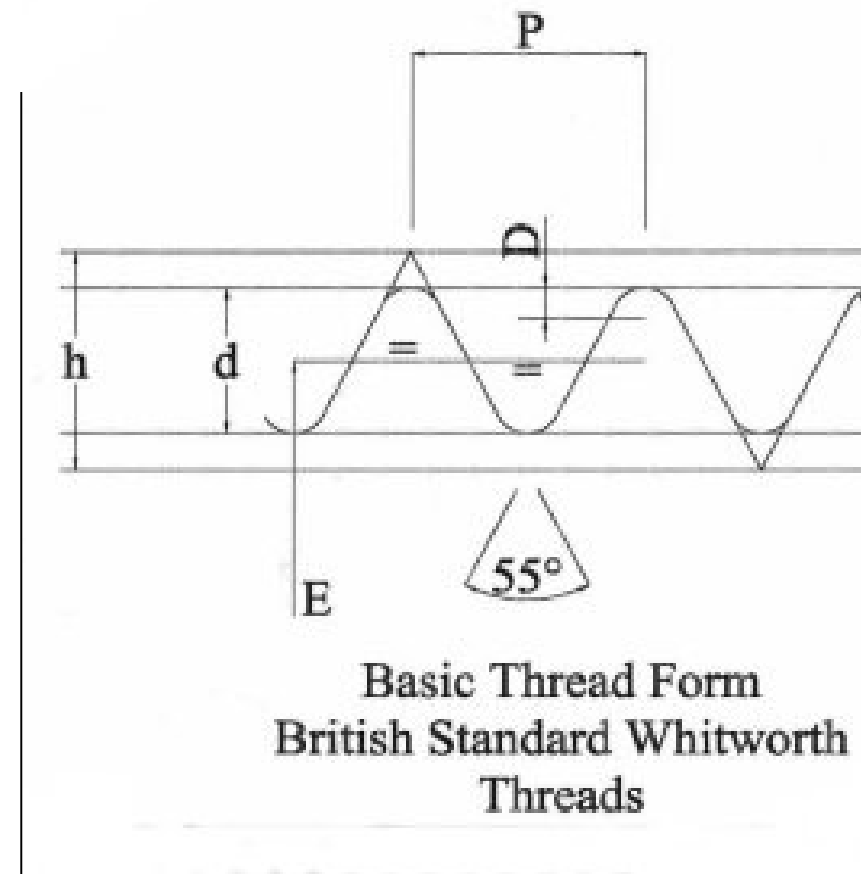
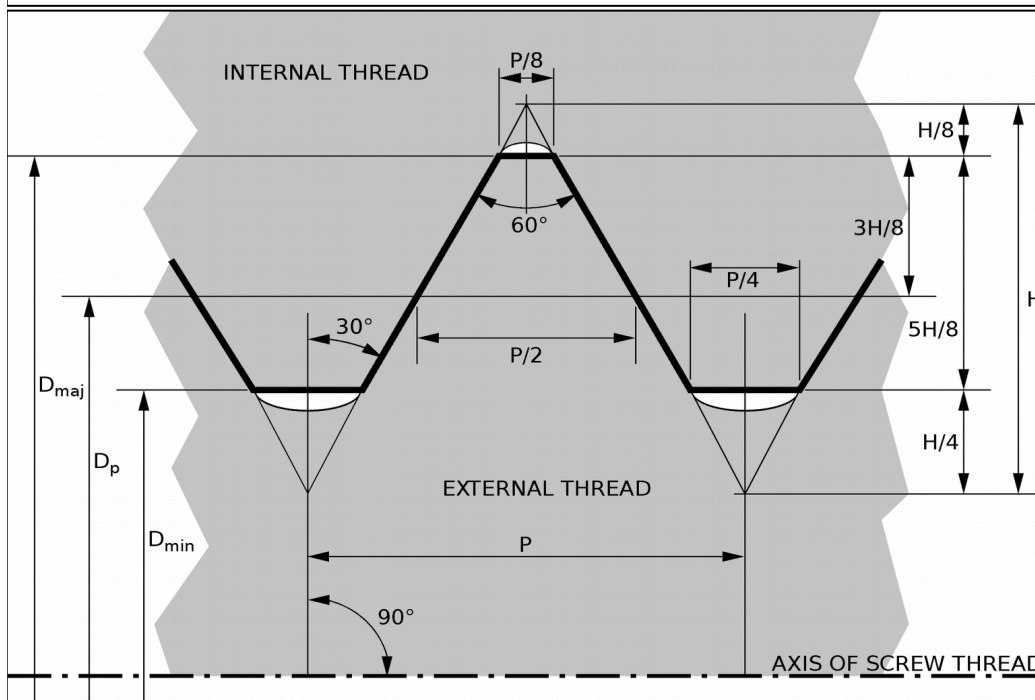
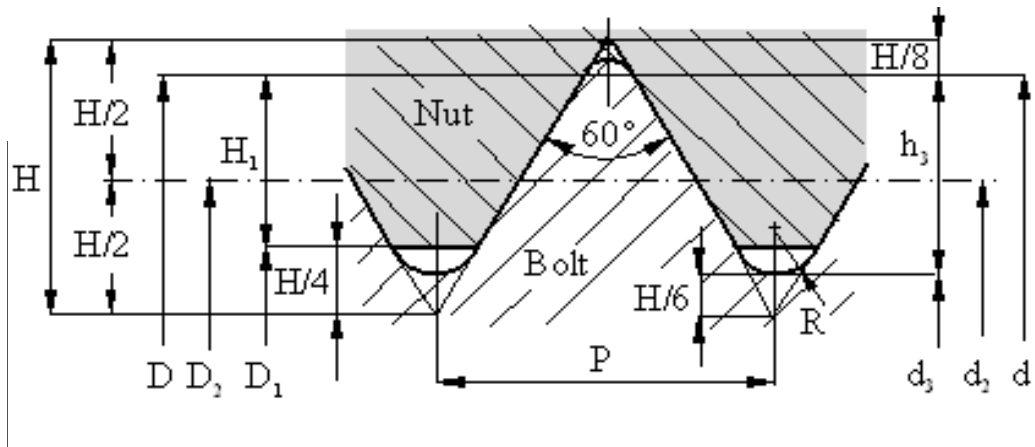
Designation MD x P MD for coarse threads

Nominal diameter	D, d, D_{maj}	6		
Pitch	P	0.5		
Top angle	60°			
Angular depth	H	$= \sqrt{3} / 2 * P$	$\approx 0.866025 * P$	0.4330
Base radius (bolt)	R	$= 1/6 * H$	$= \sqrt{3} / 12 * P$	$\approx 0.144338 * P$
Thread depth (bolt)	h₃	$= 17/24 * H$	$= 17\sqrt{3} / 48 * P$	$\approx 0.613435 * P$
Thread depth (nut)	H₁	$= 5/8 * H$	$= 5\sqrt{3} / 16 * P$	$\approx 0.541266 * P$
Pitch diameter	D₂, d₂, D_p	$= D - 3/4 * H$	$= D - 3\sqrt{3} / 8 * P$	$\approx D - 0.649519 * P$
Minor diameter	D₁, d_{min}	$= D - 5/4 * H$	$= D - 5\sqrt{3} / 8 * P$	$\approx D - 1.082532 * P$
Tap drill size		$= D - 5/4 * H$	$\approx D - P$ (rule of thumb)	5.5000
	tight	$= D + 1/4 * H$	$= D + \sqrt{3} / 8 * P$	$\approx D + 0.216506 * P$
Clearance drill size	standard	$= D + 1/2 * H$	$= D + \sqrt{3} / 4 * P$	$\approx D + 0.433013 * P$
	wide	$= D + H$	$= D + \sqrt{3} / 2 * P$	$\approx D + 0.866025 * P$

Whitworth - BSW, BSF,

Designation	GD	D in fractions.
calculated for		
M6	Nominal diameter	D_{maj}
	Pitch	P = 1/tpi
	Top angle	55°
	Angular depth	h = $\cotan(27.5^\circ)/2 * P$
	Shortening	= 1/6 * h
	Radius crest & root	r
	Depth of rounding	D
	Thread depth	d = 2/3 * h
	Pitch diameter	E = $D_{maj} - 2/3 * h$
	Core diameter	C = $D_{maj} - 4/3 * h$
	Tap drill size	= $D_{maj} - 4/3 * h * 5$
	tight	
Clearance drill size	standard	
	wide	





ME, BSPP, BSPF & PF

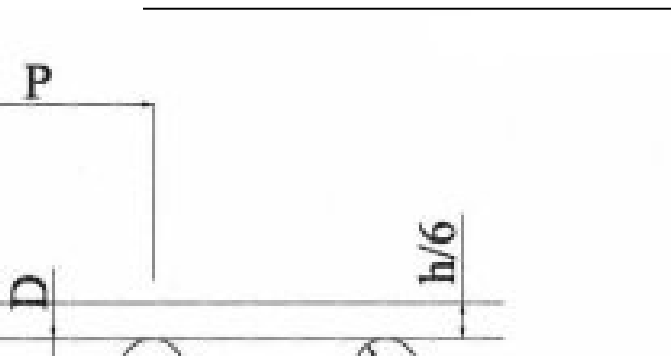
For gas threads there is no direct relation between D and actual diameter !

$$\begin{aligned} &\approx 0.960491 * P \\ = \cotan(27.5^\circ)/12 * P &\approx 0.160082 * P \\ &\approx 0.137329 * P \\ &\approx 0.073917 * P \\ = \cotan(27.5^\circ)/3 * P &\approx 0.640327 * P \end{aligned}$$

$$\begin{aligned} &\approx D_{maj} - 0.640327 * P \\ &\approx D_{maj} - 1.280655 * P \end{aligned}$$

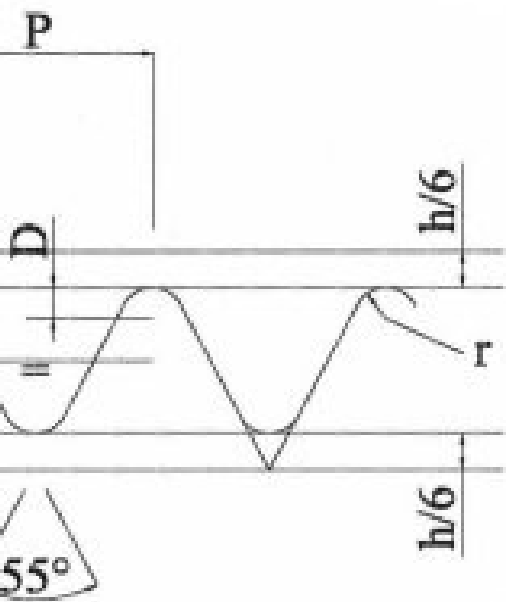
BA (British Association)

Designation	BA	0 thru 25	
Nominal diameter	D_{maj}	$= 6 * p^{1.2}$ (in mm)	from table
Pitch	p	$= 0.9^{BA\#}$ (in mm)	from table
Top angle	47.5°		
Threads per Inch	tpi	$= 25.4 / p$	from table
Angular depth	H	$= \frac{1}{2}p / \tan(23.75^\circ)$	$\approx 1.1363365 * p$
Shortening	s		$= 0.2681688 * p$
Radius crest & root	r	$= 2p / 11$	$= 0.1808346 * p$
Thread depth	h		$= 0.6000000 * p$
Pitch diameter	E	$= D_{maj} - h$	$= D_{maj} - 0.600000 * p$
Core diameter	D_{min}	$= D_{maj} - 2h$	$= D_{maj} - 1.200000 * p$
Tap drill size		from table	
Clearance drill size	standard wide	from table	

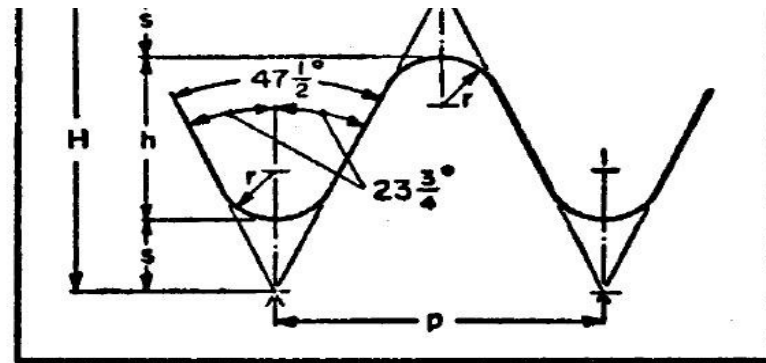


BRITISH ASSOCIATION THREADS





Thread Form
Standard Whitworth
Threads



p = pitch of thread H = depth of V-thread

h = depth of B.A. thread

r = radius at root and crest of thread

s = root and crest truncation

$$H = 1.13634 \times p \quad r = 0.18083 \times p$$

$$h = 0.60000 \times p \quad s = 0.26817 \times p$$

all in mm

BA number	pitch	thread depth	Diameter			radius
			Major	pitch	Minor	
0	1.00	0.600	6.00	5.400	4.80	0.1808
1	0.90	0.540	5.30	4.760	4.22	0.1627
2	0.81	0.485	4.70	4.215	3.73	0.1465
3	0.73	0.440	4.10	3.660	3.22	0.1320
4	0.66	0.395	3.60	3.205	2.81	0.1193
5	0.59	0.355	3.20	2.845	2.49	0.1067
6	0.53	0.320	2.80	2.480	2.16	0.0958
7	0.48	0.290	2.50	2.210	1.92	0.0868
8	0.43	0.260	2.20	1.940	1.68	0.0778
9	0.39	0.235	1.90	1.665	1.43	0.0705
10	0.35	0.210	1.70	1.490	1.28	0.0633

11	0.31	0.185	1.50	1.315	1.13	0.0561
12	0.28	0.170	1.30	1.130	0.96	0.0506
13	0.25	0.150	1.20	1.050	0.90	0.0452
14	0.23	0.140	1.00	0.860	0.72	0.0416
15	0.21	0.125	0.90	0.775	0.65	0.0380
16	0.19	0.115	0.79	0.675	0.56	0.0344

Nominal diameter	pitch in mm				standards	
	mm	Coarse	Fine		ISO	
0.3		0.075				DIN
0.3		0.080			1 st	
0.35		0.090			2 nd	
0.4		0.100			1 st	DIN
0.45		0.100			2 nd	
0.5		0.125			1 st	DIN
0.55		0.125			2 nd	
0.6		0.150			1 st	DIN
0.7		0.175			2 nd	DIN
0.8		0.200			1 st	DIN
0.9		0.225			2 nd	DIN
1		0.250	0.20		1 st	DIN
1.1		0.250	0.20		2 nd	
1.2		0.250	0.20		1 st	DIN
1.4		0.300	0.20		2 nd	DIN
1.5		0.300				
1.6		0.350	0.20		1 st	
1.7		0.350	0.20	0.25		DIN
1.8		0.350	0.20	0.40	2 nd	
2		0.400	0.25	0.30	1 st	DIN
2.2		0.450	0.25		2 nd	
2.3		0.400	0.25	0.35		DIN
2.5		0.450	0.35		1 st	
2.6		0.450	0.25	0.35		DIN
3		0.500	0.35	0.60	1 st	DIN
3.5		0.600	0.35	0.50	2 nd	DIN
4		0.700	0.50	0.75	1 st	DIN
4.5		0.750	0.50		2 nd	
5		0.800	0.50	0.75	0.90	1 st DIN
5.5		0.900	0.50			3 rd
6		1.000	0.50	0.75		1 st DIN
7		1.000	0.50	0.75		3 rd DIN
8		1.250	0.50	0.75	1.00	1 st DIN
9		1.250	0.75	1.00		3 rd DIN
10		1.500	0.75	1.00	1.25	1 st DIN
11		1.500	0.75	1.00	1.25	3 rd DIN
12		1.750	1.00	1.25	1.50	1 st DIN
14		2.000	1.00	1.25	1.50	2 nd DIN
15			1.00	1.50		3 rd DIN
16		2.000	1.00	1.50		1 st DIN
17			1.00	1.50		3 rd DIN
18		2.500	1.00	1.50	2.00	2 nd DIN
20		2.500	1.00	1.50	2.00	1 st DIN
22		2.500	1.00	1.50	2.00	2 nd DIN
24		3.000	1.00	1.50	2.00	1 st DIN

25		1.00	1.50	2.00		3 rd	DIN
26		1.50				3 rd	DIN
27	3.000	1.00	1.50	2.00		2 nd	DIN
28		1.00	1.50	2.00		3 rd	DIN
30	3.500	1.00	1.50	2.00	3.00	1 st	DIN
32		1.50	2.00			3 rd	DIN
33	3.500	1.50	2.00	3.00		2 nd	DIN
35		1.50				3 rd	DIN
36	4.000	1.50	2.00	3.00		1 st	DIN
38		1.50				3 rd	DIN
39	4.000	1.50	2.00	3.00		2 nd	DIN
40		1.50	2.00	3.00		3 rd	DIN
42	4.500	1.50	2.00	3.00	4.00	1 st	DIN
45	4.500	1.50	2.00	3.00	4.00	2 nd	DIN
48	5.000	1.50	2.00	3.00	4.00	1 st	DIN
50		1.50	2.00	3.00		3 rd	DIN
52	5.000	1.50	2.00	3.00	4.00	2 nd	DIN
55		1.50	2.00	3.00	4.00	3 rd	DIN
56	5.500	1.50	2.00	3.00	4.00	1 st	DIN
58		1.50	2.00	3.00	4.00	3 rd	DIN
60	5.500	1.50	2.00	3.00	4.00	2 nd	DIN
62		1.50	2.00	3.00	4.00	3 rd	DIN
63		1.50					
64	6.000	1.50	2.00	3.00	4.00	1 st	DIN
75		1.50					
80		2.00					
85		2.00					
90		2.00					
100		2.00	3.00				
110		3.00					

diam	pitch	$\sqrt{3}/2 * P$ angular depth	$D - 5/4 * H$ minor diam.	D - P drill size
D	P	H	D_{min}	
0.25	0.075	0.0650	0.17	0.175
0.3	0.08	0.0693	0.21	0.22
0.3	0.09	0.0779	0.20	0.21
0.35	0.09	0.0779	0.25	0.26
0.4	0.1	0.0866	0.29	0.3
0.45	0.1	0.0866	0.34	0.35
0.5	0.125	0.1083	0.36	0.375
0.55	0.125	0.1083	0.41	0.425
0.6	0.15	0.1299	0.44	0.45
0.7	0.175	0.1516	0.51	0.525
0.8	0.2	0.1732	0.58	0.6
0.9	0.225	0.1949	0.66	0.675
1	0.25	0.2165	0.73	0.75
1	0.2	0.1732	0.78	0.8
1.1	0.25	0.2165	0.83	0.85
1.1	0.2	0.1732	0.88	0.9
1.2	0.25	0.2165	0.93	0.95
1.2	0.2	0.1732	0.98	1
1.4	0.3	0.2598	1.08	1.1
1.4	0.2	0.1732	1.18	1.2
1.6	0.35	0.3031	1.22	1.25
1.6	0.3	0.2598	1.28	1.3
1.6	0.2	0.1732	1.38	1.4
1.7	0.35	0.3031	1.32	1.35
1.8	0.35	0.3031	1.42	1.45
1.8	0.2	0.1732	1.58	1.6
2	0.4	0.3464	1.57	1.6
2	0.25	0.2165	1.73	1.75
2.2	0.45	0.3897	1.71	1.75
2.2	0.25	0.2165	1.93	1.95
2.3	0.45	0.3897	1.81	1.85
2.3	0.4	0.3464	1.87	1.9
2.5	0.45	0.3897	2.01	2.05
2.5	0.35	0.3031	2.12	2.15
2.6	0.45	0.3897	2.11	2.15
3	0.5	0.4330	2.46	2.5
3	0.35	0.3031	2.62	2.65
3.5	0.6	0.5196	2.85	2.9
3.5	0.35	0.3031	3.12	3.15
4	0.7	0.6062	3.24	3.3
4	0.5	0.4330	3.46	3.5
4.5	0.75	0.6495	3.69	3.75
4.5	0.5	0.4330	3.96	4
5	0.8	0.6928	4.13	4.2
5	0.5	0.4330	4.46	4.5
5.5	0.5	0.4330	4.96	5

6	1	0.8660	4.92	5
6	0.8	0.6928	5.13	5.2
6	0.75	0.6495	5.19	5.25
6	0.7	0.6062	5.24	5.3
6	0.5	0.4330	5.46	5.5
7	1	0.8660	5.92	6
7	0.75	0.6495	6.19	6.25
7	0.5	0.4330	6.46	6.5
8	1.25	1.0825	6.65	6.75
8	1	0.8660	6.92	7
8	0.8	0.6928	7.13	7.2
8	0.75	0.6495	7.19	7.25
8	0.5	0.4330	7.46	7.5
9	1.25	1.0825	7.65	7.75
9	1	0.8660	7.92	8
9	0.75	0.6495	8.19	8.25
9	0.5	0.4330	8.46	8.5
10	1.5	1.2990	8.38	8.5
10	1.25	1.0825	8.65	8.75
10	1.12	0.9699	8.79	8.88
10	1	0.8660	8.92	9
10	0.75	0.6495	9.19	9.25
10	0.5	0.4330	9.46	9.5
11	1.5	1.2990	9.38	9.5
11	1	0.8660	9.92	10
11	0.75	0.6495	10.19	10.25
11	0.5	0.4330	10.46	10.5
12	1.75	1.5155	10.11	10.25
12	1.25	1.0825	10.65	10.75
12	1	0.8660	10.92	11
12	0.75	0.6495	11.19	11.25
12	0.5	0.4330	11.46	11.5
14	2	1.7321	11.83	12
14	1.5	1.2990	12.38	12.5
14	1.25	1.0825	12.65	12.75
14	1	0.8660	12.92	13
14	0.75	0.6495	13.19	13.25
14	0.5	0.4330	13.46	13.5
15	1.5	1.2990	13.38	13.5
15	1	0.8660	13.92	14
16	2	1.7321	13.83	14
16	1.6	1.3856	14.27	14.4
16	1.5	1.2990	14.38	14.5
16	1.25	1.0825	14.65	14.75
16	1	0.8660	14.92	15
16	0.75	0.6495	15.19	15.25
16	0.5	0.4330	15.46	15.5
17	1.5	1.2990	15.38	15.5
17	1	0.8660	15.92	16
18	2.5	2.1651	15.29	15.5

18	2	1.7321	15.83	16
18	1.5	1.2990	16.38	16.5
18	1.25	1.0825	16.65	16.75
18	1	0.8660	16.92	17
18	0.75	0.6495	17.19	17.25
18	0.5	0.4330	17.46	17.5
20	2.5	2.1651	17.29	17.5
20	2	1.7321	17.83	18
20	1.5	1.2990	18.38	18.5
20	1	0.8660	18.92	19
20	0.75	0.6495	19.19	19.25
20	0.5	0.4330	19.46	19.5
22	3	2.5981	18.75	19
22	2.5	2.1651	19.29	19.5
22	2	1.7321	19.83	20
22	1.5	1.2990	20.38	20.5
22	1	0.8660	20.92	21
22	0.75	0.6495	21.19	21.25
22	0.5	0.4330	21.46	21.5
24	3	2.5981	20.75	21
24	2.5	2.1651	21.29	21.5
24	2	1.7321	21.83	22
24	1.5	1.2990	22.38	22.5
24	1	0.8660	22.92	23
24	0.75	0.6495	23.19	23.25
25	2	1.7321	22.83	23
25	1.5	1.2990	23.38	23.5
25	1	0.8660	23.92	24
26	1.5	1.2990	24.38	24.5
27	3	2.5981	23.75	24
27	2	1.7321	24.83	25
27	1.5	1.2990	25.38	25.5
27	1	0.8660	25.92	26
27	0.75	0.6495	26.19	26.25
28	2	1.7321	25.83	26
28	1.5	1.2990	26.38	26.5
28	1	0.8660	26.92	27
30	3.5	3.0311	26.21	26.5
30	3	2.5981	26.75	27
30	2.5	2.1651	27.29	27.5
30	2	1.7321	27.83	28
30	1.5	1.2990	28.38	28.5
30	1	0.8660	28.92	29
30	0.75	0.6495	29.19	29.25
32	2	1.7321	29.83	30
32	1.5	1.2990	30.38	30.5
33	3.5	3.0311	29.21	29.5
33	3	2.5981	29.75	30
33	2	1.7321	30.83	31
33	1.5	1.2990	31.38	31.5

33	1	0.8660	31.92	32
33	0.75	0.6495	32.19	32.25
35	1.5	1.2990	33.38	33.5
36	4	3.4641	31.67	32
36	3	2.5981	32.75	33
36	2	1.7321	33.83	34
36	1.5	1.2990	34.38	34.5
36	1	0.8660	34.92	35
38	1.5	1.2990	36.38	36.5
39	4	3.4641	34.67	35
39	3	2.5981	35.75	36
39	2	1.7321	36.83	37
39	1.5	1.2990	37.38	37.5
39	1	0.8660	37.92	38
40	3	2.5981	36.75	37
40	2.5	2.1651	37.29	37.5
40	2	1.7321	37.83	38
40	1.5	1.2990	38.38	38.5
42	4.5	3.8971	37.13	37.5
42	4	3.4641	37.67	38
42	3	2.5981	38.75	39
42	2	1.7321	39.83	40
42	1.5	1.2990	40.38	40.5
42	1	0.8660	40.92	41
45	4.5	3.8971	40.13	40.5
45	4	3.4641	40.67	41
45	3	2.5981	41.75	42
45	2	1.7321	42.83	43
45	1.5	1.2990	43.38	43.5
45	1	0.8660	43.92	44
48	5	4.3301	42.59	43
48	4	3.4641	43.67	44
48	3	2.5981	44.75	45
48	2	1.7321	45.83	46
48	1.5	1.2990	46.38	46.5
50	4	3.4641	45.67	46
50	3	2.5981	46.75	47
50	2	1.7321	47.83	48
50	1.5	1.2990	48.38	48.5
52	5	4.3301	46.59	47
52	4	3.4641	47.67	48
52	3	2.5981	48.75	49
52	2	1.7321	49.83	50
52	1.5	1.2990	50.38	50.5
55	4	3.4641	50.67	51
55	3	2.5981	51.75	52
55	2	1.7321	52.83	53
55	1.5	1.2990	53.38	53.5
56	5.5	4.7631	50.05	50.5
56	4	3.4641	51.67	52

56	3	2.5981	52.75	53
56	2	1.7321	53.83	54
56	1.5	1.2990	54.38	54.5
56	1	0.8660	54.92	55
58	4	3.4641	53.67	54
58	3	2.5981	54.75	55
58	2	1.7321	55.83	56
58	1.5	1.2990	56.38	56.5
60	5.5	4.7631	54.05	54.5
60	4	3.4641	55.67	56
60	3	2.5981	56.75	57
60	2	1.7321	57.83	58
60	1.5	1.2990	58.38	58.5
60	1	0.8660	58.92	59
62	4	3.4641	57.67	58
62	3	2.5981	58.75	59
62	2	1.7321	59.83	60
62	1.5	1.2990	60.38	60.5
63	1.5	1.2990	61.38	61.5
64	6	5.1962	57.50	58
64	5.5	4.7631	58.05	58.5
64	4	3.4641	59.67	60
64	3	2.5981	60.75	61
64	2	1.7321	61.83	62
64	1.5	1.2990	62.38	62.5
64	1	0.8660	62.92	63
65	4	3.4641	60.67	61
65	3	2.5981	61.75	62
65	2	1.7321	62.83	63
65	1.5	1.2990	63.38	63.5
68	6	5.1962	61.50	62
68	4	3.4641	63.67	64
68	3	2.5981	64.75	65
68	2	1.7321	65.83	66
68	1.5	1.2990	66.38	66.5
68	1	0.8660	66.92	67
70	6	5.1962	63.50	64
70	4	3.4641	65.67	66
70	3	2.5981	66.75	67
70	2	1.7321	67.83	68
70	1.5	1.2990	68.38	68.5
72	6	5.1962	65.50	66
72	4	3.4641	67.67	68
72	3	2.5981	68.75	69
72	2	1.7321	69.83	70
72	1.5	1.2990	70.38	70.5
72	1	0.8660	70.92	71
75	6	5.1962	68.50	69
75	4	3.4641	70.67	71
75	3	2.5981	71.75	72

75	2	1.7321	72.83	73
75	1.5	1.2990	73.38	73.5
76	6	5.1962	69.50	70
76	4	3.4641	71.67	72
76	3	2.5981	72.75	73
76	2	1.7321	73.83	74
76	1.5	1.2990	74.38	74.5
76	1	0.8660	74.92	75
78	2	1.7321	75.83	76
80	6	5.1962	73.50	74
80	4	3.4641	75.67	76
80	3	2.5981	76.75	77
80	2	1.7321	77.83	78
80	1.5	1.2990	78.38	78.5
80	1	0.8660	78.92	79
82	2	1.7321	79.83	80
85	6	5.1962	78.50	79
85	4	3.4641	80.67	81
85	3	2.5981	81.75	82
85	2	1.7321	82.83	83
85	1.5	1.2990	83.38	83.5
90	6	5.1962	83.50	84
90	4	3.4641	85.67	86
90	3	2.5981	86.75	87
90	2	1.7321	87.83	88
90	1.5	1.2990	88.38	88.5
95	6	5.1962	88.50	89
95	4	3.4641	90.67	91
95	3	2.5981	91.75	92
95	2	1.7321	92.83	93
95	1.5	1.2990	93.38	93.5
100	6	5.1962	93.50	94
100	4	3.4641	95.67	96
100	3	2.5981	96.75	97
100	2	1.7321	97.83	98
100	1.5	1.2990	98.38	98.5
105	6	5.1962	98.50	99
105	4	3.4641	100.67	101
105	3	2.5981	101.75	102
105	2	1.7321	102.83	103
105	1.5	1.2990	103.38	103.5
110	6	5.1962	103.50	104
110	4	3.4641	105.67	106
110	3	2.5981	106.75	107
110	2	1.7321	107.83	108
110	1.5	1.2990	108.38	108.5
115	6	5.1962	108.50	109
115	4	3.4641	110.67	111
115	3	2.5981	111.75	112
115	2	1.7321	112.83	113

115	1.5	1.2990	113.38	113.5
120	6	5.1962	113.50	114
120	4	3.4641	115.67	116
120	3	2.5981	116.75	117
120	2	1.7321	117.83	118
120	1.5	1.2990	118.38	118.5
125	8	6.9282	116.34	117
125	6	5.1962	118.50	119
125	4	3.4641	120.67	121
125	3	2.5981	121.75	122
125	2	1.7321	122.83	123
125	1.5	1.2990	123.38	123.5
130	8	6.9282	121.34	122
130	6	5.1962	123.50	124
130	4	3.4641	125.67	126
130	3	2.5981	126.75	127
130	2	1.7321	127.83	128
130	1.5	1.2990	128.38	128.5
135	6	5.1962	128.50	129
135	4	3.4641	130.67	131
135	3	2.5981	131.75	132
135	2	1.7321	132.83	133
135	1.5	1.2990	133.38	133.5
140	8	6.9282	131.34	132
140	6	5.1962	133.50	134
140	4	3.4641	135.67	136
140	3	2.5981	136.75	137
140	2	1.7321	137.83	138
140	1.5	1.2990	138.38	138.5
145	6	5.1962	138.50	139
145	4	3.4641	140.67	141
145	3	2.5981	141.75	142
145	2	1.7321	142.83	143
145	1.5	1.2990	143.38	143.5
150	8	6.9282	141.34	142
150	6	5.1962	143.50	144
150	4	3.4641	145.67	146
150	3	2.5981	146.75	147
150	2	1.7321	147.83	148
150	1.5	1.2990	148.38	148.5
155	6	5.1962	148.50	149
155	4	3.4641	150.67	151
155	3	2.5981	151.75	152
155	2	1.7321	152.83	153
160	8	6.9282	151.34	152
160	6	5.1962	153.50	154
160	4	3.4641	155.67	156
160	3	2.5981	156.75	157
160	2	1.7321	157.83	158
165	6	5.1962	158.50	159

165	4	3.4641	160.67	161
165	3	2.5981	161.75	162
165	2	1.7321	162.83	163
170	8	6.9282	161.34	162
170	6	5.1962	163.50	164
170	4	3.4641	165.67	166
170	3	2.5981	166.75	167
170	2	1.7321	167.83	168
175	6	5.1962	168.50	169
175	4	3.4641	170.67	171
175	3	2.5981	171.75	172
175	2	1.7321	172.83	173
180	8	6.9282	171.34	172
180	6	5.1962	173.50	174
180	4	3.4641	175.67	176
180	3	2.5981	176.75	177
180	2	1.7321	177.83	178
185	6	5.1962	178.50	179
185	4	3.4641	180.67	181
185	3	2.5981	181.75	182
185	2	1.7321	182.83	183
190	8	6.9282	181.34	182
190	6	5.1962	183.50	184
190	4	3.4641	185.67	186
190	3	2.5981	186.75	187
190	2	1.7321	187.83	188
195	6	5.1962	188.50	189
195	4	3.4641	190.67	191
195	3	2.5981	191.75	192
195	2	1.7321	192.83	193
200	8	6.9282	191.34	192
200	6	5.1962	193.50	194
200	4	3.4641	195.67	196
200	3	2.5981	196.75	197
200	2	1.7321	197.83	198
205	6	5.1962	198.50	199
205	4	3.4641	200.67	201
205	3	2.5981	201.75	202
205	2	1.7321	202.83	203
210	8	6.9282	201.34	202
210	6	5.1962	203.50	204
210	4	3.4641	205.67	206
210	3	2.5981	206.75	207
210	2	1.7321	207.83	208
215	6	5.1962	208.50	209
215	4	3.4641	210.67	211
215	3	2.5981	211.75	212
220	8	6.9282	211.34	212
220	6	5.1962	213.50	214
220	4	3.4641	215.67	216

220	3	2.5981	216.75	217
220	2	1.7321	217.83	218
225	6	5.1962	218.50	219
225	4	3.4641	220.67	221
225	3	2.5981	221.75	222
225	2	1.7321	222.83	223
230	6	5.1962	223.50	224
230	4	3.4641	225.67	226
230	3	2.5981	226.75	227
230	2	1.7321	227.83	228
235	6	5.1962	228.50	229
235	4	3.4641	230.67	231
235	3	2.5981	231.75	232
240	8	6.9282	231.34	232
240	6	5.1962	233.50	234
240	4	3.4641	235.67	236
240	3	2.5981	236.75	237
240	2	1.7321	237.83	238
245	6	5.1962	238.50	239
245	4	3.4641	240.67	241
245	3	2.5981	241.75	242
245	2	1.7321	242.83	243
250	8	6.9282	241.34	242
250	6	5.1962	243.50	244
250	4	3.4641	245.67	246
250	3	2.5981	246.75	247
250	2	1.7321	247.83	248
255	6	5.1962	248.50	249
255	4	3.4641	250.67	251
255	3	2.5981	251.75	252
260	8	6.9282	251.34	252
260	6	5.1962	253.50	254
260	4	3.4641	255.67	256
260	3	2.5981	256.75	257
265	6	5.1962	258.50	259
265	4	3.4641	260.67	261
265	3	2.5981	261.75	262
270	6	5.1962	263.50	264
270	4	3.4641	265.67	266
270	3	2.5981	266.75	267
275	6	5.1962	268.50	269
275	4	3.4641	270.67	271
275	3	2.5981	271.75	272
280	8	6.9282	271.34	272
280	6	5.1962	273.50	274
280	4	3.4641	275.67	276
280	3	2.5981	276.75	277
285	6	5.1962	278.50	279
285	4	3.4641	280.67	281
285	3	2.5981	281.75	282

290	6	5.1962	283.50	284
290	4	3.4641	285.67	286
290	3	2.5981	286.75	287
295	6	5.1962	288.50	289
295	4	3.4641	290.67	291
295	3	2.5981	291.75	292
300	8	6.9282	291.34	292
300	6	5.1962	293.50	294
300	4	3.4641	295.67	296
300	3	2.5981	296.75	297
310	6	5.1962	303.50	304
310	4	3.4641	305.67	306
320	6	5.1962	313.50	314
320	4	3.4641	315.67	316
330	6	5.1962	323.50	324
330	4	3.4641	325.67	326
340	6	5.1962	333.50	334
340	4	3.4641	335.67	336
350	6	5.1962	343.50	344
350	4	3.4641	345.67	346
360	6	5.1962	353.50	354
360	4	3.4641	355.67	356
370	6	5.1962	363.50	364
370	4	3.4641	365.67	366
380	6	5.1962	373.50	374
380	4	3.4641	375.67	376
390	6	5.1962	383.50	384
390	4	3.4641	385.67	386
400	6	5.1962	393.50	394
400	4	3.4641	395.67	396
410	6	5.1962	403.50	404
420	6	5.1962	413.50	414
430	6	5.1962	423.50	424
440	6	5.1962	433.50	434
450	6	5.1962	443.50	444
460	6	5.1962	453.50	454
470	6	5.1962	463.50	464
480	6	5.1962	473.50	474
490	6	5.1962	483.50	484
500	6	5.1962	493.50	494
510	6	5.1962	503.50	504
520	6	5.1962	513.50	514
530	6	5.1962	523.50	524
540	6	5.1962	533.50	534
550	6	5.1962	543.50	544
560	6	5.1962	553.50	554
570	6	5.1962	563.50	564
580	6	5.1962	573.50	574
590	6	5.1962	583.50	584
600	6	5.1962	593.50	594

Diameter		Size	Length	Some Uses
inch	mm	U.S.	inch	
0.001900	0.04826	#107	3/4	
0.002300	0.05842	#106	3/4	
0.002700	0.06858	#105	3/4	
0.003100	0.07874	#104	3/4	
0.003500	0.0889	#103	3/4	
0.003900	0.09906	#102	3/4	
0.004300	0.10922	#101	3/4	
0.004700	0.11938	#100	3/4	
0.005100	0.12954	#99	3/4	
0.005500	0.1397	#98	3/4	
0.005900	0.14986	#97	3/4	
0.006300	0.16002	#96	3/4	
0.006700	0.17018	#95	3/4	
0.007100	0.18034	#94	3/4	
0.007500	0.1905	#93	3/4	
0.007900	0.20066	#92	3/4	
0.008300	0.21082	#91	3/4	
0.008700	0.22098	#90	3/4	
0.009100	0.23114	#89	3/4	
0.009500	0.2413	#88	3/4	
0.010000	0.254	#87	3/4	
0.010500	0.2667	#86	3/4	
0.011000	0.2794	#85	3/4	
0.011500	0.2921	#84	3/4	
0.012000	0.3048	#83	3/4	
0.012500	0.3175	#82	3/4	
0.013000	0.3302	#81	3/4	
0.013500	0.3429	#80	3/4	
0.014500	0.3683	#79	3/4	
0.015625	0.396875	1/ 64	3/4	Pilot hole in softwood for #0 wood screw.
0.016000	0.4064	#78	1/8	
0.018000	0.4572	#77	7/8	
0.020000	0.508	#76	7/8	
0.021000	0.5334	#75	1	
0.022500	0.5715	#74	1	
0.024000	0.6096	#73	1 1/8	
0.025000	0.635	#72	1 1/8	
0.026000	0.6604	#71	1 1/4	Tap for 000-120.
0.028000	0.7112	#70	1 1/4	
0.029200	0.74168	#69	1 3/8	
0.031000	0.7874	#68	1 3/8	
0.031250	0.79375	1/ 32	1 3/8	Pilot hole in softwood for #1 & #2 wood screw; pilot hole in hardwood for #0 & #1 wood screw.
0.032000	0.8128	#67	1 3/8	
0.033000	0.8382	#66	1 3/8	
0.035000	0.889	#65	1 1/2	Close fit clearance hole for #000 screw; tap for 00-90.
0.036000	0.9144	#64	1 1/2	

0.037000	0.9398	#63	1½	
0.038000	0.9652	#62	1½	Free fit clearance hole for #000 screw.
0.039000	0.9906	#61	1⅝	
0.040000	1.016	#60	1⅝	
0.041000	1.0414	#59	1⅝	
0.042000	1.0668	#58	1⅝	
0.043000	1.0922	#57	1¾	
0.046500	1.1811	#56	1¾	
0.046875	1.190625	3/ 64	1¾	Close fit clearance hole for #00 screw; tap for 0-80; pilot hole in softwood for # 3 & #4 wood screw; pilot hole in hardwood for #2 wood screw.
0.052000	1.3208	#55	1⅞	Free fit clearance hole for #00 screw.
0.055000	1.397	#54	1⅞	
0.059500	1.5113	#53	1⅞	Tap for 1-64 & 1-72.
0.062500	1.5875	1/ 16	1⅞	Clearance hole for #0 wood screw; pilot hole in softwood for #5 wood screw.
0.063500	1.6129	#52	1⅞	Close fit clearance hole for #0 screw; tap for M2.
0.067000	1.7018	#51	2	
0.070000	1.778	#50	2	Free fit clearance hole for #0 screw; tap for 2-56 & 2-64.
0.073000	1.8542	#49	2	
0.076000	1.9304	#48	2	Close fit clearance hole for #1 screw.
0.078125	1.984375	5/ 64	2	Clearance hole for #1 wood screw; pilot hole in softwood for #8 & #9 wood screw; pilot hole in hardwood for #5 & #6 wood screw.
0.078500	1.9939	#47	2	
0.081000	2.0574	#46	2⅛	Close fit clearance hole for M2 screw; free fit clearance hole for #1 screw; tap for M2.5.
0.082000	2.0828	#45	2⅛	
0.086000	2.1844	#44	2⅛	Free fit clearance hole for M2 screw; tap for 4-36.
0.089000	2.2606	#43	2¼	Close fit clearance hole for #2 screw; tap for 4-40.
0.093500	2.3749	#42	2¼	Tap for 4-48.
0.093750	2.38125	3/ 32	2¼	Clearance hole for #2 wood screw; pilot hole in softwood for #10 & #12 wood screw; pilot hole in hardwood for #7 & #8 wood screw.
0.096000	2.4384	#41	2⅜	Free fit clearance hole for #2 screw.
0.098000	2.4892	#40	2⅜	Tap for M3.
0.099500	2.5273	#39	2⅜	
0.101500	2.5781	#38	2½	Tap for 5-40.
0.104000	2.6416	#37	2½	Tap for 5-44.
0.106500	2.7051	#36	2½	Close fit clearance hole for M2.5 screw; tap for 6-32.
0.109375	2.778125	7/ 64	2⅝	Clearance hole for #3 & #4 wood screw; pilot hole in softwood for #12 & #14 wood screw; pilot hole in hardwood for #9 & #10 wood screw.
0.110000	2.794	#35	2⅝	

0.111000	2.8194	#34	2 $\frac{5}{8}$	
0.113000	2.8702	#33	2 $\frac{5}{8}$	Tap for 6-40.
0.116000	2.9464	#32	2 $\frac{3}{4}$	Close fit clearance hole for #4 screw.
0.120000	3.048	#31	2 $\frac{3}{4}$	Close fit clearance hole for M3 screw; free fit clearance hole for M2.5 screw.
0.125000	3.175	1/ 8	2 $\frac{3}{4}$	Clearance hole for #5 wood screw; pilot hole in hardwood for #11 & #12 wood screw.
0.128500	3.2639	#30	2 $\frac{3}{4}$	Close fit clearance hole for #5 screw; free fit clearance hole for #4 screw.
0.136000	3.4544	#29	2 $\frac{7}{8}$	Tap for M4, 8-32 & 8-36.
0.140500	3.5687	#28	2 $\frac{7}{8}$	
0.140625	3.571875	9/ 64	2 $\frac{7}{8}$	Free fit clearance hole for M3 screw; clearance hole for #6 wood screw; pilot hole in softwood for #16 & #18 wood screw; pilot hole in hardwood for #14 wood screw.
0.144000	3.6576	#27	3	Close fit clearance hole for #6 screw; free fit clearance hole for #5 screw.
0.147000	3.7338	#26	3	
0.149500	3.7973	#25	3	Free fit clearance hole for #6 screw; tap for 10-24.
0.152000	3.8608	#24	3 $\frac{1}{8}$	
0.154000	3.9116	#23	3 $\frac{1}{8}$	
0.156250	3.96875	5/ 32	3 $\frac{1}{8}$	Clearance hole for #7 wood screw; pilot hole in hardwood for #16 wood screw.
0.157000	3.9878	#22	3 $\frac{1}{8}$	
0.159000	4.0386	#21	3 $\frac{1}{4}$	Tap for 10-32.
0.161000	4.0894	#20	3 $\frac{1}{4}$	
0.166000	4.2164	#19	3 $\frac{1}{4}$	
0.169500	4.3053	#18	3 $\frac{1}{4}$	Close fit clearance hole for M4 & #8 screws; tap for M5.
0.171875	4.365625	11/ 64	3 $\frac{1}{4}$	Clearance hole for #8 wood screw; pilot hole in softwood for #20 wood screw.
0.173000	4.3942	#17	3 $\frac{3}{8}$	
0.177000	4.4958	#16	3 $\frac{3}{8}$	
0.180000	4.572	#15	3 $\frac{3}{8}$	
0.182000	4.6228	#14	3 $\frac{3}{8}$	Tap for 12-24.
0.185000	4.699	#13	3 $\frac{1}{2}$	
0.187500	4.7625	3/ 16	3 $\frac{1}{2}$	Clearance hole for #9 & #10 wood screw; pilot hole in hardwood for #18 wood screw; pilot hole in softwood for #24 wood screw.
0.189000	4.8006	#12	3 $\frac{1}{2}$	
0.191000	4.8514	#11	3 $\frac{1}{2}$	
0.193500	4.9149	#10	3 $\frac{5}{8}$	
0.196000	4.9784	#9	3 $\frac{5}{8}$	Close fit clearance hole for #10 screw.
0.199000	5.0546	#8	3 $\frac{5}{8}$	
0.201000	5.1054	#7	3 $\frac{5}{8}$	Free fit clearance hole for #10 screw; tap for $\frac{1}{4}$ -20 screw.
0.203125	5.159375	13/ 64	3 $\frac{5}{8}$	
0.204000	5.1816	#6	3 $\frac{3}{4}$	Tap for M6.
0.205500	5.2197	#5	3 $\frac{3}{4}$	
0.209000	5.3086	#4	3 $\frac{3}{4}$	Close fit clearance hole for M5 screw.

0.213000	5.4102	#3	3 $\frac{3}{4}$	Tap for $\frac{1}{4}$ -28.
0.218750	5.55625	7/ 32	3 $\frac{3}{4}$	Clearance hole for #12 wood screw; pilot hole in hardwood for #24 wood screw.
0.221000	5.6134	#2	3 $\frac{7}{8}$	
0.228000	5.7912	#1	3 $\frac{7}{8}$	Free fit clearance hole for M5 screw
0.234000	5.9436	A	3 $\frac{7}{8}$	
0.234375	5.953125	15/ 64	3 $\frac{7}{8}$	
0.238000	6.0452	B	4	
0.242000	6.1468	C	4	
0.246000	6.2484	D	4	
0.250000	6.35	1/ 4	4	Close fit clearance hole for M6 screw; clearance hole for #14 wood screw.
0.250000	6.35	E	4	
0.257000	6.5278	F	4 $\frac{1}{8}$	Close fit clearance hole for $\frac{1}{4}$ " screw; tap for 5/16-18.
0.261000	6.6294	G	4 $\frac{1}{8}$	Free fit clearance hole for M6 screw.
0.265625	6.746875	17/ 64	4 $\frac{1}{8}$	Clearance hole for #16 wood screw.
0.266000	6.7564	H	4 $\frac{1}{8}$	Free fit clearance hole for $\frac{1}{4}$ " screw.
0.272000	6.9088	I	4 $\frac{1}{8}$	Tap for 5/16-20 & M8.
0.277000	7.0358	J	4 $\frac{1}{8}$	
0.281000	7.1374	K	4 $\frac{1}{4}$	
0.281250	7.14375	9/ 32	4 $\frac{1}{4}$	
0.290000	7.366	L	4 $\frac{1}{4}$	
0.295000	7.493	M	4 $\frac{3}{8}$	
0.296875	7.540625	19/ 64	4 $\frac{3}{8}$	Clearance hole for #18 wood screw.
0.302000	7.6708	N	4 $\frac{3}{8}$	
0.312500	7.9375	5/ 16	4 $\frac{1}{2}$	Tap for $\frac{3}{8}$ -16.
0.316000	8.0264	O	4 $\frac{1}{2}$	
0.323000	8.2042	P	4 $\frac{5}{8}$	Close fit clearance hole for 5/16" & M8 screws.
0.328125	8.334375	21/ 64	4 $\frac{5}{8}$	Clearance hole for #20 wood screw.
0.332000	8.4328	Q	4 $\frac{3}{4}$	Free fit clearance hole for 5/16" & M8 screws; tap for $\frac{3}{8}$ -24.
0.339000	8.6106	R	4 $\frac{3}{4}$	
0.343750	8.73125	11/ 32	4 $\frac{3}{4}$	Tap for M10.
0.348000	8.8392	S	4 $\frac{7}{8}$	
0.358000	9.0932	T	4 $\frac{7}{8}$	
0.359375	9.128125	23/ 64	4 $\frac{7}{8}$	
0.368000	9.3472	U	5	
0.375000	9.525	3/ 8	5	Clearance hole for #24 wood screw.
0.377000	9.5758	V	5	
0.386000	9.8044	W	5 $\frac{1}{8}$	Close fit clearance hole for $\frac{3}{8}$ " screw.
0.390625	9.921875	25/ 64	5 $\frac{1}{8}$	
0.397000	10.0838	X	5 $\frac{1}{8}$	Free fit clearance hole for $\frac{3}{8}$ " screw.
0.404000	10.2616	Y	5 $\frac{1}{4}$	
0.406250	10.31875	13/ 32	5 $\frac{1}{4}$	Close fit clearance hole for M10 screw.
0.413000	10.4902	Z	5 $\frac{1}{4}$	Tap for M12.
0.421875	10.715625	27/ 64	5 $\frac{3}{8}$	Free fit clearance hole for M10 screw; tap for $\frac{1}{2}$ -13.
0.437500	11.1125	7/ 16	5 $\frac{1}{2}$	
0.453125	11.509375	29/ 64	5 $\frac{5}{8}$	Tap for $\frac{1}{2}$ -20.

0.468750	11.90625	15/ 32	5¾
0.484375	12.303125	31/ 64	5⅞
0.500000	12.7	1/ 2	6
0.515625	13.096875	33/ 64	
0.531250	13.49375	17/ 32	
0.546875	13.890625	35/ 64	
0.562500	14.2875	9/ 16	
0.578125	14.684375	37/ 64	
0.593750	15.08125	19/ 32	
0.609375	15.478125	39/ 64	
0.625000	15.875	5/ 8	
0.640625	16.271875	41/ 64	
0.656250	16.66875	21/ 32	
0.671875	17.065625	43/ 64	
0.687500	17.4625	11/ 16	
0.703125	17.859375	45/ 64	
0.718750	18.25625	23/ 32	
0.734375	18.653125	47/ 64	
0.750000	19.05	3/ 4	
0.765625	19.446875	49/ 64	
0.781250	19.84375	25/ 32	
0.796875	20.240625	51/ 64	
0.812500	20.6375	13/ 16	
0.828125	21.034375	53/ 64	
0.843750	21.43125	27/ 32	
0.859375	21.828125	55/ 64	
0.875000	22.225	7/ 8	
0.890625	22.621875	57/ 64	
0.906250	23.01875	29/ 32	
0.921875	23.415625	59/ 64	
0.937500	23.8125	15/ 16	
0.953125	24.209375	61/ 64	
0.968750	24.60625	31/ 32	
0.984375	25.003125	63/ 64	
1.000000	25.4	1	

Close fit clearance hole for M12 screw.
Free fit clearance hole for M12 screw.

Size	Pitch
M 1	0.25
M 1.1	0.25
M 1.2	0.25
M 1.4	0.30
M 1.6	0.35
M 1.8	0.35
M 2	0.40
M 2.2	0.45
M 2.5	0.45
M 3	0.50
M 3.5	0.60
M 4	0.70
M 4.5	0.75
M 5	0.80
M 6	1.00
M 7	1.00
M 8	1.25
M 9	1.25
M 10	1.50
M 11	1.50
M 12	1.75
M 14	2.00
M 16	2.00
M 18	2.50
M 20	2.50
M 22	2.50
M 24	3.00
M 27	3.00
M 30	3.50
M 33	3.50
M 36	4.00
M 39	4.00
M 42	4.50
M 45	4.50
M 48	5.00
M 52	5.00
M 56	5.50
M 60	5.50
M 64	6.00
M 68	6.00
M 72	6.00
M 80	6.00
M 90	6.00
M 100	6.00

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Size	Pitch	Tap Drill
M 1	0.20	0.80
M 1.1	0.20	0.90
M 1.2	0.20	1.00
M 1.4	0.20	1.20
M 1.6	0.20	1.40
M 1.8	0.20	1.60
M 2	0.25	1.75
M 2.2	0.25	1.95
M 2.5	0.35	2.15
M 3	0.35	2.65
M 3.5	0.35	3.15
M 4	0.50	3.50
M 4.5	0.50	4.00
M 5	0.50	4.50
M 5.5	0.50	5.00
M 6	0.75	5.25
M 7	0.75	6.25
M 8	0.75	7.25
M 8	1.00	7.00
M 9	0.75	8.25
M 9	1.00	8.00
M 10	0.75	9.25
M 10	1.00	9.00
M 10	1.25	8.75
M 11	0.75	10.25
M 11	1.00	10.00
M 12	1.00	11.00
M 12	1.25	10.75
M 12	1.50	10.50
M 14	1.00	13.00
M 14	1.25	12.75
M 14	1.50	12.50
M 15	1.00	14.00
M 15	1.50	13.50
M 16	1.00	15.00
M 16	1.50	14.50
M 17	1.00	16.00
M 17	1.50	15.50
M 18	1.00	17.00
M 18	1.50	16.50
M 18	2.00	16.00
M 20	1.00	19.00
M 20	1.50	18.50
M 20	2.00	18.00
M 22	1.00	21.00
M 22	1.50	20.50
M 22	2.00	20.00

M 24	1.00	23.00
M 24	1.50	22.50
M 24	2.00	22.00
M 25	1.00	24.00
M 25	1.50	23.50
M 25	2.00	23.00
M 27	1.00	26.00
M 27	1.50	25.50
M 27	2.00	25.00
M 28	1.00	27.00
M 28	1.50	26.50
M 28	2.00	26.00
M 30	1.00	29.00
M 30	1.50	28.50
M 30	2.00	28.00
M 30	3.00	27.00
M 32	1.50	30.50
M 32	2.00	30.00
M 33	1.50	31.50
M 33	2.00	31.00
M 33	3.00	30.00
M 35	1.50	33.50
M 35	2.00	33.00
M 36	1.50	34.50
M 36	2.00	34.00
M 36	3.00	33.00
M 39	1.50	37.50
M 39	2.00	37.00
M 39	3.00	36.00
M 40	1.50	38.50
M 40	2.00	38.00
M 40	3.00	37.00
M 42	1.50	40.50
M 42	2.00	40.00
M 42	3.00	39.00
M 42	4.00	38.00
M 45	1.50	43.50
M 45	2.00	43.00
M 45	3.00	42.00
M 45	4.00	41.00
M 48	1.50	46.50
M 48	2.00	46.00
M 48	3.00	45.00
M 48	4.00	44.00
M 50	1.50	48.50
M 50	2.00	48.00
M 50	3.00	47.00
M 52	1.50	50.50

M 52	2.00	50.00
M 52	3.00	49.00
M 52	4.00	48.00
M 55	1.50	53.50
M 55	2.00	53.00
M 55	3.00	52.00
M 55	4.00	51.00
M 56	1.50	54.50
M 56	2.00	54.00
M 56	3.00	53.00
M 56	4.00	52.00
M 58	1.50	56.50
M 58	2.00	56.00
M 58	3.00	55.00
M 58	4.00	54.00
M 60	1.50	58.50
M 60	2.00	58.00
M 60	3.00	57.00
M 60	4.00	56.00
M 62	1.50	60.50
M 62	2.00	60.00
M 62	3.00	59.00
M 62	4.00	58.00
M 64	1.50	62.50
M 64	2.00	62.00
M 64	3.00	61.00
M 64	4.00	60.00
M 65	1.50	63.50
M 65	2.00	63.00
M 65	3.00	62.00
M 65	4.00	61.00
M 68	1.50	66.50
M 68	2.00	66.00
M 68	3.00	65.00
M 68	4.00	64.00
M 70	1.50	68.50
M 70	2.00	68.00
M 70	3.00	67.00
M 70	4.00	66.00
M 70	6.00	64.00
M 72	1.50	70.50
M 72	2.00	70.00
M 72	3.00	69.00
M 72	4.00	68.00
M 72	6.00	66.00
M 75	1.50	73.50
M 75	2.00	73.00
M 75	3.00	72.00

M 75	4.00	71.00
M 75	6.00	69.00
M 76	1.50	74.50
M 76	2.00	74.00
M 76	3.00	73.00
M 76	4.00	72.00
M 76	6.00	70.00
M 80	1.50	78.50
M 80	2.00	78.00
M 80	3.00	77.00
M 80	4.00	76.00
M 80	6.00	74.00
M 85	2.00	83.00
M 85	3.00	82.00
M 85	4.00	81.00
M 85	6.00	79.00
M 90	2.00	88.00
M 90	3.00	87.00
M 90	4.00	86.00
M 90	6.00	84.00
M 95	2.00	93.00
M 95	3.00	92.00
M 95	4.00	91.00
M 95	6.00	89.00
M 100	2.00	98.00
M 100	3.00	97.00
M 100	4.00	96.00
M 100	6.00	94.00

from <http://homepages.tesco.net/~A10bsa/isosgo.htm>

	Size	Pitch
M	1.7	0.35
M	2	0.45
M	2.3	0.40
M	2.6	0.45
M	3	0.60
M	4	0.75
M	5	0.90
M	5.5	0.90
M	8	0.75
M	9	1.00
M	10	0.75
M	10	1.00
M	12	1.00
M	12	1.50
M	14	1.50
M	16	1.00
M	20	1.00
M	20	2.00
M	24	1.00
M	24	1.50
M	25	1.50
M	32	1.50

metric screw threads ISO 724 (DIN 13 T1)

d=D	P	r	d2=D2	d3	D1	h3	H1	drill
1	0.25	0.036	0.838	0.693	0.729	0.153	0.135	0.75
1.1	0.25	0.036	0.938	0.793	0.829	0.153	0.135	0.85
1.2	0.25	0.036	1.038	0.893	0.929	0.153	0.135	0.95
1.4	0.3	0.043	1.205	1.032	1.075	0.184	0.162	1.10
1.6	0.35	0.051	1.373	1.171	1.221	0.215	0.189	1.25
1.8	0.35	0.051	1.573	1.371	1.421	0.215	0.189	1.45
2	0.4	0.058	1.740	1.509	1.567	0.245	0.217	1.60
2.2	0.45	0.065	1.908	1.648	1.713	0.276	0.244	1.75
2.5	0.45	0.065	2.208	1.948	2.013	0.276	0.244	2.05
3	0.5	0.072	2.675	2.387	2.459	0.307	0.271	2.50
3.5	0.6	0.087	3.110	2.764	2.850	0.368	0.325	2.90
4	0.7	0.101	3.545	3.141	3.242	0.429	0.379	3.30
4.5	0.75	0.108	4.013	3.580	3.688	0.460	0.406	3.80
5	0.8	0.115	4.480	4.019	4.134	0.491	0.433	4.20
6	1	0.144	5.350	4.773	4.917	0.613	0.541	5.00
7	1	0.144	6.350	5.773	5.917	0.613	0.541	6.00
8	1.25	0.180	7.188	6.466	6.647	0.767	0.677	6.80
9	1.25	0.180	8.188	7.466	7.647	0.767	0.677	7.80
10	1.5	0.217	9.026	8.160	8.376	0.920	0.812	8.50
11	1.5	0.217	10.026	9.160	9.376	0.920	0.812	9.50
12	1.75	0.253	10.863	9.853	10.106	1.074	0.947	10.20
14	2	0.289	12.701	11.546	11.835	1.227	1.083	12.00
16	2	0.289	14.701	13.546	13.835	1.227	1.083	14.00
18	2.5	0.361	16.376	14.933	15.394	1.534	1.353	15.50
20	2.5	0.361	18.376	16.933	17.294	1.534	1.353	17.50
22	2.5	0.361	20.376	18.933	19.294	1.534	1.353	19.50
24	3	0.433	22.051	20.319	20.752	1.840	1.624	21.00
27	3	0.433	25.051	23.319	23.752	1.840	1.624	24.00
30	3.5	0.505	27.727	25.706	26.211	2.147	1.894	26.50
33	3.5	0.505	30.727	28.706	29.211	2.147	1.894	29.50
36	4	0.577	33.402	31.093	31.670	2.454	2.165	32.00
39	4	0.577	36.402	34.093	34.670	2.454	2.165	35.00
42	4.5	0.650	39.077	36.479	37.129	2.760	2.436	37.50

metric fine threads

d=D	P	r	d2=D2
1	0.2	0.029	0.870
1.1	0.2	0.029	0.970
1.2	0.2	0.029	1.070
1.4	0.2	0.029	1.270
1.6	0.2	0.029	1.470
1.8	0.2	0.029	1.670
2	0.25	0.036	1.838
2.2	0.25	0.036	2.038
2.5	0.35	0.051	2.273
3	0.35	0.051	2.773
3.5	0.35	0.051	3.273
4	0.5	0.072	3.675
4.5	0.5	0.072	4.175
5	0.5	0.072	4.675
5.5	0.5	0.072	5.175
6	0.75	0.108	5.513
7	0.75	0.108	6.513
8	0.75	0.108	7.513
8	1	0.144	7.350
9	0.75	0.108	8.513
9	1	0.144	8.350
10	0.75	0.108	9.513
10	1	0.144	9.350
10	1.25	0.180	9.188
11	0.75	0.108	10.513
11	1	0.144	10.350
12	1	0.144	11.350
12	1.25	0.180	11.188
12	1.5	0.217	11.026
14	1	0.144	13.350
14	1.25	0.180	13.188
14	1.5	0.217	13.026
15	1	0.144	14.350

45	4.5	0.650	42.077	39.479	40.129	2.760	2.436	40.50
48	5	0.722	44.752	41.866	42.857	3.067	2.706	43.00
52	5	0.722	48.752	45.866	46.587	3.067	2.706	47.00
56	5.5	0.794	52.428	49.252	50.046	3.374	2.977	50.50
60	5.5	0.794	56.428	53.252	54.046	3.374	2.977	54.50
64	6	0.866	60.103	56.639	57.505	3.681	3.248	58.00
68	6	0.866	64.103	60.639	61.505	3.681	3.248	62.00

15	1.5	0.217	14.026
16	1	0.144	15.350
16	1.5	0.217	15.026
17	1	0.144	16.350
17	1.5	0.217	16.026
18	1	0.144	17.350
18	1.5	0.217	17.026
18	2	0.289	16.701
20	1	0.144	19.350
20	1.5	0.217	19.026
20	2	0.289	18.701
22	1	0.144	21.350
22	1.5	0.217	21.026
22	2	0.289	20.701
24	1	0.144	23.350
24	1.5	0.217	23.026
24	2	0.289	22.701
25	1	0.144	24.350
25	1.5	0.217	24.026
25	2	0.289	23.701
27	1	0.144	26.350
27	1.5	0.217	26.026
27	2	0.289	25.701
28	1	0.144	27.350
28	1.5	0.217	27.026
28	2	0.289	26.701

d3	D1	h3	H1	drill
0.755	0.783	0.123	0.108	0.80
0.855	0.883	0.123	0.108	0.90
0.955	0.983	0.123	0.108	1.00
1.155	1.183	0.123	0.108	1.20
1.355	1.383	0.123	0.108	1.40
1.555	1.583	0.123	0.108	1.60
1.693	1.729	0.153	0.135	1.75
1.893	1.929	0.153	0.135	1.95
2.071	2.121	0.215	0.189	2.10
2.571	2.621	0.215	0.189	2.60
3.071	3.121	0.215	0.189	3.10
3.387	3.459	0.307	0.271	3.50
3.887	3.959	0.307	0.271	4.00
4.387	4.459	0.307	0.271	4.50
4.887	4.959	0.307	0.271	5.00
5.080	5.188	0.460	0.406	5.20
6.080	6.188	0.460	0.406	6.20
7.080	7.188	0.460	0.406	7.20
6.773	6.917	0.613	0.541	7.00
8.080	8.188	0.460	0.406	8.20
7.773	7.917	0.613	0.541	8.00
9.080	9.188	0.460	0.406	9.20
8.773	8.917	0.613	0.541	9.00
8.466	8.647	0.767	0.677	8.80
10.080	10.188	0.460	0.406	10.20
9.773	9.917	0.613	0.541	10.00
10.773	10.917	0.613	0.541	11.00
10.466	10.647	0.767	0.677	10.80
10.160	10.376	0.920	0.812	10.50
12.773	12.917	0.613	0.541	13.00
12.466	12.647	0.767	0.677	12.80
12.160	12.376	0.920	0.812	12.50
13.773	13.917	0.613	0.541	14.00

13.160	13.376	0.920	0.812	13.50
14.773	14.917	0.613	0.541	15.00
14.160	14.376	0.920	0.812	14.50
15.773	15.917	0.613	0.541	16.00
15.160	15.376	0.920	0.812	15.50
16.773	16.917	0.613	0.541	17.00
16.160	16.376	0.920	0.812	16.50
15.546	15.835	1.227	1.083	16.00
18.773	18.917	0.613	0.541	19.00
18.160	18.376	0.920	0.812	18.50
17.546	17.835	1.227	1.083	18.00
20.773	20.917	0.613	0.541	21.00
20.160	20.376	0.920	0.812	20.50
19.546	19.835	1.227	1.083	20.00
22.773	22.917	0.613	0.541	23.00
22.160	22.376	0.920	0.812	22.50
21.546	21.835	1.227	1.083	22.00
23.773	23.917	0.613	0.541	24.00
23.160	23.376	0.920	0.812	23.50
22.546	22.835	1.227	1.083	23.00
25.773	25.917	0.613	0.541	26.00
25.160	25.376	0.920	0.812	25.50
24.546	24.835	1.227	1.083	25.00
26.773	26.917	0.613	0.541	27.00
26.160	26.376	0.920	0.812	26.50
25.546	25.835	1.227	1.083	26.00