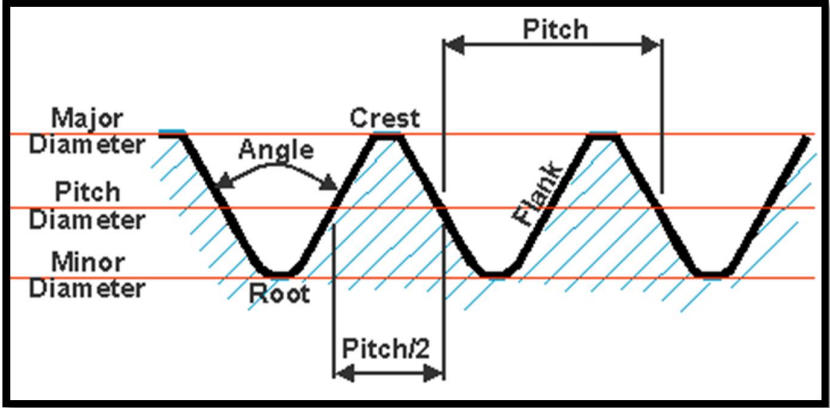


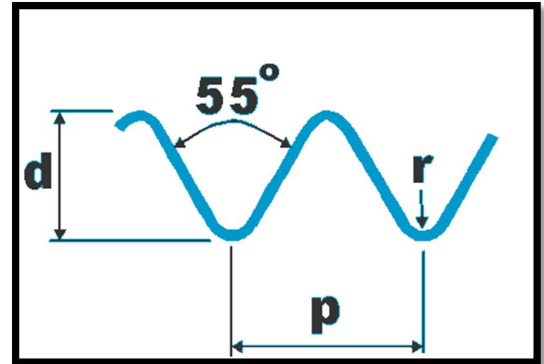
Basic Thread Form





BSW
British Standard Whitworth

P = pitch of the thread
d = depth of the thread
r = radius at the top and bottom of the thread
then:
 $d = 0.640237 p$
 $r = 0.137329 p$



Nominal Diameter BSW (Inch)	Threads per Inch (TPI)	Basic Depth of Thread (inch)	Basic Major Diameter (inch)	Basic Effective Diameter (inch)	Basic Minor Diameter (inch)	Tapping Drill Size (mm)	Clearance Drill Size (mm)
1/16	60	0.0107	0.0625	0.0518	0.0411	1.20	1.65
3/32	48	0.0133	0.0938	0.0805	0.0672	1.85	2.50
1/8	40	0.0160	0.1250	0.1090	0.0930	2.55	3.30
5/32	32	0.0200	0.1562	0.1362	0.1162	3.20	4.10
3/16	24	0.0267	0.1875	0.1608	0.1341	3.70	4.90
7/32	24	0.0267	0.2188	0.1921	0.1654	4.50	5.70
1/4	20	0.0320	0.2500	0.2180	0.1860	5.10	6.50
5/16	18	0.0356	0.3125	0.2769	0.2413	6.50	8.10
3/8	16	0.0400	0.3750	0.3350	0.2950	7.90	9.70
7/16	14	0.0457	0.4375	0.3918	0.3461	9.30	11.30
1/2	12	0.0534	0.5000	0.4466	0.3932	10.50	13.00
9/16	12	0.0534	0.5625	0.5091	0.4557	12.10	14.50
5/8	11	0.0582	0.6250	0.5668	0.5086	13.50	16.25
11/16	11	0.0582	0.6875	0.6293	0.5711	15.00	17.75
3/4	10	0.0640	0.7500	0.6860	0.6220	16.25	19.25
13/16	10	0.0640	0.8125	0.7485	0.6845	18.00	21.00
7/8	9	0.0711	0.8750	0.8039	0.7328	19.25	22.50
15/16	9	0.0711	0.9375	0.8664	0.7953	20.75	24.00
1	8	0.0800	1.0000	0.9200	0.8400	22.00	25.75
1.1/8	7	0.0915	1.1250	1.0335	0.9420	24.75	29.00
1.1/4	7	0.0915	1.2500	1.1585	1.0670	28.00	32.00
1.3/8	6	0.1067	1.3750	1.2683	1.1616	30.25	35.50
1.1/2	6	0.1067	1.5000	1.3933	1.2866	33.50	38.50
1.5/8	5	0.1281	1.6250	1.4690	1.3688	35.50	41.50
1.3/4	5	0.1281	1.7500	1.6219	1.4398	39.00	45.00
1.7/8	4.5	0.1423	1.8750	1.7327	1.5904	41.50	48.00
2	4.5	0.1423	2.0000	1.8577	1.7154	44.50	51.00
2.1/4	4	0.1601	2.2500	2.0899	1.9298	51.00	58.00
2.1/2	4	0.1601	2.5000	2.3399	2.1798	57.00	64.00



Metric Coarse

Nominal Diameter (mm)	Pitch (mm)	Basic Major Diameter (mm)	Basic Effective Diameter (mm)	Basic Minor Diameter of External Thread (mm)	Basic Minor Diameter of Internal Thread (mm)	Tapping Drill Size (mm)	Clearance Drill Size (mm)
M1	0.25	1	0.838	0.693	0.729	0.75	1.05
M1.1	0.25	1.1	0.938	0.793	0.829	0.85	1.15
M1.2	0.25	1.2	1.038	0.893	0.929	0.95	1.25
M1.4	0.3	1.4	1.205	1.032	1.075	1.10	1.45
M1.6	0.35	1.6	1.373	1.170	1.221	1.25	1.65
M1.8	0.35	1.8	1.573	1.370	1.421	1.45	1.85
M2	0.4	2	1.740	1.509	1.567	1.60	2.05
M2.2	0.45	2.2	1.908	1.648	1.713	1.75	2.25
M2.5	0.45	2.5	2.208	1.948	2.013	2.05	2.60
M3	0.5	3	2.675	2.387	2.459	2.50	3.10
M3.5	0.6	3.5	3.110	2.764	2.850	2.90	3.60
M4	0.7	4	3.545	3.141	3.242	3.30	4.10
M4.5	0.75	4.5	4.013	3.580	3.688	3.70	4.60
M5	0.8	5	4.480	4.019	4.134	4.20	5.10
M6	1	6	5.350	4.773	4.917	5.00	6.10
M7	1	7	6.350	5.773	5.917	6.00	7.20
M8	1.25	8	7.188	6.466	6.647	6.80	8.20
M9	1.25	9	8.188	7.466	7.647	7.80	9.20
M10	1.5	10	9.026	8.160	8.376	8.50	10.20
M11	1.5	11	10.026	9.160	9.376	9.50	11.20
M12	1.75	12	10.863	9.853	10.106	10.20	12.20
M14	2	14	12.701	11.546	11.835	12.00	14.25
M16	2	16	14.701	13.546	13.835	14.00	16.25
M18	2.5	18	16.376	14.933	15.294	15.50	18.25
M20	2.5	20	18.376	16.933	17.294	17.50	20.25
M22	2.5	22	20.376	18.933	19.294	19.50	22.25
M24	3	24	22.051	20.319	20.752	21.00	24.25
M27	3	27	25.051	23.319	23.752	24.00	27.25
M30	3.5	30	27.727	25.706	26.211	26.50	30.50
M33	3.5	33	30.727	28.706	29.211	29.50	33.50
M36	4	36	33.402	31.093	31.670	32.00	36.50
M39	4	39	36.402	34.093	34.670	35.00	39.50
M42	4.5	42	39.077	36.479	37.129	37.50	42.50
M45	4.5	45	42.077	39.479	40.129	40.50	45.50
M48	5	48	44.752	41.866	42.587	43.00	48.50
M52	5	52	48.752	45.833	46.587	47.00	53.00
M56	5.5	56	52.428	49.252	50.046	50.50	57.00



Metric Fine

Nominal Diameter (mm)	Pitch (mm)	Basic Major Diameter (mm)	Basic Effective Diameter (mm)	Basic Minor Diameter of External Thread (mm)	Basic Minor Diameter of Internal Thread (mm)	Tapping Drill Size (mm)	Clearance Drill Size (mm)
M3	0.35	3.00	2.773	2.570	2.621	2.65	3.10
M4	0.50	4.00	3.675	3.387	3.459	3.50	4.10
M5	0.50	5.00	4.675	4.387	4.459	4.50	5.10
M6	0.75	6.00	5.513	5.080	5.188	5.20	6.10
M7	0.75	7.00	6.513	6.080	6.188	6.20	7.20
M8	1.00	8.00	7.350	6.773	6.917	7.00	8.20
M10	1.25	10.00	9.188	8.466	8.647	8.80	10.20
M12	1.25	12.00	11.188	10.466	10.647	10.80	12.20
M14	1.50	14.00	13.026	12.160	12.376	12.50	14.25
M16	1.50	16.00	15.026	14.160	14.376	14.50	16.25
M18	1.50	18.00	17.026	16.160	16.376	16.50	18.25
M20	1.50	20.00	19.026	18.160	18.376	18.50	20.25
M22	1.50	22.00	21.026	20.160	20.376	20.50	22.25
M24	2.00	24.00	22.701	21.546	21.835	22.00	24.25
M27	2.00	27.00	25.701	24.506	24.835	25.00	27.25
M30	2.00	30.00	28.701	27.546	27.835	28.00	30.50

M2	0.45	2.00	1.708	1.448	1.513	1.55	2.10
M3	0.60	3.00	2.610	2.264	2.35	2.40	3.10
M4	0.75	4.00	3.513	3.308	3.188	3.20	4.10
M5	0.90	5.00	4.415	3.896	4.026	4.10	5.10
M8	0.75	8.00	7.513	7.080	7.188	7.20	8.20
M10	0.75	10.00	9.513	9.080	9.188	9.20	10.20
M10	1.00	10.00	9.350	8.773	8.917	9.00	10.20
M12	1.00	12.00	11.350	10.773	10.917	11.00	12.20
M12	1.50	12.00	11.026	10.160	10.376	10.50	12.20
M14	1.20	14.00	13.188	12.466	12.647	12.80	14.25
M16	1.00	16.00	15.350	14.773	14.917	15.00	16.25
M20	1.00	20.00	19.350	18.773	18.917	19.00	20.25
M20	2.00	20.00	18.701	17.546	17.835	18.00	20.25
M24	1.00	24.00	23.350	22.773	22.917	23.00	24.25
M24	1.50	24.00	23.026	22.160	22.376	22.50	24.25



UNF Thread Series
Unified National Fine

Nominal Diameter UNF (Inch)	Threads per Inch (TPI)	Basic Major Diameter (inch)	Basic Effective Diameter (inch)	Basic Minor Diameter of External Thread (inch)	Basic Minor Diameter of Internal Thread (inch)	Tapping Drill Size (mm)	Clearance Drill Size (mm)
No. 0	80	0.0600	0.0519	0.0447	0.0465	1.25	1.60
No. 1	72	0.0730	0.0640	0.0560	0.0580	1.55	1.95
No. 2	64	0.0860	0.0759	0.0668	0.0691	1.90	2.30
No. 3	56	0.0990	0.0874	0.0771	0.0797	2.15	2.65
No. 4	48	0.1120	0.0985	0.0864	0.0894	2.40	2.95
No. 5	44	0.1250	0.1102	0.0971	0.1004	2.70	3.30
No. 6	40	0.1380	0.1218	0.1073	0.1109	2.95	3.60
No. 8	36	0.1640	0.1460	0.1299	0.1339	3.50	4.30
No. 10	32	0.1900	0.1697	0.1517	0.1562	4.10	4.90
No. 12	28	0.2160	0.1928	0.1722	0.1773	4.70	5.60
1/4	28	0.2500	0.2268	0.2062	0.2113	5.50	6.50
5/16	24	0.3125	0.2854	0.2614	0.2674	6.90	8.10
3/8	24	0.3750	0.3479	0.3239	0.3299	8.50	9.70
7/16	20	0.4375	0.4050	0.3762	0.3834	9.90	11.30
1/2	20	0.5000	0.4675	0.4387	0.4459	11.50	13.00
9/16	18	0.5625	0.5264	0.4943	0.5024	12.90	14.50
5/8	18	0.6250	0.5889	0.5568	0.5649	14.50	16.25
3/4	16	0.7500	0.7094	0.6733	0.6823	17.50	19.25
7/8	14	0.8750	0.8286	0.7474	0.7977	20.40	22.50
1	12	1.0000	0.9459	0.8978	0.9098	23.25	25.75
1.1/8	12	1.1250	1.0709	1.0228	1.0348	26.50	29.00
1.1/4	12	1.2500	1.1959	1.1478	1.1598	29.50	32.00
1.3/8	12	1.3750	1.3209	1.2728	1.2848	32.75	35.50
1.1/2	12	1.5000	1.4459	1.3978	1.4098	36.00	38.80



**BSPT (Rc Series)
British Standard Pipe Taper**

Nominal Diameter BSW (Inch)	Threads per Inch (TPI)	Basic Depth of Thread (inch)	Basic Major Diameter (inch)	Basic Effective Diameter (inch)	Basic Minor Diameter (inch)	Gauge Length (F) (inch)	Length of Useful Thread (E) (inch)	Tapping Drill Size (without reamer) (mm)
1/16	28	0.0229	0.3040	0.2812	0.2583	0.1563	0.2545	6.4000
1/8	28	0.0229	0.3830	0.3601	0.3372	0.1563	0.2545	8.4000
1/4	19	0.0337	0.5180	0.4843	0.4506	0.2367	0.3814	11.2000
3/8	19	0.0337	0.6560	0.6223	0.5886	0.2500	0.3947	14.7500
1/2	14	0.0457	0.8250	0.7793	0.7336	0.3214	0.5178	18.2500
3/4	14	0.0457	1.0410	0.9953	0.9496	0.3750	0.5714	23.7500
1	11	0.0582	1.3090	1.2508	1.1926	0.4091	0.5691	30.0000
1.1/4	11	0.0582	1.6500	1.5918	1.5336	0.5000	0.7500	38.5000
1.1/2	11	0.0582	1.8820	1.8238	1.7656	0.5000	0.7500	44.5000
2	11	0.0582	2.3470	2.2880	2.2306	0.6250	0.9204	56.0000
2.1/2	11	0.0582	2.9600	2.9018	2.8436	0.6875	1.0511	71.0000



BSP
British Standard Pipe Thread

Nominal Diameter BSW (Inch)	Threads per Inch (TPI)	Basic Depth of Thread (inch)	Basic Major Diameter (inch)	Basic Effective Diameter (inch)	Basic Minor Diameter (inch)	Rp Series (Parallel) (BSP) (mm)	G Series (Fastening) (BSP) (mm)
1/16	28	0.0229	0.3040	0.2812	0.2583	6.60	6.80
1/8	28	0.0229	0.3830	0.3601	0.3372	8.60	8.80
1/4	19	0.0337	0.5180	0.4843	0.4506	11.50	11.80
3/8	19	0.0337	0.6560	0.6223	0.5886	15.00	15.25
1/2	14	0.0457	0.8250	0.7793	0.7336	18.50	19.00
5/8	14	0.0457	0.9020	0.8563	0.8106	20.50	21.00
3/4	14	0.0457	1.0410	0.9953	0.9496	24.00	24.50
7/8	14	0.0457	1.1890	1.1433	1.0976	27.75	28.25
1	11	0.0582	1.3090	1.2508	1.1926	30.25	30.75
1.1/4	11	0.0582	1.6500	1.5918	1.5336	39.00	39.50
1.1/2	11	0.0582	1.8820	1.8238	1.7656	45.00	45.50
1.3/4	11	0.0582	2.1160	2.0578	1.9996	50.50	51.00
2	11	0.0582	2.3470	2.2880	2.2306	56.50	57.00
2.1/4	11	0.0582	2.5870	2.5288	2.4706	62.70	62.70
2.1/2	11	0.0582	2.9600	2.9018	2.8436	72.10	72.10
2.3/4	11	0.0582	3.2100	3.1518	3.0936	78.50	78.50
3	11	0.0582	3.4600	3.4018	3.3436	84.80	84.80
3.1/2	11	0.0582	3.9500	3.8918	3.8336	97.30	97.30
4	11	0.0582	4.4500	4.3918	4.3360	110.00	110.00
5	11	0.0582	5.4500	5.3918	5.3360	135.40	135.40
6	11	0.0582	6.4500	6.3918	6.3360	160.80	160.80



BSF
British Standard Fine

Nominal Diameter BSW (Inch)	Threads per Inch (TPI)	Basic Depth of Thread (inch)	Basic Major Diameter (inch)	Basic Effective Diameter (inch)	Basic Minor Diameter (inch)	Tapping Drill Size (mm)	Clearance Drill Size (mm)
3/16	32	0.0200	0.1875	0.1675	0.1475	4.00	4.90
7/32	28	0.0229	0.2188	0.1959	0.1730	4.60	5.70
1/4	26	0.0246	0.2500	0.2254	0.2008	5.30	6.50
5/16	22	0.0291	0.3125	0.2834	0.2543	6.80	8.10
3/8	20	0.3200	0.3750	0.3430	0.3110	8.30	9.70
7/16	18	0.0356	0.4375	0.4019	0.3663	9.70	11.30
1/2	16	0.0400	0.5000	0.4600	0.4200	11.10	13.00
9/16	16	0.0400	0.5625	0.5225	0.4825	12.70	14.50
5/8	14	0.0457	0.6250	0.5793	0.5336	14.00	16.25
11/16	14	0.0457	0.6875	0.6418	0.5961	15.50	17.75
3/4	12	0.0534	0.7500	0.6966	0.6432	16.75	19.25
7/8	11	0.0582	0.8750	0.8168	0.7586	19.75	22.50
1	10	0.0640	1.0000	0.9360	0.8720	22.75	25.75
1.1/8	9	0.0711	1.1250	1.0524	0.9828	25.50	29.00
1.1/4	9	0.0711	1.2500	1.1789	1.1078	28.50	32.00
1.3/8	8	0.0800	1.3750	1.2950	1.2150	31.50	35.50
1.1/2	8	0.0800	1.5000	1.4200	1.3400	34.50	38.50
1.3/4	7	0.0915	1.7500	1.6585	1.5670	41.00	45.00
2	7	0.0915	2.0000	1.9085	1.8170	47.00	52.00
2.1/4	6	0.1067	2.2500	2.1433	2.0366	53.00	58.00
2.1/2	6	0.1067	2.5000	2.3933	2.2866	58.00	64.00