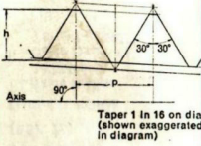


**42 AMERICAN NATIONAL TAPER PIPE (N.P.T.)**

**THREAD FORM**  
 $h =$  Basic Depth of Thread =  $8p$   
 $p =$  Pitch =  $\frac{1}{\text{t.p.i.}}$



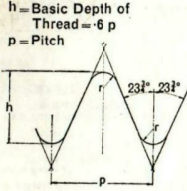
Taper 1 in 16 on dia (shown exaggerated in diagram)

nom. size	t.p.i.	basic depth of thread	outside diameter	effective diameter at small end of external thread	effective diameter at large end of internal thread	recommended tapping drill size†	
						with reamer	without reamer
1/16	27	0.0296	0.3125	0.2712	0.2812	6.00	6.30
1/8	27	0.0296	0.405	0.3635	0.3736	8.40	8.70
1/4	18	0.0444	0.540	0.4774	0.4916	10.70	11.10
3/8	18	0.0444	0.675	0.6120	0.6270	14.25	14.50
1/2	14	0.0571	0.840	0.7584	0.7784	17.50	18.00
3/4	14	0.0571	1.050	0.9677	0.9889	22.75	23.25
1	11, 1/2	0.0696	1.315	1.2136	1.2386	28.50	29.00
1 1/4	11, 1/2	0.0696	1.660	1.5571	1.5834	37.50	38.00
1 1/2	11, 1/2	0.0696	1.900	1.7961	1.8223	43.50	44.00
2	11, 1/2	0.0696	2.375	2.2690	2.2963	55.00	56.00
2 1/2	8	0.1000	2.875	2.7195	2.7622	66.00	67.00

†The use of a Taper Reamer is strongly recommended

**BRITISH ASSOCIATION (B.A.)**

**THREAD FORM**  
 $r =$  Basic Radius =  $1808346p$   
 $h =$  Basic Depth of Thread =  $6p$   
 $p =$  Pitch



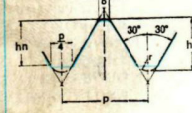
NON-PREFERRED THREAD SERIES

B.A. no.	pitch	basic depth of thread	basic major diameter	basic effective diameter	basic minor diameter	recommended tapping drill size	clearance drill size
0	0.0394	0.0236	0.2362	0.2126	0.1890	5.10	6.10
0	0.0354	0.0213	0.2087	0.1874	0.1661	4.50	5.40
2	0.0319	0.0191	0.1850	0.1659	0.1468	4.00	4.80
3	0.0287	0.0172	0.1614	0.1441	0.1268	3.40	4.20
4	0.0260	0.0156	0.1417	0.1262	0.1106	3.00	3.70
5	0.0232	0.0139	0.1260	0.1120	0.0980	2.65	3.30
6	0.0209	0.0125	0.1102	0.0976	0.0850	2.30	3.00
7	0.0189	0.0113	0.0984	0.0870	0.0756	2.05	2.60
8	0.0169	0.0102	0.0866	0.0764	0.0661	1.80	2.25
9	0.0154	0.0092	0.0748	0.0656	0.0563	1.55	1.95
10	0.0138	0.0083	0.0669	0.0587	0.0504	1.20	1.60
11	0.0122	0.0073	0.0591	0.0518	0.0445	1.40	1.75
12	0.0110	0.0066	0.0512	0.0445	0.0378	1.05	1.40
13	0.0098	0.0059	0.0472	0.0413	0.0354	0.98	1.30
14	0.0091	0.0054	0.0394	0.0339	0.0282	0.80	1.10
15	0.0083	0.0050	0.0354	0.0305	0.0256	0.70	0.96
16	0.0075	0.0045	0.0311	0.0266	0.0220	0.60	0.88

43

**44 UNIFIED COARSE (U.N.C.)**

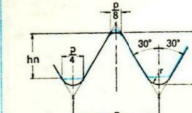
**THREAD FORM**  
 $r =$  Basic Radius =  $1443p$   
 $h =$  Basic Height of Internal Thread & Depth of Thread Engagement =  $5412p$   
 $h_s =$  Basic Height of External Thread =  $61344p$   
 $p =$  Pitch =  $\frac{1}{\text{t.p.i.}}$



nom. size	t.p.i.	basic major diameter	basic effective diameter	basic minor dia. of ext. threads	basic minor dia. of int. threads	recommended tapping drill size	clearance drill size
No.1	64	0.0730	0.0629	0.0538	0.0561	1.55	1.95
No.2	56	0.0860	0.0744	0.0641	0.0667	1.85	2.30
No.3	48	0.0990	0.0855	0.0734	0.0764	2.10	2.65
No.4	40	0.1120	0.0958	0.0813	0.0849	2.35	2.95
No.5	40	0.1250	0.1088	0.0943	0.0979	2.65	3.30
No.6	32	0.1380	0.1177	0.0997	0.1042	2.85	3.60
No.8	32	0.1640	0.1437	0.1257	0.1302	3.30	4.10
No.10	24	0.1900	0.1629	0.1389	0.1449	3.90	4.90
No.12	24	0.2160	0.1889	0.1649	0.1709	4.50	5.60
1/4	20	0.2500	0.2175	0.1887	0.1959	5.10	6.50
5/16	18	0.3125	0.2764	0.2443	0.2524	6.60	8.10
7/16	14	0.4375	0.3911	0.3499	0.3602	9.40	11.30
1/2	13	0.5000	0.4500	0.4056	0.4167	10.80	13.00
9/16	12	0.5625	0.5084	0.4603	0.4723	12.20	14.50
5/8	11	0.6250	0.5660	0.5135	0.5266	13.50	16.25
3/4	10	0.7500	0.6850	0.6273	0.6417	16.50	19.25
7/8	9	0.8750	0.8028	0.7387	0.7547	19.50	22.50
1	8	1.0000	0.9188	0.8466	0.8647	22.25	25.75
1 1/8	7	1.1250	1.0322	0.9497	0.9704	25.00	29.00
1 1/4	7	1.2500	1.1572	1.0747	1.0954	28.00	32.00
1 3/8	6	1.3750	1.2667	1.1705	1.1946	30.75	35.50
1 1/2	6	1.5000	1.3917	1.2955	1.3196	34.00	38.50
1 3/4	5	1.7500	1.6201	1.5046	1.5335	39.50	45.00
2	4, 1/2	2.0000	1.8577	1.7274	1.7594	45.00	51.00

**UNIFIED FINE (U.N.F.)**

**THREAD FORM**  
 $r =$  Basic Radius =  $1443p$   
 $h =$  Basic Height of Internal Thread & Depth of Thread Engagement =  $5412p$   
 $h_s =$  Basic Height of External Thread =  $61344p$   
 $p =$  Pitch =  $\frac{1}{\text{t.p.i.}}$

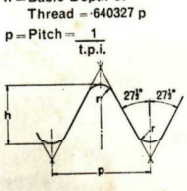


nom. size	t.p.i.	basic major diameter	basic effective diameter	basic minor dia. of external threads	basic minor dia. of internal threads	recommended tapping drill size	clearance drill size
No.0	80	0.0600	0.0519	0.0447	0.0465	1.25	1.60
No.1	72	0.0730	0.0640	0.0560	0.0580	1.55	1.95
No.2	64	0.0860	0.0759	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	35	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
1/2	20	0.4375	0.4050	0.3762	0.3834	9.90	11.30
9/16	18	0.5000	0.4675	0.4387	0.4459	11.50	13.00
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	0.7874	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	38.50

45

**40 BRITISH STANDARD PIPE (BSP.)**

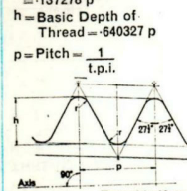
**THREAD FORM**  
 $r =$  Basic Radius =  $137329p$   
 $h =$  Basic Depth of Thread =  $640327p$   
 $p =$  Pitch =  $\frac{1}{\text{t.p.i.}}$



nom. size	t.p.i.	basic depth of thread	basic major diameter	basic effective diameter	basic minor diameter	recommended tapping drill size	
						BSP. Pl	BSP. F
1/8	28	0.0229	0.383	0.3601	0.3372	8.60	8.80
1/4	19	0.0337	0.518	0.4843	0.4506	11.50	11.90
3/8	19	0.0337	0.656	0.6223	0.5886	15.00	15.25
1/2	14	0.0457	0.825	0.7793	0.7336	18.50	19.00
5/8	14	0.0457	0.902	0.8563	0.8106	21.00	21.00
3/4	14	0.0457	1.041	0.9953	0.9496	24.00	24.50
7/8	14	0.0457	1.189	1.1433	1.0976	28.00	28.25
1	11	0.0582	1.309	1.2508	1.1926	30.25	30.75
1 1/4	11	0.0582	1.650	1.5918	1.5336	39.00	39.50
1 1/2	11	0.0582	1.892	1.8238	1.7656	45.00	45.00
1 3/4	11	0.0582	2.166	2.0578	1.9996	51.00	51.00
2	11	0.0582	2.347	2.2888	2.2306	56.50	57.00
2 1/4	11	0.0582	2.587	2.5288	2.4706	NO RECOMMENDED	NO RECOMMENDED
2 1/2	11	0.0582	2.960	2.9018	2.8436	NO RECOMMENDED	NO RECOMMENDED
2 3/4	11	0.0582	3.210	3.1518	3.0936	NO RECOMMENDED	NO RECOMMENDED
3	11	0.0582	3.460	3.4018	3.3436	NO RECOMMENDED	NO RECOMMENDED
3 1/4	11	0.0582	3.700	3.6418	3.5836	NO RECOMMENDED	NO RECOMMENDED
3 1/2	11	0.0582	3.950	3.8918	3.8336	NO RECOMMENDED	NO RECOMMENDED
3 3/4	11	0.0582	4.200	4.1418	4.0836	NO RECOMMENDED	NO RECOMMENDED
4	11	0.0582	4.450	4.3918	4.3336	NO RECOMMENDED	NO RECOMMENDED

**BRITISH STANDARD TAPER PIPE (BSP. Tr.)**

**THREAD FORM**  
 $r =$  Basic Radius =  $137278p$   
 $h =$  Basic Depth of Thread =  $640327p$   
 $p =$  Pitch =  $\frac{1}{\text{t.p.i.}}$



Taper 1 in 16 on dia. (shown exaggerated in diagram)

nom. size	t.p.i.	basic depth of thread	basic diameters at gauge plane*			recommended tapping drill size†
			major diameter	effective diameter	minor diameter	
1/8	28	0.0229	0.383	0.3601	0.3372	8.00
1/4	19	0.0337	0.518	0.4843	0.4506	10.80
3/8	19	0.0337	0.656	0.6223	0.5886	14.25
1/2	14	0.0457	0.825	0.7793	0.7336	17.75
5/8	14	0.0457	0.902	0.8563	0.8106	22.00
3/4	14	0.0457	1.041	0.9953	0.9496	26.00
7/8	14	0.0457	1.189	1.1433	1.0976	29.00
1	11	0.0582	1.309	1.2508	1.1926	31.00
1 1/4	11	0.0582	1.650	1.5918	1.5336	37.50
1 1/2	11	0.0582	1.892	1.8238	1.7656	43.50
1 3/4	11	0.0582	2.166	2.0578	1.9996	50.00
2	11	0.0582	2.347	2.2888	2.2306	56.00
2 1/2	11	0.0582	2.960	2.9018	2.8436	70.00

\* 'Gauge plane' - The plane, perpendicular to the axis, at which the major cone has the gauge diameter.

NOTE: The gauge plane is theoretically located at the face of the internal thread or at a distance equal to the basic gauge length from the small end of the external thread.

†The use of a Taper Reamer is strongly recommended.

41

**38 BRITISH STANDARD WHITWORTH (B.S.W.)**

**THREAD FORM**  
 $r =$  Basic Radius =  $137329p$   
 $h =$  Basic Depth of Thread =  $640327p$   
 $p =$  Pitch =  $\frac{1}{\text{t.p.i.$