

Pitch Diameters – Thread Plug Gages



Table I
Classes 2B, 3B

Nominal Size	Go Basic All Classes All Series	UNIFIED PITCH DIAMETERS					Nominal Size	Go Basic All Classes All Series	UNIFIED PITCH DIAMETERS				
		No Go		X Tol. Go = + No Go = -	X Lead Tol.	X ± Half Angle Tol.			No Go		X Tol. Go = + No Go = -	X Lead Tol.	X ± Half Angle Tol.
		CL. 2B	CL. 3B						CL. 2B	CL. 3B			
#0-80 UNF	.0519	.0542	.0536	.0002	.0002	0°30'	9/16-24 UNEF	.5354	.5405	.5392	.0003	.0003	0°15'
#1-64 UNC	.0629	.0655	.0648	.0002	.0002	0°30'	5/8-11 UNC	.5660	.5732	.5714	.0003	.0003	0°10'
#1-72 UNF	.0640	.0665	.0659	.0002	.0002	0°30'	5/8-18 UNF	.5889	.5949	.5934	.0003	.0003	0°10'
#2-56 UNC	.0744	.0772	.0765	.0002	.0002	0°30'	5/8-24 UNEF	.5979	.6031	.6018	.0003	.0003	0°15'
#2-64 UNF	.0759	.0786	.0779	.0002	.0002	0°30'	11/16-24 UNEF	.6604	.6656	.6643	.0003	.0003	0°15'
#3-48 UNC	.0855	.0885	.0877	.0002	.0002	0°30'	3/4-10 UNC	.6850	.6927	.6907	.0003	.0003	0°10'
#3-56 UNF	.0874	.0902	.0895	.0002	.0002	0°30'	3/4-16 UNF	.7094	.7159	.7143	.0003	.0003	0°10'
#4-40 UNC	.0958	.0991	.0982	.0002	.0002	0°20'	3/4-20 UNEF	.7175	.7232	.7218	.0003	.0003	0°15'
#4-48 UNF	.0985	.1016	.1008	.0002	.0002	0°30'	13/16-20 UNEF	.7800	.7857	.7843	.0003	.0003	0°15'
#5-40 UNC	.1088	.1121	.1113	.0002	.0002	0°20'	7/8-9 UNC	.8028	.8110	.8089	.0003	.0003	0°10'
#5-44 UNF	.1102	.1134	.1126	.0002	.0002	0°20'	7/8-14 UNF	.8286	.8356	.8339	.0003	.0003	0°10'
#6-32 UNC	.1177	.1214	.1204	.0003	.0003	0°15'	7/8-20 UNEF	.8425	.8482	.8468	.0003	.0003	0°15'
#6-40 UNF	.1218	.1252	.1243	.0002	.0002	0°20'	15/16-20 UNEF	.9050	.9109	.9094	.0003	.0003	0°15'
#8-32 UNC	.1437	.1475	.1465	.0003	.0003	0°15'	1"-8 UNC	.9188	.9276	.9254	.0004	.0004	0°05'
#8-36 UNF	.1460	.1496	.1487	.0002	.0002	0°20'	1"-12 UNF	.9459	.9535	.9516	.0003	.0003	0°10'
#10-24 UNC	.1629	.1672	.1661	.0003	.0003	0°15'	1"-14 UNS	.9536	.9609	.9590	.0003	.0003	0°10'
#10-32 UNF	.1697	.1736	.1726	.0003	.0003	0°15'	1"-20 UNEF	.9675	.9734	.9719	.0003	.0003	0°15'
#12-24 UNC	.1889	.1933	.1922	.0003	.0003	0°15'	1 1/16-12 UN	1.0084	1.0158	1.0139	.0003	.0003	0°10'
#12-28 UNF	.1928	.1970	.1959	.0003	.0003	0°15'	1 1/16-18 UNEF	1.0264	1.0326	1.0310	.0003	.0003	0°10'
#12-32 UNEF	.1957	.1998	.1988	.0003	.0003	0°15'	1 1/8-7 UNC	1.0322	1.0416	1.0393	.0004	.0004	0°05'
1/4-20 UNC	.2175	.2224	.2211	.0003	.0003	0°15'	1 1/8-12 UNF	1.0709	1.0787	1.0768	.0003	.0003	0°10'
1/4-28 UNF	.2268	.2311	.2300	.0003	.0003	0°15'	1 1/8-18 UNEF	1.0889	1.0951	1.0935	.0003	.0003	0°10'
1/4-32 UNEF	.2297	.2339	.2328	.0003	.0003	0°15'	1 3/16-12 UN	1.1334	1.1409	1.1390	.0003	.0003	0°10'
5/16-18 UNC	.2764	.2817	.2803	.0003	.0003	0°10'	1 3/16-18 UNEF	1.1514	1.1577	1.1561	.0003	.0003	0°10'
5/16-24 UNF	.2854	.2902	.2890	.0003	.0003	0°15'	1 1/4-7 UNC	1.1572	1.1668	1.1644	.0004	.0004	0°05'
5/16-32 UNEF	.2922	.2964	.2953	.0003	.0003	0°15'	1 1/4-12 UNF	1.1959	1.2039	1.2019	.0003	.0003	0°10'
3/8-16 UNC	.3344	.3401	.3387	.0003	.0003	0°10'	1 1/4-18 UNEF	1.2139	1.2202	1.2186	.0003	.0003	0°10'
3/8-24 UNF	.3479	.3528	.3516	.0003	.0003	0°15'	1 5/16-12 UN	1.2584	1.2659	1.2640	.0003	.0003	0°10'
3/8-32 UNEF	.3547	.3591	.3580	.0003	.0003	0°15'	1 5/16-18 UNEF	1.2764	1.2827	1.2811	.0003	.0003	0°10'
7/16-14 UNC	.3911	.3972	.3957	.0003	.0003	0°10'	1 3/8-6 UNC	1.2667	1.2771	1.2745	.0004	.0004	0°05'
7/16-20 UNF	.4050	.4104	.4091	.0003	.0003	0°15'	1 3/8-12 UNF	1.3209	1.3291	1.3270	.0003	.0003	0°10'
7/16-28 UNEF	.4143	.4189	.4178	.0003	.0003	0°15'	1 3/8-18 UNEF	1.3389	1.3452	1.3436	.0003	.0003	0°10'
1/2-13 UNC	.4500	.4565	.4548	.0003	.0003	0°10'	1 7/16-12 UN	1.3834	1.3910	1.3891	.0003	.0003	0°10'
1/2-20 UNF	.4675	.4731	.4717	.0003	.0003	0°15'	1 7/16-18 UNEF	1.4014	1.4079	1.4062	.0003	.0003	0°10'
1/2-28 UNEF	.4768	.4816	.4804	.0003	.0003	0°15'	1 1/2-6 UNC	1.3917	1.4022	1.3996	.0004	.0004	0°05'
9/16-12 UNC	.5084	.5152	.5135	.0003	.0003	0°10'	1 1/2-12 UNF	1.4459	1.4542	1.4522	.0003	.0003	0°10'
9/16-18 UNF	.5264	.5323	.5308	.0003	.0003	0°10'	1 1/2-18 UNEF	1.4639	1.4704	1.4687	.0003	.0003	0°10'

Pitch Diameters – Thread Ring & Setting Plug Gages



Table II
Classes 2A, 3A

Nominal Size	UNIFIED PITCH DIAMETERS					Nominal Size	UNIFIED PITCH DIAMETERS				
	Class 2A		Class 3A		X Tol. Go = - No Go = +		Class 2A		Class 3A		X Tol. Go = - No Go = +
	Go	No Go	Go	No Go			Go	No Go	Go	No Go	
#0-80 UNF	.0514	.0496	.0519	.0506	.0002	9/16-24 UNEF	.5342	.5303	.5354	.5325	.0003
#1-64 UNC	.0623	.0603	.0629	.0614	.0002	5/8-11 UNC	.5644	.5589	.5660	.5619	.0003
#1-72 UNF	.0634	.0615	.0640	.0626	.0002	5/8-18 UNF	.5875	.5828	.5889	.5854	.0003
#2-56 UNC	.0738	.0717	.0744	.0728	.0002	5/8-24 UNEF	.5967	.5927	.5979	.5949	.0003
#2-64 UNF	.0753	.0733	.0759	.0744	.0002	11/16-24 UNEF	.6592	.6552	.6604	.6574	.0003
#3-48 UNC	.0848	.0825	.0855	.0838	.0002	3/4-10 UNC	.6832	.6773	.6850	.6806	.0003
#3-56 UNF	.0867	.0845	.0874	.0858	.0002	3/4-16 UNF	.7079	.7029	.7094	.7056	.0003
#4-40 UNC	.0950	.0925	.0958	.0939	.0002	3/4-20 UNEF	.7162	.7118	.7175	.7142	.0003
#4-48 UNF	.0978	.0954	.0985	.0967	.0002	13/16-20 UNEF	.7787	.7743	.7800	.7767	.0003
#5-40 UNC	.1080	.1054	.1088	.1069	.0002	7/8-9 UNC	.8009	.7946	.8028	.7981	.0003
#5-44 UNF	.1095	.1070	.1102	.1083	.0002	7/8-14 UNF	.8270	.8216	.8286	.8245	.0003
#6-32 UNC	.1169	.1141	.1177	.1156	.0003	7/8-20 UNEF	.8412	.8368	.8425	.8392	.0003
#6-40 UNF	.1210	.1184	.1218	.1198	.0002	15/16-20 UNEF	.9036	.8991	.9050	.9016	.0003
#8-32 UNC	.1428	.1399	.1437	.1415	.0003	1"-8 UNC	.9168	.9100	.9188	.9137	.0004
#8-36 UNF	.1452	.1424	.1460	.1439	.0002	1"-12 UNF	.9441	.9382	.9459	.9415	.0003
#10-24 UNC	.1619	.1586	.1629	.1604	.0003	1"-14 UNS	.9519	.9463	.9536	.9494	.0003
#10-32 UNF	.1688	.1658	.1697	.1674	.0003	1"-20 UNEF	.9661	.9616	.9675	.9641	.0003
#12-24 UNC	.1879	.1845	.1889	.1863	.0003	1 1/16-12 UN	1.0067	1.0010	1.0084	1.0042	.0003
#12-28 UNF	.1918	.1886	.1928	.1904	.0003	1 1/16-18 UNEF	1.0250	1.0203	1.0264	1.0228	.0003
#12-32 UNEF	.1948	.1917	.1957	.1933	.0003	1 1/8-7 UNC	1.0300	1.0228	1.0322	1.0268	.0004
1/4-20 UNC	.2164	.2127	.2175	.2147	.0003	1 1/8-12 UNF	1.0691	1.0631	1.0709	1.0664	.0003
1/4-28 UNF	.2258	.2225	.2268	.2243	.0003	1 1/8-18 UNEF	1.0875	1.0828	1.0889	1.0853	.0003
1/4-32 UNEF	.2287	.2255	.2297	.2273	.0003	1 3/16-12 UN	1.1317	1.1259	1.1334	1.1291	.0003
5/16-18 UNC	.2752	.2712	.2764	.2734	.0003	1 3/16-18 UNEF	1.1499	1.1450	1.1514	1.1478	.0003
5/16-24 UNF	.2843	.2806	.2854	.2827	.0003	1 1/4-7 UNC	1.1550	1.1476	1.1572	1.1517	.0004
5/16-32 UNEF	.2912	.2880	.2922	.2898	.0003	1 1/4-12 UNF	1.1941	1.1879	1.1959	1.1913	.0003
3/8-16 UNC	.3331	.3287	.3344	.3311	.0003	1 1/4-18 UNEF	1.2124	1.2075	1.2139	1.2103	.0003
3/8-24 UNF	.3468	.3430	.3479	.3450	.0003	1 5/16-12 UN	1.2567	1.2509	1.2584	1.2541	.0003
3/8-32 UNEF	.3537	.3503	.3547	.3522	.0003	1 5/16-18 UNEF	1.2749	1.2700	1.2764	1.2728	.0003
7/16-14 UNC	.3897	.3850	.3911	.3876	.0003	1 3/8-6 UNC	1.2643	1.2563	1.2667	1.2607	.0004
7/16-20 UNF	.4037	.3995	.4050	.4019	.0003	1 3/8-12 UNF	1.3190	1.3127	1.3209	1.3162	.0003
7/16-28 UNEF	.4132	.4096	.4143	.4116	.0003	1 3/8-18 UNEF	1.3374	1.3325	1.3389	1.3353	.0003
1/2-13 UNC	.4485	.4435	.4500	.4463	.0003	1 7/16-12 UN	1.3816	1.3757	1.3834	1.3790	.0003
1/2-20 UNF	.4662	.4619	.4675	.4643	.0003	1 7/16-18 UNEF	1.3999	1.3949	1.4014	1.3977	.0003
1/2-28 UNEF	.4757	.4720	.4768	.4740	.0003	1 1/2-6 UNC	1.3893	1.3812	1.3917	1.3856	.0004
9/16-12 UNC	.5068	.5016	.5084	.5045	.0003	1 1/2-12 UNF	1.4440	1.4376	1.4459	1.4411	.0003
9/16-18 UNF	.5250	.5205	.5264	.5230	.0003	1 1/2-18 UNEF	1.4624	1.4574	1.4639	1.4602	.0003

Pitch Diameters – (STI) Screw Thread Insert Plug Gages



Table III
Classes 2B, 3B

Nominal Size	PITCH DIAMETERS			X Tol. Go = + No Go = -
	GO	2B NO GO	3B NO GO	
#4-40 UNC	.1283	.1308	.1299	.0002
#4-48 UNF	.1256	.1279	.1271	.0002
#5-40 UNC	.1413	.1438	.1430	.0002
#6-32 UNC	.1583	.1611	.1601	.0003
#6-40 UNF	.1543	.1569	.1560	.0002
#8-32 UNC	.1843	.1872	.1862	.0003
#8-36 UNF	.1821	.1849	.1840	.0002
#10-24 UNC	.2170	.2203	.2192	.0003
#10-32 UNF	.2103	.2133	.2123	.0003
#12-24 UNC	.2430	.2464	.2453	.0003
1/4-20 UNC	.2825	.2864	.2851	.0003
1/4-28 UNF	.2732	.2765	.2754	.0003
5/16-18 UNC	.3486	.3529	.3515	.0003
5/16-24 UNF	.3395	.3433	.3421	.0003
3/8-16 UNC	.4156	.4203	.4189	.0003
3/8-24 UNF	.4020	.4059	.4047	.0003
7/16-14 UNC	.4839	.4890	.4875	.0003
7/16-20 UNF	.4700	.4744	.4731	.0003
1/2-13 UNC	.5499	.5554	.5537	.0003
1/2-20 UNF	.5325	.5371	.5357	.0003
9/16-12 UNC	.6167	.6225	.6208	.0003
9/16-18 UNF	.5986	.6035	.6020	.0003
5/8-11 UNC	.6841	.6903	.6885	.0003
5/8-18 UNF	.6611	.6661	.6646	.0003
3/4-10 UNC	.8149	.8216	.8196	.0003
3/4-16 UNF	.7906	.7961	.7945	.0003

Pitch Diameters – Metric Thread Gages



**Table IV (Internal)
Thread Plug Gages**

SIZE mm	PITCH mm	PITCH DIAMETERS		
		Go (Basic)	No Go 4H	No Go 6H
M1.6	0.35	1.373	1.426	1.458
M1.8	0.35	1.573	1.626	1.658
M2	0.4	1.740	1.796	1.830
M2.2	0.45	1.908	1.968	2.003
M2.5	0.45	2.208	2.268	2.303
M3	0.5	2.675	2.738	2.775
M3.5	0.6	3.110	3.181	3.222
M4	0.7	3.545	3.620	3.663
M4.5	0.75	4.013	4.088	4.131
M5	0.8	4.480	4.560	4.605
M6	1	5.350	5.445	5.500
M7	1	6.350	6.445	6.500
M8	1.25	7.188	7.288	7.348
M8	1	7.350	7.445	7.500
M10	1.5	9.026	9.138	9.206
M10	1.25	9.188	9.288	9.348
M12	1.75	10.863	10.988	11.063
M12	1.25	11.188	11.300	11.368
M14	2	12.701	12.833	12.913
M14	1.5	13.026	13.144	13.216
M16	2	14.701	14.833	14.913
M16	1.5	15.026	15.144	15.216
M18	2.5	16.376	16.516	16.600
M18	1.5	17.026	17.144	17.216
M20	2.5	18.376	18.516	18.600
M20	1.5	19.026	19.144	19.216
M22	2.5	20.376	20.516	20.600
M22	1.5	21.026	21.144	21.216
M24	3	22.051	22.221	22.316
M24	2	22.701	22.841	22.925
M27	3	25.051	25.221	25.316
M27	2	25.701	25.841	25.925
M30	3.5	27.727	27.907	28.007
M30	2	28.701	28.841	28.925
M33	3.5	30.727	30.907	31.007
M33	2	31.701	31.841	31.925
M36	4	33.402	33.592	33.702
M36	3	34.051	34.221	34.316
M39	4	36.402	36.592	36.702
M39	3	37.051	37.221	37.316

**Table V (External)
Thread Ring & Setting
Plug Gages**

SIZE mm	PITCH mm	PITCH DIAMETERS		
		Go 4g & 6g	No Go 4g	No Go 6g
M1.6	0.35	1.354	1.314	1.291
M1.8	0.35	1.554	1.514	1.491
M2	0.4	1.721	1.679	1.654
M2.2	0.45	1.888	1.843	1.817
M2.5	0.45	2.188	2.143	2.117
M3	0.5	2.655	2.607	2.580
M3.5	0.6	3.089	3.036	3.004
M4	0.7	3.523	3.467	3.433
M4.5	0.75	3.991	3.935	3.901
M5	0.8	4.456	4.396	4.361
M6	1	5.324	5.253	5.212
M7	1	6.324	6.253	6.212
M8	1.25	7.160	7.085	7.042
M8	1	7.324	7.253	7.212
M10	1.5	8.994	8.909	8.862
M10	1.25	9.160	9.085	9.042
M12	1.75	10.829	10.734	10.679
M12	1.25	11.160	11.075	11.028
M14	2	12.663	12.563	12.503
M14	1.5	12.994	12.904	12.854
M16	2	14.663	14.563	14.503
M16	1.5	14.994	14.904	14.854
M18	2.5	16.334	16.228	16.164
M18	1.5	16.994	16.904	16.854
M20	2.5	18.334	18.228	18.164
M20	1.5	18.994	18.904	18.854
M22	2.5	20.334	20.228	20.164
M22	1.5	20.994	20.904	20.854
M24	3	22.003	21.878	21.803
M24	2	22.663	22.557	22.493
M27	3	25.003	24.878	24.803
M27	2	25.663	25.557	25.493
M30	3.5	27.674	27.542	27.462
M30	2	28.663	28.557	28.493
M33	3.5	30.674	30.542	30.462
M33	2	31.663	31.557	31.493
M36	4	33.342	33.202	33.118
M36	3	34.003	33.878	33.803
M39	4	36.342	36.202	36.118
M39	3	37.003	36.878	36.803

Note: To obtain inch values for pitch diameters multiply by .03937.

Pitch Diameters – Straight Pipe Gages



Table VI

PIPE SIZE	MEMBER	PITCH DIAMETERS FOR STRAIGHT PIPE GAGES						
		THREAD PLUG GAGES					THREAD RING GAGES	
		NPSF	NPSI	NPSL	NPSC	NPSM-2B	NPSM-2A	NPSL
1/16-27	Go	.2768	.2791					
	No Go	.2803	.2826					
1/8-27	Go	.3692	.3715	.3863	.3701	.3736	.3725	.3840
	No Go	.3727	.3750	.3898	.3771	.3783	.3689	.3805
1/4-18	Go	.4852	.4886	.5073	.4864	.4916	.4903	.5038
	No Go	.4904	.4938	.5125	.4968	.4974	.4859	.4986
3/8-18	Go	.6205	.6240	.6444	.6218	.6270	.6256	.6409
	No Go	.6257	.6292	.6496	.6322	.6329	.6211	.6357
1/2-14	Go	.7700	.7745	.8008	.7717	.7784	.7769	.7963
	No Go	.7767	.7812	.8075	.7851	.7851	.7718	.7896
3/4-14	Go	.9805	.9850	1.0112	.9822	.9889	.9873	1.0067
	No Go	.9872	.9917	1.0179	.9956	.9958	.9820	1.0000
1"-11 1/2	Go	1.2284	1.2338	1.2658	1.2305	1.2386	1.2369	1.2604
	No Go	1.2365	1.2420	1.2739	1.2468	1.2462	1.2311	1.2523
1 1/4-11 1/2	Go			1.6106	1.5752	1.5834	1.5816	1.6051
	No Go			1.6187	1.5915	1.5912	1.5756	1.5970
1 1/2-11 1/2	Go			1.8495	1.8142	1.8223	1.8205	1.8441
	No Go			1.8576	1.8305	1.8302	1.8144	1.8360
2"-11 1/2	Go			2.3234	2.2881	2.2963	2.2944	2.3180
	No Go			2.3315	2.3044	2.3044	2.2882	2.3099

NPSM–National Pipe Straight Mechanical–These external and internal threads are intended for free-fitting mechanical joints where there are no internal pressures. The product is gaged with straight Go and No Go plug and ring gages.

NPSL–National Pipe Straight Locknut–These external and internal threads are intended to produce a thread having the largest diameter that is possible to cut on standard pipe. The product is gaged with straight Go and No Go plug and ring gages.

NH–National Fire-Hose Coupling Threads–These external and internal threads are intended for fire hose, garden hose, chemical engine and booster hose. The product is gaged with straight Go and No Go plug and ring gages.

NPSH–National Hose Coupling Threads–These external and internal threads are intended for steam, air, water, and all other hose connections to be made up with standard pipe threads. The product is gaged with straight Go and No Go plug and ring gages.

NPSC–National Pipe Straight Coupling–These internal threads are intended to form low pressure tight joints when assembled with NPT external threads by using a sealer. The product may be gaged with a NPT plug gage or with straight Go and No Go plug gages.

NPSF–Dryseal American Standard Fuel–These internal threads are intended for use in soft or ductile materials for assembly with NPTF external threads without using a sealer. The product may be gaged with NPTF-LI basic notch plug gage or with straight Go and No Go plug gages.

NPSI–Dryseal American Standard Intermediate–These internal threads are intended for use in hard or brittle materials for assembly with PTF-SAE short external threads but may also be assembled with full length NPTF external threads. The product may be gaged with a NPTF-LI basic notch plug gage or with straight Go and No Go plug gages.

NOTE: NPSM and NPSF Series Gages are available from stock.