

Unified National Thread Design Data

Introduction

Joints made using screws (male fasteners inserted into threaded holes) and bolts (male fasteners that pass through parts and are retained by a nut) are a common feature in mechanical design. It is important to know the limits of load carrying capabilities of such fasteners to create safe and useful designs. This chapter will provide the information necessary to determine such values as they apply to an individual fastener.

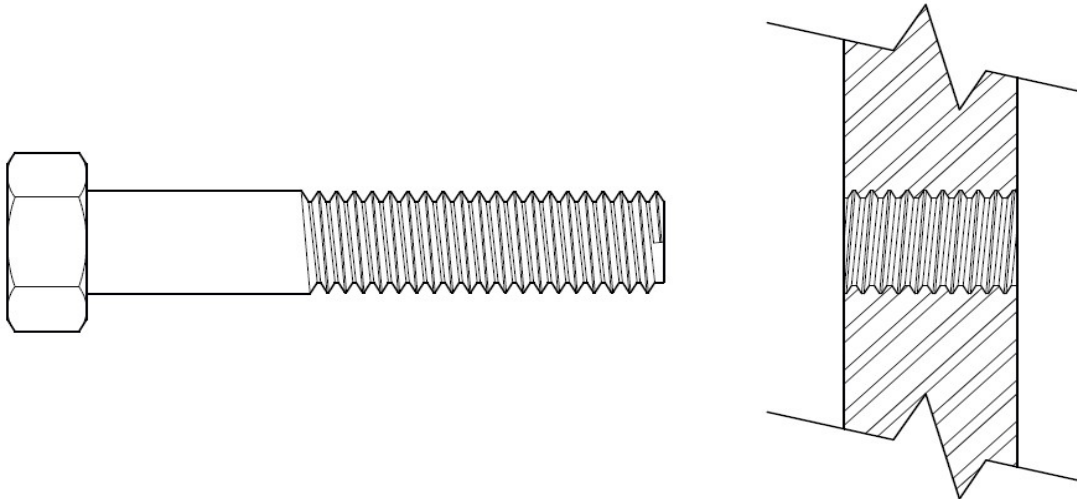


Figure 1: Screw and Tapped Hole

The screw shown above is a standard hex-head cap screw that may be employed as either a screw or a bolt. The threads shown on the screw were drawn to Class-3 condition while the threads in the tapped hole have been drawn to Class-1 condition. We will work on these considerations later.

Fit Considerations: Male & Female Threads

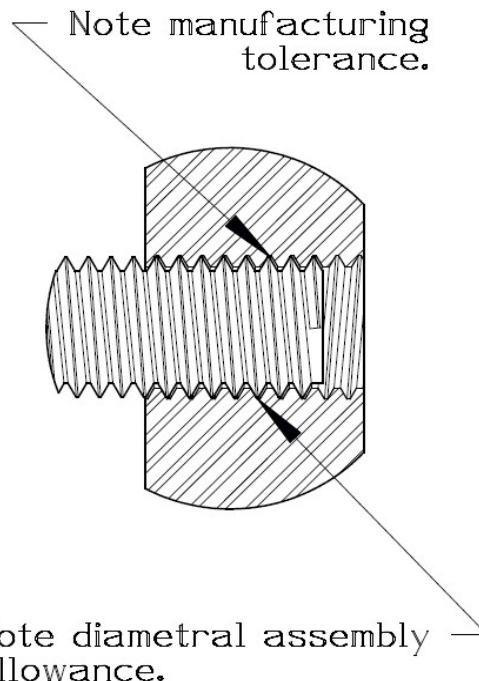


Figure 2: Allowance & Tolerance View

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UN screwthreads are 60° included angle threads. They are modified to allow flat crests and rounded roots to improve machining or forming and strengthen the joint. There are three classes of fit defined for UN screwthreads: Class 1 which has the largest allowance and tolerance, Class 2 which has moderate allowance and tolerance, and Class 3 which has allowance but no tolerance. Allowance provides the diametral clearance that allows assembly of a male and female screwthread. Tolerance is additional variation in size along the pitch line to accommodate production variations. Specific values for allowances and tolerances for any UN size, pitch, and class may be found in FED-STD-H28.

Screw or Bolt Loading Conditions

Screws and bolts may be subjected to tension, shear, and bending loads. Tension loading has two critical aspects in terms of the screw (or bolt): load/effective tensile area (psi) and load/(engagement * screw shear area/length) (psi). Tapped holes and nuts have the critical aspect of load/(engagement * nut shear area/length). The **Thread Data Tables** give values for effective tensile area and shear area/length for screws and nuts (tapped holes).

Shear loading in screws and bolts is a bit more complicated. If the interface line between the shearing components lies in the threaded area, then a reduced shear area (Thread Shear Area) is used to calculate the stress. If the interface line between the shearing components lies in the unthreaded area of the screw or bolt shank, then the shank area is used to calculate the stress. This is the preferred design approach, but it is often not possible to design the joint in this manner using standard commercial fasteners. Once the appropriate area is selected, the stress will be defined as load/appropriate shear area (psi).

Bolts are rarely placed into service where bending stresses are important. One key exception to this rule is when a bolt is used in a clevis link to support a hook or other chain connection. Screw applications are more likely to see a bending load. Good design practice avoids bending loading wherever possible. When they are unavoidable, the maximum bending load most often acts in the threaded portion of the fastener. The **Thread Data Tables** have an Equivalent Pin Diameter that will be used to determine the stress from the M_c/I relationship.

These values derive from the equations and tables contained in *FED-STD-H28*.

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Thread Data Table, Page 1

Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
.0600-80UNF-2	.0465 (#56)	.0422	.0018	0.0478	0.0673	0.1056	.0015	.0520 (#55)
.0600-80UNF-3	.0465 (#56)	.0427	.0018	0.0478	0.0748	0.1156	.0015	.0520 (#55)
.0730-64UNC-2	.0595 (#53)	.0512	.0026	0.0578	0.0834	0.1324	.0021	.0635 (#52)
.0730-64UNC-3	.0595 (#53)	.0518	.0026	0.0578	0.0914	0.1440	.0022	.0635 (#52)
.0730-72UNF-2	.0595 (#53)	.0534	.0028	0.0595	0.0832	0.1298	.0023	.0670 (#51)
.0730-72UNF-3	.0595 (#53)	.0540	.0028	0.0595	0.0923	0.1418	.0024	.0670 (#51)
.0860-56UNC-2	.0700 (#50)	.0615	.0037	0.0686	0.1008	0.1616	.0030	.0760 (#48)
.0860-56UNC-3	.0700 (#50)	.0621	.0037	0.0686	0.1090	0.1736	.0031	.0760 (#48)
.0860-64UNF-2	.0700 (#50)	.0642	.0039	0.0708	0.1008	0.1566	.0033	.0781 (5/64)
.0860-64UNF-3	.0700 (#50)	.0648	.0039	0.0708	0.1104	0.1702	.0034	.0781 (5/64)
.0990-48UNC-2	.0785 (#47)	.0707	.0049	0.0787	0.1180	0.1906	.0040	.0860 (#44)
.0990-48UNC-3	.0785 (#47)	.0714	.0049	0.0787	0.1276	0.2044	.0041	.0860 (#44)
.0990-56UNF-2	.0820 (#45)	.0744	.0052	0.0816	0.1183	0.1862	.0044	.0890 (#43)
.0990-56UNF-3	.0820 (#45)	.0751	.0052	0.0816	0.1297	0.2011	.0045	.0890 (#43)
.1120-40UNC-2	.0890 (#43)	.0785	.0060	0.0876	0.1380	0.2205	.0049	.0995 (#39)
.1120-40UNC-3	.0890 (#43)	.0793	.0060	0.0876	0.1475	0.2354	.0050	.0995 (#39)
.1120-48UNF-2	.0935 (#42)	.0837	.0066	0.0917	0.1403	0.2161	.0055	.1015 (#38)
.1120-48UNF-3	.0935 (#42)	.0844	.0066	0.0917	0.1512	0.2316	.0056	.1015 (#38)
.1250-40UNC-2	.1015 (#38)	.0915	.0080	0.1006	0.1607	0.2476	.0066	.1130 (#33)
.1250-40UNC-3	.1015 (#38)	.0923	.0080	0.1006	0.1722	0.2631	.0067	.1130 (#33)
.1250-44UNF-2	.1040 (#37)	.0944	.0083	0.1029	0.1617	0.2459	.0070	.1130 (#33)
.1250-44UNF-3	.1040 (#37)	.0951	.0083	0.1029	0.1729	0.2617	.0071	.1130 (#33)
.1380-32UNC-2	.1065 (#36)	.0969	.0091	0.1076	0.1797	0.2807	.0074	.1200 (#31)
.1380-32UNC-3	.1065 (#36)	.0977	.0091	0.1076	0.1897	0.2962	.0075	.1200 (#31)
.1380-40UNF-2	.1130 (#33)	.1045	.0101	0.1136	0.1817	0.2736	.0086	.1250 (1/8)
.1380-40UNF-3	.1130 (#33)	.1053	.0101	0.1136	0.1966	0.2917	.0087	.1250 (1/8)
.1640-32UNC-2	.1360 (#29)	.1228	.0140	0.1336	0.2256	0.3343	.0117	.1470 (#26)
.1640-32UNC-3	.1360 (#29)	.1237	.0140	0.1336	0.2391	0.3536	.0119	.1470 (#26)
.1640-36UNF-2	.1360 (#29)	.1271	.0147	0.1369	0.2268	0.3311	.0126	.1495 (#25)
.1640-36UNF-3	.1360 (#29)	.1279	.0147	0.1369	0.2437	0.3504	.0127	.1495 (#25)

Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
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Thread Data Table, Page 2

Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
.1900-24UNC-2	.1495 (#25)	.1359	.0175	0.1494	0.2627	0.4011	.0143	.1695 (#18)
.1900-24UNC-3	.1495 (#25)	.1369	.0175	0.1494	0.2774	0.4200	.0145	.1695 (#18)
.1900-32UNF-2	.1590 (#21)	.1488	.0200	0.1596	0.2747	0.3886	.0171	.1730 (#17)
.1900-32UNF-3	.1590 (#21)	.1497	.0200	0.1596	0.2892	0.4108	.0174	.1730 (#17)
.2160-24UNC-2	.1770 (#16)	.1619	.0242	0.1754	0.3119	0.4576	.0203	.1935 (#10)
.2160-24UNC-3	.1770 (#16)	.1629	.0242	0.1754	0.3279	0.4789	.0205	.1935 (#10)
.2160-28UNF-2	.1820 (#14)	.1692	.0258	0.1812	0.3167	0.4493	.0221	.1960 (#9)
.2160-28UNF-3	.1820 (#14)	.1702	.0258	0.1812	0.3360	0.4738	.0224	.1960 (#9)
.2160-32UNEF-2	.1875 (3/16)	.1748	.0270	0.1856	0.3172	0.4413	.0236	.1990 (#8)
.2160-32UNEF-3	.1875 (3/16)	.1757	.0270	0.1856	0.3395	0.4664	.0238	.1990 (#8)
.2500-20UNC-1	.2040 (#6)	.1856	.0318	0.2013	0.3537	0.4740	.0265	.2210 (#2)
.2500-20UNC-2	.2040 (#6)	.1856	.0318	0.2013	0.3680	0.5398	.0265	.2210 (#2)
.2500-20UNC-3	.2040 (#6)	.1867	.0318	0.2013	0.3847	0.5625	.0268	.2210 (#2)
.2500-28UNF-1	.2188 (7/32)	.2032	.0364	0.2152	0.3545	0.4474	.0317	.2280 (#1)
.2500-28UNF-2	.2188 (7/32)	.2032	.0364	0.2152	0.3735	0.5213	.0317	.2280 (#1)
.2500-28UNF-3	.2188 (7/32)	.2042	.0364	0.2152	0.4030	0.5494	.0321	.2280 (#1)
.2500-32UNEF-2	.2210 (#2)	.2087	.0379	0.2196	0.3714	0.5101	.0335	.2340 (A)
.2500-32UNEF-3	.2210 (#2)	.2097	.0379	0.2196	0.4071	0.5419	.0338	.2340 (A)
.3125-18UNC-1	.2610 (G)	.2411	.0524	0.2584	0.4517	0.6037	.0446	.2812 (9/32)
.3125-18UNC-2	.2610 (G)	.2411	.0524	0.2584	0.4699	0.6818	.0446	.2812 (9/32)
.3125-18UNC-3	.2610 (G)	.2423	.0524	0.2584	0.5024	0.7103	.0450	.2812 (9/32)
.3125-24UNF-1	.2720 (I)	.2583	.0581	0.2719	0.4568	0.5782	.0511	.2900 (L)
.3125-24UNF-2	.2720 (I)	.2583	.0581	0.2719	0.4785	0.6632	.0511	.2900 (L)
.3125-24UNF-3	.2720 (I)	.2594	.0581	0.2719	0.5201	0.6962	.0515	.2900 (L)
.3125-32UNEF-2	.2821 (9/32)	.2712	.0625	0.2821	0.4824	0.6412	.0563	.2969 (19/64)
.3125-32UNEF-3	.2821 (9/32)	.2722	.0625	0.2821	0.5315	0.6807	.0567	.2969 (19/64)
.3750-16UNC-1	.3125 (5/16)	.2950	.0775	0.3141	0.5564	0.7379	.0665	.3438 (11/32)
.3750-16UNC-2	.3125 (5/16)	.2950	.0775	0.3141	0.5760	0.8281	.0665	.3438 (11/32)
.3750-16UNC-3	.3125 (5/16)	.2963	.0775	0.3141	0.6190	0.8597	.0671	.3438 (11/32)
.3750-24UNF-1	.3320 (Q)	.3208	.0878	0.3344	0.5504	0.6936	.0786	.3480 (S)
.3750-24UNF-2	.3320 (Q)	.3208	.0878	0.3344	0.5785	0.7979	.0786	.3480 (S)
.3750-24UNF-3	.3320 (Q)	.3219	.0878	0.3344	0.6442	0.8371	.0791	.3480 (S)
.3750-32UNEF-2	.3438 (11/32)	.3337	.0932	0.3446	0.5745	0.7682	.0850	.3594 (23/64)
.3750-32UNEF-3	.3438 (11/32)	.3347	.0932	0.3446	0.6516	0.8152	.0855	.3594 (23/64)
Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:

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Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
.4375-14UNC-1	.3680 (U)	.3465	.1063	0.3679	0.6536	0.8775	.0916	.3970 (X)
.4375-14UNC-2	.3680 (U)	.3465	.1063	0.3679	0.6765	0.9781	.0916	.3970 (X)
.4375-14UNC-3	.3680 (U)	.3479	.1063	0.3679	0.7339	1.0128	.0923	.3970 (X)
.4375-20UNF-1	.3906 (25/64)	.3729	.1187	0.3888	0.6563	0.8337	.1060	.4062 (13/32)
.4375-20UNF-2	.3906 (25/64)	.3729	.1187	0.3888	0.6849	0.9473	.1060	.4062 (13/32)
.4375-20UNF-3	.3906 (25/64)	.3742	.1187	0.3888	0.7614	0.9907	.1067	.4062 (13/32)
.4375-28UNEF-2	.4040 (Y)	.3906	.1274	0.4027	0.6931	0.9154	.1162	.4130 (Z)
.4375-28UNEF-3	.4040 (Y)	.3917	.1274	0.4027	0.7701	0.9659	.1169	.4130 (Z)
.5000-13UNC-1	.4219 (27/64)	.4021	.1419	0.4251	0.7544	1.0133	.1231	.4531 (29/64)
.5000-13UNC-2	.4219 (27/64)	.4021	.1419	0.4251	0.7789	1.1235	.1231	.4531 (29/64)
.5000-13UNC-3	.4219 (27/64)	.4036	.1419	0.4251	0.8537	1.1638	.1240	.4531 (29/64)
.5000-20UNF-1	.4531 (29/64)	.4354	.1600	0.4513	0.7643	0.9513	.1443	.4688 (15/32)
.5000-20UNF-2	.4531 (29/64)	.4354	.1600	0.4513	0.7991	1.0821	.1443	.4688 (15/32)
.5000-20UNF-3	.4531 (29/64)	.4367	.1600	0.4513	0.8871	1.1331	.1451	.4688 (15/32)
.5000-28UNEF-2	.4688 (15/32)	.4531	.1700	0.4652	0.7860	1.0435	.1562	.4844 (31/64)
.5000-28UNEF-3	.4688 (15/32)	.4542	.1700	0.4652	0.8865	1.1035	.1569	.4844 (31/64)
.5625-12UNC-1	.4844 (31/64)	.4567	.1819	0.4813	0.8753	1.1511	.1586	.5156 (33/64)
.5625-12UNC-2	.4844 (31/64)	.4567	.1819	0.4813	0.8934	1.2734	.1586	.5156 (33/64)
.5625-12UNC-3	.4844 (31/64)	.4583	.1819	0.4813	0.9737	1.3167	.1598	.5156 (33/64)
.5625-18UNF-1	.5156 (33/64)	.4909	.2030	0.5084	0.8628	1.0880	.1832	.5312 (17/32)
.5625-18UNF-2	.5156 (33/64)	.4909	.2030	0.5084	0.9014	1.2302	.1832	.5312 (17/32)
.5625-18UNF-3	.5156 (33/64)	.4923	.2030	0.5084	1.0088	1.2858	.1842	.5312 (17/32)
.5625-24UNEF-2	.5312 (17/32)	.5082	.2139	0.5219	0.9035	1.1984	.1963	.5469 (35/64)
.5625-24UNEF-3	.5312 (17/32)	.5094	.2139	0.5219	1.0086	1.2614	.1972	.5469 (35/64)
.6250-11UNC-1	.5469 (35/64)	.5099	.2260	0.5364	0.9677	1.2948	.1976	.5781 (37/64)
.6250-11UNC-2	.5469 (35/64)	.5099	.2260	0.5364	0.9982	1.4249	.1976	.5781 (37/64)
.6250-11UNC-3	.5469 (35/64)	.5115	.2260	0.5364	1.0921	1.4702	.1988	.5781 (37/64)
.6250-18UNF-1	.5781 (37/64)	.5534	.2560	0.5709	0.9551	1.2081	.2326	.5938 (19/32)
.6250-18UNF-2	.5781 (37/64)	.5534	.2560	0.5709	0.9985	1.3674	.2326	.5938 (19/32)
.6250-18UNF-3	.5781 (37/64)	.5548	.2560	0.5709	1.1320	1.4289	.2338	.5938 (19/32)
.6250-24UNEF-2	.5938 (19/32)	.5707	.2682	0.5844	0.9961	1.3309	.2473	.6094 (39/64)
.6250-24UNEF-3	.5938 (19/32)	.5719	.2682	0.5844	1.1263	1.4007	.2483	.6094 (39/64)
Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:

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Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
.7500-10UNC-1	.6562 (21/32)	.6235	.3345	0.6526	1.1785	1.5718	.2950	.7031 (45/64)
.7500-10UNC-2	.6562 (21/32)	.6235	.3345	0.6526	1.2134	1.7232	.2950	.7031 (45/64)
.7500-10UNC-3	.6562 (21/32)	.6253	.3345	0.6526	1.3379	1.7782	.2967	.7031 (45/64)
.7500-16UNF-1	.6875 (11/16)	.6698	.3730	0.6891	1.1821	1.4752	.3403	.7188 (23/32)
.7500-16UNF-2	.6875 (11/16)	.6698	.3730	0.6891	1.2326	1.6586	.3403	.7188 (23/32)
.7500-16UNF-3	.6875 (11/16)	.6713	.3730	0.6891	1.3818	1.7286	.3418	.7188 (23/32)
.7500-20UNEF-2	.7031 (45/64)	.6854	.3863	0.7013	1.2337	1.6308	.3563	.7188 (23/32)
.7500-20UNEF-3	.7031 (45/64)	.6867	.3863	0.7013	1.3734	1.7063	.3576	.7188 (23/32)
.8750-9UNC-1	.7656 (49/64)	.7348	.4617	0.7667	1.3923	1.8564	.4093	.8125 (13/16)
.8750-9UNC-2	.7656 (49/64)	.7348	.4617	0.7667	1.4329	2.0257	.4093	.8125 (13/16)
.8750-9UNC-3	.7656 (49/64)	.7367	.4617	0.7667	1.5827	2.0864	.4114	.8125 (13/16)
.8750-14UNF-1	.8125 (13/16)	.7838	.5095	0.8054	1.3799	1.7550	.4656	.8281 (53/64)
.8750-14UNF-2	.8125 (13/16)	.7838	.5095	0.8054	1.4357	1.9585	.4656	.8281 (53/64)
.8750-14UNF-3	.8125 (13/16)	.7854	.5095	0.8054	1.6299	2.0346	.4675	.8281 (53/64)
.8750-20UNEF-2	.8281 (53/64)	.8104	.5362	0.8263	1.4518	1.9060	.4976	.8438 (27/32)
.8750-20UNEF-3	.8281 (53/64)	.8117	.5362	0.8263	1.6174	1.9938	.4992	.8438 (27/32)
1.0000-8UNC-1	.875 (7/8)	.8426	.6057	0.8782	1.6137	2.1480	.5379	.9375 (15/16)
1.0000-8UNC-2	.875 (7/8)	.8426	.6057	0.8782	1.6563	2.3343	.5379	.9375 (15/16)
1.0000-8UNC-3	.875 (7/8)	.8446	.6057	0.8782	1.8158	2.3991	.5404	.9375 (15/16)
1.0000-12UNF-1	.922 (59/64)	.8940	.6630	0.9188	1.6051	2.0470	.6053	.9531 (61/64)
1.0000-12UNF-2	.922 (59/64)	.8940	.6630	0.9188	1.6637	2.2653	.6053	.9531 (61/64)
1.0000-12UNF-3	.922 (59/64)	.8958	.6630	0.9188	1.8793	2.3490	.6077	.9531 (61/64)
1.0000-20UNEF-2	.953 (61/64)	.9353	.7107	0.9513	1.6629	2.1703	.6624	.9688 (32/31)
1.0000-20UNEF-3	.953 (61/64)	.9367	.7107	0.9513	1.8579	2.2777	.6644	.9688 (32/31)
1.1250-7UNC-1	.984 (63/64)	.9455	.7633	0.9858	1.8350	2.3682	.6769	1.0469 (1-3/64)
1.1250-7UNC-2	.984 (63/64)	.9455	.7633	0.9858	1.8819	2.6482	.6769	1.0469 (1-3/64)
1.1250-7UNC-3	.984 (63/64)	.9477	.7633	0.9858	2.0439	2.7168	.6800	1.0469 (1-3/64)
1.1250-12UNF-1	1.047 (1-3/64)	1.0190	.8557	1.0438	1.8168	2.3006	.7860	1.0781 (1-5/64)
1.1250-12UNF-2	1.047 (1-3/64)	1.0190	.8557	1.0438	1.8855	2.7125	.7860	1.0781 (1-5/64)
1.1250-12UNF-3	1.047 (1-3/64)	1.0208	.8557	1.0438	2.1324	2.6412	.7888	1.0781 (1-5/64)
1.1250-18UNEF-2	1.078 (1-5/64)	1.0534	.9007	1.0709	1.8623	2.4720	.8398	1.0938 (1-3/32)
1.1250-18UNEF-3	1.078 (1-5/64)	1.0548	.9007	1.0709	2.1164	2.5844	.8421	1.0938 (1-3/32)
Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:

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Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
1.2500-7UNC-1	1.109 (1-7/64)	1.0705	.9691	1.1108	2.0620	2.7228	.8673	1.1719 (1-11/64)
1.2500-7UNC-2	1.109 (1-7/64)	1.0705	.9691	1.1108	2.1148	2.9443	.8673	1.1719 (1-11/64)
1.2500-7UNC-3	1.109 (1-7/64)	1.0727	.9691	1.1108	2.3012	3.0216	.8708	1.1719 (1-11/64)
1.2500-12UNF-1	1.172 (1-11/64)	1.1440	1.0729	1.1688	2.0273	2.5526	.9902	1.2031 (1-13/64)
1.2500-12UNF-2	1.172 (1-11/64)	1.1440	1.0729	1.1688	2.1042	2.8284	.9902	1.2031 (1-13/64)
1.2500-12UNF-3	1.172 (1-11/64)	1.1458	1.0729	1.1688	2.3849	2.9350	.9933	1.2031 (1-13/64)
1.2500-18UNEF-2	1.203 (1-13/64)	1.1783	1.1232	1.1959	2.0664	2.7408	1.0504	1.2188 (1-7/32)
1.2500-18UNEF-3	1.203 (1-13/64)	1.1798	1.1232	1.1959	2.3629	2.8698	1.0531	1.2188 (1-7/32)
1.3750-6UNC-1	1.219 (1-7/32)	1.1661	1.1549	1.2126	2.2882	3.0370	1.0288	1.2812 (1-9/32)
1.3750-6UNC-2	1.219 (1-7/32)	1.1661	1.1549	1.2126	2.3415	3.2669	1.0288	1.2812 (1-9/32)
1.3750-6UNC-3	1.219 (1-7/32)	1.1685	1.1549	1.2126	2.5172	3.3465	1.0330	1.2812 (1-9/32)
1.3750-12UNF-1	1.297 (1-19/64)	1.2689	1.3147	1.2938	2.2339	2.7998	1.2178	1.3281 (1-21/64)
1.3750-12UNF-2	1.297 (1-19/64)	1.2689	1.3147	1.2938	2.3218	3.1052	1.2178	1.3281 (1-21/64)
1.3750-12UNF-3	1.297 (1-19/64)	1.2708	1.3147	1.2938	2.6370	3.2282	1.2215	1.3281 (1-21/64)
1.3750-18UNEF-2	1.328 (1-21/64)	1.3033	1.3703	1.3209	2.2811	3.0172	1.2846	1.3438 (1-11/32)
1.3750-18UNEF-3	1.328 (1-21/64)	1.3048	1.3703	1.3209	2.6094	3.1588	1.2876	1.3438 (1-11/32)
1.5000-6UNC-1	1.344 (1-11/32)	1.2911	1.4052	1.3376	2.5202	3.3144	1.2607	1.4219 (1-27/64)
1.5000-6UNC-2	1.344 (1-11/32)	1.2911	1.4052	1.3376	2.5790	3.5668	1.2607	1.4219 (1-27/64)
1.5000-6UNC-3	1.344 (1-11/32)	1.2935	1.4052	1.3376	2.7749	3.6532	1.2654	1.4219 (1-27/64)
1.5000-12UNF-1	1.422 (1-27/64)	1.3939	1.5810	1.4188	2.4420	3.0514	1.4692	1.4531 (1-29/64)
1.5000-12UNF-2	1.422 (1-27/64)	1.3939	1.5810	1.4188	2.5415	3.3870	1.4692	1.4531 (1-29/64)
1.5000-12UNF-3	1.422 (1-27/64)	1.3958	1.5810	1.4188	2.8884	3.5177	1.4732	1.4531 (1-29/64)
1.5000-18UNEF-2	1.453 (1-29/64)	1.4283	1.6419	1.4459	2.5368	3.2838	1.5425	1.4688 (1-15/32)
1.5000-18UNEF-3	1.453 (1-29/64)	1.4298	1.6419	1.4459	2.8513	3.4429	1.5457	1.4688 (1-15/32)

Thread Size/ and Class:	Standard 75% Cut Thread Tap Drill:	Thread Clr Dia:	Effective Tensile Area:	Equivalent Pin Dia:	Screw Shear Area/L:	Nut Shear Area/L:	Thread Shear Area:	Standard 75% Form Thread Tap Drill:
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Thread Size/Class: ----- The thread designation and class of fit.
 Standard 75% Cut Thread Tap Drill: ----- The handbook cut thread tapdrill size.
 Thread Clr Dia: ----- The diameter for a thread clearance on an external thread.
 Effective Tensile Area: ----- The area divided into the load to calculate tensile stress in a screw.
 Equivalent Pin Dia: ----- The equivalent pin diameter used to calculate screw threads in bending.
 Screw Shear Area/L: ----- When multiplied by the length of engagement, this value provides a screw's shear area.
 Nut Shear Area/L: ----- When multiplied by the length of engagement, this value provides a nut's shear area.
 Thread Shear Area: ----- This is the area in direct shear when such force is applied to a screw's threads.
 Standard 75% Form Thread Tap Drill: ----- The handbook form thread tapdrill size.