



SAE Grades

BOLT SIZE Thread	Bolt Diameter Inch	Tap Drill Diameter Inch	Bolt Area Sq.Inch	BOLT STRENGTH (kpsi)				BOLT DIMENSIONS				BOLT SIZE Thread	BOLT WEIGHT, HEX HEAD (lbs each)						Shaft wt./ln. lbs.	NUT WT. lbs/ea.	Nuts per lb.	Bolts per pound for lengths of:						BOLT SIZE Thread
				36 kpsi	48 kpsi	52 kpsi	130 kpsi	G	H1	H2	1"		2"	3"	4"	5"	6"	1"				2"	3"	4"	5"	6"		
8-32	0.164	0.1360	0.0211	0.76	1.71	1.94	2.75	0.335	0.38	0.12	0.12	8-32	0.009	0.015	0.021	0.027	0.033	0.039	0.006	0.003	386.7	110.3	66.4	47.5	37.0	30.3	25.6	8-32
8-36	0.164	0.1360	0.0211	0.76	1.71	1.94	2.75	0.335	0.38	0.12	0.12	8-36	0.009	0.015	0.021	0.027	0.033	0.039	0.006	0.003	386.7	110.3	66.4	47.5	37.0	30.3	25.6	8-36
10-24	0.19	0.1440	0.0284	1.02	2.30	2.61	3.69	0.367	0.42	0.15	0.125	10-24	0.012	0.020	0.028	0.036	0.044	0.052	0.008	0.003	319.8	84.5	50.3	35.8	27.8	22.7	19.2	10-24
10-32	0.19	0.1440	0.0284	1.02	2.30	2.61	3.69	0.367	0.42	0.15	0.125	10-32	0.012	0.020	0.028	0.036	0.044	0.052	0.008	0.003	319.8	84.5	50.3	35.8	27.8	22.7	19.2	10-32
12-24	0.216	0.1710	0.0366	1.32	2.97	3.37	4.76	0.434	0.49	0.145	0.159	12-24	0.017	0.027	0.038	0.048	0.059	0.069	0.010	0.006	175.5	58.5	36.4	26.4	20.7	17.1	14.5	12-24
12-28	0.216	0.1710	0.0366	1.32	2.97	3.37	4.76	0.434	0.49	0.145	0.159	12-28	0.017	0.027	0.038	0.048	0.059	0.069	0.010	0.006	175.5	58.5	36.4	26.4	20.7	17.1	14.5	12-28
14-20	0.25	0.1960	0.0491	1.77	3.98	4.52	6.38	0.4375	0.5052	0.1719	0.2188	14-20	0.022	0.036	0.050	0.064	0.078	0.092	0.014	0.007	138.3	45.5	27.9	20.1	15.7	12.9	10.9	14-20
14-28	0.25	0.1960	0.0491	1.77	3.98	4.52	6.38	0.4375	0.5052	0.1719	0.2188	14-28	0.022	0.036	0.050	0.064	0.078	0.092	0.014	0.007	138.3	45.5	27.9	20.1	15.7	12.9	10.9	14-28
5/16-18	0.3125	0.2570	0.0767	2.76	6.21	7.06	9.97	0.5	0.5774	0.2188	0.2656	5/16-18	0.035	0.057	0.079	0.100	0.122	0.144	0.022	0.011	95.0	28.4	17.6	12.7	10.0	8.2	7.0	5/16-18
5/16-24	0.3125	0.2570	0.0767	2.76	6.21	7.06	9.97	0.5	0.5774	0.2188	0.2656	5/16-24	0.035	0.057	0.079	0.100	0.122	0.144	0.022	0.011	95.0	28.4	17.6	12.7	10.0	8.2	7.0	5/16-24
3/8-16	0.375	0.3125	0.1104	3.98	8.95	10.16	14.36	0.5625	0.6495	0.25	0.3281	3/8-16	0.051	0.082	0.113	0.145	0.176	0.207	0.031	0.015	65.8	19.7	12.2	8.8	6.9	5.7	4.8	3/8-16
3/8-24	0.375	0.3125	0.1104	3.98	8.95	10.16	14.36	0.5625	0.6495	0.25	0.3281	3/8-24	0.051	0.082	0.113	0.145	0.176	0.207	0.031	0.015	65.8	19.7	12.2	8.8	6.9	5.7	4.8	3/8-24
7/16-14	0.4375	0.3580	0.1503	5.41	12.18	13.83	19.54	0.625	0.7217	0.2969	0.375	7/16-14	0.071	0.114	0.156	0.199	0.241	0.284	0.043	0.020	50.1	14.1	8.8	6.4	5.0	4.1	3.5	7/16-14
7/16-20	0.4375	0.3580	0.1503	5.41	12.18	13.83	19.54	0.625	0.7217	0.2969	0.375	7/16-20	0.071	0.114	0.156	0.199	0.241	0.284	0.043	0.020	50.1	14.1	8.8	6.4	5.0	4.1	3.5	7/16-20
1/2-13	0.5	0.4251	0.1963	7.07	15.80	18.06	25.53	0.75	0.866	0.3438	0.4375	1/2-13	0.103	0.159	0.214	0.270	0.326	0.381	0.056	0.036	27.7	9.7	6.3	4.7	3.7	3.1	2.6	1/2-13
1/2-20	0.5	0.4251	0.1963	7.07	15.80	18.06	25.53	0.75	0.866	0.3438	0.4375	1/2-20	0.103	0.159	0.214	0.270	0.326	0.381	0.056	0.036	27.7	9.7	6.3	4.7	3.7	3.1	2.6	1/2-20
5/8-11	0.625	0.5312	0.3068	11.04	24.85	28.23	39.88	0.9375	1.0825	0.4219	0.5469	5/8-11	0.178	0.265	0.352	0.439	0.526	0.613	0.087	0.070	14.2	5.6	3.8	2.8	2.3	1.9	1.6	5/8-11
5/8-18	0.625	0.5312	0.3068	11.04	24.85	28.23	39.88	0.9375	1.0825	0.4219	0.5469	5/8-18	0.178	0.265	0.352	0.439	0.526	0.613	0.087	0.070	14.2	5.6	3.8	2.8	2.3	1.9	1.6	5/8-18
3/4-10	0.75	0.6406	0.4418	15.90	35.78	40.64	57.43	1.125	1.299	0.5	0.6406	3/4-10	0.280	0.406	0.531	0.656	0.781	0.906	0.125	0.119	8.4	3.6	2.5	1.9	1.5	1.3	1.1	3/4-10
3/4-16	0.75	0.6406	0.4418	15.90	35.78	40.64	57.43	1.125	1.299	0.5	0.6406	3/4-16	0.280	0.406	0.531	0.656	0.781	0.906	0.125	0.119	8.4	3.6	2.5	1.9	1.5	1.3	1.1	3/4-16
7/8-9	0.875	0.7656	0.6013	21.65	48.71	55.32	78.17	1.3125	1.5155	0.5781	0.75	7/8-9	0.415	0.585	0.765	0.926	1.096	1.267	0.170	0.169	5.3	2.41	1.71	1.32	1.08	0.91	0.79	7/8-9
7/8-14	0.875	0.7656	0.6013	21.65	48.71	55.32	78.17	1.3125	1.5155	0.5781	0.75	7/8-14	0.415	0.585	0.765	0.926	1.096	1.267	0.170	0.169	5.3	2.41	1.71	1.32	1.08	0.91	0.79	7/8-14
1-8	1	0.8594	0.7854	28.27	63.62	72.26	102.10	1.5	1.7321	0.6719	0.8994	1-8	0.593	0.816	1.039	1.261	1.484	1.708	0.223	0.283	3.5	1.69	1.23	0.96	0.79	0.67	0.59	1-8
1-12	1	0.9062	0.7854	28.27	63.62	72.26	102.10	1.5	1.7321	0.6719	0.8994	1-12	0.593	0.816	1.039	1.261	1.484	1.708	0.223	0.283	3.5	1.69	1.23	0.96	0.79	0.67	0.59	1-12
1 1/8-12	1.125	0.9607	0.9940	35.78	80.52	91.45	129.22	1.6875	1.9486	0.75	0.9688	1 1/8-12	0.806	1.087	1.369	1.651	1.932	2.214	0.282	0.404	2.5	1.24	0.92	0.73	0.61	0.52	0.45	1 1/8-12
1 1/8-18	1.125	0.9607	0.9940	35.78	80.52	91.45	129.22	1.6875	1.9486	0.75	0.9688	1 1/8-18	0.806	1.087	1.369	1.651	1.932	2.214	0.282	0.404	2.5	1.24	0.92	0.73	0.61	0.52	0.45	1 1/8-18
1 1/4-12	1.25	1.1020	1.2272	44.18	99.40	112.90	159.53	1.875	2.1651	0.8438	1.0625	1 1/4-12	1.076	1.423	1.771	2.119	2.466	2.814	0.348	0.547	1.8	0.93	0.70	0.56	0.47	0.41	0.36	1 1/4-12
1 1/4-18	1.25	1.1020	1.2272	44.18	99.40	112.90	159.53	1.875	2.1651	0.8438	1.0625	1 1/4-18	1.076	1.423	1.771	2.119	2.466	2.814	0.348	0.547	1.8	0.93	0.70	0.56	0.47	0.41	0.36	1 1/4-18
1 3/8-6	1.375	1.2025	1.4849	53.46	120.28	136.61	193.04	2.0625	2.3816	0.9063	1.1719	1 3/8-6	1.367	1.787	2.208	2.629	3.050	3.470	0.421	0.730	1.4	0.73	0.56	0.45	0.38	0.33	0.29	1 3/8-6
1 3/8-12	1.375	1.2025	1.4849	53.46	120.28	136.61	193.04	2.0625	2.3816	0.9063	1.1719	1 3/8-12	1.367	1.787	2.208	2.629	3.050	3.470	0.421	0.730	1.4	0.73	0.56	0.45	0.38	0.33	0.29	1 3/8-12
1 1/2-6	1.5	1.3275	1.7671	63.62	143.14	162.58	229.73	2.25	2.5981	1.1	1.2813	1 1/2-6	1.743	2.244	2.744	3.245	3.746	4.246	0.501	0.950	1.1	0.57	0.45	0.36	0.31	0.27	0.24	1 1/2-6
1 1/2-12	1.5	1.3275	1.7671	63.62	143.14	162.58	229.73	2.25	2.5981	1.1	1.2813	1 1/2-12	1.743	2.244	2.744	3.245	3.746	4.246	0.501	0.950	1.1	0.57	0.45	0.36	0.31	0.27	0.24	1 1/2-12
1 3/4-5	1.75	1.5425	2.4053	86.59	194.83	221.29	312.69	2.625	3.0311	1.1563	1.7188	1 3/4-5	2.636	3.318	3.999	4.681	5.362	6.044	0.681	1.735	0.6	0.38	0.30	0.25	0.21	0.19	0.17	1 3/4-5
1 3/4-12	1.75	1.5425	2.4053	86.59	194.83	221.29	312.69	2.625	3.0311	1.1563	1.7188	1 3/4-12	2.636	3.318	3.999	4.681	5.362	6.044	0.681	1.735	0.6	0.38	0.30	0.25	0.21	0.19	0.17	1 3/4-12
2-4	2	1.7680	3.1416	113.10	254.47	289.03	408.41	3	3.4641	1.3438	1.9688	2-4	3.858	4.748	5.638	6.528	7.418	8.308	0.890	2.595	0.4	0.26	0.21	0.18	0.15	0.13	0.12	2-4
2-12	2	1.9145	3.1416	113.10	254.47	289.03	408.41	3	3.4641	1.3438	1.9688	2-12	3.858	4.748	5.638	6.528	7.418	8.308	0.890	2.595	0.4	0.26	0.21	0.18	0.15	0.13	0.12	2-12
2 1/4-4.5	2.25	1.9145	3.9761	143.14	322.06	365.80	516.89	3.375	3.8971	1.5	2.2031	2 1/4-4.5	5.319	6.446	7.572	8.699	9.825											