

Tightening Torque

English Units: (Coarse Thread Series)

Thread Size & Pitch =====	GRADE 1		GRADE 2		GRADES 5, 5.2 & 5.1		GRADES 8, 8.1, & 8.2	
	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====
6 - 32	225	0.52	375	0.86	579	1.33	818	1.88
8 - 32	347	0.95	578	1.58	893	2.44	1260	3.44
10 - 24	433	1.37	722	2.29	1116	3.53	1575	4.99
12 - 24	599	2.16	998	3.59	1543	5.55	2178	7.84
1/4 - 20	787	3.28	1312	5.47	2027	8.45	2862	11.9
5/16 - 18	1297	6.75	2162	11.3	3341	17.4	4716	24.6
3/8 - 16	1918	12.0	3197	20.0	4941	30.9	6975	43.6
7/16 - 14	2631	19.2	4385	32.0	6777	49.4	9567	69.8
1/2 - 1 3	3512	29.3	5853	48.8	9046	75.4	12771	106
9/16 - 12	4505	42.2	7508	70.4	11603	109	16380	154
5/8 - 11	5594	58.3	9323	97.1	14408	150	20340	212
3/4 - 10	8267	103	8267	103	21293	266	30060	376
7/8 - 9	11435	167	11435	167	29453	430	41580	606
1 - 8	14999	250	14999	250	33633	561	54540	909
1-1/8 - 7	18884	354	18884	354	42347	794	68670	1288
1-1/4 - 7	23983	500	23983	500	53780	1120	87210	1817
1-3/8 - 6	28586	655	28586	655	64103	1469	103950	2382
1-1/2 - 6	34774	869	34774	869	77978	1949	126450	3161

Tightening Torque = $K * D * P$

K = 0.2 (dry, unlubricated)

Clamp Load (P) = 75% of the Proof Load

D = Nominal Thread Size

Metric Units: (Coarse Thread Series)

Thread Size & Pitch =====	CLASS 4.6		CLASS 5.8		CLASS 9.8		CLASS 10.9	
	Clamp Load (KN) =====	Tightening Torque (N*m) =====	Clamp Load (KN) =====	Tightening Torque (N*m) =====	Clamp Load (KN) =====	Tightening Torque (N*m) =====	Clamp Load (KN) =====	Tightening Torque (N*m) =====
M6 X 1	3.41	4.09	5.73	6.87	9.80	11.76	12.5	15
M7 X 1	4.90	6.86	8.24	11.5	14.1	19.72	18.0	25
M8 X 1.25	6.20	9.93	10.4	16.7	17.8	28.55	22.8	36
M10 X 1.5	9.8	19.7	16.5	33.1	28.3	56.55	36.1	72
M12 X 1.75	14.3	34.3	24.0	57.7	41.1	98.63	52.5	126
M14 X 2	19.5	54.6	32.8	91.8	56.1	157	71.6	200
M16 X 2	26.6	85.2	44.7	143	76.5	245	97.7	313
M18 X 2.5	32.5	117	54.7	197	93.6	337	120	430
M20 X 2.5	41.5	166	69.8	279	119	478	153	610
M22 X 2.5	51.4	226	86.4	380	148	650	189	830
M24 X 3	59.8	287	101	483	172	826	220	1055
M27 X 3	77.8	420	131	706	224	1208	286	1543
M30 X 3.5	95.1	571	160	959	273	1641	349	2095
M33 X 3.5	118	776	198	1305	338	2233	432	2851
M36 X 4	138	997	233	1676	398	2868	509	3662
M39 X 4	165	1290	278	2170	476	3711	608	4739

Tightening Torque = $K * D * P$

K = 0.2 (dry, unlubricated)

Clamp Load (P) = 75% of the Proof Load

D = Nominal Thread Size

The values presented in these tables are representative and have been compiled for the user's benefit. Results can be influenced by any number of variables including 1) excessive lubrication, 2) excessive design clamp load, 3) nicked or binding threads, 4) non-parallel mating surfaces, and 5) inadequate torque control, to name a few. Therefore, Lord expressly disclaims liability of any kind associated with the application of the data shown herein.

Tightening Torque

English Units: (Fine Thread Series)

Thread Size & Pitch =====	GRADE 1		GRADE 2		GRADES 5, 5.2 & 5.2		GRADES 8, 8.1, & 8.3	
	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====	Clamp Load (lb) =====	Tightening Torque (ft-lb) =====
6 - 40	251	0.58	419	0.96	647	1.49	914	2.10
8 - 36	365	1.00	608	1.66	940	2.57	1327	3.63
10 - 32	495	1.57	825	2.61	1275	4.04	1800	5.70
12 - 28	639	2.30	1064	3.83	1645	5.92	2322	8.36
1/4 - 28	901	3.75	1502	6.26	2321	9.7	3276	13.7
5/16 - 24	1436	7.48	2393	12.5	3698	19.3	5220	27.2
3/8 - 24	2173	13.6	3622	22.6	5597	35.0	7902	49.4
7/16 - 20	2938	21.4	4896	35.7	7567	55.2	10683	77.9
1/2 - 20	3958	33.0	6596	55.0	10194	84.9	14391	120
9/16 - 18	5024	47.1	8374	78.5	12941	121	18270	171
5/8 - 18	6336	66.0	10560	110	16320	170	23040	240
3/4 - 16	9232	115	9232	115	23779	297	33570	420
7/8 - 14	12598	184	12598	184	32449	473	45810	668
1 - 12	16409	273	16409	273	36797	613	59670	995
1-1/8 - 12	21186	397	21186	397	47508	891	77040	1445
1-1/4 - 12	26557	553	26557	553	59552	1241	96570	2012
1-3/8 - 12	32546	746	32546	746	72983	1673	118350	2712
1-1/2 - 12	39130	978	39130	978	87746	2194	142290	3557

Tightening Torque = $K * D * P$

K = 0.2 (dry, unlubricated)

Clamp Load (P) = 75% of the Proof Load

D = Nominal Thread Size

Metric Units: (Fine Thread Series)

Thread Size & Pitch =====	CLASS 4.6		CLASS 5.8		CLASS 9.8		CLASS 10.9	
	Clamp Load (KN) =====	Tightening Torque (N*m) =====	Clamp Load (KN) =====	Tightening Torque (N*m) =====	Clamp Load (KN) =====	Tightening Torque (N*M) =====	Clamp Load (KN) =====	Tightening Torque (N*m) =====
M8 X1	6.64	10.6	11.2	17.9	19.1	30.6	24.4	39.0
M10 X 1.25	10.4	20.7	17.4	34.9	29.8	59.7	38.1	76.2
M12 X 1.25	15.6	37.5	26.2	63.0	44.9	108	57.3	138
M14 X 1.5	21.2	59.3	35.6	100	60.9	171	77.8	218
M16 X 1.5	28.3	90.6	47.6	152	81.4	261	104	333
M18 X 1.5	36.6	132	61.6	222	105	379	134	484
M20 X 1.5	46.1	184	77.5	310	133	530	169	677
M22 X 1.5	56.4	248	94.9	418	162	714	207	912
M24 X 2	65.1	312	109	525	187	899	239	1147
M27 X 2	84.1	454	141	763	242	1306	309	1667
M30 X 2	105	632	177	1062	303	1816	387	2319
M33 X 2	129	851	217	1431	371	2449	474	3127
M36 X 3	147	1056	247	1775	422	3036	538	3877
M39 X 3	175	1362	294	2290	502	3917	641	5001

Tightening Torque = $K * D * P$

K = 0.2 (dry, unlubricated)

Clamp Load (P) = 75% of the Proof Load

D = Nominal Thread Size

The values presented in these tables are representative and have been compiled for the user's benefit. Results can be influenced by any number of variables including 1) excessive lubrication, 2) excessive design clamp load, 3) nicked or binding threads, 4) non-parallel mating surfaces, and 5) inadequate torque control, to name a few. Therefore, Lord expressly disclaims liability of any kind associated with the application of the data shown herein.