MATERIAL STRENGTH

Material Strength - 60,000 psi
J82 60M or Grade 1 or Class 4.8

Size	Dia.	Stress Area	Tensile Str. Lbs	Proof Load Str. Lbs	Dry Parts K=.2		Lubricated Parts K=.15	
					Min Break Str. (in/lbs)	Max Torque Value (in/lbs)	Min Break Str, (in/lbs)	Max Torque Value (in/lbs)
8-32	0.1640	0.01400	840	462	20.7	11.4	15.5	8.5
10-24	0.1900	0.01750	1,050	578	29.9	16.5	22.4	12.3
10-32	0.1900	0.02000	1,200	660	34.2	18.8	25.7	14.1
1/4-20	0.2500	0.03180	1,908	1,049	71.6	39.4	53.7	29.5
1/4-28	0.2500	0.03637	2,182	1,200	81.8	45.0	61.4	33.8
5/16-18	0.3125	0.05240	3,144	1,729	147.4	81.1	110.5	60.8
5/16-24	0.3125	0.05800	3,480	1,914	163.1	89.7	122.3	67.3
3/8-16	0.3750	0.07750	4,650	2,558	261.6	143.9	196.2	107.9
3/8-24	0.3750	0.08780	5,268	2,897	296.3	163.0	222.2	122.2
7/16-14	0.4375	0.10630	6,378	3,508	418.6	230.2	313.9	172.7
7/16-20	0.4375	0.11870	7,122	3,917	467.4	257.1	350.5	192.8
M3.5x0.6	0.1380	0.01051	631	347	13.1	7.2	9.8	5.4
M4x0.7	0.1575	0.01349	809	445	19.1	10.5	14.3	7.9
M5x0.8	0.1970	0.02201	1,321	726	39.0	21.5	29.3	16.1
M6x1.0	0.2360	0.03116	1,869	1,028	66.2	36.4	49.6	27.3
M7x1.0	0.2755	0.04473	2,684	1,476	110.9	61.0	83.2	45.8
M8x1.25	0.3150	0.05673	3,404	1,872	160.8	88.5	120.6	66.3
M10x1.5	0.3940	0.08990	5,394	2,967	318.8	175.3	239.1	131.5
M12x1.75	0.4720	0.13067	7,840	4,312	555.1	305.3	416.3	229.0

Material Strength - 75,000 psi
Grade 2 or Class 5.8

Size	Dia.	Stress Area	Tensile Str. Lbs	Proof Load Str. Lbs	Dry Parts K=.2		Lubricated Parts K=.15	
					Min Break Str. (in/lbs)	Max Torque Value (in/lbs)	Min Break Str, (in/lbs)	Max Torque Value (in/lbs)
8.32	0.1640	0.01400	1,050	788	25.8	19.4	19.4	14.5
10-24	0.1900	0.01750	1,313	984	37.4	28.1	28.1	21.0
10-32	0.1900	0.02000	1,500	1,125	42.8	32.1	32.1	24.0
1/4-20	0.2500	0.03180	2,385	1,789	89.4	67.1	67.1	50.3
1/4-28	0.2500	0.03637	2,728	2,046	102.3	76.7	76.7	57.5
5/16-18	0.3125	0.05240	3,930	2,948	184.2	138.2	138.2	103.6
5/16-24	0.3125	0.05800	4,350	3,263	203.9	152.9	152.9	114.7
3/8-16	0.3750	0.07750	5,813	4,359	327.0	245.2	245.2	183.9
3/8-24	0.3750	0.08780	6,585	4,939	370.4	277.8	277.8	208.4
7/16-14	0.4375	0.10630	7,973	5,979	523.2	392.4	392.4	294.3
7/16-20	0.4375	0.11870	8,903	6,677	584.2	438.2	438.2	328.6

M3.5x0.6	0.1380	0.01051	788	591	16.3	12.2	12.2	9.2
M4x0.7	0.1575	0.01349	1,012	759	23.9	17.9	17.9	13.4
M5x0.8	0.1970	0.02201	1,651	1,238	48.8	36.6	36.6	27.4
M6x1.0	0.2360	0.03116	2,337	1,752	82.7	62.0	62.0	46.5
M7x1.0	0.2755	0.04473	3,355	2,516	138.6	104.0	104.0	78.0
M8x1.25	0.3150	0.05673	4,255	3,191	201.0	150.8	150.8	113.1
M10x1.5	0.3940	0.08990	6,743	5,057	398.5	298.9	298.9	224.1
M12x1.75	0.4720	0.13067	9,800	7,350	693.9	520.4	520.4	390.3

Material Strength - 120,000 psi
J82 120M or Grade 5 or Grade 5.1 or J81
or J1237 Type 2 or Class 8.8

Size	Dia.	Stress Area	Tensile Str. Lbs	Proof Load Str. Lbs	Dry Parts K=.2		Lubricated Parts K=.15	
					Min Break Str. (in/lbs)	Max Torque Value (in/lbs)	Min Break Str, (in/lbs)	Max Torque Value (in/lbs)
8-32	0.1640	0.01400	1,680	1,176	41.3	28.9	31.0	21.7
10-24	0.1900	0.01750	2,100	1,470	59.9	41.9	44.9	31.4
10-32	0.1900	0.02000	2,400	1,680	68.4	47.9	51.3	35.9
1/4-20	0.2500	0.03180	3,816	2,671	143.1	100.2	107.3	75.1
1/4-28	0.2500	0.03637	4,364	3,055	163.7	114.6	122.7	85.9
5/16-18	0.3125	0.05240	6,288	4,402	294.8	206.3	221.1	154.7
5/16-24	0.3125	0.05800	6,960	4,872	326.3	228.4	244.7	171.3
3/8-16	0.3750	0.07750	,9300	6,510	523.1	366.2	392.3	274.6
3/8-24	0.3750	0.08780	10,536	7,375	592.7	414.9	444.5	311.1
7/16-14	0.4375	0.10630	12,756	8,929	837.1	586.0	627.8	439.5
7/16-20	0.4375	0.11870	14,244	9,971	934.8	654.3	701.1	490.8
M3.5x0.6	0.1380	0.01051	1,261	883	26.1	18.3	19.6	13.7
M4x0.7	0.1575	0.01349	1,619	1,133	38.2	26.8	28.7	20.1
M5x0.8	0.1970	0.02201	2,641	1,849	78.0	54.6	58.5	41.0
M6x1.0	0.2360	0.03116	3,739	2,617	132.3	92.6	99.3	69.5
M7x1.0	0.2755	0.04473	5,368	3,758	221.8	155.3	166.4	116.5
M8x1.25	0.3150	0.05673	6,808	4,765	321.7	225.2	241.2	168.9
M10x1.5	0.3940	0.08990	10,788	7,552	637.6	446.3	478.2	334.7
M12x1.75	0.4720	0.13067	15,680	10,976	1110.2	777.1	832.6	582.8

Material Strength - 130,000 psi
Class 9.8

Size	Dia.	Stress Area	Tensile Str. Lbs	Proof Load Str. Lbs	Dry Parts K=.2		Lubricated Parts K=.15	
					Min Break Str. (in/lbs)	Max Torque Value (in/lbs)	Min Break Str, (in/lbs)	Max Torque Value (in/lbs)
8-32	0.1640	0.01400	1,820	1,274	44.8	31.3	33.6	23.5

10-24	0.1900	0.01750	2,275	1,593	64.8	45.4	48.6	34.0
10-32	0.1900	0.02000	2,600	1,820	74.1	51.9	55.6	38.9
1/4-20	0.2500	0.03180	4,134	2,894	155.0	108.5	116.3	81.4
1/4-28	0.2500	0.03637	4,728	3,310	177.3	124.1	133.0	93.1
5/16-18	0.3125	0.05240	6,812	4,768	319.3	223.5	239.5	167.6
5/16-24	0.3125	0.05800	7,540	5,278	353.4	247.4	265.1	185.6
3/8-16	0.3750	0.07750	10,075	7,053	566.7	396.7	425.0	297.5
3/8-24	0.3750	0.08780	11,414	7,990	642.0	449.4	481.5	337.1
7/16-14	0.4375	0.10630	13,819	9,673	906.9	634.8	680.2	476.1
7/16-20	0.4375	0.11870	15,431	10,802	1012.7	708.9	759.5	531.6
M3.5x0.6	0.1380	0.01051	1,366	956	28.3	19.8	21.2	14.8
M4x0.7	0.1575	0.01349	1,754	1,228	41.4	29.0	31.1	21.8
M5x0.8	0.1970	0.02201	2,861	2,003	84.6	59.2	63.4	44.4
M6x1.0	0.2360	0.03116	4,050	2,835	143.4	100.4	107.5	75.3
M7x1.0	0.2755	0.04473	,5815	4,071	240.3	168.2	180.2	126.2
M8x1.25	0.3150	0.05673	7,375	5,162	348.5	243.9	261.3	182.9
M10x1.5	0.3940	0.08990	11,687	8,181	690.7	483.5	518.0	362.6
M12x1.75	0.4720	0.13067	16,987	11,891	1202.7	841.9	902.0	631.4

Material Strength - 150,000 psi
Class 10.9 or Grade 8

Size	Dia.	Stress Area	Tensile Str. Lbs	Proof Load Str. Lbs	Dry Parts K=.2		Lubricated Parts K=.15	
					Min Break Str. (in/lbs)	Max Torque Value (in/lbs)	Min Break Str, (in/lbs)	Max Torque Value (in/lbs)
8-32	0.1640	0.01400	2,100	1,680	51.7	41.3	38.7	31.0
10-24	0.1900	0.01750	2,625	2,100	74.8	59.9	56.1	44.9
10-32	0.1900	0.02000	3,000	2,400	85.5	68.4	64.1	51.3
1/4-20	0.2500	0.03180	4,770	3,816	178.9	143.1	134.2	107.3
1/4-28	0.2500	0.03637	5,456	4,364	204.6	163.7	153.4	122.7
5/16-18	0.3125	0.05240	7,860	6,288	368.4	294.8	276.3	221.1

5/16-24	0.3125	0.05800	8,700	6,960	407.8	326.3	305.9	244.7
3/8-16	0.3750	0.07750	11,625	9,300	653.9	523.1	490.4	392.3
3/8-24	0.3750	0.08780	13,170	10,536	740.8	592.7	555.6	444.5
7/16-14	0.4375	0.10630	15,945	12,756	1046.4	837.1	784.8	627.8
7/16-20	0.4375	0.11870	17,805	14,244	1168.5	934.8	876.3	701.1
M3.5x0.6	0.1380	0.01051	1,577	1,261	32.6	26.1	24.5	19.6
M4x0.7	0.1575	0.01349	2,024	1,619	47.8	38.2	35.9	28.7
M5x0.8	0.1970	0.02201	3,302	2,641	97.6	78.0	73.2	58.5
M6x1.0	0.2360	0.03116	4,673	3,739	165.4	132.3	124.1	99.3
M7x1.0	0.2755	0.04473	6,710	5,368	277.3	221.8	208.0	166.4
M8x1.25	0.3150	0.05673	8,510	6,808	402.1	321.7	301.6	241.2
M10x1.5	0.3940	0.08990	13,485	10,788	797.0	637.6	597.7	478.2
M12x1.75	0.4720	0.13067	19,601	15,680	1387.7	1110.2	1040.8	832.6