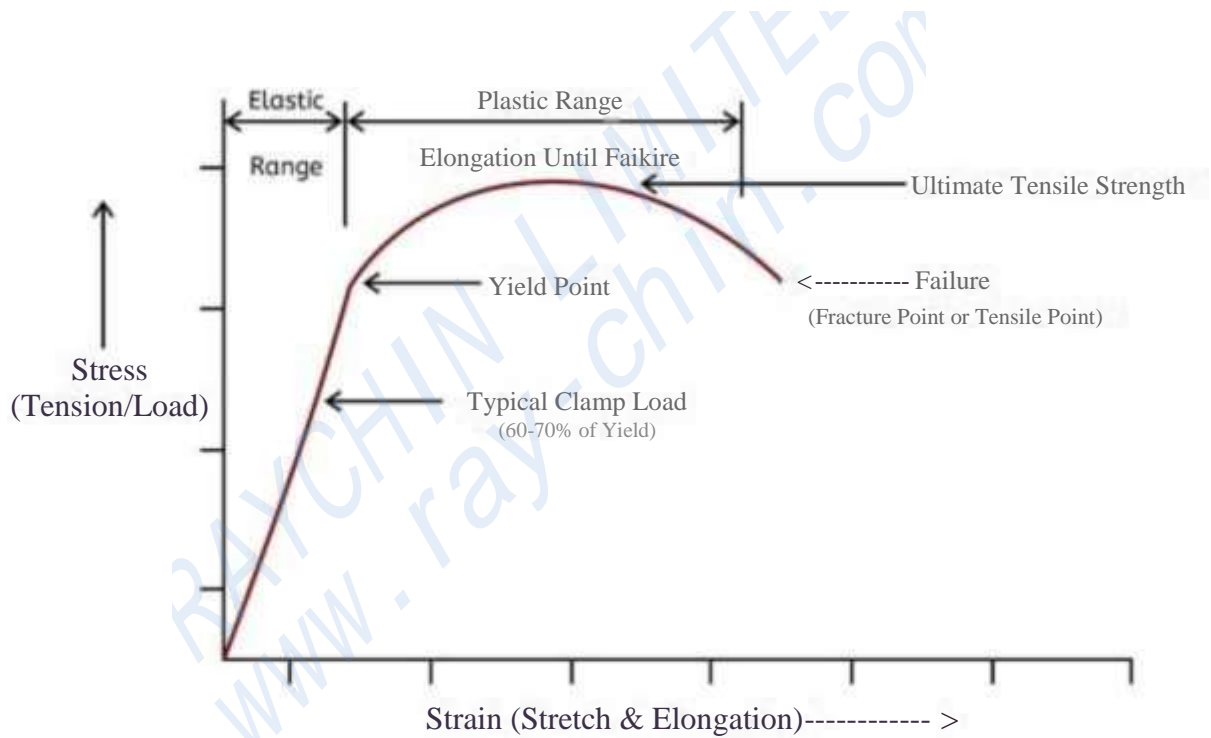


Fastener Torque Specs

Torque is applied to the fastener in an effort to elastically deform the bolt shank. In the case of bolts and nuts, this elastic deformation between the bolt head and the nut is critical in order to create tension or clamping force to hold the joint together. The amount of torque applied is a function of the frictional forces and bolt diameter and is typically calculated utilizing a clamp load equaling 60-70% of the yield. Below are guides that show these calculations for a variety of materials, bolts sizes and thread counts over a range of frictional conditions.

NOTE: The actual clamp load is dependent on a variety of factors including the material, condition of the fasteners, surface finish, lubrication etc. The percentages provided are illustrative of what one might expect to see should only be used as a general guide. *Yield strength used to calculate torque values are based on the typical yield.*



Tensile Stress-Strain Diagram

CAUTION: Care should be used when applying a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury. All data included in this chart is advisory only and its use by anyone is voluntary. The data provided should be used as a guide, but actual material strengths and fastener conditions may vary. In developing this information, Extreme Bolt & Fastener, LLC has made a determined effort to present its contents accurately.

Fastenal. (2009). [Illustration of Tensile: Stress-Strain Relationship] Bolted Joint Design: Mechanical Properties of Steel Fasteners in Service.

Specialty Metal Torque Specs

- [17-4PH Torque Specs](#)
- [A-286 Torque Specs](#)
- [AL-6XN Torque Specs](#)
- [Alloy 20 Torque Specs](#)
- [Alloy 330 Torque Specs](#)
- [Duplex 2205 & 2507 Torque Specs](#)
- [Hastelloy Torque Specs](#)
- [Incoloy 800, 800H, 800HT, 825 & 925](#)
- [Inconel 600, 625 & 718 Torque Specs](#)
- [Molybdenum & TMZ Torque Specs](#)
- [Monel 400 & K500 Torque Specs](#)
- [MP35N Torque Specs](#)
- [Tantalum CP & 2.5%W Torque Specs](#)
- [Titanium Gr2 & Gr5 Torque Specs](#)
- [Waspaloy Torque Specs](#)
- [Zirconium 702 & 705 Torque Specs](#)

17-4PH (H900) Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	17.1	12.7
	28	19.5	14.5
5/16"	18	35.0	26.3
	24	38.8	28.2
3/8"	16	62.1	46.7
	24	70.4	52.7
7/16"	14	93.3	74.6
	20	111.0	83.3
1/2"	13	151.6	113.6
	20	170.5	128.1
9/16"	12	218.6	164.1
	18	243.3	183.0
5/8"	11	301.8	226.4
	18	341.8	256.4
3/4"	10	537	402
	16	597	448
7/8"	9	863	648
	14	953	714
1"	8	1295	971
	14	1452	1090
1-1/4"	7	2254	1889
	12	2435	1870
1-1/2"	5	3321	2940
	12	4412	3308

* Calculated from a Yield Strength of 185ksi

17-4PH (H1150) Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	11.5	8.6
	28	13.2	9.8
5/16"	18	23.6	17.8
	24	26.2	19.7
3/8"	16	42.0	31.5
	24	47.6	35.6
7/16"	14	67.1	50.4
	20	75.0	56.3
1/2"	13	102.4	76.8
	20	115.5	86.5
9/16"	12	147.7	110.9
	18	164.8	123.6
5/8"	11	203.9	153.0
	18	231.0	173.2
3/4"	10	363	272
	16	404	303
7/8"	9	553	438
	14	644	482
1"	8	875	656
	14	381	736
1-1/4"	7	1523	1141
	12	1686	1264
1-1/2"	6	2649	1986
	12	2981	2235

* Calculated from a Yield Strength of 125ksi

A-286 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/im	Torque ft-lb [Dry]	Torque ft-lb (Lubricated)
1/4"	20	9.4	7.0
	28	10.8	8.0
5/16"	18	19.3	14.5
	24	21.4	16.1
3/8"	16	34.3	25.7
	24	38.8	29.0
7/16"	14	54.8	41.1
	20	61.2	45.9
1/2"	13	83.6	62.6
	20	94.2	70.6
9/16"	12	120.5	90.5
	18	134.5	100.9
5/8"	11	166.4	124.8
	18	188.5	141.4
3/4"	10	296	222
	16	329	247
7/8"	9	476	357
	14	526	394
1"	8	714	536
	14	800	601
1-1/4"	7	1243	931
	12	1376	1031
1-1/2"	5	2162	1621
	12	2432	1824

**Calculated from a Yield Strength of 102ksi*

AL-6XN Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	4.9	3.6
	28	5.6	4.1
5/16"	18	10.0	7.5
	24	11.1	8.4
3/8"	16	17.8	13.4
	24	20.2	15.1
7/16"	14	28.5	21.4
	20	31.8	23.9
1/2"	13	43.4	32.5
	20	49.0	36.7
9/16"	12	62.6	47.0
	18	69.9	52.4
5/8"	11	86.5	64.9
	18	97.3	73.5
3/4"	10	154	115
	16	171	128
7/8"	9	247	186
	14	273	205
1"	8	371	278
	14	416	312
1-1/4"	7	646	484
	12	715	536
1-1/2"	6	1123	842
	12	1264	948

* Calculated from a Yield Strength of 53ksi

Alloy 20 Bolt/Screw

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	3.2	2.4
	28	3.7	2.7
5/16"	18	6.6	5.0
	24	7.3	5.5
3/8"	16	11.8	8.8
	24	13.3	10.0
7/16"	14	18.8	14.1
	20	21.0	15.8
1/2"	13	28.7	21.5
	20	32.3	24.2
9/16"	12	41.4	31.0
	18	46.1	34.6
5/8"	11	57.1	42.8
	18	64.7	48.5
3/4"	10	102	76
	16	113	85
7/8"	9	163	123
	14	180	135
1"	8	245	184
	14	275	206
1-1/4"	7	426	320
	12	472	354
1-1/2"	6	742	556
	12	835	626

Alloy 330 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	3.4	2.5
	28	3.3	2.9
5/16"	18	7.0	5.3
	24	7.8	5.8
3/8"	16	12.4	9.3
	24	14.1	10.5
7/16"	14	19.9	14.9
	20	22.2	16.7
1/2"	13	30.3	22.7
	20	34.2	25.6
9/16"	12	43.7	32.8
	18	48.8	36.6
5/8"	11	60.4	45.3
	18	68.4	51.3
3/4"	10	107	80
	16	119	90
7/8"	9	173	130
	14	131	143
1"	8	259	194
	14	290	218
1-1/4"	7	451	338
	12	433	374
1-1/2"	6	784	588
	12	382	662

* Calculated from a Yield Strength of 37ksi

Duplex 2205 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb [Lubricated]
1/4"	20	6.5	4.8
	28	7.4	5.5
5/16"	18	13.2	10.0
	24	14.7	11.0
3/8"	16	23.5	17.7
	24	26.5	19.3
7/16"	14	37.6	28.2
	20	42.0	31.5
1/2"	13	57.4	43.0
	20	64.7	48.5
9/16"	12	82.7	62.1
	18	32.3	69.2
5/8"	11	114.2	85.7
	18	123.3	37.0
3/4"	10	203	152
	16	226	170
7/8"	9	326	245
	14	361	270
1"	8	490	358
	14	549	412
1-1/4"	7	853	638
	12	944	708
1-1/2"	6	1484	1112
	12	1669	1252

**Calculated from a Yield Strength of 70ksi*

Super Duplex 2507 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	7.4	5.5
	28	8.4	6.3
5/16"	18	15.1	11.4
	24	16.8	12.6
3/8"	16	26.9	20.2
	24	30.4	22.8
7/16"	14	43.0	32.3
	20	48.0	36.0
1/2"	13	65.6	49.1
	20	73.3	55.4
9/16"	12	94.5	71.0
	18	105.5	79.1
5/8"	11	130.5	97.8
	18	147.8	110.3
3/4"	10	232	174
	16	258	194
7/8"	9	373	280
	14	412	309
1"	8	560	420
	14	628	471
1-1/4"	7	375	730
	12	1079	809
1-1/2"	6	1696	1271
	12	1908	1430

* Calculated from a Yield Strength of 80ksi

HASTELLOY C2 76 HEX HEAD BOLT TORQUE CHART

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	4.5	3.4
	28	5.2	3.8
5/16"	18	9.3	7.0
	24	10.3	7.7
3/8"	16	16.5	12.4
	24	18.6	14.0
7/16"	14	26.3	19.8
	20	29.4	22.1
1/2"	13	40.2	30.1
	20	45.3	33.9
9/16"	12	57.3	43.5
	18	64.6	48.5
5/8"	11	79.9	60.0
	18	90.5	57.9
3/4"	10	142	107
	16	158	119
7/8"	9	228	172
	14	252	189
1"	8	343	257
	14	385	289
1-1/4"	7	597	447
	12	661	495
1-1/2"	6	1033	113
	12	1169	876

*Calculated from a Yield Strength of 49ksi

Incoloy 800, 800H, 800HT Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	3.3	2.5
	28	3.8	2.8
5/16"	18	6.8	5.2
	24	7.6	5.7
3/8"	16	12.2	3.1
	24	13.8	10.3
7/16"	14	13.4	14.6
	20	21.7	16.3
1/2"	13	29.7	22.2
	20	33.4	25.1
9/16"	12	42.8	32.1
	18	47.7	35.8
5/8"	11	53.1	44.3
	18	66.3	50.2
3/4"	10	105	79
	16	117	E8
7/8"	9	163	127
	14	187	140
1"	8	253	190
	14	284	213
1-1/4"	7	441	331
	12	488	366
1-1/2"	6	767	575
	12	863	647

**Calculated from a Yield Strength of 36ksi*

Incoloy 825 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	4.3	3.2
	28	5.0	3.7
5/16"	18	8.9	6.7
	24	9.9	7.4
3/8"	16	15.8	11.9
	24	17.9	13.4
7/16"	14	25.2	19.0
	20	28.2	21.2
1/2"	13	38.5	28.3
	20	43.4	32.5
9/16"	12	55.5	41.7
	18	62.0	46.5
5/8"	11	76.7	57.5
	18	86.8	65.1
3/4"	10	136	102
	16	152	114
7/8"	9	219	165
	14	242	181
1"	8	328	247
	14	369	277
1-1/4"	7	573	429
	12	634	475
1-1/2"	5	336	747
	12	1121	840

**Calculated from a Yield Strength of 47ksi*

Incoloy 925 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	11.1	8.2
	28	12.7	3.4
5/16"	18	22.7	17.1
	24	25.2	18.9
3/8"	16	40.3	30.3
	24	45.7	34.2
7/16"	14	64.4	48.4
	20	72.0	54.0
1/2"	13	98.3	73.7
	20	110.3	83.1
9/16"	12	141.8	106.4
	18	158.2	118.7
5/8"	11	185.8	146.9
	18	221.7	166.3
3/4"	10	348	261
	16	387	231
7/8"	3	560	420
	14	618	463
1"	8	840	630
	14	942	707
1-1/4"	7	1462	1096
	12	1619	1213
1-1/2"	6	2543	1907
	12	2862	2146
1/4"			

Calculated from a Yield Strength of 120ksi

Inconel 600 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	3.4	2.5
	28	3.3	2.8
5/16"	18	7.0	5.3
	24	7.8	5.8
3/8"	16	12.4	9.3
	24	14.1	10.5
7/16"	14	19.9	14.9
	20	22.2	16.7
1/2"	13	30.3	22.7
	20	34.2	25.6
9/16"	12	43.7	32.8
	18	48.8	36.6
5/8"	11	60.4	45.3
	18	68.4	51.3
3/4"	10	107	80
	16	119	90
7/8"	9	173	130
	14	191	143
1"	8	259	134
	14	290	218
1-1/4"	7	451	338
	12	493	374
1-1/2"	6	784	588
	12	882	662

Calculated from a Yield Strength of 37ksi

Inconel625 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	7.8	5.8
	28	8.9	6.6
5/16"	18	15.9	12.0
	24	17.6	13.2
3/8"	16	28.2	21.2
	24	32.0	23.9
7/16"	14	45.1	33.3
	20	50.4	37.8
1/2"	13	68.8	51.6
	20	77.6	58.2
9/16"	12	99.2	74.5
	18	110.8	83.1
5/8"	11	137.0	102.8
	18	155.2	116.4
3/4"	10	244	183
	16	271	204
7/8"	9	382	294
	14	433	324
1"	8	588	441
	14	659	495
1-1/4"	7	1024	767
	12	1133	849
1-1/2"	6	1780	1335
	12	2003	1502

**Calculated from a Yield Strength of 84ksi*

Inconel 718 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	16.2	12.0
	28	18.5	13.7
5/16"	18	33.1	24.9
	24	36.7	27.6
3/8"	16	58.8	44.1
	24	66.6	49.8
7/16"	14	94.0	70.6
	20	105.0	78.8
1/2"	13	143.4	107.5
	20	161.7	121.2
9/16"	12	206.8	155.2
	18	230.7	173.1
5/8"	11	285.5	214.2
	18	323.4	242.5
3/4"	10	508	380
	16	565	424
7/8"	9	816	613
	14	902	675
1"	8	1225	913
	14	1373	1031
1-1/4"	7	2132	1538
	12	2361	1769
1-1/2"	6	3708	2781
	12	4173	3129

**Calculated from a Yield Strength of 175ksi*

Molybdenum Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	8.3	6.2
	28	9.5	7.0
5/16"	18	17.0	12.8
	24	18.9	14.2
3/8"	16	30.2	22.7
	24	34.2	25.6
7/16"	14	48.3	36.3
	20	54.0	40.5
1/2"	13	73.8	55 J
	20	83.2	62.3
9/16"	12	106.3	73.8
	18	118.7	89.0
5/8"	11	146.8	110.2
	18	166.3	124.7
3/4"	10	261	196
	16	291	218
7/8"	9	420	315
	14	464	347
1"	8	630	473
	14	706	530
1-1/4"	7	1097	822
	12	1214	910
1-1/2"	6	1908	1430
	12	2146	1609

*Calculated from a Yield Strength of 90ksi

Molybdenum TZM Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	12.0	8.9
	28	13.7	10.2
5/16"	18	24.6	18.5
	24	27.3	20.5
3/8"	16	43.7	32.8
	24	49.5	37.0
7/16"	14	69.8	52.4
	20	78.0	58.5
1/2"	13	106.5	79.8
	20	120.1	90.0
9/16"	12	153.6	115.3
	18	171.4	128.6
5/8"	11	212.1	153.1
	18	240.2	180.2
3/4"	10	377	283
	16	420	315
7/8"	9	606	455
	14	670	502
1"	8	910	683
	14	1020	756
1-1/4"	7	1584	1187
	12	1754	1314
1-1/2"	6	2755	2066
	12	3100	2324

* Calculated from a Yield Strength of 130ksi

Monel 400 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	4.2	3.1
	28	4.7	3.5
5/16"	18	8.5	6.4
	24	9.4	7.1
3/8"	16	15.1	11.3
	24	17.1	12.8
7/16"	14	24.2	18.1
	20	27.0	20.3
1/2"	13	36.9	27.6
9/16"	12	53.2	39.9
	18	59.3	44.5
5/8"	11	73.4	55.1
	18	83.2	62.4
3/4"	10	131	98
	16	145	109
7/8"	9	210	158
	14	232	174
1"	8	315	236
	14	353	265
1-1/4"	7	548	411
	12	607	455
1-1/2"	6	954	715
	12	1073	805

**Calculated from a Yield Strength of 45ksi*

Monel K500 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	10.2	7.5
	28	11.6	8.6
5/16"	18	20.8	15.7
	24	23.1	17.3
3/8"	16	36.9	27.7
	24	41.8	31.3
7/16"	14	53.1	44.4
	20	66.0	49.5
1/2"	13	30.2	67.6
9/16"	12	130.0	97.6
	18	145.0	108.8
5/8"	11	179.5	134.6
	18	203.3	152.4
3/4"	10	319	239
	16	355	267
7/8"	9	513	385
	14	557	424
1"	8	770	578
	14	863	648
1-1/4"	7	1340	1004
	12	1484	1112
1-1/2"	6	2332	1748
	12	2623	1967

**Calculated from a Yield Strength of 110ksi*

MP35N Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	20.0	14.3
	28	22.9	17.0
5/16"	18	41.0	30.3
	24	45.5	34.2
3/8"	16	72.9	54.7
	24	82.6	61.8
7/16"	14	116.5	87.5
	20	130.2	97.7
1/2"	13	177.8	133.3
	20	200.5	150.2
9/16"	12	256.4	152.5
	18	286.1	214.5
5/8"	11	354.0	265.6
	18	401.0	300.7
3/4"	10	630	472
	16	701	526
7/8"	9	1012	760
	14	1118	837
1"	8	1513	1139
	14	1703	1278
1-1/4"	7	2644	1981
	12	2327	2154
1-1/2"	6	4599	3448
	12	5175	3880

** Calculated from a Yield Strength of 217ksi*

Tantalum CP Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	2.3	1.7
	28	2.6	2.0
5/16"	18	4.7	3.6
	24	5.2	3.9
3/8"	16	8.4	6.3
	24	9.5	7.1
7/16"	14	13.4	10.1
	20	15.0	11.3
1/2"	13	20.5	15.4
	20	23.1	17.3
9/16"	12	29.5	22.2
	18	33.0	24.7
5/8"	11	40.8	30.6
	18	46.2	34.6
3/4"	10	73	54
	16	81	61
7/8"	9	117	88
	14	123	36
1"	8	175	131
	14	196	147
1-1/4"	7	305	228
	12	337	253
1-1/2"	5	530	397
	12	596	447

**Calculated from a Yield Strength of 25ksi*

Tantalum 2.5% W Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	3.2	2.4
	28	3.7	2.7
5/16"	18	6.6	5.0
	24	7.3	5.5
3/8"	16	11.8	8.8
	24	13.3	10.0
7/16"	14	18.8	14.1
	20	21.0	15.8
1/2"	13	28.7	21.5
	20	32.3	24.2
9/16"	12	41.4	31.0
	18	46.1	34.6
5/8"	11	57.1	42.8
	18	64.7	48.5
3/4"	10	102	76
	16	113	85
7/8"	9	163	123
	14	180	135
1"	8	245	184
	14	275	206
1-1/4"	7	426	320
	12	472	354
1-1/2"	6	742	556
	12	835	626

* Calculated from a Yield Strength of 35ksi

Titanium Grade 2 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	4.6	3.4
	28	5.3	3.9
5/16"	18	9.5	7.1
	24	10.5	7.9
3/8"	16	16.8	12.6
	24	19.0	14.2
7/16"	14	26.8	20.2
	20	30.0	22.5
1/2"	13	41.0	30.7
	20	46.2	34.6
9/16"	12	59.1	44.3
	18	65.3	49.5
5/8"	11	81.6	61.2
	18	92.4	69.3
3/4"	10	145	109
	16	161	121
7/8"	8	233	175
	14	258	193
1"	8	350	263
	14	382	295
1-1/4"	7	603	457
	12	674	505
1-1/2"	6	1060	795
	12	1192	894

**Calculated from a Yield Strength of 50ksi*

Titanium Grade 5 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	11.8	8.8
	28	13.5	10.0
5/16"	18	24.2	18.2
	24	25.9	20.2
3/8"	16	43.0	32.3
	24	48.7	36.5
7/16"	14	68.7	51.6
	20	75.8	57.6
1/2"	13	104.9	78.6
	20	118.3	88.6
9/16"	12	151.2	113.5
	18	168.8	125.6
5/8"	11	208.8	156.7
	18	236.5	177.4
3/4"	10	371	273
	16	413	310
7/8"	9	597	448
	14	659	494
1"	8	896	672
	14	1005	754
1-1/4"	7	1560	1169
	12	1727	1294
1-1/2"	6	2713	2034
	12	3053	2289

Calculated from a Yield Strength of 128ksi

Waspaloy Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	10.6	7.3
	28	12.1	9.0
5/16"	18	21.8	16.4
	24	24.1	18.1
3/8"	16	35.6	29.0
	24	43.8	32.8
7/16"	14	61.8	46.4
	20	63.0	51.8
1/2"	13	34.3	70.6
	20	106.3	79.6
9/16"	12	135.9	102.0
	18	151.6	113.8
5/8"	11	187.6	140.8
	18	212.5	159.4
3/4"	10	334	250
	16	371	279
7/8"	9	536	403
	14	593	444
1"	8	805	604
	14	903	678
1-1/4"	7	1401	1050
	12	1551	1163
1-1/2"	6	2438	1828
	12	2743	2056

* Calculated from a Yield Strength of 115ksi

Zirconium 702 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	4.3	3.2
	28	5.0	3.7
5/16"	18	8.9	6.7
	24	9.9	7.4
3/8"	16	15.8	11.9
	24	17.9	13.4
7/16"	14	25.2	19.0
	20	28.2	21.2
1/2"	13	38.5	28.9
	20	43.4	32.5
9/16"	12	55.5	41.7
	18	62.0	46.5
5/8"	11	76.7	57.5
	18	86.8	65.1
3/4"	10	136	102
	16	152	114
7/8"	9	219	165
	14	242	181
1"	8	329	247
	14	369	277
1-1/4"	7	573	428
	12	634	475
1-1/2"	6	996	747
	12	1121	840

**Calculated from a Yield Strength of 47ksi*

Zirconium 705 Bolt/Screw Torque Chart

Nominal Diameter (in)	Threads/in	Torque ft-lb (Dry)	Torque ft-lb (Lubricated)
1/4"	20	6.7	5.0
	28	7.7	5.7
5/16"	18	13.8	10.4
	24	15.3	11.5
3/8"	16	24.5	18.4
	24	27.8	20.8
7/16"	14	39.2	29.4
	20	43.8	32.9
1/2"	13	59.8	44.8
	20	67.4	50.5
9/16"	12	86.3	64.7
	18	96.2	72.2
5/8"	11	119.1	89.3
	18	134.9	101.2
3/4"	10	212	159
	16	236	177
7/8"	9	340	256
	14	376	282
1"	8	511	383
	14	573	430
1-1/4"	7	889	667
	12	985	738
1-1/2"	6	1547	1160
	12	1741	1305

**Calculated from a Yield Strength of 73 ksi*