Bolt

Siddhagiri Metals & Tubes

Torque Chart

1. Metric Bolt
2. Aircraft Bolt
3. A307/A325/A193 B7 A193 B8/A490/A4 70

About

Refer Bolt Torque Chart Which Offer Maximum Torque Values for Standard Size Bolt. This Torque Specs for Bolts Can Be Refer as a Guide to Know Particular Size/Grade of Fastener Max Safe Torque

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Torque Specs for Bolts

Thread Size	Torque for Standard Threads in [N m]						
Bolt Grade	6.8	4.6	3.6	5.6	10.9	8.8	12.9
M2,5	0,54	0,27	0,2	0,34	1,01	0,72	1,21
M2	0,26	0,13	0,1	0,16	0,49	0,35	0,59
M4	2,23	1,12	0,81	1,39	4,18	2,97	5,02
M3	0,96	0,48	0,35	0,60	1,80	1,28	2,16
M5	4,52	2,26	0,6	2,83	8,48	6,03	10,18
M7	10,27	5,13		6,42	19,25	13,70	23,10
M6	7,69	3,84	2,8	4,80	14,41	10,25	17,29
M8	18,70	9,35		11,69	35,06	24,93	42,07
M12	65	32		40	121	86	146
M10	37	18		23	70	49	83
M14	104	52		65	194	138	233
M18	222	112		139	417	296	500
M16	161	81		101	302	215	363
M20	315	157		197	590	420	709
M24	544	272		340	1020	726	1224
M22	430	215		269	807	574	968
M27	800	400		500	1500	1067	1800
M33	1477	739		923	2770	1969	3323
M30	1083	542		677	2032	1445	2438
M36	1896	948		1185	3555	2528	4266
M42	3038	1519		1899	5696	4050	6835
M39	2457	1229		1536	4607	3276	5529
M45	3796	1898		2373	7118	5062	8541
M52	5907	2954		3692	11076	7876	13292
M48	4565	2282		2853	8559	6086	10271
M56	7345	3672		4591	13772	9793	16526

M64	11071	5536		6920	20759	14762	24911
M60	9164	4582		5728	17183	12219	20619
M68	13440	6720		8400	25199	17919	30239

Bolt Torque Table Formula

T = KDP

Where,

- P = bolt clamp load, lb.
- K = torque coefficient (dimensionless)
- T = Torque
- D = nominal diameter (inches)

See Grade 8.8 Bolt Weight Formula

Grade 8.8 Bolt Weight Formula

Formula: Weight = Volume x Density

Bolt Weight Chart

Length	**Diameter**								
	7⁄8"	5⁄8"	1⁄2"	3⁄4"	1⅛"	1"	1⅜	1¼"	1½
1¼	74.4	31.3	17.8	49.6	-	104	-	-	-
1	-	29.4	16.5	47.0	-	-	-	-	-
1½	78	33.1	19.2	52.2	148	109	-	197	-
2	86.1	37.4	21.9	58.4	160	119	270	212	344
1¾	81.9	35.3	20.5	55.3	154	114	261	205	333
2¼	90.3	39.8	23.3	61.6	167	124	279	220	355
2¾	98.8	43.9	26.1	67.8	181	135	300	237	379
2½	94.6	41.7	24.7	64.7	174	130	290	229	366

3	103	46.1	27.4	70.9	188	141	310	246	391
3½	111	50.4	30.2	77.1	202	151	332	263	416
3¼	107	48.2	28.8	74	195	146	321	255	403
3¾	116	52.5	31.6	80.2	209	157	342	272	428
4¼	124	56.9	34.3	86.4	223	168	363	289	453
4	120	54.7	33	83.3	216	162	353	280	441
4½	128	59	35.7	89.5	230	173	374	298	465
5	137	63.3	38.5	95.8	244	184	395	315	490
4¾	133	61.2	37.1	92.7	237	179	384	306	478
5¼	141	65.5	39.9	98.9	251	190	405	324	503
5¾	150	69.8	42.6	105	265	201	426	341	527
5½	146	67.7	41.2	102	258	196	416	332	515
6	154	71.9	44	108	272	207	437	349	540
6½	163	76.3	-	114	286	218	458	367	565
6¼	158	74.1	-	111	279	212	447	358	552
6¾	167	78.5	-	118	293	223	468	375	577
7¼	175	82.8	-	124	307	234	489	392	602
7	171	80.6	-	121	300	229	479	384	589
7½	179	84.9	-	127	314	240	500	401	614
8	187	89.2	-	133	328	251	521	418	639
F436 Round Washers	7	3.6	2.1	4.8	11.3	9.4	16.8	13.8	20
7¾	183	87.1	-	130	321	246	510	410	626
8¼	192	-	-	-	335	257	531	427	651
8¾	-	-	-	-	-	-	552	444	676
8½	196	-	-	-	342	262	542	435	664
9	-	-	-	-	-	-	563	453	689
Per inch Adder	16.9	8.6	5.5	12.4	28	22.1	42.5	34.4	49.7

Metric Bolt Torque Chart

Diameter	Tensile Stress Area mm²	Approximate Torque Nm				Suggested Bolt Load KN.			
		Grade 4.6	Grade 8.8	Grade 10.9	Grade 12.9	Grade 4.6	Grade 8.8	Grade 10.9	Grade 12.9
M6	20.1	4.55	11.7	15.9	19.1	3.79	9.8	13.3	15.9
M5	14.2	2.68	6.9	9.4	11.2	2.68	6.9	9.4	11.2
M8	36.6	11	28.4	38.7	46.4	6.9	17.8	24.2	29.0
M12	84.3	38	98	134	160	15.9	40.9	55.7	66.8
M10	58.0	22	56.3	77	92	10.9	28.1	38.3	45.9
M36	817	1110	2855	3885	4660	154	397	540	647
M16	157	95	244	332	397	29.6	76.2	104	124
M24	353	320	822	1119	1342	66.6	171	233	280
M20	245	185	476	647	776	46.2	119	162	194
M30	561	635	1634	2223	2667	106	272	370	444

Find Torque Specs for Bolts A325

A325 Bolt Torque Specs

Bolt Size	TPI	(ft lbs) Tightening Torque Range(Minimum to Maximum)		Tension	
		Plain	Galv+Waxed	Max	Min
5⁄8	11	198 to 240	99 to 120	23,000	19,000
1⁄2	13	100 to 117	50 to 58	14,000	12,000
3⁄4	10	350 to 425	175 to 213	34,000	28,000
1	8	850 to 1,017	425 to 508	61,000	51,000
7⁄8	9	569 to 685	284 to 343	47,000	39,000
1 1⁄8	7	1,200 to 1,444	600 to 722	77,000	64,000
1 3⁄8	6	2,223 to 2,681	1,111 to 1,341	117,000	97,000
1 1⁄4	7	1,687 to 2,042	844 to 1,021	98,000	81,000
1 1⁄2	6	2,950 to 3,575	1,475 to 1,788	143,000	118,000

Refer A193 B7 and B8 Bolt Tightening Torque Chart

A193 B7 Bolt Torque Chart

Bolt Size	Proof Load (lbs)	TPI	Clamp Load (lbs)	Tightening Torque (ft lbs)		
				Galv	Galv+Waxed	Plain
5⁄16	5,500	18	4,125	27	11	21
1⁄4	3,350	20	2,513	13	5	10
3⁄8	8,150	16	6,113	48	19	38
1⁄2	14,900	13	11,175	116	47	93
7⁄16	11,150	14	8,363	76	30	61
5⁄8	23,750	11	17,813	232	93	186
9⁄16	19,100	12	14,325	168	67	134
3⁄4	35,050	10	26,288	411	164	329
1	63,650	8	47,738	995	398	796
7⁄8	48,500	9	36,375	663	265	530
1 1⁄8	80,100	7	60,075	1,408	563	1,126
1 1⁄4	101,750	7	76,313	1,987	795	1,590
1 1⁄8	82,934	8	62,201	1,458	583	1,166
1 1⁄4	105,006	8	78,754	2,051	820	1,641
1 3⁄8	129,492	8	97,119	2,782	1,113	2,226
1 3⁄8	121,300	6	90,975	2,606	1,042	2,085
1 1⁄2	147,550	6	110,663	3,458	1,383	2,767
1 3⁄4	199,500	5	149,625	5,455	2,182	4,364
1 1⁄2	156,687	8	117,515	3,672	1,469	2,938
1 3⁄4	218,400	8	163,800	-	-	4,778
2	290,850	8	218,138	-	-	7,271
2	262,500	4 1⁄2	196,875	8,203	3,281	6,563
2 1⁄4	341,250	4 1⁄2	255,938	11,997	4,799	9,598
2 1⁄2	420,000	4	315,000	16,406	6,563	13,125

21⁄4	373,801	8	280,351	-	-	10,513
21⁄2	466,200	8	349,650	-	-	14,569
23⁄4	515,851	8	386,888	-	-	17,732
23⁄4	468,500	4	351,263	20,124	8,050	16,100
3	567,150	4	425,363	26,585	10,634	21,268
31⁄4	674,500	4	505,875	34,252	13,701	27,402
3	618,451	8	463,838	-	-	23,192
31⁄4	730,550	8	547,913	-	-	29,679
31⁄2	851,201	8	638,401	-	-	37,240
31⁄2	791,350	4	593,513	43,277	17,311	34,622
33⁄4	917700	4	688275	53,771	21,509	43,017
4	1052600	4	789450	65,788	26,315	52,630
33⁄4	982,300	8	736,725	-	-	46,045
4	1,121,950	8	841,463	-	-	56,098

A193 B8 Torque Chart

BOLT DIA	Torque Ft*lb		
	70% Torque	30% Initial Torque	100% Final Torque
9/16	53	23	75
1/2	36	16	52
5/8	73	31	104
7/8	166	71	237
3/4	129	55	184
1	249	107	356
1.1/4	417	179	596
1.1/8	297	127	424
1.3/8	435	186	622
1.9/16	392	168	560
1.1/2	574	246	821

3	3008	1289	4297
1.5/8	445	191	636
1.7/8	696	298	994
1.3/4	561	240	801
2	853	366	1219
2.1/2	1709	733	2442
2.1/4	1234	529	1762
2.3/4	2300	986	3285

Check A307 and A490 Torque Values for Bolts

A307 Bolt Torque Chart

Bolt Size	Proof Load (lbs)	TPI	Clamp Load (lbs)	Tightening Torque (ft lbs)		
				Galv	Galv+Waxed	Plain
5⁄16	1,735	18	1,302	8	3	7
1⁄4	1,053	20	790	4	2	3
3⁄8	2,567	16	1,925	15	6	12
1⁄2	4,700	13	3,525	37	15	29
7⁄16	3,521	14	2,640	24	10	19
9⁄16	6,028	12	4,521	53	21	42
3⁄4	11,062	10	8,297	130	52	104
5⁄8	7,485	11	5,614	73	29	58
7⁄8	15,301	9	11,476	209	84	167
11⁄8	25,271	7	18,953	444	178	355
1	20,071	8	15,053	314	125	251
11⁄4	32,093	7	24,070	627	251	501
11⁄2	46,534	6	34,900	1,091	436	873
13⁄8	38,254	6	28,690	822	329	657
4	366,970	4	275,227	22,936	9,174	18,348
13⁄4	62,928	5	47,196	1,721	688	1,377

21⁄4	107,640	41⁄2	80,730	3,784	1,514	3,027
2	82,800	41⁄2	62,100	2,588	1,035	2,070
21⁄2	132,480	4	99,360	5,125	2,070	4,140
3	197,726	4	148,295	9,268	3,707	7,415
23⁄4	163,282	4	122,461	7,016	2,806	5,613
31⁄2	275,890	4	206,917	15,088	6,035	12,070
31⁄4	235,152	4	176,364	11,941	4,777	9,553
33⁄4	319,939	4	239,954	18,746	7,499	14,997

ASTM A449 or SAE Grade 5 Torque Table

Bolt Size	Proof Load (lbs)	TPI	Clamp Load (lbs)	Tightening Torque (ft lbs)		
				Galv	Galv+Waxed	Plain
5⁄16	4,450	18	3,338	22	9	17
1⁄4	2,700	20	2,025	11	4	8
3⁄8	6,600	16	4,950	39	15	31
1⁄2	12,050	13	9,038	94	38	75
7⁄16	9,050	14	6,788	62	25	49
9⁄16	15,450	12	11,588	136	54	109
3⁄4	28,400	10	21,300	333	133	266
5⁄8	19,200	11	14,400	188	75	150
7⁄8	39,250	9	29,438	537	215	429
23⁄4	271,150	4	203,363	11,651	4,660	9,321
11⁄8	56,450	7	42,338	992	397	794
1	51,500	8	38,625	805	322	644
11⁄4	71,700	7	53,775	1,400	560	1,120
11⁄2	104,000	6	78,000	2,438	975	1,950
13⁄8	85,450	6	64,088	1,836	734	1,469
13⁄4	104,500	5	78,375	2,857	1,143	2,286
21⁄4	178,750	41⁄2	134,063	6,284	2,514	5,027

2	137,500	4½	103,125	4,297	1,719	3,438
2½	220,000	4	165,000	8,594	3,438	6,875
3	328,350	4	246,263	15,391	6,157	12,313

A490 Torque Chart

Bolt Size	Tension (lbs)		TPI	(ft lbs) Tightening Torque Range (Minimum to Maximum)	
	Min	Max		Lubricated	Plain
1½	148,000	178,000	6	1,850 to 2,225	3,700 to 4,450
½	15,000	18,000	13	63 to 75	125 to 150
⅝	24,000	29,000	11	125 to 151	250 to 302
¾	35,000	42,000	10	219 to 263	438 to 525
1	64,000	77,000	8	533 to 642	1,067 to 1,283
1⅛	80,000	96,000	7	750 to 900	1,500 to 1,800
⅞	49,000	59,000	9	357 to 430	715 to 860
1⅜	121,000	145,000	6	1,386 to 1,661	2,773 to 3,323
1¼	102,000	122,000	7	1,063 to 1,271	2,125 to 2,542

ASTM A354-BD OR SAE Grade 8 Bolt Tightening Torque Chart

Bolt Size	Proof Load (lbs)	TPI	Clamp Load (lbs)	Tightening Torque (ft lbs)	
				Lubricated	Plain
5⁄16	6,300	18	4,725	12	25
¼	3,800	20	2,850	6	12
⅜	9,300	16	6,975	22	44
½	17,050	13	12,788	53	107
7⁄16	12,750	14	9,563	35	70
9⁄16	21,850	12	16,388	77	154
¾	40,100	10	30,075	188	376

5⁄8	27,100	11	20,325	106	212
7⁄8	55,450	9	41,588	303	606
11⁄8	91,550	7	68,663	644	1,287
1	72,700	8	54,525	454	909
11⁄4	120,000	7	90,000	938	1,875
11⁄2	168,600	6	126,450	1,581	3,161
13⁄8	138,600	6	103,950	1,191	2,382
13⁄4	228,000	5	171,000	2,494	4,988
21⁄4	390,000	41⁄2	292,500	5,484	10,969
2	300,000	41⁄2	225,000	3,750	7,500
21⁄2	480,000	4	360,000	7,500	15,000
3	626,850	4	470,138	11,753	23,507
23⁄4	517,650	4	388,238	8,897	17,794
31⁄4	745,500	4	559,125	15,143	30,286
33⁄4	1,014,300	4	760,725	23,773	47,545
31⁄2	874,650	4	655,988	19,133	38,266
4	1,163,400	4	872,550	29,085	58,100

Get 10.9 and 12.9 Torque Table for Bolt Tightening

8.8 Metric Bolt Torque Chart

Size (mm)	Max Tightening Torque (Nm) Recommended
	Grade 8.8
M6	11.8
M5	7.0
M8	28.8
M12	99.8
M10	57.3
M16	248
M24	865

M20	500
M30	1719

10.9 Bolt Torque Chart

Size (mm)	Max Tightening Torque (Nm) Recommended
	Grade 10.9
M6	17.0
M5	10.0
M8	41.3
M12	143
M10	81.8
M16	354
M24	1195
M20	690
M30	2377

12.9 Bolt Torque

Size (mm)	Max Tightening Torque (Nm) Recommended
	Grade 12.9
M6	19.9
M5	11.7
M8	48.3
M12	167
M10	95.7
M16	413
M24	1395
M20	809
M30	2774

A4 70 Bolt Torque Chart

Bolts Diameter	Torque (over ft-lbs. M10 to M12)		Torque (N-m)	
	Dry	Lubricated	Dry	Lubricated
4	23.0	20.7	2.6	2.3
3	8.9 in-lbs.	8.0 in-lbs.	1.0	0.9
5	45.1	40.6	5.1	4.6
8	188	169	21.2	19.1
6	77.0	69.3	8.7	7.8
10	372	335	42	38
16	133	119	180	162
14	87	78	118	106
18	190	171	258	232
22	358	322	485	437
20	273	246	370	333
24	445	400	603	543

A4 80 Bolt Torque Chart

Thread	Coeff friction	Tightening torque (Nm) property class			Preload (Kn) property class			Min. breaking torque		
		A2-70	A1-50	A4-80	A2-70	A1-50	A4-80	A2-70	A1-50	A4-80
M2.0	0.2	0.3	0.25	0.4	0.5	0.4	0.5	0.4	0.3	0.48
	0.1	0.2	0.15	0.3	0.6	0.5	0.6			
	0.3	0.4	0.4	0.55	0.36	0.25	0.36			
M1.6	0.2	0.2	0.1	0.35	0.35	0.3	0.35	0.2	0.15	0.24
	0.1	0.1	0.1	0.2	0.55	0.4	0.55			
	0.3	0.25	0.2	0.45	0.3	0.2	0.3			

M3.0	0.2	1.1	1	1.6	0.65	0.6	0.65	1.6	1.1	1.8
	0.1	1	0.85	1.3	1	0.9	1			
	0.3	1.35	1.25	1.85	0.45	0.4	0.45			
M2.5	0.2	0.6	0.45	0.65	0.5	0.4	0.5	0.9	0.6	0.96
	0.1	0.45	0.25	0.6	0.9	0.65	0.9			
	0.3	0.75	0.6	0.8	0.3	0.3	0.3			
M8.0	0.2	21.4	10.1	28.7	10.2	4.75	10.2	32	23	37
	0.1	14.5	6.8	19.3	12.6	5.86	12.6			
	0.3	25.5	11.9	33.9	8.85	3.85	8.85			
M5.0	0.2	5.1	2.4	6.9	3.93	1.83	3.93	7.8	5.5	8.8
	0.1	3.4	1.6	4.6	4.85	2.26	4.85			
	0.3	6.1	2.8	8	3.19	1.49	3.19			
M4.0	0.2	2.6	1.3	3.5	2.4	1.12	2.4	3.8	2.7	4.3
	0.1	1.7	0.8	2.3	2.97	1.08	2.97			
	0.3	3	1.5	4.1	1.94	0.9	1.94			
M6.0	0.2	8.8	4.1	11.8	5.54	2.59	5.54	13	9.3	15
	0.1	5.9	2.8	8	6.85	3.2	6.85			
	0.3	10.4	4.8	13.9	4.49	2.09	4.49			

Socket Head Cap Screw Torque Chart

Size	Socket Set Screw, 45H	Socket Head Cap, 12.9	Flat Head Cap, 12.9	Low Head Socket Cap, 10.9	Button Head Cap, 12.9
M4	2.50 Nm	4.83 Nm	3.10 Nm	2.70 Nm	3.10 Nm
M3	0.90 Nm	2.20 Nm	1.35 Nm	1.15 Nm	1.35 Nm
M5	5.00 Nm	10.0 Nm	6.10 Nm	5.40 Nm	6.10 Nm
M8	20.0 Nm	41.0 Nm	26 Nm	22.0 Nm	26 Nm
M6	8.50 Nm	16.8 Nm	10.50 Nm	9.15 Nm	10.5 Nm
M18	310 Nm	485 Nm		262 Nm	
M10	40.0 Nm	81.0 Nm	52 Nm	44.0 Nm	52 Nm
M14	65.0 Nm	226 Nm	143 Nm	122 Nm	

M12	65.0 Nm	142 Nm	90 Nm	77.0 Nm	90 Nm
M16	160 Nm	350 Nm	225 Nm	190 Nm	225 Nm
M20	310 Nm	685 Nm	440 Nm	371 Nm	

Aircraft Bolt Torque Chart

Bolts Steel Tension	Bolts Aluminum	Bolts Steel Tension
An 42 to AN 49	AN 173DD to AN 186DD	NAS 144 to NAS 158
AN 3 to AN 20	AN 3DD to AN 20DD	MS 20004 to MS 20024
AN 73 to AN 81	AN 509DD	NAS 333 to NAS 340
MS 20033 to MS 20046	MS 27039D	NAS 624 to NAS 644
AN 173 to AN 186	AN 525D	NAS 583 to NAS 590
MS 20074		NAS 172
MS 27039		Steel shear bolt - NAS 464
MS 20073	MS 24694DD	NAS 1303 to NAS 1320
MS 24694		NAS 517
AN 509 NK9		NAS 174
AN 525 ND 525		

Screw Torque Chart

		Steel				STAINLESS STEEL		
Bolt class	**Size socket [mm]**	**CLASS 8.8**	**CLASS 5.8**	**Class 12.9**	**CLASS 10.9**	**50**	**80**	**70**
M2	–	0,35 Nm	0,22 Nm	0,58 Nm	0,49 Nm	0,25 Nm	–	0,30 Nm
M1.6	–	0,17 Nm	0,11 Nm	0,29 Nm	0,24 Nm	0,10 Nm	–	0,20 Nm
M2.2	–	0,46 Nm	0,29 Nm	0,77 Nm	0,64 Nm	–	–	–
M3	–	1,20 Nm	0,77 Nm	2,10 Nm	1,70 Nm	1,00 Nm	–	1,10 Nm

M2.5	–	0,70 Nm	0,44 Nm	1,20 Nm	0,98 Nm	0,45 Nm	–	0,60 Nm
M3.5	–	1,90 Nm	1,20 Nm	3,30 Nm	2,70 Nm	–	–	–
M5	8	6 Nm	3,7 Nm	10 Nm	8,5 Nm	2 Nm	5,3 Nm	4 Nm
M4	7	2,9 Nm	1,9 Nm	4,9 Nm	4,1 Nm	0,9 Nm	2,7 Nm	2 Nm
M6	10	10 Nm	6,4 Nm	17 Nm	14 Nm	3,2 Nm	9 Nm	7 Nm
M10	17 / 16	49 Nm	31 Nm	83 Nm	69 Nm	16 Nm	45 Nm	33 Nm
M8	13	25 Nm	16 Nm	41 Nm	35 Nm	8 Nm	23 Nm	17 Nm
M12	19 / 18	86 Nm	54 Nm	145 Nm	120 Nm	27 Nm	77 Nm	58 Nm
M16	24	210 Nm	130 Nm	355 Nm	295 Nm	66 Nm	190 Nm	142 Nm
M14	22 / 21	135 Nm	86 Nm	230 Nm	190 Nm	43 Nm	124 Nm	93 Nm
M18	27	290 Nm	180 Nm	485 Nm	405 Nm	93 Nm	265 Nm	198 Nm
M22	32	550 Nm	345 Nm	930 Nm	780 Nm	174 Nm	499 Nm	374 Nm
M20	30	410 Nm	255 Nm	690 Nm	580 Nm	130 Nm	371 Nm	278 Nm
M24	36	710 Nm	440 Nm	1200 Nm	1000 Nm	224 Nm	640 Nm	480 Nm
M30	46	1450 Nm	880 Nm	2400 Nm	2000 Nm	450 Nm	–	964 Nm
M27	41	1050 Nm	650 Nm	1800 Nm	1500 Nm	331 Nm	–	708 Nm
M33	50	1900 Nm	1200 Nm	3250 Nm	2700 Nm	609 Nm	–	–
M36	55	2450 Nm	1550 Nm	4150 Nm	3450 Nm	782 Nm	–	–
M42	65	3.950 Nm	2.450 Nm	6.650 Nm	5.550 Nm	–	–	–
M39	60	3.200 Nm	2.000 Nm	5.400 Nm	4.500 Nm	1.013 Nm	–	–

M45	70	4.950 Nm	3.100 Nm	8.350 Nm	6.950 Nm	–	–	–
M52	80	7.650 Nm	4.800 Nm	12.900 Nm	10.800 Nm	–	–	–
M48	75	5.950 Nm	3.750 Nm	10.100 Nm	8.400 Nm	–	–	–
M56	85	9.550 Nm	5.950 Nm	16.100 Nm	13.400 Nm	–	–	–
M64	95	14.300 Nm	8.950 Nm	24.100 Nm	20.100 Nm	–	–	–
M60	90	11.900 Nm	7.400 Nm	20.000 Nm	16.700 Nm	–	–	–
M68	100	17.300 Nm	10.800 Nm	29.100 Nm	24.300 Nm	–	–	–

U Bolt Torque Chart

Size	Plated Maximum Torque Ft. Lbs.	Material Grade	Unplated Maximum Torque Ft. Lbs.
7/16 to 20	33	5	44
3/8 to 24	21	5	26
1/2 to 20	52	5	70
5/8 to 18	132	8	177
9/16 to 18	75	5	100
1to1/4 to 12	1163	8	1551
3/4 to 16	234	8	313
1 to 14	758	8	1010
7/8 to 14	375	8	500
1to1/8 to 12	848	8	1131

Bolt Shear Strength Table

Strength Class	Yield Strength	Tensile Strength

4.6	4 x 6 x 10 = 240 N/mm²	4 x 100 = 400 N/mm²
5.6	5 x 6 x 10 = 300 N/mm²	5 x 100 = 500 N/mm²
3.6	3 x 6 x 10 = 180 N/mm²	3 x 100 = 300 N/mm²
5.8	5 x 8 x 10 = 400 N/mm²	5 x 100 = 500 N/mm²
4.8	4 x 8 x 10 = 320 N/mm²	4 x 100 = 400 N/mm²
6.8	6 x 8 x 10 = 480 N/mm²	6 x 100 = 600 N/mm²
9.8	9 x 8 x 10 = 720 N/mm²	9 x 100 = 900 N/mm²
10.9	10 x 9 x 10 = 900 N/mm²	10 x 100 = 1000 N/mm²
8.8	8 x 8 x 10 = 640 N/mm²	8 x 100 = 800 N/mm²
12.9	12 x 9 x 10 = 1080 N/mm²	12 x 100 = 1200 N/mm²

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