

ASTM A193 Grade B7 - UNC

Bolt Size (inches)	TPI	Proof Load (lbs.)	Clamp Load (lbs.)	Tightening Torque (ft lbs.)		
				Waxed	Galv.	Plain
1/4	20	3,350	2,513	5	13	10
5/16	18	5,500	4,125	11	27	21
3/8	16	8,150	6,113	19	48	38
7/16	14	11,150	8,363	30	76	61
1/2	13	14,900	11,175	47	116	93
9/16	12	19,100	14,325	67	168	134
5/8	11	23,750	17,813	93	232	186
3/4	10	35,050	26,288	164	411	329
7/8	9	48,500	26,375	265	663	530
1	8	63,650	47,738	398	995	796
1 1/8	7	80,100	60,075	563	1,408	1,126
1 1/4	7	101,750	76,313	795	1,987	1,590
1 3/8	6	121,300	90,975	1,042	2,606	2,085
1 1/2	6	147,550	110,663	1,383	3,458	2,767
1 3/4	5	199,500	149,625	2,182	5,455	4,364
2	4 1/2	262,500	196,875	3,281	8,203	6,563
2 1/4	4 1/2	341,250	255,938	4,799	11,997	9,598
2 1/2	4	420,000	315,000	6,563	16,406	13,125
2 3/4	4	468,500	351,263	8,050	20,124	16,100
3	4	567,150	425,363	10,634	26,585	21,268
3 1/4	4	674,500	505,875	13,701	34,252	27,402
3 1/2	4	791,350	593,513	17,311	43,277	34,622
3 3/4	4	917,700	688,275	21,509	53,771	43,017
4	4	1,052,600	789,450	26,315	65,788	52,630
1 1/8	8	82,934	62,201	583	1,458	1,166
1 1/4	8	105,006	78,754	820	2,051	1,641
1 3/8	8	129,492	97,119	1,113	2,782	2,226
1 1/2	8	156,687	117,515	1,469	3,672	2,938
1 3/4	8	218,400	163,800	2,389	5,972	4,778
2	8	290,850	218,138	3,636	9,089	7,271
2 1/4	8	373,801	280,351	5,257	13,141	10,513
2 1/2	8	466,200	349,650	7,284	18,211	14,569

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2 3/4	8	515,851	386,888	8,866	22,165	17,732
3	8	618,451	463,838	11,596	28,990	23,192
3 1/4	8	730,550	547,913	14,839	37,098	29,679
3 1/2	8	851,201	638,401	18,620	46,550	37,240
3 3/4	8	982,300	736,725	23,023	57,557	46,045
4	8	1,121,950	841,463	28,049	70,122	56,098

This chart of estimated torque calculations is only offered as a guide. Use of it's content by anyone is the sole responsibility of that person and they assume all risk. Due to many variables that affect the torque-tension relationship like human error, surface texture, and lubrication the only way to determine the correct torque is through experimentation under actual joint and assembly conditions.