


BOLTS

IDENTIFICATION · STRENGTH · CLAMP · TORQUE · MATERIALS




GRADE 2

Diameter	Proof Load	Yield Strength	Tensile
1/4-3/4"	55,000	57,000	
3/4-1-1/2"	33,000	36,000	


Low or medium Carbon Steel

*** GRADE 5**



Diameter	Proof Load	Yield Strength	Tensile Strength
1/4-1"	85,000	92,000	120,000
3/4-1-1/2"	74,000	81,000	105,000

Medium Carbon Steel, Quenched & Tempered



GRADE 8



Proof Load: 120,000
Yield Strength: 130,000
Tensile Strength: 150,000

Carbon Alloy Steel, Quenched & Tempered



18-8 Series STAINLESS

Proof Load: None
Yield Strength: 30,000
Tensile Strength: 75,000

STAINLESS
ANSI 304 & 316

Diameter	Proof Load	Yield Strength	Tensile
1/4-3/4"	None	100,000	
3/4-1"	None	80,000	
1-1-1/4"	None	65,000	
1-1/4-1 1/2"	None	50,000	

SIZE	ASSEMBLY TORQUE			MINIMUM TENSILE	ASSEMBLY TORQUE			MINIMUM TENSILE	ASSEMBLY TORQUE			MINIMUM TENSILE	ASSEMBLY TORQUE			MINIMUM TENSILE				
	CLAMP LOAD-Lbs.			Lbs.	CLAMP LOAD-Lbs.			Lbs.	CLAMP LOAD-Lbs.			Lbs.	CLAMP LOAD-Lbs.			Lbs.				
1/4-20	1320	66	50	2700	2000	8	75	4450	2850	12	9	6600	1350	68	51	2780	2100	9	7	4600
1/4-28	1500	76	56	2900	2300	10	86	4840	3250	14	10	7200	1500	77	58	3020	2400	10	7	5000
5/16-18	2160	11	11	4400	3350	17	13	7190	4700	25	18	10700	2200	12	9	4400	3400	18	13	7400
5/16-24	2400	12	12	4700	3700	19	14	7670	5200	25	20	11500	2400	13	10	4700	3800	20	15	7900
3/8-16	3200	20	15	6400	4950	30	23	10530	7000	45	35	15800	3200	20	15	6500	5100	32	24	10900
3/8-24	3620	23	17	8800	5600	35	25	14400	7900	50	35	21600	3700	23	17	9000	5700	36	27	15000
1/2-13	5850	50	35	11500	9000	75	55	19000	12750	110	80	28600	5900	50	37	11900	9350	78	58	19800
1/2-20	6600	55	40	12500	10500	90	65	20500	14370	120	90	30800	6700	56	42	12800	10550	88	66	21400
5/8-11	9350	100	75	18500	14400	150	110	30100	20350	220	170	45200	9500	100	75	18800	14950	156	117	31400
5/8-18	10550	110	85	20000	16370	180	130	32600	23000	240	180	49000	10800	113	84	20400	16850	176	132	34000
3/4-10	13800	175	130	27000	21300	260	200	44200	30100	380	280	66300	14100	177	132	27600	20300	276	121	42300
3/4-16	15400	200	150	29000	23800	300	220	47400	33500	420	320	71100	15700	197	148	29600	22670	308	191	45400
7/8-9	11450	170	125	30000	29450	320	320	53100	41600	600	460	91000	11700	171	128	37900	16850	246	213	58100
1-8	15000	250	190	39500	38600	640	480	69500	54500	900	680	119200	15300	256	192	49700	22900	368	290	69500
1-1/8-7	18900	350	270	50000	42300	800	600	87800	68900	1280	960	150500	19300	363	272	62700	25400	386	411	87800
1-1/4-7	24000	500	380	63000	53800	1120	840	110300	87200	1820	1360	189200	24500	512	384	78800	32200	548	480	110300
1-3/8-6	28600	670	490	75500	64100	1460	1100	132200	104000	2380	1780	226700	29200	671	503	94400	38400	629	629	125900
1-1/2-6	34800	870	650	91000	78000	1910	1460	159600	126500	3160	2360	273600	35600	891	668	114000	46700	835	835	152000

Yield Strength: is the load at which the fastener exhibits a specified elongation at a specific load.

Tensile Strength: is the minimum total load that will fail the fastener.

Clamp Load = 75% x Proof X Stress Area. Also called the fastener preload or initial load. The "Clamp" Load is the true maximum load of any fastener.

Proof Load: is the load which the fastener must withstand without a permanent set.

Torque Dry: Assumes a coefficient of friction of 0.20

Torque Lubricated: Assumes a coefficient of friction of 0.15

Minimum Tensile: Minimum load at which the fastener will fail. Minimum safe working load is 4:1

***325** is the designation for "structural" Grade 5 bolt, which has larger head dimensions.