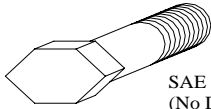


Torque Specifications

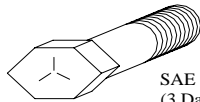
Recommended Torque in Foot Pounds (Newton Meters)

American

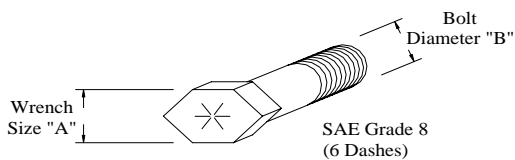
Bolt Head Markings



SAE Grade 2
(No Dashes)



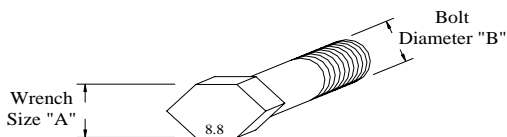
SAE Grade 5
(3 Dashes)



SAE Grade 8
(6 Dashes)

Wrench Size (in.) "A"	Bolt Diam. (in.) "B" and thread size	SAE Grade 2	SAE Grade 5	SAE Grade 8
7/16	1/4-20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4-20 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16-18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16-24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8-16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8-24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16-14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16-20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2-13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2-20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16-12 UNC	70(95)	109 (148)	153 (207)
7/8	9/16-18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8-11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8-18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4-10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4-16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8-9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8-14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1-8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1-12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1-14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8-7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8-12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4-7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4-12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8-6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8-12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4	1-1/2-6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2-12 UNF	979 (1327)	2194 (2973)	3557 (4820)

Metric



Wrench Size (mm) "A"	Bolt Diam. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)

Numbers appearing on bolt heads indicate ASTM class

** Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque value for lubricated fasteners.