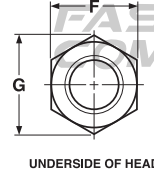
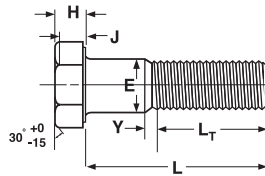
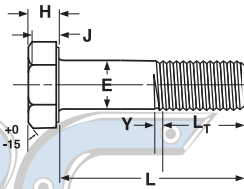


Cap Screws & Bolts Heavy Hex Bolts

ASTM A193 Gr-B7
ASTM A307 Gr- A & B



HEAVY HEX BOLTS

ASME B18.2.1-2010

Nominal Size or Basic Product Diameter	E		F				G		H			R		L _T	
	Body Diameter		Width Across Flats				Width Across Corners		Head Height			Radius of Fillet		Thread Length for Bolt Lengths	
	Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Basic	Basic	
1/2	0.5000	0.515	0.482	7/8	0.875	0.850	1.010	0.969	11/32	0.364	0.302	0.03	0.01	1.250	1.500
5/8	0.6250	0.642	0.605	1-1/16	1.062	1.031	1.227	1.175	27/64	0.444	0.378	0.06	0.02	1.500	1.750
3/4	0.7500	0.768	0.729	1-1/4	1.250	1.212	1.443	1.383	1/2	0.524	0.455	0.06	0.02	1.750	2.000
7/8	0.8750	0.895	0.852	1-7/16	1.438	1.394	1.660	1.589	37/64	0.604	0.531	0.06	0.02	2.000	2.250
1	1.0000	1.022	0.976	1-5/8	1.625	1.575	1.876	1.796	43/64	0.700	0.591	0.09	0.03	2.250	2.500
1 1/8	1.1250	1.149	1.098	1-13/16	1.812	1.756	2.093	2.002	3/4	0.780	0.658	0.09	0.03	2.500	2.750
1 1/4	1.2500	1.277	1.223	2	2.000	1.938	2.309	2.209	27/32	0.876	0.749	0.09	0.03	2.750	3.000
1 3/8	1.3750	1.404	1.345	2-3/16	2.188	2.119	2.526	2.416	29/32	0.940	0.810	0.09	0.03	3.000	3.250
1 1/2	1.5000	1.531	1.470	2-3/8	2.375	2.300	2.742	2.622	1	1.036	0.902	0.09	0.03	3.250	3.500
1 3/4	1.7500	1.785	1.716	2-3/4	2.750	2.662	3.175	3.035	1-5/32	1.196	1.054	0.12	0.04	3.750	4.000
2	2.0000	2.039	1.964	3-1/8	3.125	3.025	3.608	3.449	1-11/32	1.388	1.175	0.12	0.04	4.250	4.500

Tolerance on Length	Nominal Screw Size	Nominal Screw Length									
		Up to 1 in., incl.		Over 1 in. to 2 1/2 in., incl.		Over 2 1/2 in. to 4 in., incl.		Over 4 in. to 6 in., incl.		Longer than 6 in.	
	1/4 to 3/8	+0.02	-0.03	+0.02	-0.04	+0.04	-0.06	+0.06	-0.10	+0.10	-0.18
7/16 and 1/2	+0.02	-0.03	+0.04	-0.06	+0.06	-0.08	+0.08	-0.10	+0.12	-0.18	
9/16 to 3/4	+0.02	-0.03	+0.06	-0.08	+0.08	-0.10	+0.10	-0.10	+0.14	-0.18	
7/8 and 1	....	....	+0.08	-0.10	+0.10	-0.14	+0.12	-0.16	+0.16	-0.20
1 1/8 to 1 1/2	....	....	+0.12	-0.12	+0.16	-0.16	+0.18	-0.18	+0.22	-0.22
Over 1-1/2	....	....	+0.18	-0.18	+0.20	-0.20	+0.22	-0.22	+0.24	-0.24

Description	An externally threaded fastener with a six-sided head that is wider than that of a standard hex bolt.
Applications/Advantages	Offers greater wrenching area than standard hex machine bolts for use in heavy duty industrial work.
Material	Bolts shall be made from a carbon steel which conforms to the following chemical composition requirements-- Grade A-- Phosphorus: 0.06% maximum; Sulfur: 0.15% maximum; Grade B-- Phosphorus: 0.04% maximum; Sulfur: 0.05% maximum Grade B7-- Carbon: 0.37-0.49%; Manganese: 0.65-1.10%; Phosphorus: 0.035% max; Sulfur: 0.040% max; Silicon: 0.15-0.35%; Chromium: 0.75-1.20%; Molybdenum: 0.15-0.25%
Hardness*	Bolts less than 3 times diameter in length: Grade A-- Rockwell B69 - 100; Grade B-- Rockwell B69 - 95; Bolts 3 times diameter and longer: Grade A-- Rockwell B100 maximum Grade B-- Rockwell B69 - 95 Grade B7-- Rockwell C 35 max
Tensile Strength	Grade A: 60,000 psi. minimum; Grade B: 60,000 - 100,000 psi.; Grade B7: 125,000 psi. min. (all diams thru 2 1/2")
Elongation in 4D	Grades A & B: 18% minimum; Grade B7: 16% minimum (all diams thru 4")
Plating	See Appendix-A for plating information.