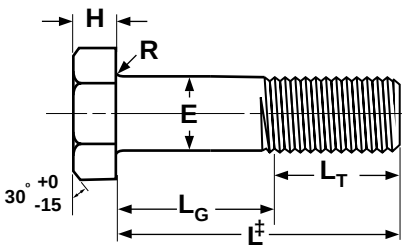
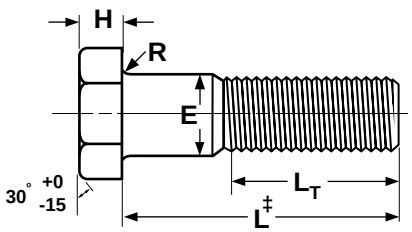
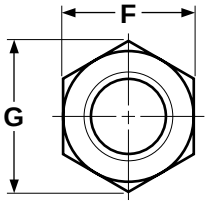
Cap Screws & Bolts *Hot Dip Galvanized* Hex Machine Bolts



Cut Thread



Rolled Thread



UNDERSIDE OF HEAD

‡Length of a machine bolt is measured from the underhead bearing surface to the extreme end of the bolt.

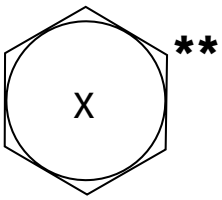
Hex Machine Bolts

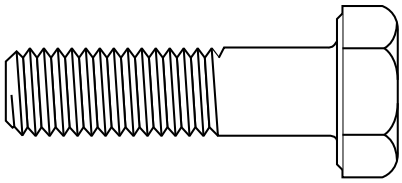
ASME B18.2.1-1996

Nominal Size Or Basic 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	
													6 in. and shorter	over 6 in.
	Max.	Min.	Basic	Max.	Min.	Max.	Min.	Basic	Max.	Min.	Max.	Min.	Basic	Basic
1/4 0.2500	0.260	0.237	7/16	0.438	0.425	0.505	0.484	11/64	0.188	0.150	0.03	0.01	0.750	1.000
5/16 0.3125	0.324	0.298	1/2	0.500	0.484	0.577	0.552	7/32	0.235	0.195	0.03	0.01	0.875	1.125
3/8 0.3750	0.388	0.360	9/16	0.562	0.544	0.650	0.620	1/4	0.268	0.226	0.03	0.01	1.000	1.250
1/2 0.5000	0.515	0.482	3/4	0.750	0.725	0.866	0.826	11/32	0.364	0.302	0.03	0.01	1.250	1.500
5/8 0.6250	0.642	0.605	15/16	0.938	0.906	1.083	1.033	27/64	0.444	0.378	0.06	0.02	1.500	1.750
3/4 0.7500	0.768	0.729	1-1/8	1.125	1.088	1.299	1.240	1/2	0.524	0.455	0.06	0.02	1.750	2.000
7/8 0.8750	0.895	0.852	1-5/16	1.312	1.269	1.516	1.447	37/64	0.604	0.531	0.06	0.02	2.000	2.250
1 1.0000	1.022	0.976	1-1/2	1.500	1.450	1.732	1.653	43/64	0.700	0.591	0.09	0.03	2.250	2.500

Tolerance on Length	Nominal Screw Size	Nominal Screw Length				
		Up to1 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

Hex Machine Bolts *Hot Dip Galvanized* Bolts & Cap Screws





Description	A low or medium carbon steel, externally threaded mechanical device, 1/4 inch in diameter or larger, with a trimmed hex head and a hot-dip galvanized coating. A hex bolt does not have a washer face on its bearing surface as does a hex cap screw, nor does it have a machined point. Its body tolerances are not as close as those of a cap screw.
Applications/ Advantages	Designed to be used in highly corrosive environments (ie. coastal locales and heavily polluted atmospheres). May be inserted into an oversized hole and should be assembled with a nut.
Material	Machine bolts shall be manufactured from steel which conforms to the following chemical composition requirements: *Phosphorus:* 0.06% maximum; *Sulfur:* 0.15% maximum.
Hardness	Bolts of a length < 3X nominal diameter: Rockwell B69 - B100. Bolts of a length => 3X nominal diameter: Rockwell B100 maximum.
Tensile Strength	60,000 psi. minimum.
Elongation*	18% minimum (all diameters)
Plating	See Appendix-A for plating information.

*These properties are tested only on machined specimens when the testing machine cannot provide for full testing of the parts.
**Product standards require the manufacturer's head marking to appear on the top of all bolts 1/4" diameter and larger. "X" represents one location such a marking may appear.