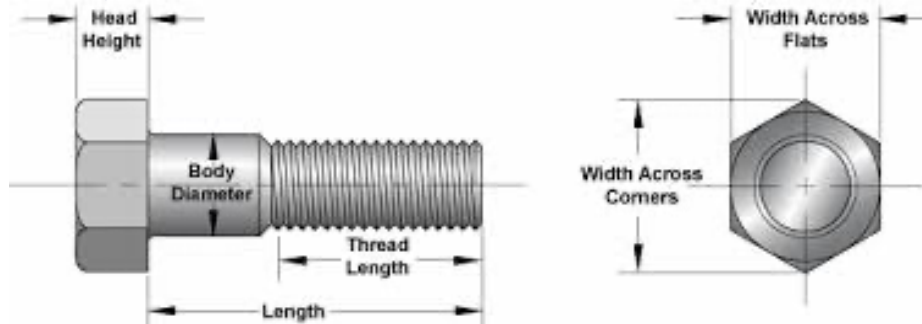


## Hex Head Bolts - Inch Series

### 1.0 Dimensions: As per ASME B18.2.1.



Nominal Size or Basic Product Diameter	Body Diameter		Width Across Flats		Width Across Corners		Head Height		Thread Length	
	Max	Min	Max	Min	Max	Min	Max	Min	Screw Lengths 6 Inches & Shorter	Screw Lengths Over 6 Inches
	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
1/4	0.260	0.237	0.438	0.425	0.505	0.484	0.188	0.150	0.750	1.000
5/16	0.324	0.298	0.500	0.484	0.577	0.552	0.235	0.195	0.875	1.125
3/8	0.388	0.360	0.562	0.544	0.650	0.620	0.268	0.226	1.000	1.250
7/16	0.452	0.421	0.625	0.603	0.722	0.687	0.316	0.272	1.125	1.375
1/2	0.515	0.482	0.750	0.725	0.866	0.826	0.364	0.302	1.250	1.500
5/8	0.642	0.605	0.938	0.906	1.083	1.033	0.444	0.378	1.500	1.750
3/4	0.768	0.729	1.125	1.088	1.299	1.240	0.524	0.455	1.750	2.000
7/8	0.895	0.852	1.312	1.269	1.516	1.447	0.604	0.531	2.000	2.250
1	1.022	0.976	1.500	1.450	1.732	1.653	0.700	0.591	2.250	2.500
1-1/8	1.149	1.098	1.688	1.631	1.949	1.859	0.780	0.658	2.500	2.750
1-1/4	1.277	1.223	1.875	1.812	2.165	2.066	0.876	0.749	2.750	3.000
1-3/8	1.404	1.345	2.062	1.994	2.382	2.273	0.940	0.810	3.000	3.250
1-1/2	1.531	1.470	2.250	2.175	2.598	2.480	1.036	0.902	3.250	3.500
1-3/4	1.785	1.716	2.625	2.538	3.031	2.893	1.196	1.054	3.750	4.000
2	2.039	1.964	3.000	2.900	3.464	3.306	1.388	1.175	4.250	4.500
2-1/4	2.305	2.214	3.375	3.262	3.897	3.719	1.548	1.327	4.750	5.000
2-1/2	2.559	2.461	3.750	3.625	4.330	4.133	1.708	1.479	5.250	5.500

**Notes:** Thread Class of Fit: Plain Finish: 2A. Zinc Plated Finish: 2A before zinc plating and after zinc plating must meet 3A GO & 2A NO GO thread ring gage condition. Hot Dip Galvanized: 2A before coating.

## Hex Head Bolts - Inch Series

### 2.0 Difference Between Hex Head Bolts and Hex Head Cap Screws:

- a) Hex head bolts do not have washer face and need not be pointed (chamfered at the start of the thread).
- b) Tolerances are generally wider on certain dimensions like body diameter, width across flats, width across corners etc., when compared to hex head cap screws.
- c) Grip Length Maximum ( $L_G$  Max) and Body Length Minimum ( $L_B$  Min) are not specified for hex head bolts.

### 3.0 Mechanical Properties (For Full Size Bolt Testing):

#### 3.1 Steel: ASTM A307

Grade	Length	Hardness	Tensile Strength Minimum	Grade Marking
A	Less than 3 times the diameter	69 to 100 HRB	60,000 Psi	307A
	3 times the diameter and longer	100 HRB Max		

**Notes:** The bolts will also have manufacturer's marking on the head in addition to the grade marking as mentioned in the table.

### 4.0 Surface Finish: Plain/Zinc/HDG. Zinc & HDG details given in table below.

Properties	Zinc Clear	Zinc Yellow	Hot Dip Galvanized (HDG)
Type	Trivalent (Cr+3)	Hexavalent (Cr+6)	RoHS Compliant
Color	Clear	Yellow	
Minimum Coating Thickness	0.0001" / 3 Microns or 0.0002" / 5 Microns	0.0001" / 3 Microns or 0.0002" / 5 Microns.	Coating thickness for sizes 3/8" & under : 0.0017" (43 microns) and for sizes over 3/8" : 0.0020" (50 microns)
Specification	ASTM F1941 / F1941M. Fe/Zn 3AN or Fe/Zn 5AN	ASTM F1941 / F1941M. Fe/Zn 3C or Fe/Zn 5C	ASTM F2329/F2329M or ASTM A153/A153M.