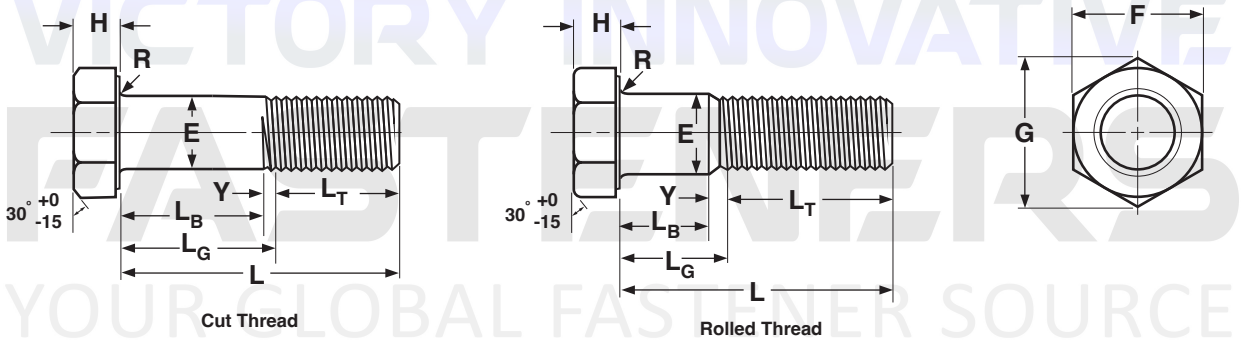
STRUCTURAL BOLTS A325 & A490



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___Length of a structural bolt is measured from the underhead bearing surface to the extreme end of the bolt.

STRUCTURAL BOLTS, A325 & A490

ASME B18.2.6-2019

Nominal size or Basic Product Diameter		E		F			G		H			R		L_T	Y
		Body Diameter		Width Across Flats			Width Across Corners		Head Height			Radius of Fillet		Thread Length	Transition Thread Length
		Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Ref	Max, Ref
1/2	0.5000	0.515	0.482	7/8	0.875	0.850	1.010	0.969	5/16	0.323	0.302	0.031	0.009	1.00	0.19
5/8	0.6250	0.642	0.605	1-1/16	1.062	1.031	1.227	1.175	25/64	0.403	0.378	0.062	0.021	1.25	0.22
3/4	0.7500	0.768	0.729	1-1/4	1.250	1.212	1.443	1.383	15/32	0.483	0.455	0.062	0.021	1.38	0.25
7/8	0.8750	0.895	0.852	1-7/16	1.438	1.394	1.660	1.589	35/64	0.563	0.531	0.062	0.031	1.50	0.28
1	1.0000	1.022	0.976	1-5/8	1.625	1.575	1.876	1.796	39/64	0.627	0.591	0.093	0.062	1.75	0.31
1 1/8	1.1250	1.149	1.098	1-13/16	1.812	1.756	2.093	2.002	11/16	0.718	0.658	0.093	0.062	2.00	0.34
1 1/4	1.2500	1.277	1.223	2	2.000	1.938	2.309	2.209	25/32	0.813	0.749	0.093	0.062	2.00	0.38
1 3/8	1.3750	1.404	1.345	2-3/16	2.188	2.119	2.526	2.416	27/32	0.878	0.810	0.093	0.062	2.25	0.44
1 1/2	1.5000	1.531	1.470	2-3/8	2.375	2.300	2.742	2.622	15/16	0.974	0.902	0.093	0.062	2.25	0.44

Tolerance on Length	Nominal Screw Size	Nominal Screw Length	
		Through 6 in.	Over 6 in.
	1/2	-0.12	-0.19
	5/8	-0.12	-0.25
	3/4 through 1	-0.19	-0.25
	1 1/8 through 1 1/2	-0.25	-0.25

ASTM A325 & A490 STRUCTURAL BOLTS

**

ASTM A325 Bolts, Type 1

**

Description	A heavy hex bolt made of medium carbon steel. The bearing surface shall be flat and washer faced, and the point is chamfered.
Applications/ Advantages	Commonly used in structural steel joints in heavy construction.
Material	Type 1 bolts shall be made from a carbon steel which conforms to the following chemical composition requirements-- ***Carbon***: 0.30-0.52%; ***Manganese***: 0.60% min; ***Phosphorus***: 0.035% max; ***Sulfur***: 0.040% max; ***Silicon***: 0.15-0.30%
Heat Treatment	Type 1 bolts shall be heat treated by quenching in a liquid medium from above the austenitizing temperature and then tempering by reheating to a temperature of at least 800°F.
Hardness	Rockwell C25 - 34
Yield Strength	92,000 psi. minimum
Tensile Strength	120,000 psi. minimum
Plating	See Appendix-A for plating information.

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Type 1

ASTM A490 BOLTS, Types 1 & 3

**

Type 3

Description	A heavy hex bolt made of alloy steel. The bearing surface shall be flat and washer faced, and the point is chamfered.
Applications/ Advantages	Used in structural steel joints in heavy construction when greater yield and tensile strengths than those of an A325 bolt are required. A Type 3 bolt is approximately twice as resistant to corrosion as a Type 1 bolt.
Material	Type 1 bolts shall be made from an alloy steel which conforms to the following chemical composition requirements-- ***Carbon:*** 0.30-0.48% (for 1.5" diam: 0.35-0.53%); ***Phosphorus***: 0.035% max; ***Manganese***: 0.60% min; ***Sulfur***: 0.040% maximum. Type 3 bolts shall be made from a corrosion resistant steel conforming to the following chemical composition requirements-- ***Carbon***: 0.30-0.53%; ***Manganese***: 0.60% min; ***Phosphorus***: 0.035% max; ***Sulfur***: 0.040% max; ***Copper***: 0.20-0.60%; ***Chromium***: 0.45% min; ***Nickel***: 0.20% min or ***Molybdenum***: 0.10% min.
Heat Treatment	Type 1 and Type 3 bolts shall be heat treated by quenching in oil from the austenitic temperature and then tempered by reheating to a temperature of at least 800°F.
Hardness	Rockwell C33 - 38
Yield Strength	130,000 psi. minimum
Tensile Strength	150,000 - 173,000 psi.
Plating	See Appendix-A for plating information.

**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.