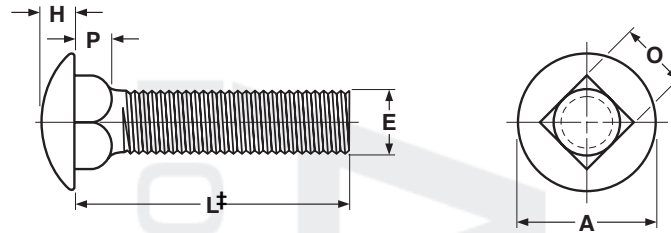


Carriage Bolts

Square Neck
Low Carbon &
Hot-Dip Galvanized



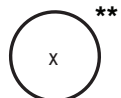
CARRIAGE BOLTS - SQUARE NECK										ASME B18.5-1990	
Basic Bolt Diameter		E		A		H		O		P	
		Body Diameter		Head Diameter		Head Height		Square Width		Square Depth	
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
•8	0.1640	0.173	0.157	0.328	0.298	0.102	0.083	0.169	0.155	0.108	0.078
10	0.1900	0.199	0.182	0.469	0.436	0.114	0.094	0.199	0.185	0.125	0.094
•12	0.2160	0.225	0.206	0.500	0.468	0.149	0.125	0.215	0.197	0.135	0.105
1/4	0.2500	0.260	0.237	0.594	0.563	0.145	0.125	0.260	0.245	0.156	0.125
5/16	0.3125	0.324	0.298	0.719	0.688	0.176	0.156	0.324	0.307	0.187	0.156
3/8	0.3750	0.388	0.360	0.844	0.782	0.208	0.188	0.388	0.368	0.219	0.188
7/16	0.4375	0.452	0.421	0.969	0.907	0.239	0.219	0.452	0.431	0.250	0.219
1/2	0.5000	0.515	0.483	1.094	1.032	0.270	0.250	0.515	0.492	0.281	0.250
5/8	0.6250	0.642	0.605	1.344	1.219	0.344	0.313	0.642	0.616	0.344	0.313
3/4	0.7500	0.768	0.729	1.594	1.469	0.406	0.375	0.768	0.741	0.406	0.375

Tolerance on Length		Nominal Bolt Size		Nominal Bolt 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.	Over 6 in.
		No. 8 thru 3/8		+0.02	+0.02	+0.04	+0.06	+0.10
		7/16 and 1/2		-0.03	-0.04	-0.06	-0.10	-0.18
		9/16 thru 3/4		+0.02	+0.04	+0.06	+0.08	+0.12
				-0.03	-0.05	-0.08	-0.10	-0.18

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

* ASME B18.5-1990 does not specify dimensions for the #8 or #12 diameters. Data listed for these sizes is independent of the ASME specification.

LOW CARBON & HOT-DIP GALVANIZED CARRIAGE BOLT



Description	<p>Low Carbon Steel Carriage: Round head bolt with a square neck under the head, and a unified thread pitch. Made from low or medium carbon steel.</p> <p>Hot-Dip Galvanized Steel Carriage: Carriage bolt made from low or medium carbon steel with a galvanic zinc finish applied.</p>
Applications/Advantages	<p>Low Carbon Steel Carriage: The square neck is designed to keep the bolt from turning as a nut is tightened.</p> <p>Hot-Dip Galvanized Steel Carriage: Same design advantages as a low carbon carriage bolt but with a thicker protective coating for outdoor use. Often used in outdoor furniture.</p>
Material	Low Carbon Steel & Hot-Dip Galvanized Steel Carriage: AISI 1006 - 1050 or equivalent steel.
Core Hardness	Low Carbon Steel & Hot-Dip Galvanized Steel Carriage: Rockwell B70 - B100
Proof Load	Low Carbon Steel Carriage: 33,000 psi.
Yield Strength*	Low Carbon Steel Carriage: 36,000 psi. minimum
Tensile Strength	Low Carbon Steel Carriage: 60,000 psi. minimum
Elongation*	Low Carbon Steel Carriage: 18% minimum
Reduction of Area*	Low Carbon Steel Carriage: 35% minimum (all sizes)
Minimum Thread Length	The minimum length of thread shall be equal to twice the basic bolt diameter plus 0.25 in. for bolts 6 in. or shorter, and twice the diameter plus 0.50 in. for bolts longer than 6 in..
Plating	See Appendix-A for information on the plating of steel carriage bolts.

*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 as a marking may appear.