



CARRIAGE BOLTS

ZINC & GALVANIZED



Carriage Bolts have a round head with a square neck under the head and a coarse thread pitch. The square neck is designed to keep the bolt from rotating as the nut is tightened.

KEY BENEFITS

- Round Head leaves finished look after installation
- Square Neck Designed to Keep Bolt from Turning when Nut is Tightened
- Grade A307

PERFORMANCE DATA

ZINC PLATED

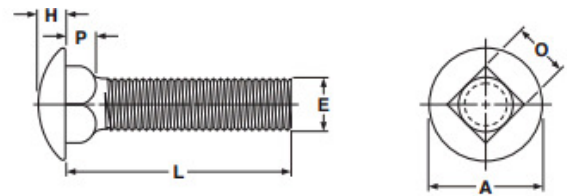


TABLE 1: PERFORMANCE DATA - ZINC PLATED

CARRIAGE BOLTS - ROUND HEAD, SQUARE NECK											ASME B18.5-1990	
BASIC BOLT DIAMETER		E		A		H		O		P		
		BODY DIAMETER		HEAD DIAMETER		HEAD HEIGHT		SQUARE WIDTH		SQAURE DEPTH		
		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
6	0.1380	0.122	0.108	0.313	0.278	0.086	0.071	0.160	0.135	0.094	0.062	
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	0.3125	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	.0605	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.6 thru 3/8	+0.02 - 0.03	+0.02 - 0.04	+0.04 - 0.06	+0.06 - 0.10
7/16 and 1/2	+0.02 - 0.03	+0.04 - 0.05	+0.06 - 0.08	+0.08 - 0.10	+0.12 - 0.18	
9/16 and 3/4	+0.02 - 0.03	+0.06 - 0.08	+0.08 - 0.10	+0.10 - 0.10	+0.14 - 0.18	

†Length of a cap screw is measured from the underhead bearing surface to the extreme end of the screw.

ASME B18.5-1990 does not specify dimensions for the #6, #8 or #12 diameters. Data listed for these sizes is independent of the ASME specification.



CARRIAGE BOLTS

ZINC & GALVANIZED

PERFORMANCE DATA

HOT DIP GALVANIZED



TABLE 2: PERFORMANCE DATA - HOT DIP GALVANIZED

DESCRIPTION	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. Hot-Dip Galvanized Steel Carriage: Carriage bolt made from low or medium carbon steel with a galvanic zinc finish applied.
APPLICATION/ADVANTAGES	Low Carbon Steel Carriage: The square neck is designed to keep the bolt from turning as a nut is tightened. Hot-Dip Galvanized Steel Carriage: Same design advantages a slow carbon carriage bolt but with a thicker protective coating for outdoor use. Often used in outdoor furniture.
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 0.25in. for bolts 6in. or shorter, and twice the diameter plus 0.50 in. for bolts longer than 6in.
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 length 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.

PERFORMANCE DATA

18-8 STAINLESS STEEL

TABLE 3: PERFORMANCE DATA - GRADE 18-8 STAINLESS STEEL

DESCRIPTION	Round head bolt with a square neck under the head, and a unified thread pitch. Made from austenitic alloy stainless steel.
APPLICATION/ADVANTAGES	Same design advantages a slow carbon carriage bolt but for use in environments which require general atmospheric corrosion resistance.
MATERIAL	18-8 Stainless Steel carriage bolts are made from one of the following austenitic alloys: 302 HQ, 303, 303Se, 304, XM7, all of which are characterized as having chromium content of 17-19% and nickel content of 8-10%
HEAT TREATMENT	The austenitic alloy develops their strength through work hardening during the fasteners manufacturing process, as seen from the hardness properties below. The only heat treatment normally available on austenitic stainless alloys is annealing, which is done at approx. 1900°F to a dead soft condition and is not normally thermally reversible.
HARDNESS	1/4 through 1/2 in diameter: Rockwell B95 - C32
YIELD STRENGTH*	1/4 through 1/2 in diameter, 2,250 and longer: 65,000 psi, minimum
TENSILE STRENGTH	1/4 through 1/2 in diameter, 2,250 and longer: 100,000 - 150,000 psi, minimum
ELONGATION IN 4D	1/4 through 1/2 in diameter: 20% minimum
MINIMUM THREAD LENGTH	The minimum length of thread shall be equal to twice the basic bolt diameter plus 0.25in. for bolts 6in. or shorter.

* These properties are tested only on machined specimens when the testing machine cannot provide for full length 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.



CARRIAGE BOLTS
ZINC & GALVANIZED

ORDERING INFORMATION

ZINC PLATED

TABLE 4: ORDERING INFORMATION - ZINC PLATED

PART #	SIZE	QUANTITY / BOX
2CBA307014034	1/4-20 x 3/4	100 / BOX
2CBA307014100	1/4-20 x 1	100 / BOX
2CBA307014114	1/4-20 x 1-1/4	100 / BOX
2CBA307014112	1/4-20 x 1-1/2	100 / BOX
2CBA307014200	1/4-20 x 2	100 / BOX
2CBA307014212	1/4-20 x 2-1/2	100 / BOX
2CBA307014300	1/4-20 x 3	100 / BOX
2CBA307014312	1/4-20 x 3-1/2	100 / BOX
2CBA307014400	1/4-20 x 4	100 / BOX
2CBA307014412	1/4-20 x 4-1/2	100 / BOX
2CBA307014500	1/4-20 x 5	100 / BOX
2CBA307516034	5/16-18 x 3/4	100 / BOX
2CBA307516100	5/16-18 x 1	100 / BOX
2CBA307516114	5/16-18 x 1-1/4	100 / BOX
2CBA307516112	5/16-18 x 1-1/2	100 / BOX
2CBA307516200	5/16-18 x 2	100 / BOX
2CBA307516212	5/16-18 x 2-1/2	100 / BOX
2CBA307516300	5/16-18 x 3	100 / BOX
2CBA307516312	5/16-18 x 3-1/2	50 / BOX
2CBA307516400	5/16-18 x 4	50 / BOX
2CBA307516412	5/16-18 x 4-1/2	50 / BOX
2CBA307038034	3/8-16 x 3/4	100 / BOX
2CBA307038100	3/8-16 x 1	100 / BOX
2CBA307038114	3/8-16 x 1-1/4	100 / BOX
2CBA307038112	3/8-16 x 1-1/2	100 / BOX
2CBA307038200	3/8-16 x 2	100 / BOX
2CBA307038212	3/8-16 x 2-1/2	50 / BOX
2CBA307038300	3/8-16 x 3	50 / BOX
2CBA307038312	3/8-16 x 3-1/2	50 / BOX

PART #	SIZE	QUANTITY / BOX
2CBA307038400	3/8-16 x 4	50 / BOX
2CBA307038412	3/8-16 x 4-1/2	50 / BOX
2CBA307038500	3/8-16 x 5	50 / BOX
2CBA307038512	3/8-16 x 5-1/2	50 / BOX
2CBA307038600	3/8-16 x 6	50 / BOX
2CBA307038700	3/8-16 x 7	50 / BOX
2CBA307038800	3/8-16 x 8	50 / BOX
2CBA307038010	3/8-16 x 10	50 / BOX
2CBA307012100	1/2-13 x 1	50 / BOX
2CBA307012112	1/2-13 x 1-1/2	50 / BOX
2CBA307012200	1/2-13 x 2	50 / BOX
2CBA307012212	1/2-13 x 2-1/2	50 / BOX
2CBA307012300	1/2-13 x 3	50 / BOX
2CBA307012312	1/2-13 x 3-1/2	25 / BOX
2CBA307012400	1/2-13 x 4	25 / BOX
2CBA307012412	1/2-13 x 4-1/2	25 / BOX
2CBA307012500	1/2-13 x 5	25 / BOX
2CBA307012512	1/2-13 x 5-1/2	25 / BOX
2CBA307012600	1/2-13 x 6	25 / BOX
2CBA307012700	1/2-13 x 7	25 / BOX
2CBA307012800	1/2-13 x 8	25 / BOX
2CBA307012900	1/2-13 x 9	25 / BOX
2CBA307012010	1/2-13 x 10	25 / BOX
2CBA307012012	1/2-13 x 12	25 / BOX
2CBA307058400	5/8-11 x 4	25 / BOX
2CBA307058800	5/8-11 x 8	10 / BOX
BULK		
2CB38100-B	3/8-16 x 1	1000 / CARTON

**CARRIAGE BOLTS**
ZINC & GALVANIZED**ORDERING INFORMATION****HOT DIP GALVANIZED****TABLE 5: ORDERING INFORMATION - HDG**

PART #	SIZE	QUANTITY / BOX
2CBG014200	1/4-20 x 2	100 / BOX
2CBG014212	1/4-20 x 2-1/2	100 / BOX
2CBG516112	5/16-18 x 1-1/2	100 / BOX
2CBG516200	5/16-18 x 2	100 / BOX
2CBG516212	5/16-18 x 2-1/2	100 / BOX
2CBG516300	5/16-18 x 3	100 / BOX
2CBG038112	3/8-16 x 1-1/2	100 / BOX
2CBG038200	3/8-16 x 2	100 / BOX
2CBG038212	3/8-16 x 2-1/2	50 / BOX
2CBG038300	3/8-16 x 3	50 / BOX
2CBG038312	3/8-16 x 3-1/2	50 / BOX
2CBG038400	3/8-16 x 4	50 / BOX
2CBG038412	3/8-16 x 4-1/2	50 / BOX
2CBG038500	3/8-16 x 5	50 / BOX
2CBG038600	3/8-16 x 6	50 / BOX
2CBG038700	3/8-16 x 7	50 / BOX
2CBG038800	3/8-16 x 8	50 / BOX

PART #	SIZE	QUANTITY / BOX
2CBG038900	3/8-16 x 9	50 / BOX
2CBG012100	1/2-13 x 1	50 / BOX
2CBG012112	1/2-13 x 1-1/2	50 / BOX
2CBG012200	1/2-13 x 2	50 / BOX
2CBG012212	1/2-13 x 2-1/2	50 / BOX
2CBG012300	1/2-13 x 3	50 / BOX
2CBG012312	1/2-13 x 3-1/2	25 / BOX
2CBG012400	1/2-13 x 4	25 / BOX
2CBG012412	1/2-13 x 4-1/2	25 / BOX
2CBG012500	1/2-13 x 5	25 / BOX
2CBG012600	1/2-13 x 6	25 / BOX
2CBG012700	1/2-13 x 7	25 / BOX
2CBG012800	1/2-13 x 8	25 / BOX
2CBG012900	1/2-13 x 9	25 / BOX
2CBG012010	1/2-13 x 10	25 / BOX
2CBG012120	1/2-13 x 12	25 / BOX

ORDERING INFORMATION**18-8 STAINLESS STEEL****TABLE 6: ORDERING INFORMATION - GRADE 18-8**

PART #	SIZE	QUANTITY / BOX
2CBS2014100	1/4-20 x 1	100 / BOX
2CBS2038100	3/8-16 x 1	100 / BOX