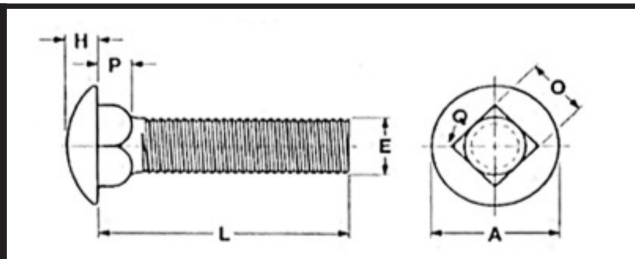




# CONQUEST

## CONQUER THE JOB

### CARRIAGE BOLTS DIMENSIONS: ASME B18.5



| NOMINAL<br>SIZE OR<br>BASIC<br>PRODUCT<br>DIAMETER<br><br>E | A                |       | H              |       | O               |       | P               |       | Q                                |
|-------------------------------------------------------------|------------------|-------|----------------|-------|-----------------|-------|-----------------|-------|----------------------------------|
|                                                             | HEAD<br>DIAMETER |       | HEAD<br>HEIGHT |       | SQUARE<br>WIDTH |       | SQUARE<br>DEPTH |       | CORNER<br>RADIUS<br>ON<br>SQUARE |
|                                                             | MAX              | MIN   | MAX            | MIN   | MAX             | MIN   | MAX             | MIN   | MAX                              |
| #10                                                         | 0.469            | 0.436 | 0.114          | 0.094 | 0.199           | 0.185 | 0.125           | 0.094 | 0.031                            |
| 1/4                                                         | 0.594            | 0.563 | 0.145          | 0.125 | 0.260           | 0.245 | 0.156           | 0.125 | 0.031                            |
| 5/16                                                        | 0.719            | 0.688 | 0.176          | 0.156 | 0.324           | 0.307 | 0.187           | 0.156 | 0.031                            |
| 3/8                                                         | 0.844            | 0.782 | 0.208          | 0.188 | 0.388           | 0.368 | 0.219           | 0.188 | 0.031                            |
| 7/16                                                        | 0.969            | 0.907 | 0.239          | 0.219 | 0.452           | 0.431 | 0.250           | 0.219 | 0.047                            |
| 1/2                                                         | 1.094            | 1.032 | 0.270          | 0.250 | 0.515           | 0.492 | 0.281           | 0.250 | 0.047                            |
| 5/8                                                         | 1.344            | 1.219 | 0.344          | 0.313 | 0.642           | 0.616 | 0.344           | 0.313 | 0.078                            |
| 3/4                                                         | 1.594            | 1.469 | 0.406          | 0.375 | 0.768           | 0.741 | 0.406           | 0.375 | 0.078                            |
| 7/8                                                         | 1.844            | 1.719 | 0.459          | 0.438 | 0.895           | 0.865 | 0.469           | 0.438 | 0.094                            |
| 1                                                           | 2.094            | 1.969 | 0.531          | 0.500 | 1.022           | 0.990 | 0.531           | 0.500 | 0.094                            |

#### NOTES:

a) Thread Class of Fit : Plain : 2A. Zinc Plated : 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.

b) The minimum thread length specified for carriage bolts is equal to twice the basic bolt diameter plus 0.25 inch for nominal bolt length of 6 inch or shorter and twice the basic bolt diameter plus 0.50 inch for longer nominal lengths.

c) The standard specifies only minimum thread length for carriage bolts. They are supplied as fully threaded only. In the case of very long screws, they may be supplied with thread length of only 6 inches.



# CONQUEST

## CONQUER THE JOB

### CARRIAGE BOLTS

#### 2.0 MECHANICAL PROPERTIES (FOR FULL SIZE BOLT TESTING)

#### 2.1 STEEL: ASTM A307 GRADE A

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

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

#### 2.3 STEEL: ASTM F593

(1KSI = 1000 PSI)

| Classification   |                   | Condition | Tensile Strength KSI | Yield Strength KSI | Rockwell Hardness |
|------------------|-------------------|-----------|----------------------|--------------------|-------------------|
| Type             | Nominal Size      |           |                      |                    |                   |
| 304 (18-8) & 316 | 1/4 to 5/8 incl   | CW1       | 100 to 150           | 65                 | B95 to C32        |
|                  | 3/4 to 1-1/2 incl | CW2       | 85 to 140            | 45                 | B80 to C32        |

### CARRIAGE BOLTS

#### 3.0 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                             | 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                                                                          |