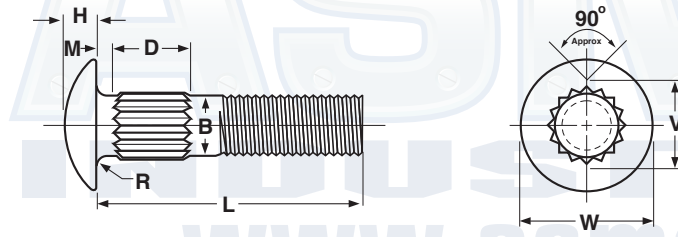


**Round Head, Ribbed Neck**  
**Low Carbon & Gr-5 & Stainless Steel**

# CARRIAGE BOLTS



| <b>CARRIAGE BOLTS, RIBBED NECK</b>  |        |               |       |               |       |             |       |                 |                  |                       |         |                 |                 |                  | ASME B18.5-2008 |
|-------------------------------------|--------|---------------|-------|---------------|-------|-------------|-------|-----------------|------------------|-----------------------|---------|-----------------|-----------------|------------------|-----------------|
| Nominal Size or Basic Bolt Diameter |        | B             |       | W             |       | H           |       | M               |                  | Number of Ribs Approx | V       | D               |                 |                  | R               |
|                                     |        | Body Diameter |       | Head Diameter |       | Head Height |       | Head to Ribs    |                  |                       |         | Depth Over Ribs |                 |                  |                 |
|                                     |        |               |       |               |       |             |       | For Lengths of  |                  |                       |         | For Lengths of  |                 |                  |                 |
|                                     |        |               |       |               |       |             |       | 7/8 and Shorter | 1 in. and Longer |                       |         | 7/8 and Shorter | 1 in. and 1-1/8 | 1-1/4 and Longer |                 |
|                                     |        | Max           | Min   | Max           | Min   | Max         | Min   | Max             |                  | Min                   | ± 0.031 |                 |                 | Max              |                 |
| No. 10                              | 0.1900 | 0.199         | 0.182 | 0.469         | 0.438 | 0.114       | 0.094 | 0.062           | 0.094            | 9                     | 0.210   | 0.250           | 0.407           | 0.594            | 0.031           |
| 1/4                                 | 0.2500 | 0.260         | 0.237 | 0.594         | 0.563 | 0.145       | 0.125 | 0.062           | 0.094            | 10                    | 0.274   | 0.250           | 0.407           | 0.594            | 0.031           |
| 5/16                                | 0.3125 | 0.324         | 0.298 | 0.719         | 0.688 | 0.176       | 0.156 | 0.062           | 0.094            | 12                    | 0.340   | 0.250           | 0.407           | 0.594            | 0.031           |
| 3/8                                 | 0.3750 | 0.388         | 0.360 | 0.844         | 0.782 | 0.208       | 0.188 | 0.062           | 0.094            | 12                    | 0.405   | 0.250           | 0.407           | 0.594            | 0.031           |
| 7/16                                | 0.4375 | 0.452         | 0.421 | 0.969         | 0.907 | 0.239       | 0.219 | 0.062           | 0.094            | 14                    | 0.470   | 0.250           | 0.407           | 0.594            | 0.031           |
| 1/2                                 | 0.5000 | 0.515         | 0.483 | 1.094         | 1.032 | 0.270       | 0.250 | 0.062           | 0.094            | 16                    | 0.534   | 0.250           | 0.407           | 0.594            | 0.031           |
| 5/8                                 | 0.6250 | 0.642         | 0.605 | 1.344         | 1.219 | 0.344       | 0.313 | 0.125           | 0.125            | 19                    | 0.660   | 0.313           | 0.438           | 0.625            | 0.062           |
| 3/4                                 | 0.7500 | 0.768         | 0.729 | 1.594         | 1.469 | 0.406       | 0.375 | 0.125           | 0.125            | 22                    | 0.785   | 0.313           | 0.438           | 0.625            | 0.062           |

| Tolerance on Length | Nominal Screw Size | Nominal Screw 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. 10 thru 3/8    |                      | +0.02 | -0.03                          | +0.02 | -0.04                          | +0.04 | -0.06                      | +0.06 | -0.10      | +0.10 | -0.18 |
|                     | 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 thru 3/4      |                      | +0.02 | -0.03                          | +0.06 | -0.08                          | +0.08 | -0.10                      | +0.10 | -0.10      | +0.14 | -0.18 |
| 7/8 and 1           |                    | ....                 | ....  | +0.08                          | -0.10 | +0.10                          | -0.14 | +0.12                      | -0.16 | +0.16      | -0.20 |       |
| 1-1/8 thru 1-1/2    |                    | ....                 | ....  | +0.12                          | -0.12 | +0.16                          | -0.16 | +0.18                      | -0.18 | +0.22      | -0.22 |       |

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

\*Tolerance on #10 through 1/2" sizes for nominal lengths of 7/8" and shorter shall be +0.031 and -0.000.

| Description             | A round head bolt with a flat bearing surface which intersects with the shank at a 90° angle. Where the bearing surface and shank meet are two fins, 180° opposite each other.           |   |                        |
|-------------------------|--|---|------------------------|
| Applications/Advantages | Primarily used in thin plywood to keep the bolt from turning when nut is being tightened.  | Widely used in the truck and trailer industries   |                        |
| Material                | <b>Low Carbon</b>  | <b>Grade-5</b>  | <b>Stainless</b>       |
|                         | Bolts shall be made from a carbon steel which conforms to the following chemical composition requirements--<br><i>Carbon: 0.55% maximum; Phosphorus: 0.060% max; Sulfur: 0.150% max.</i> | AISI 1030 - 1050 or equivalent steel  | 18-8 Stainless Steel   |
| Hardness                | Rockwell B69 - 100   | <b>Core:</b> (1/4 thru 1" diams): Rockwell C25 - C34<br><b>Surface:</b> (1/4 thru 1" diams): Rockwell 30N54 max | Approximately B85 - 95 |
| Tensile Strength        | 60,000 psi. minimum  | (1/4 thru 1" diams): 120,000 psi. min.  | 80,000 psi. minimum    |
| Yield Strength          | 36,000 psi. minimum  | (1/4 thru 1" diams): 92,000 psi. min.   | 40,000 psi. minimum    |
| Elongation              | 18% minimum  | 14% minimum   |                        |
| Reduction of Area       | 35% minimum  | 35% minimum   |                        |
| Plating                 | See Appendix-A for plating information.  |   |                        |