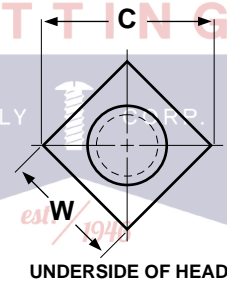
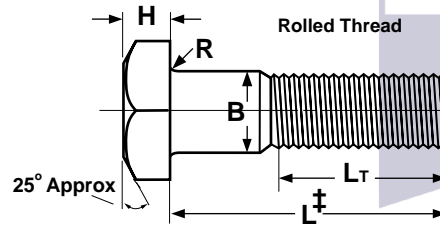
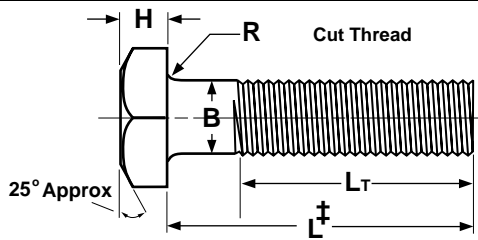


Square Bolts

Bolts & Cap Screws



SQUARE BOLTS

ANSI/ASME
B18.2.1

| Nominal Size or Basic Product Diameter | B | | W | | C | | H | | R | | L _T | | |
|--|---------------|-------|--------------------|-------|----------------------|-------|-------------|-------|------------------|------|--------------------------------|------------|-------|
| | Body Diameter | | Width Across Flats | | Width Across Corners | | Head Height | | Radius of Fillet | | Thread Length for Bolt Lengths | | |
| | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | 6 in. & Shorter | over 6 in. | |
| | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Basic | Basic | |
| 1/4 | 0.2500 | 0.260 | 0.237 | 0.375 | 0.362 | 0.530 | 0.498 | 0.188 | 0.156 | 0.03 | 0.01 | 0.750 | 1.000 |
| 5/16 | 0.3125 | 0.324 | 0.298 | 0.500 | 0.484 | 0.707 | 0.665 | 0.220 | 0.186 | 0.03 | 0.01 | 0.875 | 1.125 |
| 3/8 | 0.3750 | 0.388 | 0.360 | 0.562 | 0.544 | 0.795 | 0.747 | 0.268 | 0.232 | 0.03 | 0.01 | 1.000 | 1.250 |
| 7/16 | 0.4375 | 0.452 | 0.421 | 0.625 | 0.603 | 0.884 | 0.828 | 0.316 | 0.278 | 0.03 | 0.01 | 1.125 | 1.375 |
| 1/2 | 0.5000 | 0.515 | 0.482 | 0.750 | 0.725 | 1.061 | 0.995 | 0.348 | 0.308 | 0.03 | 0.01 | 1.250 | 1.500 |
| 5/8 | 0.6250 | 0.642 | 0.605 | 0.938 | 0.906 | 1.326 | 1.244 | 0.444 | 0.400 | 0.06 | 0.02 | 1.500 | 1.750 |
| 3/4 | 0.7500 | 0.768 | 0.729 | 1.125 | 1.088 | 1.591 | 1.494 | 0.524 | 0.476 | 0.06 | 0.02 | 1.750 | 2.000 |
| 7/8 | 0.8750 | 0.895 | 0.852 | 1.312 | 1.269 | 1.856 | 1.742 | 0.620 | 0.568 | 0.06 | 0.02 | 2.000 | 2.250 |
| 1 | 1.0000 | 1.022 | 0.976 | 1.500 | 1.450 | 2.121 | 1.991 | 0.684 | 0.628 | 0.09 | 0.03 | 2.250 | 2.500 |
| 1 1/8 | 1.1250 | 1.149 | 1.098 | 1.688 | 1.631 | 2.386 | 2.239 | 0.780 | 0.720 | 0.09 | 0.03 | 2.500 | 2.750 |
| 1 1/4 | 1.2500 | 1.277 | 1.223 | 1.875 | 1.812 | 2.652 | 2.489 | 0.876 | 0.812 | 0.09 | 0.03 | 2.750 | 3.000 |
| 1 3/8 | 1.3750 | 1.404 | 1.345 | 2.062 | 1.994 | 2.917 | 2.738 | 0.940 | 0.872 | 0.09 | 0.03 | 3.000 | 3.250 |
| 1 1/2 | 1.5000 | 1.531 | 1.470 | 2.250 | 2.175 | 3.182 | 2.986 | 1.036 | 0.964 | 0.09 | 0.03 | 3.250 | 3.500 |

| 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. | | Longer than 6 in. | |
| | 1/4 to 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 | -0.06 | +0.06 | -0.08 | +0.08 | -0.10 | +0.12 | -0.18 |
| | 9/16 to 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 to 1 1/2 | | | +0.12 | -0.12 | +0.16 | -0.16 | +0.18 | -0.18 | +0.22 | -0.22 |

†Length of a square bolt is measured from the underhead bearing surface to the extreme end of the bolt.

| | |
|-------------------------|---|
| Description | A low or medium carbon steel, externally threaded mechanical device 1/4" diameter or larger, with a trimmed square shaped external wrenching head. |
| Applications/Advantages | Offers greater bearing surface for wrenching than hex head bolts. |
| Material | Bolts shall be made from a carbon steel which conforms to the following chemical composition requirements-- <i>Phosphorus</i> : 0.06% maximum; <i>Sulfur</i> : 0.15% maximum |
| Hardness | Bolts of a length less than 3 times diameter: Rockwell B69-100 Bolts of a length 3 times diameter and longer: Rockwell B100 maximum |
| Tensile Strength | 60,000 psi. minimum |
| Elongation in 2 in. | 18% minimum |
| Plating | See Appendix-A for plating information. |