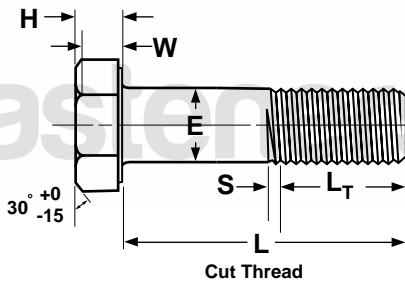
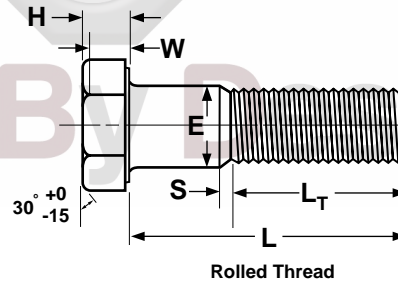


Heavy Hex Cap Screws

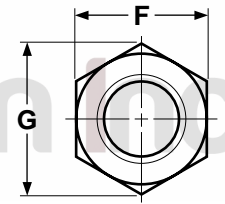
Bolts & Cap Screws



Cut Thread



Rolled Thread



UNDERSIDE OF HEAD

HEAVY HEX CAP SCREWS

ASME B18.2.1-1996

| Nominal Size or Basic Product Diameter | E | | F | | G | | H | | W | L _T | S | | |
|--|---------------|--------|--------------------|-------|----------------------|-------|-------------|-------|-------|---------------------------------|--------------------------|-------|-------|
| | Body Diameter | | Width Across Flats | | Width Across Corners | | Head Height | | | | | | |
| | Max | Min | Max | Min | Max | Min | Max | Min | Min | Thread Length for Screw Lengths | Transition Thread Length | | |
| | | | | | | | | | | 6 in. and shorter | Over 6 in. | | |
| | | | | | | | | | | Basic | Basic | Max | |
| 1/2 | 0.5000 | 0.5000 | 0.482 | 0.875 | 0.850 | 1.010 | 0.969 | 0.323 | 0.302 | 0.215 | 1.250 | 1.500 | 0.385 |
| 5/8 | 0.6250 | 0.6250 | 0.605 | 1.062 | 1.031 | 1.227 | 1.175 | 0.403 | 0.378 | 0.269 | 1.500 | 1.750 | 0.455 |
| 3/4 | 0.7500 | 0.7500 | 0.729 | 1.250 | 1.212 | 1.443 | 1.383 | 0.483 | 0.455 | 0.324 | 1.750 | 2.000 | 0.500 |
| 7/8 | 0.8750 | 0.8750 | 0.852 | 1.438 | 1.394 | 1.660 | 1.589 | 0.563 | 0.531 | 0.378 | 2.000 | 2.250 | 0.556 |
| 1 | 1.0000 | 1.0000 | 0.976 | 1.625 | 1.575 | 1.876 | 1.796 | 0.627 | 0.591 | 0.416 | 2.250 | 2.500 | 0.625 |
| 1 1/8 | 1.1250 | 1.1250 | 1.098 | 1.812 | 1.756 | 2.093 | 2.002 | 0.718 | 0.658 | 0.461 | 2.500 | 2.750 | 0.714 |
| 1 1/4 | 1.2500 | 1.2500 | 1.223 | 2.000 | 1.938 | 2.309 | 2.209 | 0.813 | 0.749 | 0.530 | 2.750 | 3.000 | 0.714 |
| 1 3/8 | 1.3750 | 1.3750 | 1.345 | 2.188 | 2.119 | 2.526 | 2.416 | 0.878 | 0.810 | 0.569 | 3.000 | 3.250 | 0.833 |
| 1 1/2 | 1.5000 | 1.5000 | 1.470 | 2.375 | 2.300 | 2.742 | 2.622 | 0.974 | 0.902 | 0.640 | 3.250 | 3.500 | 0.833 |
| 1 3/4 | 1.7500 | 1.7500 | 1.716 | 2.750 | 2.662 | 3.175 | 3.035 | 1.134 | 1.054 | 0.748 | 3.750 | 4.000 | 1.000 |
| 2 | 2.0000 | 2.0000 | 1.964 | 3.125 | 3.025 | 3.608 | 3.449 | 1.263 | 1.175 | 0.825 | 4.250 | 4.500 | 1.111 |
| 2 1/4 | 2.2500 | 2.2500 | 2.214 | 3.500 | 3.388 | 4.041 | 3.862 | 1.423 | 1.327 | 0.933 | ... | 5.000 | 1.111 |
| 2 1/2 | 2.5000 | 2.5000 | 2.461 | 3.875 | 3.750 | 4.474 | 4.275 | 1.583 | 1.479 | 1.042 | ... | 5.500 | 1.250 |
| 2 3/4 | 2.7500 | 2.7500 | 2.711 | 4.250 | 4.112 | 4.907 | 4.688 | 1.744 | 1.632 | 1.151 | ... | 6.000 | 1.250 |
| 3 | 3.0000 | 3.0000 | 2.961 | 4.625 | 4.475 | 5.340 | 5.102 | 1.935 | 1.815 | 1.290 | ... | 6.500 | 1.250 |

| 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 |

| | |
|-------------------------|--|
| Description | A low carbon steel hex cap screw with a wider head than that of a standard hex cap screw. |
| Applications/Advantages | Offers greater wrenching area than standard hex cap screws and more consistent body diameter dimensions than heavy hex bolts (the following specifications pertain to Grade-2 heavy hex cap screws; performance requirements for grades 5 & 8 are on page 63). |
| Material | Grade-2 heavy hex cap screws shall be made from a carbon steel which conforms to the following chemical composition requirements-- Carbon: 0.55% maximum; Phosphorus: 0.048% maximum; Sulfur: 0.058% maximum |
| Hardness* | Rockwell B80 - 100 |
| Tensile Strength | 74,000 psi. minimum |
| Proof Load | 55,000 psi. |
| Elongation in 2 in. | 18% minimum |
| Plating | See Appendix-A for plating information. |