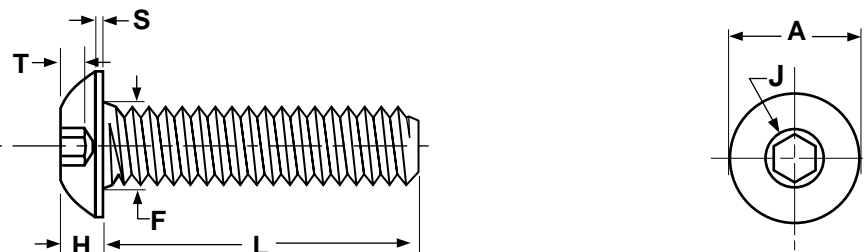


**Alloy  
Steel**

# Button Head Socket Cap Screws

**Sockets**



| Socket Button Head Cap Screws - Alloy Steel |                  |       |             |       |                        |                        |                        |                                  |       |                           | ASME B18.3-1998,<br>Blue Devil®    |  |                             |                |
|---|------------------|-------|-------------|-------|------------------------|------------------------|------------------------|----------------------------------|-------|---------------------------|------------------------------------|--|-----------------------------|----------------|
| Nominal<br>Size                             | A                |       | H           |       | S                      | J                      | T                      | F                                |       | L                         | Tensile<br>Test<br>Load            | Single<br>Shear<br>Strength<br>of Body | Seating Torques<br>in./lbs. |                |
|   | Head<br>Diameter |       | Head Height |       | Head<br>Side<br>Height | Hex<br>Socket<br>Size  | Key<br>Engage-<br>ment | Fillet<br>Transition<br>Diameter |       | Max<br>Standard<br>Length | Lb.                                | Lbs., Min.                             | Coarse<br>Thread            | Fine<br>Thread |
|   | Max              | Min   | Max         | Min   | Ref                    | Nom                    | Min                    | Max                              | Min   | Nom                       |                                    |  |                             |                |
| 4   | 0.213            | 0.201 | 0.059       | 0.051 | 0.015                  | 1/16                   | 0.035                  | 0.132                            | 0.122 | 0.50                      | 840                                | 950                                    | 7.0                         | 8.             |
| 6   | 0.262            | 0.250 | 0.073       | 0.063 | 0.015                  | 5/64                   | 0.044                  | 0.158                            | 0.148 | 0.63                      | 1,260                              | 1,400                                  | 13.                         | 15.            |
| 8   | 0.312            | 0.298 | 0.087       | 0.077 | 0.015                  | 3/32                   | 0.052                  | 0.194                            | 0.184 | 0.75                      | 1,940                              | 2,000                                  | 25.                         | 26.            |
| 10  | 0.361            | 0.347 | 0.101       | 0.091 | 0.020                  | 1/8                    | 0.070                  | 0.220                            | 0.210 | 1.00                      | 2,440                              | 2,700                                  | 45.                         | 48.            |
| 1/4   | 0.437            | 0.419 | 0.132       | 0.122 | 0.031                  | 5/32                   | 0.087                  | 0.290                            | 0.280 | 1.00                      | 4,430                              | 4,700                                  | 95.                         | 110.           |
| 5/16  | 0.547            | 0.527 | 0.166       | 0.152 | 0.031                  | 3/16                   | 0.105                  | 0.353                            | 0.343 | 1.00                      | 7,300                              | 7,300                                  | 190.                        | 210.           |
| 3/8   | 0.656            | 0.636 | 0.199       | 0.185 | 0.031                  | 7/32                   | 0.122                  | 0.415                            | 0.405 | 1.25                      | 10,800                             | 10,600                                 | 300.                        | 300.           |
| 1/2   | 0.875            | 0.851 | 0.265       | 0.245 | 0.046                  | 5/16                   | 0.175                  | 0.560                            | 0.540 | 2.00                      | 19,800                             | 18,800                                 | 900.                        | 960.           |
| 5/8   | 1.000            | 0.970 | 0.331       | 0.311 | 0.062                  | 3/8                    | 0.210                  | 0.685                            | 0.665 | 2.00                      | 31,500                             | 29,400                                 | 1,700.                      | 1,900.         |
| Tolerance on Length                         |                  |       |             |       |                        |                        |                        |                                  |       |                           |                                    |  |                             |                |
|   |                  |       |             |       |                        | Nominal Screw Length   |                        |                                  |       |                           |                                    |  |                             |                |
|   |                  |       |             |       |                        | Up to 1 in., Inclusive |                        |                                  |       |                           | Over 1 in. to 2-1/2 in., Inclusive |  |                             |                |
|   |                  |       |             |       |                        | 0 thru 3/8, Inclusive  |                        |                                  |       |                           | -0.03                              |  |                             |                |
|   |                  |       |             |       |                        | 1/2 and 5/8, Inclusive |                        |                                  |       |                           | -0.06                              |  |                             |                |

|                             |   |
|-----------------------------|---|
| Description                 | Has a similar thread design as a socket cap screw. The dome-shaped head is wider and has a lower profile than a socket cap screw.   |
| Applications/<br>Advantages | Used when a wider bearing surface or a smoother, more finished appearance is desired. Button head cap screws do not afford the strength of socket head cap screws and are designed for light fastening applications. They are not recommended for critical, high-strength applications.   |
| Material                    | Screws shall be made from an alloy steel which conforms to the following chemical composition requirements (per product analysis) - Carbon: 0.28 to 0.50%; Phosphorus: 0.045% maximum; Sulfur: 0.035% maximum. Also, one or more of the following elements shall be present in sufficient quantity to meet the performance requirements listed below: chromium, nickel, molybdenum or vanadium. |
| Heat Treatment              | Screws shall be heat treated by oil quenching from above the transformation temperature and then tempered at a temperature not lower than 650°F.  |
| Hardness                    | Rockwell C38 - 44   |
| Tensile Strength            | 180,000 psi. minimum (material only)  |
| Yield Strength              | 160,000 psi. minimum (material only)  |
| Elongation                  | 8% minimum (applies to machined specimens of length at least 4D where D equals the nominal diameter of the screw)   |
| Reduction of Area           | 35% minimum (applies to machined specimens)   |
| Finish                      | Screws are supplied with a thermal black finish.  |