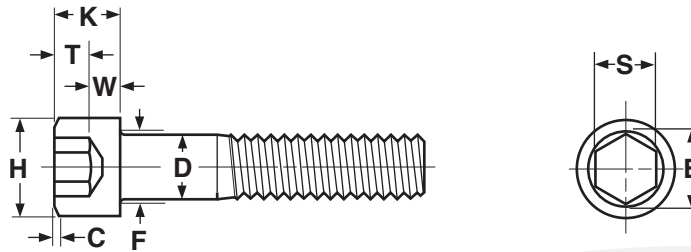


# METRIC FASTENERS

## SOCKET CAP SCREWS



| METRIC - SOCKET HEAD CAP SCREWS, HEAT TREATED ALLOY STEEL |               |               |               |               |                |             |                 |                       |                            |                              |                  |                                |                | ISO 4762       |                                     |
|---|---------------|---------------|---------------|---------------|----------------|-------------|-----------------|-----------------------|----------------------------|------------------------------|------------------|--------------------------------|----------------|----------------|-------------------------------------|
| Basic Screw Diameter                                      | Thread Pitch  | D             |               | H             |                | K           |                 | C                     | F                          | S                            |                  | E                              | T              | W              | Suggested Seating Torque<br>Lb./in. |
|   |               | Body Diameter |               | Head Diameter |                | Head Height |                 | Top Chamfer or Radius | Fillet Transition Diameter | Socket Size Across the Flats |                  | Socket Size Across the Corners | Key Engagement | Wall Thickness |                                     |
|   |               | Max           | Min           | Max           | Min            | Max         | Min             | Max                   | Max                        | Max                          | Min              | Min                            | Min            | Min            |                                     |
| M1.6  | 0.35          | 1.60          | 1.46          | 3.14          | 2.86           | 1.60        | 1.46            | 0.16                  | 2                          | 1.545                        | 1.520            | 1.73                           | 0.7            | 0.55           | -                                   |
| M2  | 0.4           | 2.00          | 1.86          | 3.98          | 3.62           | 2.00        | 1.86            | 0.2                   | 2.6                        | 1.545                        | 1.520            | 1.73                           | 1              | 0.55           | -                                   |
| M2.5  | 0.45          | 2.50          | 2.36          | 4.68          | 4.32           | 2.50        | 2.36            | 0.25                  | 3.1                        | 2.045                        | 2.020            | 2.3                            | 1.1            | 0.85           | -                                   |
| M3  | 0.5           | 3.00          | 2.86          | 5.68          | 5.32           | 3.00        | 2.86            | 0.3                   | 3.6                        | 2.56                         | 2.52             | 2.87                           | 1.3            | 1.15           | 23                                  |
| M4  | 0.7           | 4.00          | 3.82          | 7.22          | 6.78           | 4.00        | 3.82            | 0.4                   | 4.7                        | 3.071                        | 3.020            | 3.44                           | 2              | 1.4            | 54                                  |
| M5  | 0.8           | 5.00          | 4.82          | 8.72          | 8.28           | 5.00        | 4.82            | 0.5                   | 5.7                        | 4.084                        | 4.020            | 4.58                           | 2.5            | 1.9            | 109                                 |
| M6  | 1             | 6.00          | 5.82          | 10.22         | 9.78           | 6.00        | 5.7             | 0.6                   | 6.8                        | 5.084                        | 5.020            | 5.72                           | 3              | 2.3            | 185                                 |
| M8  | 1.25          | 8.00          | 7.78          | 13.27         | 12.73          | 8.00        | 7.64            | 0.8                   | 9.2                        | 6.095                        | 6.020            | 6.86                           | 4              | 3.3            | 450                                 |
| M10   | 1.5           | 10.00         | 9.78          | 16.27         | 15.73          | 10.00       | 9.64            | 1                     | 11.2                       | 8.115                        | 8.025            | 9.15                           | 5              | 4              | 892                                 |
| M12   | 1.75          | 12.00         | 11.73         | 18.27         | 17.73          | 12.00       | 11.57           | 1.2                   | 13.7                       | 10.115                       | 10.025           | 11.43                          | 6              | 4.8            | 1,554                               |
| M16   | 2             | 16.00         | 15.73         | 24.33         | 23.67          | 16.00       | 15.57           | 1.6                   | 17.7                       | 14.142                       | 14.032           | 16                             | 8              | 6.8            | 3,964                               |
| M20   | 2.5           | 20.00         | 19.67         | 30.33         | 29.67          | 20.00       | 19.48           | 2                     | 22.4                       | 17.23                        | 17.05            | 19.44                          | 10             | 8.6            | 7,536                               |
| M24   | 3             | 24.00         | 23.67         | 36.39         | 35.61          | 24.00       | 23.48           | 2.4                   | 26.4                       | 19.275                       | 19.065           | 21.73                          | 12             | 10.4           | 13,026                              |
| M30   | 3.5           | 30.00         | 29.67         | 45.39         | 44.61          | 30.00       | 29.48           | 3                     | 33.4                       | 22.275                       | 22.065           | 25.15                          | 15.5           | 13.1           | -                                   |
| M36   | 4             | 36.00         | 35.61         | 54.46         | 53.54          | 36.00       | 35.38           | 3.6                   | 39.4                       | 27.275                       | 27.065           | 30.85                          | 19             | 15.3           | -                                   |
| M42   | 4.5           | 42.00         | 41.61         | 63.46         | 62.54          | 42.00       | 41.38           | 4.2                   | 45.6                       | 32.33                        | 32.08            | 36.57                          | 24             | 16.3           | -                                   |
| M48   | 5             | 48.00         | 47.61         | 72.46         | 71.54          | 48.00       | 47.38           | 4.8                   | 52.6                       | 36.33                        | 36.08            | 41.13                          | 28             | 17.5           | -                                   |
| M56   | 5.5           | 56.00         | 55.54         | 84.54         | 83.46          | 56.00       | 55.26           | 5.6                   | 63                         | 41.33                        | 41.08            | 46.83                          | 34             | 19             | -                                   |
| M64   | 6             | 64.00         | 63.54         | 96.54         | 95.46          | 64.00       | 63.26           | 6.4                   | 71                         | 46.33                        | 46.08            | 52.53                          | 38             | 22             | -                                   |
| Tolerance on Length                                       | 2.5-3mm: ±0.2 |               | 4-6mm: ±0.24  |               | 8-10mm: ±0.29  |             | 12-16mm: ±0.35  |                       | 20-30mm: ±0.42             |                              |                  |                                |                |                |                                     |
|   | 35-50mm: ±0.5 |               | 55-80mm: ±0.6 |               | 90-120mm: ±0.7 |             | 130-180mm: ±0.8 |                       | 200-240mm: ±0.925          |                              | 260-300mm: ±1.05 |                                |                |                |                                     |

|                                |   |
|--------------------------------|---|
| <b>Description</b>             | An externally threaded fastener with metric threads, a cylindrical head with a flat chamfered top surface, knurled cylindrical sides and hexagonal recess, made from alloy steel.   |
| <b>Applications/Advantages</b> | High alloy metric socket cap screws are comparable, but not exactly equivalent to U.S. alloy steel socket cap screws. Ideal for precision assembly work with close tolerances and applications needing a well-tooled appearance. Supplies greater tensile strength than equivalent sizes of Class 8.8 or 10.9 hex head cap screws while requiring less surface area or counterbore since the fastener is internally wrenched. |
| <b>Material</b>                | High alloy metric socket cap screws shall be made from an alloy steel which conforms to the following chemical composition requirements-- <i>Carbon</i> : 0.20-0.50%; <i>Phosphorous</i> : 0.035% maximum; <i>Sulfur</i> : 0.035% maximum; and one or more of chromium, nickel, molybdenum or vanadium.   |
| <b>Heat Treatment</b>          | High alloy metric socket cap screws shall be heat treated by quenching in oil from above the transformation temperature and reheating to a tempering temperature of 380°C minimum.  |
| <b>Hardness</b>                | Rockwell C 39 - 44 (Vickers HV 385 - 435)   |
| <b>Tensile Strength</b>        | 1220 N/mm <sup>2</sup> minimum  |
| <b>Proof Load</b>              | 1100 N/mm <sup>2</sup> minimum  |
| <b>Elongation</b>              | 8% minimum  |
| <b>Plating</b>                 | Metric socket cap screws are usually supplied with a plain, black finish.   |