

Westfield Fasteners Product Specification:

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ISO 7380 part 2 - Hexagonal Socket Button Head Screws with Flange

This product guide contains the specification for metric threaded socket head button screws with flange as available from Westfield Fasteners. The basis of this specification is the ISO standard ISO 7380 part 2, but this specification may include information on sizes and materials that are not covered by the ISO standard but are available.

Product Description

A popular and attractive socket head screw with an integrated flange offering a wider head for fixing into softer materials. Typically used where aesthetics are important, or where a lower profile domed finish is required. The hex drive is generally smaller than other hex driven ranges and thus the ultimate tightening torque is reduced. Manufactured to ISO 7380 part 2, and tend to be fully threaded.

Scope of the ISO standard.

ISO standard 7380 part 2 specifies the tolerances and the permissible variation in form of hexagon flange socket button head screws, and covers metric thread diameters from M3 up to and including M16. Mechanical properties for these items are defined in ISO 898 and ISO 3506.

Table 1 below defines the overall dimensions and tolerances of this screw type. Table 2 defines the tolerances on the shank length, whilst table 3 shows the reduced minimum ultimate tensile loads for this product. The information in table 3 is presented here because due to their head design socket button screws are considered to have reduced loadability over other screw types, as defined in ISO 898 and ISO 3506.

ISO 7380 part 2 covers steel grades 8.8 and 10.9. Stainless steel variants are not mentioned explicitly in this version of the standard, but conform to the dimensions stated.

ISO 7380 part 1 is a separate standard that covers hexagon socket button screws without the flange.

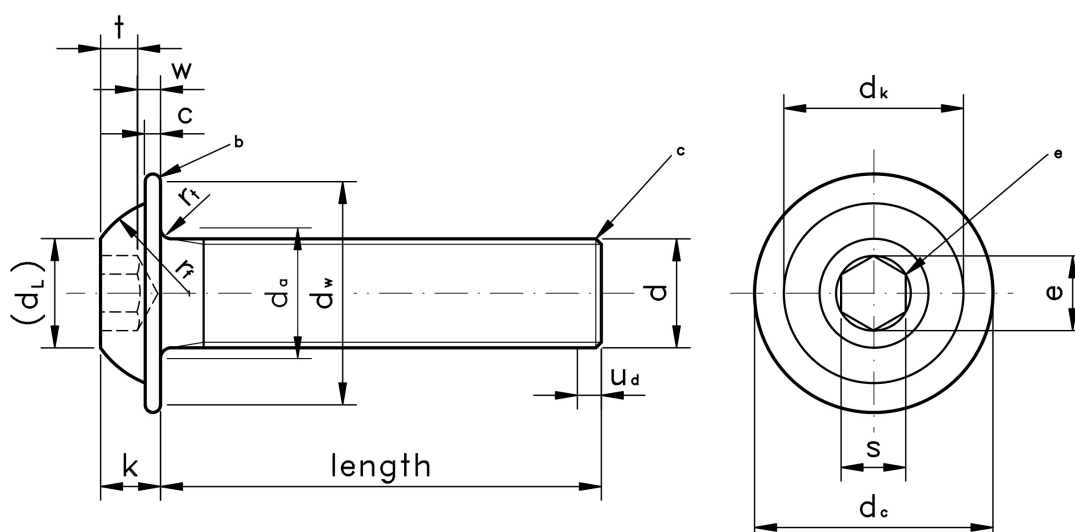


Figure 1: Socket Head Button Screw with Flange

Notes to figure 1:

- Under head radius (rt) is for a fully threaded screw.
- This contour (b) may vary in shape between batches, and is defined at the discretion of the manufacturer.
- The tip of the shank may finish with a chamfer or for sizes of M4 or less, rolled.
- The tip of the shank (d) may include up to 2 incomplete threads.
- A slight rounding or countersink at the mouth of the socket (e) may be present.

Variations from ISO 7380 part 2

Manufacturer and/or material markings may be present on the domed part of the head.

Table 1: Dimensions & Tolerances according to ISO 7380-2

| Thread, d | | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M16 |
|----------------|-----|-------|-------|-------|-------|-------|-------|-------|--------|
| p | | 0.5 | 0.7 | 0.8 | 1 | 1.25 | 1.5 | 1.75 | 2 |
| b | ref | 18 | 20 | 22 | 24 | 28 | 32 | 36 | 44 |
| c | max | 0.7 | 0.8 | 1.0 | 1.2 | 1.5 | 2.0 | 2.4 | 2.8 |
| | min | 0.55 | 0.65 | 0.80 | 1.00 | 1.25 | 1.70 | 2.10 | 2.50 |
| d _a | max | 3.6 | 4.7 | 5.7 | 6.8 | 9.2 | 11.2 | 13.7 | 17.7 |
| d _c | max | 6.9 | 9.4 | 11.8 | 13.6 | 17.8 | 21.9 | 26.0 | 34.0 |
| | min | 6.32 | 8.82 | 11.10 | 12.90 | 17.10 | 21.06 | 25.16 | 33.00 |
| d _k | max | 5.2 | 7.2 | 8.8 | 10.0 | 13.2 | 16.5 | 19.4 | 26.0 |
| | min | 4.9 | 6.8 | 8.4 | 9.6 | 12.8 | 16.1 | 18.9 | 25.5 |
| d _L | ref | 2.6 | 3.8 | 5.0 | 6.0 | 7.7 | 10.0 | 12.0 | 16.0 |
| d _s | max | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 |
| | min | 2.86 | 3.82 | 4.82 | 5.82 | 7.78 | 9.78 | 11.73 | 15.73 |
| d _w | min | 5.74 | 8.24 | 10.40 | 12.20 | 16.40 | 20.22 | 24.32 | 32.00 |
| e | min | 2.303 | 2.873 | 3.443 | 4.583 | 5.723 | 6.863 | 9.149 | 11.429 |
| k | max | 1.65 | 2.20 | 2.75 | 3.30 | 4.40 | 5.50 | 6.60 | 8.80 |
| | min | 1.40 | 1.95 | 2.50 | 3.00 | 4.10 | 5.20 | 6.24 | 8.44 |
| r _f | max | 3.70 | 4.60 | 5.75 | 6.15 | 7.95 | 9.80 | 11.20 | 15.30 |
| | min | 3.30 | 4.20 | 5.25 | 5.65 | 7.45 | 9.20 | 10.50 | 14.50 |
| r _t | min | 0.30 | 0.40 | 0.45 | 0.50 | 0.70 | 0.70 | 1.10 | 1.10 |
| s | nom | 2 | 2.5 | 3 | 4 | 5 | 6 | 8 | 10 |
| | max | 2.080 | 2.580 | 3.080 | 4.095 | 5.140 | 6.140 | 8.175 | 10.175 |
| | min | 2.020 | 2.520 | 3.020 | 4.020 | 5.020 | 6.020 | 8.025 | 10.025 |
| t | min | 1.04 | 1.30 | 1.56 | 2.08 | 2.60 | 3.12 | 4.16 | 5.20 |
| w | min | 0.20 | 0.30 | 0.38 | 0.74 | 1.05 | 1.45 | 1.63 | 2.25 |

Table 2: Shank Length Tolerance according to ISO 7380-2

| thread length (mm) | +/- (mm) |
|---------------------------|-----------------|
| 6 | 0.24 |
| 8-10 | 0.29 |
| 12-16 | 0.35 |
| 20-30 | 0.42 |
| 35-50 | 0.5 |
| 55-90 | 0.6 |

Table 3: Reduced Ultimate Tensile Loads according to ISO 7380-2

| Thread, d | Property Class | |
|------------------|--|--------|
| | 8.8 | 10.9 |
| | Reduced Minimum Ultimate Tensile Load, N | |
| M3 | 3220 | 4180 |
| M4 | 5620 | 7300 |
| M5 | 9080 | 1180 |
| M6 | 12900 | 16700 |
| M8 | 23400 | 30500 |
| M10 | 37100 | 48500 |
| M12 | 53900 | 70200 |
| M16 | 100000 | 130000 |

For further details, please refer to the ISO/DIN standard document for this item.