

## ISO 7380-2

Hexagon socket button head screws with collar



|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |              |         |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|
| Standard       | ISO 7380-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |         |
| Product Type   | This document specifies the characteristics of hexagon socket button head screws with collar, with reduced loadability due to head design, in steel, with metric coarse pitch threads M3 to M16, and with product grade A. If in certain cases other specifications are requested, dimensional options can be selected from ISO 888 or ISO 4753 . NOTE The reduced loadability (related to the head dimensions in combination with penetration of the hexagon socket specified in this document) implies a limitation of ultimate tensile load shown by a specific marking (property class preceded by a zero). The loadability in the head is assumed to be 80 % of that in the thread for all sizes and all property classes, see Table 4 . |              |         |
| Material       | Stainless Steel, Carbon Steel, Alloy Steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |         |
| Property Class | A2-70, A4-80 (ISO 3506-1) · 8.8, 10.9, 12.9 (ISO 898-1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |         |
| Surface Finish | Passivated, Plain, Blackened, Zinc Plated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |         |
| Size Range     | M3 - M16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Length Range | 6-90 mm |
| Thread         | ISO metric coarse pitch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |         |

### BASIS OF SPECIFICATION

WHICH STANDARD GOVERNS WHAT

|                                                     |                 |
|-----------------------------------------------------|-----------------|
| Dimensions to                                       | ISO 7380-2:2011 |
| Carbon steel / Alloy steel mechanical properties to | ISO 898-1:2013  |
| Stainless steel mechanical properties to            | ISO 3506-1:2020 |
| Product grade                                       | A               |
| Thread length                                       | to be agreed    |
| Minimum usable thread length                        | to be agreed    |

### MECHANICAL PROPERTIES

REQUIRED VALUES PER ISO 3506-1

| Class | Rm min. | Yield requirement  | Elongation requirement | Hardness | Source     |
|-------|---------|--------------------|------------------------|----------|------------|
| A2-70 | 700 MPa | Rp0.2 min. 450 MPa | 0,4d mm                | -        | ISO 3506-1 |
| A4-80 | 800 MPa | Rp0.2 min. 600 MPa | 0,3d mm                | -        | ISO 3506-1 |

### MECHANICAL PROPERTIES

REQUIRED VALUES PER ISO 898-1

| Class | Rm min.  | Yield requirement   | Elongation requirement | Hardness     | Source              |
|-------|----------|---------------------|------------------------|--------------|---------------------|
| 8.8   | 800 MPa  | Rp0.2 min. 640 MPa  | A min. 12 %            | 250 - 320 HV | ISO 898-1 (d ≤ M16) |
| 10.9  | 1040 MPa | Rp0.2 min. 940 MPa  | A min. 9 %             | 320 - 380 HV | ISO 898-1           |
| 12.9  | 1220 MPa | Rp0.2 min. 1100 MPa | A min. 8 %             | 385 - 435 HV | ISO 898-1           |

**DIMENSIONAL DATA - SIZES WE SUPPLY**

ALL DIMENSIONS PER THE STANDARD

| <b>d</b>      | <b>P</b>          | <b>dc</b>            | <b>dc (min)</b>       | <b>dk</b>          | <b>dk (min)</b>    | <b>k</b>                 | <b>k (min)</b>   | <b>s</b>             | <b>e (min)</b>             | <b>t (max)</b>    | <b>t (min)</b>    |
|---------------|-------------------|----------------------|-----------------------|--------------------|--------------------|--------------------------|------------------|----------------------|----------------------------|-------------------|-------------------|
| Diameter - mm | Thread Pitch - mm | Flange Diameter - mm | Bearing Diameter - mm | Head Diameter - mm | Head Diameter - mm | Nominal Head Height - mm | Head Height - mm | Hex Socket Size - mm | Socket Across Corners - mm | Socket Depth - mm | Socket Depth - mm |
| <b>M3</b>     | 0.5               | 6.9                  | 6.32                  | 5.2                | 4.9                | 1.65                     | 1.4              | 2                    | 2.303                      | 1.2               | 1.04              |
| <b>M4</b>     | 0.7               | 9.4                  | 8.82                  | 7.2                | 6.8                | 2.2                      | 1.95             | 2.5                  | 2.873                      | 1.65              | 1.3               |
| <b>M5</b>     | 0.8               | 11.8                 | 11.1                  | 8.8                | 8.4                | 2.75                     | 2.5              | 3                    | 3.443                      | 2.12              | 1.56              |
| <b>M6</b>     | 1                 | 13.6                 | 12.9                  | 10                 | 9.6                | 3.3                      | 3                | 4                    | 4.583                      | 2.26              | 2.08              |
| <b>M8</b>     | 1.25              | 17.8                 | 17.1                  | 13.2               | 12.8               | 4.4                      | 4.1              | 5                    | 5.723                      | 3.05              | 2.6               |
| <b>M10</b>    | 1.5               | 21.9                 | 21.06                 | 16.5               | 16.1               | 5.5                      | 5.2              | 6                    | 6.863                      | 3.75              | 3.12              |
| <b>M12</b>    | 1.75              | 26                   | 25.16                 | 19.4               | 18.9               | 6.6                      | 6.24             | 8                    | 9.149                      | 4.61              | 4.16              |
| <b>M16</b>    | 2                 | 34                   | 33                    | 26                 | 25.5               | 8.8                      | 8.44             | 10                   | 11.429                     | 6.19              | 5.2               |

**MARKING**

Carbon steel / Alloy steel

Head marking to ISO 898-1:2013

Stainless steel

Head marking to ISO 3506-1:2020

Marking requirements are set by the material standard named above, not by the product standard. Confirm the ordered property class before production.

**INSPECTION DOCUMENTS WE CAN ISSUE**

EN 10204 3.1 material certificate

Can be included when agreed in the order.

Dimensional inspection report

Can be provided for the agreed inspection scope.

Certificate of conformity

Can be issued against the confirmed order requirements.

Mechanical test report

Available when the required tests are agreed before production.

Chemical analysis report

Available when the material verification scope is agreed.

Coating inspection report

Can record the coating checks agreed for the order.

**REFERENCES & NOTES**

Note: Dimensional values follow the selected execution standard. Material properties and batch test results are included only when declared or supported by the applicable certificate or test report.