



Allow covering of large diameter holes in sheet metal. Ideal to fix strips, cover plates and sheet metal housings.

### Mechanical Properties

Material: Unbrako High Grade Alloy Steel  
Heat Treatment: Rc 39-44

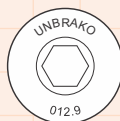
### Notes

1. Thread Class: 4g 6g
2. Full thread length to within 2½ pitches of head.
3. Working Temperature: -50°C +300°C
4. Length tolerance = ±0.25mm.

5. Torques calculated in accordance with VDI 2230 "Systematic calculation of high duty bolted joints with  $\sigma 0.2 = 720 \text{ N/mm}^2$  and  $\mu = 0.125$  for plain finish.

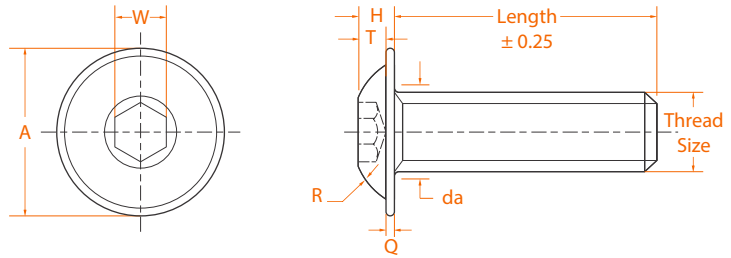
### Length Tolerance

| Screws Over | Up to and including | Tolerance         |
|-------------|---------------------|-------------------|
| -           | 1"                  | ± 0.16"           |
| 1"          | 2"                  | + 0.031" - 0.016" |
| 2"          | 6"                  | ± 0.031"          |
| 6"          | -                   | ± 0.062"          |



### Head Marking

Head markings may vary slightly depending on manufacturing practice. UNBRAKO and UNB are recognized identifications for M5 diameter & larger.



### Product Dimensions

| Thread Size | Pitch | Head Diameter A max. | Hex Socket Size W nom. | Head Height H max. | Socket Depth T min. | Transition Dia da max. | Q max. | R ref. |
|-------------|-------|----------------------|------------------------|--------------------|---------------------|------------------------|--------|--------|
| M3          | 0.50  | 7.12                 | 2.0                    | 1.65               | 1.05                | 3.60                   | 0.70   | 3.00   |
| M4          | 0.70  | 9.29                 | 2.5                    | 2.20               | 1.35                | 4.70                   | 0.80   | 4.20   |
| M5          | 0.80  | 11.40                | 3.0                    | 2.75               | 1.92                | 5.70                   | 0.90   | 5.20   |
| M6          | 1.00  | 13.59                | 4.0                    | 3.30               | 2.08                | 6.80                   | 1.20   | 5.60   |
| M8          | 1.25  | 17.00                | 5.0                    | 4.40               | 2.75                | 9.20                   | 1.30   | 7.50   |
| M10         | 1.50  | 20.80                | 6.0                    | 5.50               | 3.35                | 11.20                  | 1.75   | 10.00  |
| M12         | 1.75  | 24.69                | 8.0                    | 6.60               | 4.16                | 13.70                  | 2.40   | 11.00  |

| Thread Size nom. | Recommended Tightening Torques Unplated |        | Tensile Loads kN |
|------------------|---|--------|------------------|
|                  | N-m                                     | lbf.in |                  |
| M3               | 1.96                                    | 18     | 5.23             |
| M4               | 4.52                                    | 40     | 9.13             |
| M5               | 9.08                                    | 80     | 14.77            |
| M6               | 15.40                                   | 138    | 20.90            |
| M8               | 36.80                                   | 330    | 38.06            |
| M10              | 72.30                                   | 650    | 60.32            |
| M12              | 126.00                                  | 1134   | 87.67            |