



# U2A...

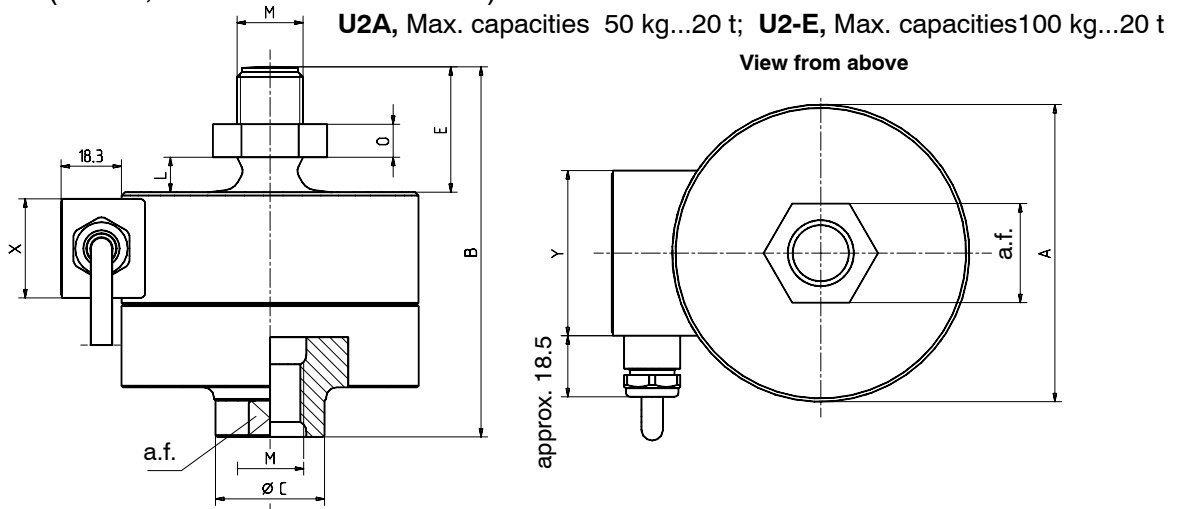
## Load cells



### Special features

- Load cells made of corrosion-resistant materials
- Max. capacities: 50 kg ... 20 t
- Suitable for scales according to OIML R60 up to 1000 d
- Six wire circuit
- Low profile
- For tensile loads
- Meets EMC requirements according to EN 45 501
- Explosion proof version acc. to ATEX 95 optional

Dimensions (in mm; 1 mm= 0.03937 inches)



| Max. cap. [t] | A <sub>0,2</sub> | B   | C  | E  | K    | L <sub>min</sub> | M       | O  | a.f. | X  | Y  |
|---------------|------------------|-----|----|----|------|------------------|---------|----|------|----|----|
| 0.05...1      | 50               | 72  | 21 | 24 | 22   | 5*)              | M12     | 6  | 19   | 20 | 35 |
| 2             | 90               | 112 | 33 | 38 | 25   | 10.6             | M20x1.5 | 10 | 30   | 30 | 50 |
| 5             | 100              | 141 | 40 | 47 | 25   | 13.2             | M24x2   | 12 | 36   | 30 | 50 |
| 10            | 135              | 197 | 68 | 67 | 26   | 19               | M39x2   | 19 | 60   | 30 | 50 |
| 20            | 155              | 232 | 82 | 85 | 26.5 | 24.2             | M48x2   | 22 | 70   | 30 | 50 |

\*) with U2A/1 t: 7.4 mm

## Specifications

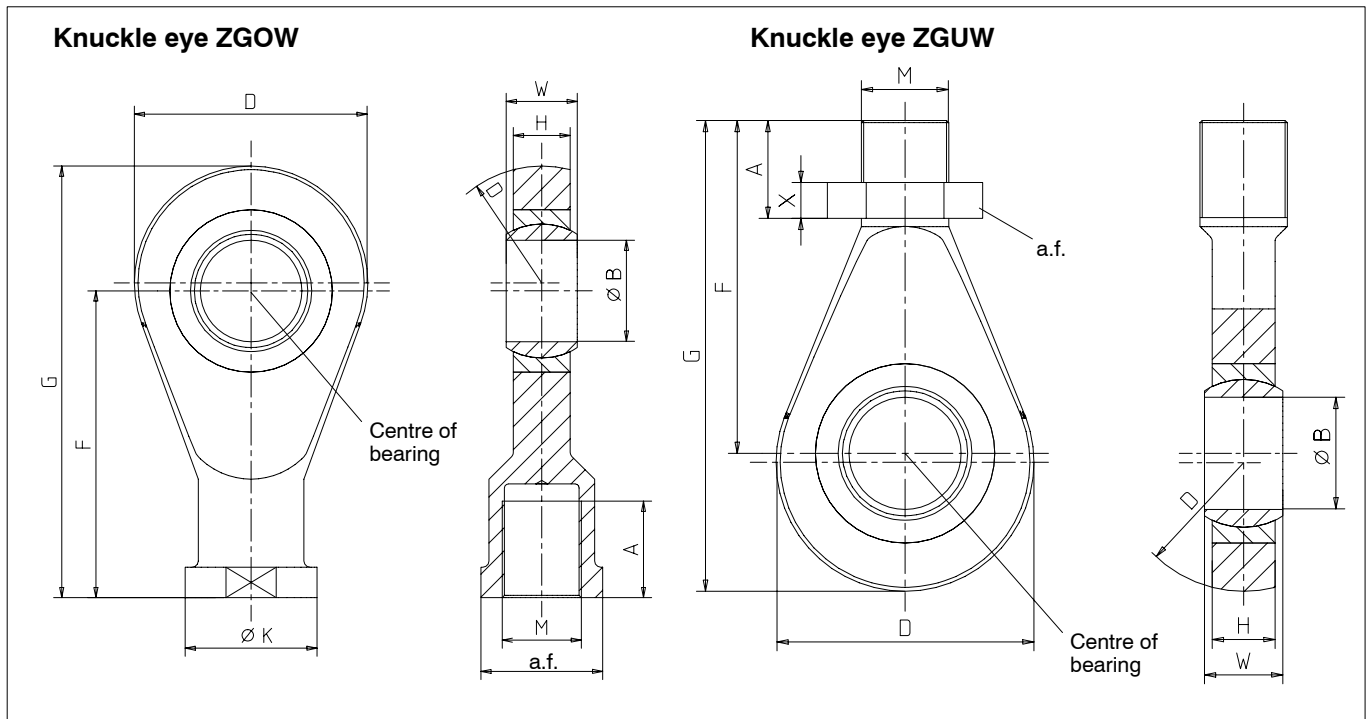
| Type  |                    | U2A  |                         |                |
|---|--------------------|--|-------------------------|----------------|
| <b>Accuracy class</b>   |                    | 0.2  | 0.1                     | D1             |
| <b>Max. numbers of load cell verific. interv. (n<sub>LC</sub>)</b>                          |                    | –  | –                       | 1000           |
| <b>Max. capacity (E<sub>max</sub>)</b>  | kg<br>t            | 50<br>–  | 100, 200, 500<br>10, 20 | 500<br>1, 2, 5 |
| <b>Minimum load cell verification interval (v<sub>min</sub>)</b>                            |                    | –  | –                       | 0.0286         |
| <b>Sensitivity (C<sub>n</sub>)</b>  | mV/V               | 2  |                         |                |
| <b>Tolerance on sensitivity</b><br>with tensile loads                                       | %                  | <±0.20   |                         | <±0.20         |
| with compressive loads  | %                  | <±1.50   | <±0.50                  | <±0.50         |
| <b>Temperature effect on sensitivity (TK<sub>C</sub>)</b><br>in nominal temperature range   | %/10 K             | <±0.05   |                         | <±0.05         |
| in service temperature range  | %/10 K             | <±0.10   |                         | <±0.10         |
| <b>Temperature effect on zero balance (TK<sub>0</sub>)</b><br>in nominal temperature range  | %/10 K             | <±0.05   |                         | <±0.04         |
| in service temperature range  | %/10 K             | <±0.10   |                         | <±0.10         |
| <b>Hysteresis error (d<sub>ny</sub>)</b>  | %                  | <±0.15   |                         | <±0.05         |
| <b>Non-linearity (d<sub>lin</sub>)</b>  | %                  | <±0.20   | <±0.10                  | <±0.05         |
| <b>Creep (d<sub>cr</sub>) over 30 min.</b>  | %                  | <±0.06   |                         | <±0.05         |
| <b>Input resistance (R<sub>LC</sub>)</b>  | Ω                  | 340...450  |                         |                |
| <b>Output resistance (R<sub>0</sub>)</b>  | Ω                  | 356±0.2  |                         |                |
| <b>Reference excitation voltage (U<sub>ref</sub>)</b>                                       | V                  | 5  |                         |                |
| <b>Nominal range of excitation voltage (B<sub>u</sub>)</b>                                  | V                  | 0.5...10   | 0.5...12                |                |
| <b>Insulation resistance (R<sub>iso</sub>)</b>  | GΩ                 | >5   |                         |                |
| <b>Nominal temperature range (B<sub>T</sub>)</b>  | °C [°F]            | -10...+40 [14...104]   |                         |                |
| <b>Service temperature range (B<sub>tu</sub>)</b>   | °C [°F]            | -30...+85 (-30...+120) <sup>1)</sup> [-22...185] [-22...248] |                         |                |
| <b>Storage temperature range (B<sub>ti</sub>)</b>   | °C [°F]            | -50...+85[-58...185]   |                         |                |
| <b>Safe load limit (E<sub>L</sub>)</b>  | % from max. capac. | 130  | 150                     |                |
| <b>Breaking load (E<sub>d</sub>)</b>  | % from max. capac. | 300  |                         |                |
| <b>Lateral load limit (E<sub>lq</sub>)</b>  | % from max. capac. | 25   |                         |                |
| <b>Permissible dynamic load (F<sub>srel</sub>)</b><br>(peak to peak according to DIN 50100) | % from max. capac. | 100  | 160                     |                |
| <b>Protection class (IP) to EN 60 529 (IEC 529)</b>   |                    | IP67 (increased test conditions: 1 mW-s; 100 h)              |                         |                |
| <b>Material:</b>  |                    | Stainless steel  |                         |                |
| <b>Measuring body</b>   |                    | Nickel plated brass, Silicone                                |                         |                |
| <b>Cable gland</b>  |                    | Thermoplast. elasmere  |                         |                |
| <b>Cable sheath</b>   |                    |  |                         |                |

<sup>1)</sup> Optionally available with extended service temperature range.

## Mechanical values

| Max. capacity [t] | Deflection at max. capacity (s <sub>nom</sub> ), approx. [mm] | Weight (G), approx. [kg] | Cable length [m] |
|-------------------|---|--------------------------|------------------|
| 0.05              | < 0.1   | 0.8                      | 3                |
| 0.1               | < 0.1   | 0.8                      | 3                |
| 0.2               | < 0.1   | 0.8                      | 3                |
| 0.5               | < 0.1   | 0.8                      | 3                |
| 1                 | < 0.1   | 0.8                      | 3                |
| 2                 | < 0.07  | 2.9                      | 6                |
| 5                 | < 0.07  | 4.3                      | 6                |
| 10                | < 0.09  | 10.7                     | 12               |
| 20                | < 0.09  | 15.9                     | 12               |

**Mounting accessories (in mm; 1 mm = 0.03937 inches)**

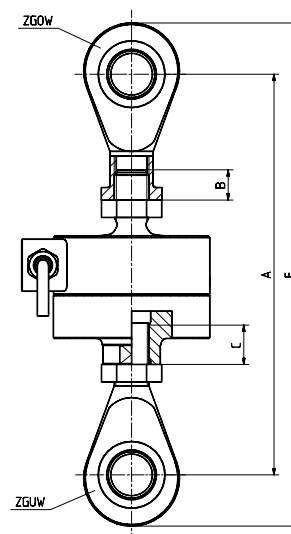


| Max. cap. [t] | Knuckle eye ZGOW | Weight [kg] | A  | ØB                              | D   | F   | G     | H  | ØK | M       | a.f. | W  |
|---------------|------------------|-------------|----|---------------------------------|-----|-----|-------|----|----|---------|------|----|
| 0,05...1      | U2A/1T/ZGOW      | 0,2         | 22 | 12 <sup>H7</sup>                | 32  | 50  | 66    | 12 | 22 | M12     | 19   | 16 |
| 2             | U2A/2T/ZGOW      | 0,5         | 33 | 20 <sup>H7</sup>                | 50  | 77  | 102   | 18 | 34 | M20x1,5 | 32   | 25 |
| 5             | U2A/5T/ZGOW      | 0,8         | 42 | 25 <sup>H7</sup>                | 60  | 94  | 124   | 22 | 42 | M24x2   | 36   | 31 |
| 10            | U2A/10T/ZGOW     | 3,2         | 50 | 50 <sup>+0,002<br/>-0,014</sup> | 115 | 151 | 212,5 | 28 | 65 | M39x2   | 60   | 35 |
| 20            | U2A/20T/ZGOW     | 4,8         | 60 | 60 <sup>+0,003<br/>-0,018</sup> | 126 | 167 | 235   | 36 | 82 | M48x2   | 70   | 44 |

| Max. cap. [t] | Knuckle eye ZGUW | Weight [kg] | A    | ØB                              | D   | F     | G   | H  | M       | a.f. | W  | X  |
|---------------|------------------|-------------|------|---------------------------------|-----|-------|-----|----|---------|------|----|----|
| 0,05...1      | U2A/1T/ZGUW      | 0,1         | 33   | 12 <sup>H7</sup>                | 32  | 54    | 70  | 12 | M12     | 19   | 16 | 7  |
| 2             | U2A/2T/ZGUW      | 0,2         | 47   | 20 <sup>H7</sup>                | 50  | 78    | 103 | 18 | M20x1,5 | 32   | 25 | 9  |
| 5             | U2A/5T/ZGUW      | 0,4         | 57   | 25 <sup>H7</sup>                | 60  | 94    | 124 | 22 | M24x2   | 36   | 31 | 10 |
| 10            | U2A/10T/ZGUW     | 1,1         | 65,5 | 50 <sup>+0,002<br/>-0,014</sup> | 115 | 148,5 | 210 | 28 | M39x2   | 60   | 35 | 16 |
| 20            | U2A/20T/ZGUW     | 3,2         | 80   | 60 <sup>+0,003<br/>-0,018</sup> | 126 | 168   | 236 | 36 | M48x2   | 70   | 44 | 18 |

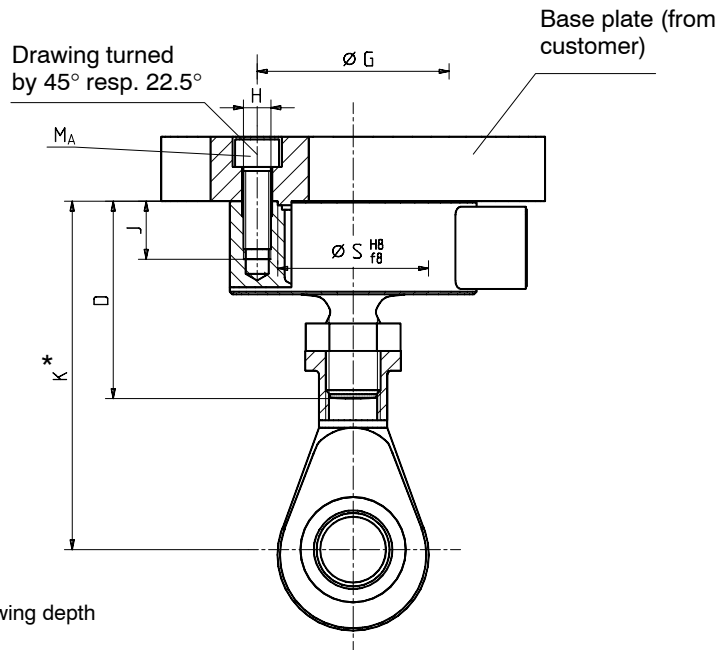
**Load cell U2A with monted knuckle eyes ZGOW, ZGUW**

| Max. capacity [t] | A <sub>min</sub> | A <sub>max</sub> | F <sub>min</sub> | F <sub>max</sub> | Min. depth for screwing |      |
|-------------------|------------------|------------------|------------------|------------------|-------------------------|------|
|                   |                  |                  |                  |                  | B                       | C    |
| 0,05...0,5        | 139              | 156              | 171              | 188              | 9,6                     | 9,6  |
| 1                 | 141              | 156              | 173              | 188              | 9,6                     | 9,6  |
| 2                 | 212              | 234              | 262              | 284              | 16                      | 16   |
| 5                 | 260              | 288              | 320              | 348              | 19,2                    | 19,2 |
| 10                | 418              | 436              | 541              | 559              | 27                      | 31,2 |
| 20                | 466              | 489              | 602              | 625              | 36,6                    | 38,4 |



## Mounting accessories, continued (in mm; 1 mm = 0.03937 inches)

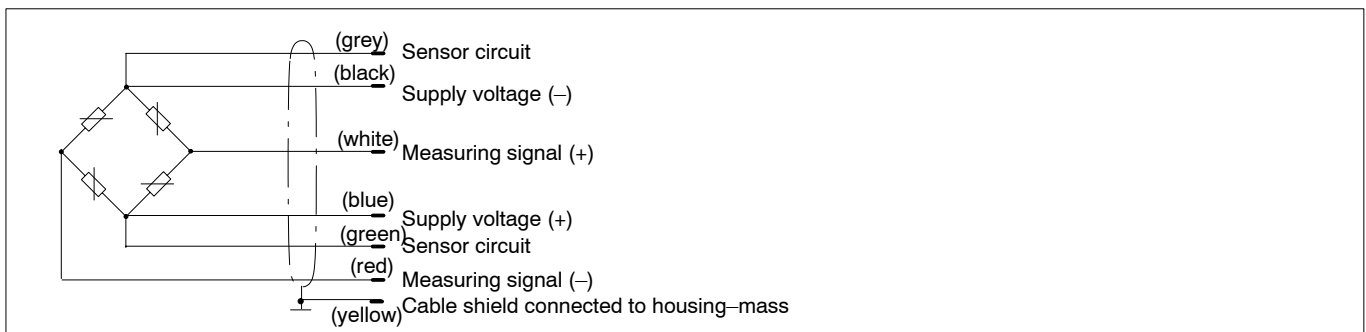
U2A, with ZGOW,  
without adaptor



\*Dimension, with preferred screwing depth

| Max. capacity [t] | D   | ØG  | H     | J    | K         | ØS | MA [N·m] |
|-------------------|-----|-----|-------|------|-----------|----|----------|
| 0,05...0,5        | 47  | 42  | 4xM5  | 13   | 84...86,4 | 34 | 5        |
| 1                 | 47  | 42  | 4xM5  | 13   | 86,4      | 34 | 5        |
| 2                 | 72  | 70  | 4xM10 | 20,5 | 131,6     | 55 | 35       |
| 5                 | 86  | 78  | 4xM12 | 19   | 158,2     | 61 | 60       |
| 10                | 122 | 105 | 8xM12 | 16   | 244       | 79 | 60       |
| 20                | 142 | 125 | 8xM16 | 26   | 270,2     | 97 | 150      |

## Pin assignment



## Options

**Explosion-proof versions according to ATEX 95:**

- II 2 G EEx ia IIC T4 resp. T6 (Zone 1)
- II 3 G EEx nA II T6 (Zone 2)
- II 3 D IP68 (Zone 22 for non-conductive dust)

**Service temperature range extended to 120°C [248°F]**

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