

Z30A

Force transducers

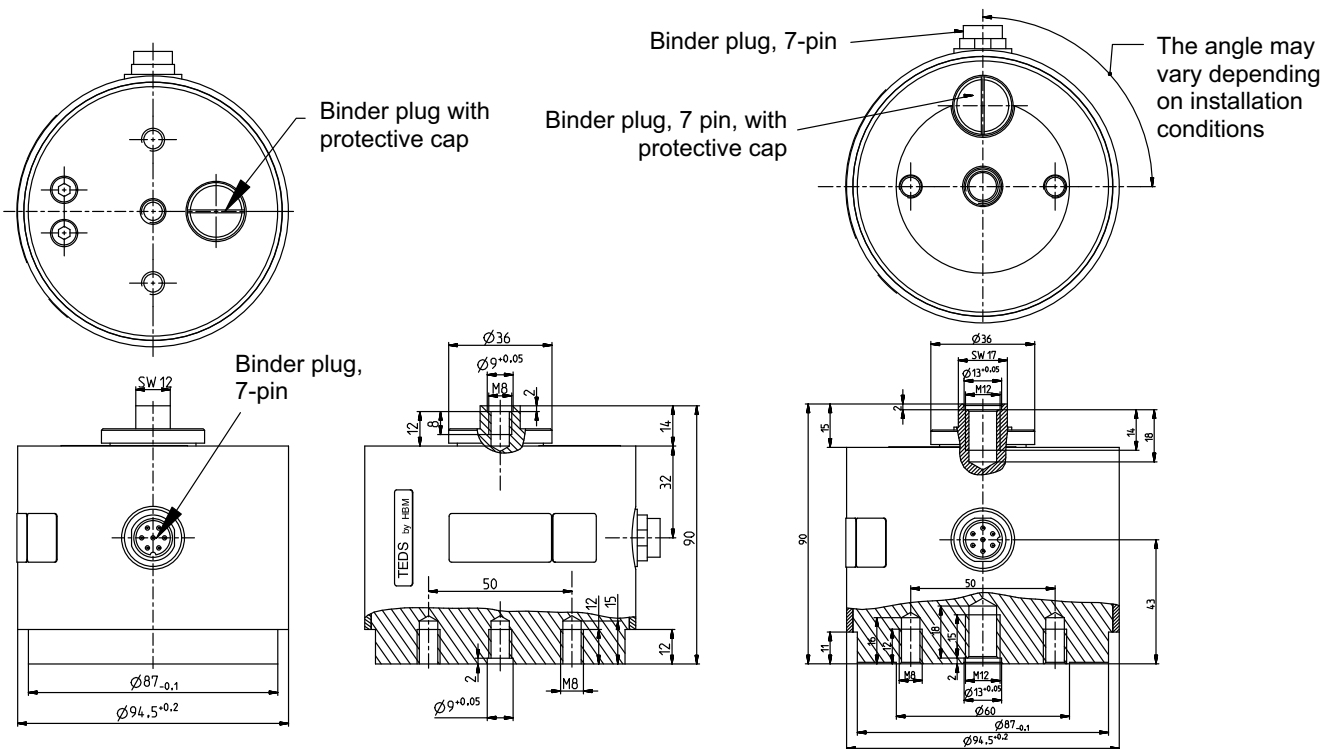
Special features

- Tensile/compressive force transducer with maximum accuracy
- Nominal (rated) forces 50 N to 10 kN
- Class 00 with DKD calibration certificate to ISO 376
- High long-term stability
- Overload protection at nominal (rated) force ≤ 1000 N
- TEDS (Transducer Electronic Data Sheet)



Z30A/50 N ... 1000 N

Z30A/2 kN ... 10 kN



Specifications as per VDI 2638 and ISO 376

| Type | Z30A | | | | | | | | | | |
|---|-------------|----------|--|-------|-----|-----|---------|-------------|-----|------|--|
| Nominal (rated) force | F_{nom} | N | 50 | 100 | 200 | 500 | 1000 | | | | |
| | | kN | | | | | | 2 | 5 | 10 | |
| Class as per ISO 376 (0.2 F_{nom} to F_{nom}) | | | 00 ¹⁾ | | | | | | | | |
| Rated output (nominal) | C_{nom} | mV/V | 2 | | | | | | | | |
| Rel. sensitivity error (pressure) | d_c | % | <±0.1 | | | | | | | | |
| Rel. rated output variation (tension/compression) | d_{zd} | % | <±0.1 | | | | | | | | |
| Rel. zero signal deviation | $d_{s,o}$ | mV/V | <±0.2 | <±0.1 | | | | | | | |
| Rel. reproducibility and repeatability errors (0.2F_{nom} to F_{nom}) for: | | | | | | | | | | | |
| Constant mounting position | b' | % | <±0.02 | | | | | | | | |
| Varying mounting positions | b | | <±0.04 | | | | | | | | |
| Rel. deviation from the fitting curve (0.2 F_{nom} to F_{nom}) | f_c | | <±0.02 | | | | | | | | |
| Rel. zero error (zero signal return) | f_o | % | <±0.008 | | | | | | | | |
| Rel. reversibility error (0.2 F_{nom} to F_{nom}) | v | | <±0.06 | | | | | | | | |
| Rel. non-linearity | d_{lin} | % | <±0.03 | | | | | | | | |
| Temperature coefficient of sensitivity/10 K, related to nominal (rated) sensitivity | TC_S | | <±0.02 | | | | | | | | |
| Temperature coefficient of zero signal/10 K related to nominal (rated) sensitivity | TC_0 | % | <±0.02 | | | | | | | | |
| Rel. creep over 30 mins. | d_{crF+E} | % | <±0.03 | | | | | | | | |
| Effect of lateral forces (lateral force 10% F_{nom}) | d_Q | % | < 0.1 | | | | | | | | |
| Effect of eccentricity per mm | d_E | | < 0.03 | | | | | | | | |
| Input resistance | R_i | | >345 | | | | >690 | | | | |
| Output resistance | R_o | Ω | 300-500 | | | | 600-800 | | | | |
| Insulation resistance | R_{is} | | >5·10 ⁹ | | | | | | | | |
| Reference excitation voltage | U_{ref} | V | 5 | | | | | | | | |
| Operating range of the excitation voltage | $B_{U,G}$ | | 0.5 ... 12 | | | | | | | | |
| Nominal (rated) temperature range | $B_{t,nom}$ | | +10 ... +40 | | | | | | | | |
| Operating temperature range | $B_{t,G}$ | °C | -10 ... +70 | | | | | | | | |
| Storage temperature range | $B_{t,S}$ | | -25 ... +85 | | | | | | | | |
| Reference temperature | t_{ref} | | +22 | | | | | | | | |
| Max. operating force | F_G | | 120 | | | | 150 | | | | |
| Force limit | F_L | % | 150 | | | | | | | | |
| Breaking force | F_B | | 250 | | | | | | | | |
| Static lateral force limit | F_Q | | 100 | | 75 | 35 | 100 | 90 | 40 | | |
| Torque limit | M_G | N·m | 1.5 | 3 | 5 | 5 | 5 | 80 | | | |
| Nominal (rated) displacement | S_{nom} | mm | < 0.4 | | | | | approx. 0.2 | | | |
| Fundamental frequency | f_G | kHz | 0.2 | 0.3 | 0.5 | 0.9 | 1.1 | 1.1 | 1.1 | 1.25 | |
| Rel. permissible oscillation stress | F_{rb} | % | 70 | | | | | | | | |
| Weight | | kg | approx. 0.9 | | | | | approx. 2.3 | | | |
| Degree of protection in accordance with EN 60529 | | | IP50 | | | | | | | | |
| Plug connection, 6-wire configuration | | | Binder series 723, radial and axial housing plug | | | | | | | | |
| Transducer identification | | | TEDS, per IEEE 1451.4 | | | | | | | | |

¹⁾ Classification only guaranteed in conjunction with a DKD calibration certificate to ISO 376.

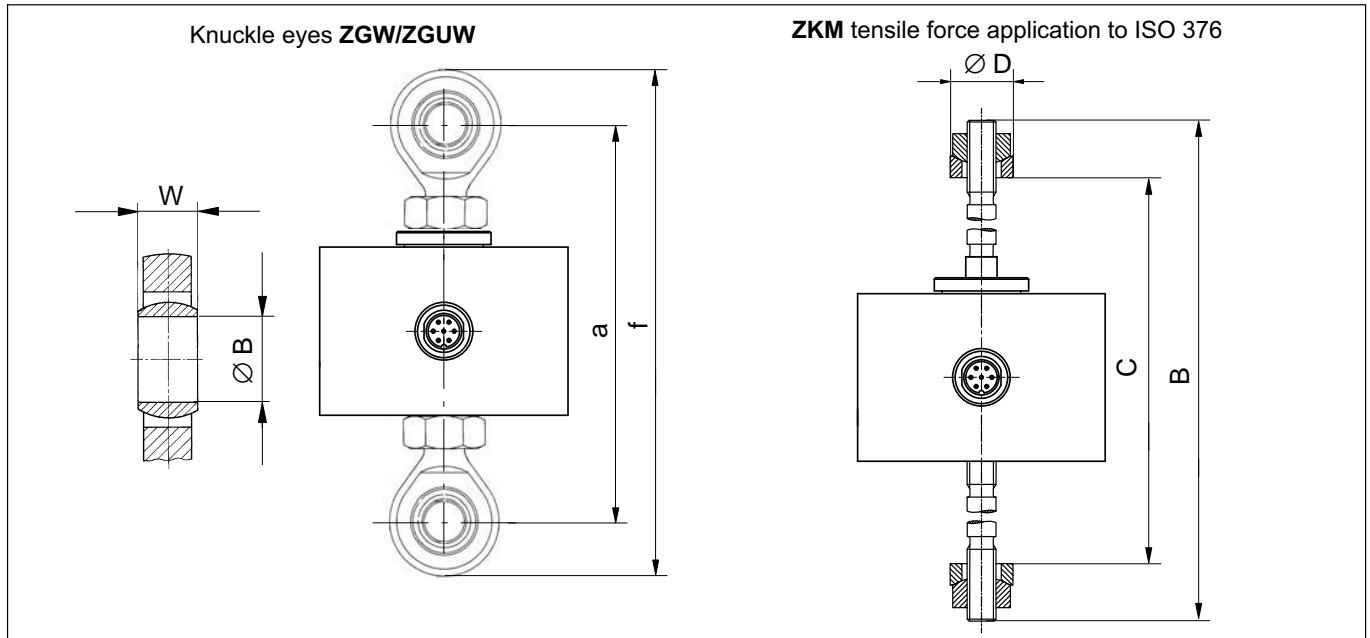
Force transducer ordering numbers

| Ordering code | Nominal (rated) force | | | | | | | Unit | |
|---------------|-----------------------|----|-----|-----|-----|------|---|------|----|
| | 1-Z30A/... | 50 | 100 | 200 | 500 | 1000 | | | N |
| | | | | | | 2 | 5 | 10 | kN |

Ordering example: 1-Z30A/2kN

Accessories (not included in the scope of supply)

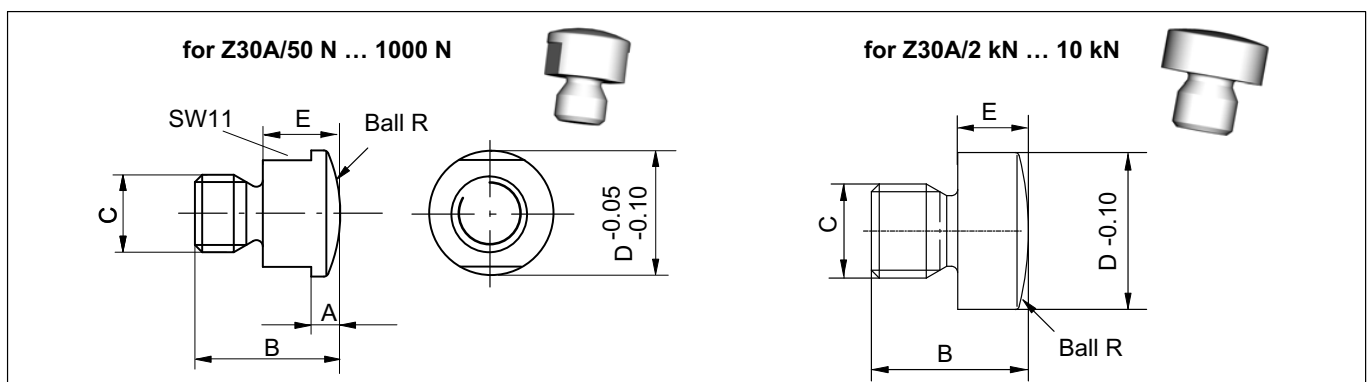
Force application parts for tensile loading



| Type | ZKM ordering number | B | C | | Ø D |
|---------------|---------------------|-----|-----|-----|--|
| | | | min | max | |
| Z30A/2kN-10kN | 1-Z30/10kN/ZKM | 229 | 250 | 312 | 35 ^{-0.120} _{-0.280} |

| Type | Upper/lower knuckle eye ordering number | a | f | W | Ø B |
|----------------|---|-----|-----|----|------------------|
| Z30A/50N-1000N | 1-U1R/200kg/ZGW | 138 | 170 | 12 | 8 ^{H7} |
| Z30A/2kN-10kN | 1-U2A/1t/ZGUW | 169 | 201 | 16 | 12 ^{H7} |

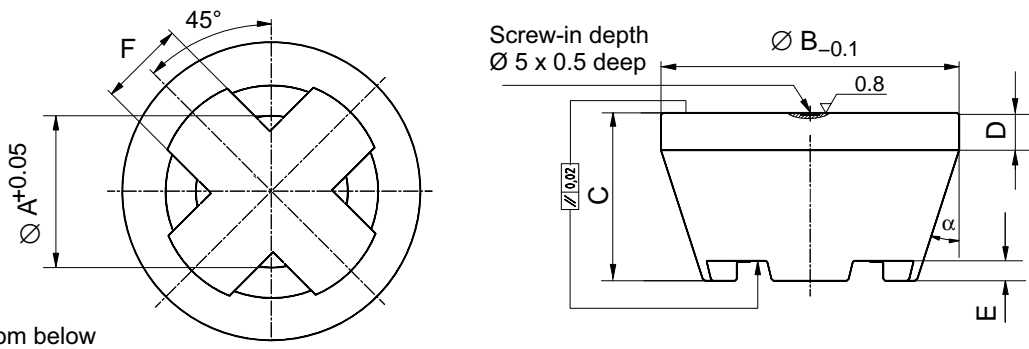
Load button for compressive loading



| Type | Load button ordering number | A | B | C | D | E | R |
|----------------|-----------------------------|---|----|-----|----|---|----|
| Z30A/50N-1000N | 1-U1R/200kg/ZL | 3 | 15 | M8 | 13 | 8 | 16 |
| Z30A/2kN-10kN | 3-9202.0140 | - | 20 | M12 | 20 | 9 | 40 |

Thrust piece EDO4/EDO3 for precision measurements


always use together with the load button for compressive loads



| Type | Thrust piece ordering number | Weight (kg) | $\varnothing A$ | $\varnothing B$ | C | D | E | F | α |
|----------------|------------------------------|-------------|-----------------|-----------------|----|---|---|----|----------|
| Z30A/50N-1000N | 1-EDO3/1kN | approx. 0.2 | 13.2 | 37 | 22 | 6 | 3 | 8 | 18° |
| Z30A/2kN-10kN | 1-EDO4/50kN | 0.34 | 20.2 | 48 | 29 | 8 | 5 | 12 | 18° |

Pin assignment of plug and connection cable KAB139A-6

| | | | | |
|--|------------|--|------------------|---------------------------------------|
| <p>Cable shield connected to housing</p> | wh (white) | Measurement signal (+) U_A | 1 | <p>Top view Binder series 723</p> |
| | bk (black) | Bridge excitation voltage (-) U_B (TEDS) | 2 | |
| | rd (red) | Measurement signal (-) U_A | 4 | |
| | bu (blue) | Bridge excitation voltage (+) U_B | 3 | |
| | gn (green) | Sense lead (+) | 6 | |
| | gy (gray) | Sense lead (-) (TEDS) | 7 | |
| | | | 5 (not occupied) | |



Shipping case for 4 Z30A force transducers and accessories, ordering number:
1-Z30/BOX

Dimensions: 440 x 320 x 147

Cables/plugs

| Ordering number | |
|-----------------|--|
| 1-KAB139A-6 | Connection cable KAB139-A-6, 6 m, with Binder female connector and free ends |
| K-CAB-F | Cable, configurable with different plugs and lengths |

Subject to modifications.
All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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