Tension Compression Load Cell
Model 8435

Application
This tension and compression load cell is designed as a compact and universal sensor, which provides a high level of precision at a low price.
Made of stainless steel, the sensor has small dimensions and allows easy assembly in existing structures where static and dynamic forces need to be measured.
This load cell is typically used for measuring forces, weights, coefficients of friction, sliding friction and adhesion on fitting devices, handling gear, coupling mechanisms, loading machines and operating devices.
A load-centering plate is offered as an accessory for simple installation of the load cell in a girder assembly.

Description
This model of load cell uses proven strain gauge technology to perform measurements. Strain gauges are applied to the sensitive element and connected to form a full bridge. The electrical resistance of this full bridge increases with the load acting on it, so that the bridge supplies an output voltage proportional to the measurement variable.
This model allows the force application of two kinds: compression via the load application button and tension via the centric internal thread. The measurement range of 0 ... 5000 N is supplied exclusively with the integrated load application button. The sensor has to be mounted on a level surface using screws fitted through the three bore holes in the outer ring.
To achieve the highest possible measurement accuracy, the sensor should not be subject to lateral forces.
A strain-relief and an anti-bend mechanism for the connection cable are integrated in the sensor housing.

- Measuring ranges from 0 ... 200 N to 0 ... 5000 N
- Small dimensions
- Simple mounting
- Made of stainless steel
- For tension and compression forces
### Technical Data

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<th>Order Code</th>
<th>Measuring Range</th>
<th>Resonance Frequency [kHz]</th>
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<td>8435-5200</td>
<td>0 ... 200 N</td>
<td>5</td>
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<tr>
<td>8435-5500</td>
<td>0 ... 500 N</td>
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<td>8435-6001</td>
<td>0 ... 1000 N</td>
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<td>8435-6002</td>
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<td>8435-6005</td>
<td>0 ... 5000 N</td>
<td>22</td>
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</table>

**Electrical values**

- Bridge resistance (full bridge circuit): foil strain gauge 350 Ω, nominal
- Calibration shunt resistor: 100 kΩ ± 0.1 %

The bridge output signal resulting from a shunt of this value is shown in the calibration certificate.

**Excitation:**

- recommended 5 V DC
  - measuring range 0 ... 200 N maximum 5 V DC
  - measuring range ≥ 0 ... 500 N maximum 10 V DC

**Nominal sensitivity:**

1 mV/V, nominal

**Insulation resistance:**

> 30 MΩ

1) Deviations from the stated value are possible.

**Environmental conditions**

- Range of operating temperature: -30 °C ... 80 °C
- Nominal temperature range: 15 °C ... 70 °C
- Influence of temperature on zero: ≤ ± 0.02 % F.S./K
- Influence of temperature on sensitivity: ≤ ± 0.03 % Rdg./K

**Mechanical values**

- Non-linearity: < 0.25 % F.S.
- Hysteresis: < 0.20 % F.S.
- Non-repeatability on unchanged mounting position: < 0.15 % F.S.

**Kind of measurement:**

- Tension and compression (calibration in compression direction);
- measuring range 0 ... 5000 N compression only

**Deflection, full scale:**

approx. 20 μm

**Mounting:**

- Three clearance holes with a diameter of 3.2 mm
- at reference diameter 23.0 mm and division 120°.
- One hole is across from the cable exit.

**Overload safe (static):**

150 % of capacity

**Overload burst:**

> 200 % of capacity

**Dynamic performance:**

maximum 70 % of capacity

**Material:**

- stainless steel 1.4542

**Electrical termination:**

- shielded, suitable for drag chain 4 leded TPE insulated cable with open ends for soldering; additional buckling protector and adapter for cable holder;
- cable length approx. 1.7 m
- with standardization in cable length approx. 2.0 m
- bending radius > 30 mm

**Protection class:**

acc. to EN 60529

IP54

**Wiring code:**

- white: excitation voltage positive
- brown: excitation voltage negative
- yellow: signal output positive
- green: signal output negative

**Dimensions:**

- refer to dimensional drawing

**Weight:**

approx. 40 g without cable

**General tolerances of dimensions:**

acc. to ISO 2768-f

### Order Information

**Tension and compression load cell, range 0 ... 500 N**

- Model 8435 - 5500

**Load introduction button (not included in scope of delivery)**

- made of stainless steel 1.2842, HRC 60
- Model 8580-V004
- Model 8590-V001

**Pull-plate, material and design as load cell**

- Model 8435 - 5500

**Mounting of mating connector to conductor cable for preferential usage of the sensor:**

- In preferential direction (positive signal for compression load)
  - Order Code: 99004

**Option**

Standardization of sensitivity to 0.8 mV/V, done in conductor cable

- Order Code: ...-V008

**Factory Calibration Certificate (WKS)**

Calibration of a load cell separately as well as connected to an indicator. Standard is a certificate with 11 points, starting at zero, running up and down in 20% increments covering the complete measuring range for preferential direction. Special calibrations on request. Calculation of costs by base price plus additional costs per point.

- Order Code 84WKS-84...