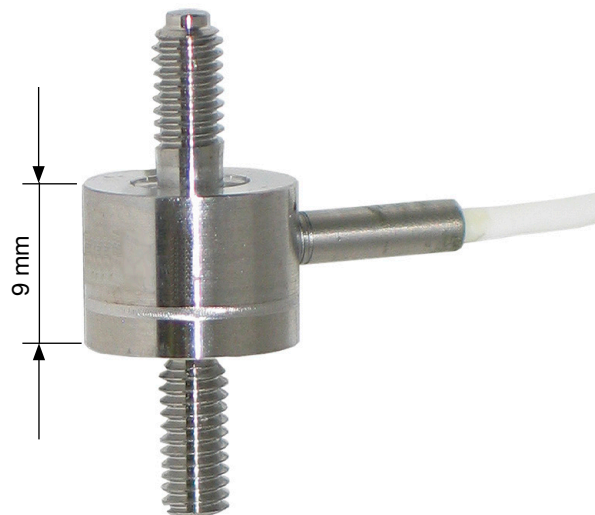


# Subminiature Load Cell Tension/Compression

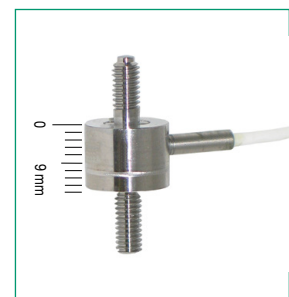
Model 8417

Code:	8417 EN
Delivery:	ex stock
Warranty:	24 months

CAD data 2D/3D for this sensor:  
Download directly at [www.traceparts.com](http://www.traceparts.com)  
Info: refer to data sheet 80-CAD-EN



Original size



**NEW**  
measuring ranges from 0 ... 50 N

- Measuring ranges from 0 ... 50 N to 0 ... 5 kN
- Very small dimensions
- Made of stainless steel
- Rugged construction
- Simple screw mounting

## Application

This tension/compression load cell is an especially small component, which can be easily integrated in a girder assembly between two cables or chains for measuring force. The outside threadings along its axis of symmetry can accommodate various adapters or are suitable for screwing into a threaded hole that is quick and easy to produce.

The radial connection cable is extremely flexible and designed for a wide range of motion. In order to achieve the greatest possible stability for such a small sensor, making it suitable not only for the laboratory but also for industrial use, all parts have been welded together including the cable guide bush in the sensor housing.

Typical areas of application include the determining forces in Bowden cable, testing the durability of soldered and welded joints, measuring tractive forces of plug connections or monitoring forces when winding cables onto cable reels.

## Description

Load cell model 8417 measures the tension or compression force between both axially mounted metric exterior threads on the cylindrical sensor housing. Forces are only applied to the threadings, which are especially long, to accommodate counter nuts and must not be affected by external influences such as bending, lateral force or torsion.

Any contact with units affixed to the sensor housing - even on the front - must be avoided.

The measurement element is a membrane perpendicular to the axis of the sensor with a strain gauge full bridge applied to the inner surface, which requires stable excitation with a rated value of approx. 1.2 mV/V.

The connection cable is fed radially through a sleeve from the housing. Standardization of the output signal in the cable to 1.0 mV/V is optional.

**Technical Data**

Order Code	Measuring Range	Dimensions [mm]					Thread T	Weight with / without Cable [g]
		Ø D	H	L	A	B		
8417-5050	0 ... 50 N	12.0	9.0	9.5	14.0	4.1	M 4 x 0.7	20 / 8
8417-5100	0 ... 100 N	12.0	9.0	9.5	14.0	4.1	M 4 x 0.7	20 / 8
8417-5200	0 ... 200 N	12.0	9.0	9.5	14.0	4.1	M 4 x 0.7	20 / 8
8417-5500	0 ... 500 N	12.0	9.0	9.5	14.0	4.1	M 4 x 0.7	20 / 8
8417-6001	0 ... 1000 N	12.0	9.0	9.5	14.0	4.1	M 4 x 0.7	20 / 8
8417-6002	0 ... 2000 N	20.0	12.0	14.0	18.0	6.6	M 6 x 1.0	40 / 28
8417-6005	0 ... 5000 N	20.0	12.0	14.0	18.0	6.6	M 6 x 1.0	40 / 28

**Electrical values**

Bridge resistance:  
 measuring range 0 ... 50 N      500 Ω, nominal\*  
 measuring range ≥ 0 ... 100 N      350 Ω, nominal\*  
 Excitation:      5 V DC  
 Nominal value:  
 measuring range 0 ... 50 N      5 ... 30 mV/V, nominal\*  
 measuring range ≥ 0 ... 100 N      1.2 mV/V, nominal\*

Insulation resistance:      > 10 MΩ  
 \*Deviations from the stated value are possible.

**Environmental conditions**

Nominal temperature range:  
 measuring range 0 ... 50 N      + 15 °C ... + 60 °C  
 measuring range ≥ 0 ... 100 N      + 15 °C ... + 70 °C

Range of operating temperature: 0 °C ... + 80 °C  
 Influence of temperature on zero:  
 measuring range 0 ... 50 N      ≤ ± 2.5 % F.S./50 K  
 measuring range ≥ 0 ... 100 N      ≤ ± 1.5 % F.S./50 K

Influence of temperature on sensitivity:  
 measuring range 0 ... 50 N      ≤ ± 2.5 % Rdg./50 K  
 measuring range ≥ 0 ... 100 N      ≤ ± 1.5 % Rdg./50 K

**Mechanical values**

Combined value consisting of non-linearity, hysteresis and non-repeatability, in installation position:  
 measuring range ≤ 0 ... 500 N      < ± 0.9 % F.S.  
 measuring range ≥ 0 ... 1000 N      < ± 0.5 % F.S.

Kind of measurement:      compressive and tensile forces  
 calibration in tensile direction (preferential direction)  
 Upon operation against the preferential direction a changed characteristic is possible.

Deflection, full scale:      max. 20 µm  
 Static overload safe:      100 % of capacity  
 Overload:      200 % of capacity  
 Dynamic performance: recommended      50 % of capacity  
    maximum      70 % of capacity

Material:      1.4542  
 Electrical connection:      measuring range ≤ 0 ... 50 N shielded, PTFE coated cable with an open end for soldering. Circuit board (70 x 8 mm) with balance resistors 30 cm away from the cable's end, drag chain qualified.  
 Range ≤ 0 ... 500 N: shielded, TPE coated cable with an open end for soldering, drag chain qualified.

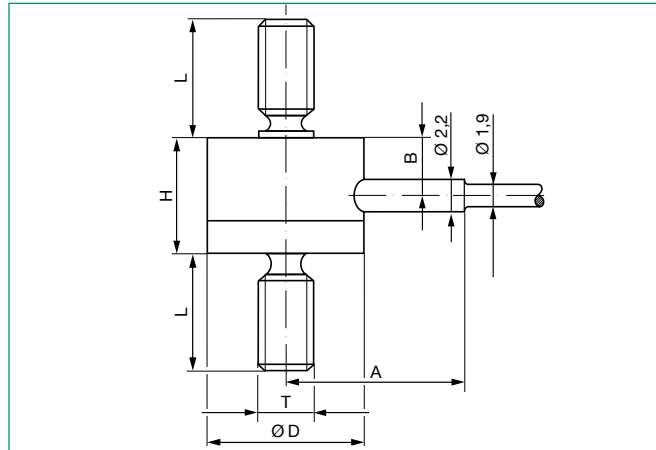
Cable length:      2 m  
 Bending radius:      30 mm  
 Protection class:      acc. to EN 60529      IP54  
 Wiring code:      white      excitation voltage      positive  
    brown      excitation voltage      negative  
    green      signal output      negative  
    yellow      signal output      positive

Dimensions:      refer to drawing  
 General tolerance of dimensioning:      acc. to ISO 2768-f  
 Weight:      refer to table

**Mounting Instructions**

The measuring force has to be applied centrally and free from lateral force via the exterior threading. All lateral loading forces must be kept away from the sensor as they could result in incorrect measurements or damage.  
 In order to ensure that the force sensor is securely fitted, it is possible to affix it to the threading with adhesive. When applying compression force, appropriate means (e.g. attachments) are to be used to prevent buckling.  
 During handling and installation it is important to ensure that the cable outlet and sensor connection cable are not subject to too much tensile or bending force. Effective strain relief may be necessary.

**Dimensional drawing model 8417**



The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.  
 Download via [www.burster.com](http://www.burster.com) or directly at [www.traceparts.com](http://www.traceparts.com).  
 For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.

**Order Information**

Subminiature load cell tension/compression, measuring range 0 ... 500 N      **Model 8417-5500**

**Accessories**

Mating connector      **Model 9941**  
 12 pins, to all burster table housings  
 9 pins, to SENSORMASTER and DIGIFORCE®      **Order code: 9900-V209**

Mounting of a mating connector for preferential usage of the sensor in preferential direction (positive signal in tensile direction)      **Order Code: 99004**

Only for connection to SENSORMASTER model 9163 desktop version      **Order Code: 99002**

Against preferential direction (positive signal in compressive direction)      **Order Code: 99007**

Only for connection to SENSORMASTER model 9163 desktop version      **Order Code: 99008**

Evaluation electronics, amplifiers and process controllers, e.g. digital indicators for strain gauges model 9163, 9180, amplifier module model 9243 or DIGIFORCE® 9307      **refer to section 9 of the catalog.**

Strain gauge simulator for creating a strain gauge signal in order to adjust amplifiers and indicators.      **Model 9405**

**Option**

Standardization in preferential direction to 0.8 mV/V ± 0,25 % in the sensor cable. Only for ranges > 0 ... 500 N.      **...-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...**