

Miniature Load Cell

Model 8402

Code:	8402 EN
Delivery:	ex stock
Warranty:	24 months

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



- Available ranges from 0 ... 1 kN up to 0 ... 100 kN
- Accuracy typically 0.5 % F.S.
- Very small dimensions
- Made of stainless steel
- With standardized output signal

Application

This, related to its measuring range, miniaturized load cell enables an universal and reliable operation in industries and laboratories. It is well suited for compression measurements in very restricted structures. The load cell is a compact construction and made of superrefined steel. Therefore it can be used in many fields of industry, like.

Examples are:

- ▶ Press-in force measurements on longitudinal and transversal connections
- ▶ Compression force measurements on punch and roller applicancy
- ▶ Spring tension measurements on shock absorbers for cars
- ▶ Contact pressure determination in push rods
- ▶ Compression force measurements on compressed-air knee-lever presses

Description

Thanks to the rounded top, in shape of a little hat, the force to be measured is led into the sensor centrally and free of lateral force.

Strain gauges arranged in a full bridge are applied on the generated surface of the sensor. By applying a force to the strain gauge bridge the resistance change of the strain gauges is transformed into an output voltage which is directly proportional to the measured force.

The load cells have to be mounted on a smooth, plane parallel surface. They can be fixed with contact glue or silicone. To receive an adequate measurement accuracy neither transversal nor lateral forces have to influence the load cell.

Clamp forces acting laterally on the load cell have to be avoided. During installation or mounting you have to take care that the cable outlet and the cable of the load cell are not stressed by tension and bending forces.

The output signal of the connecting plug is 1.5 mV/V, so that a parallel connection or an exchange can easily be done, without the need to re-adjust the processing electronics.

8402 EN

Technical Data

Order Code	Measuring Range [%F.S.]	Accuracy* [%F.S.]	Non-Repeatability [%F.S.]	Dimensions [mm]									Weight without Cable [g]
				ø D1	ø D2	F	A	H	G	ø C	ø K	M	
8402-6001	0 ... 1 kN	≤ ± 0.75	≤ ± 0.4	6.4	12.7	3.05	14.9	9.6	0.25	1.9	2.8	1.6	4
8402-6002	0 ... 2 kN	≤ ± 0.5	≤ ± 0.25	6.8	12.7	3.05	14.9	9.6	0.25	1.9	2.8	1.6	4
8402-6005	0 ... 5 kN	≤ ± 0.5	≤ ± 0.25	7.7	12.7	3.05	14.9	9.6	0.25	1.9	2.8	1.6	5
8402-6010	0 ... 10 kN	≤ ± 0.5	≤ ± 0.25	10.0	12.7	3.05	14.9	9.6	0.25	1.9	2.8	1.6	7
8402-6020	0 ... 20 kN	≤ ± 0.5	≤ ± 0.25	14.0	15.9	6.00	16.5	16.0	0.25	1.9	2.8	3.1	19
8402-6050	0 ... 50 kN	≤ ± 0.5	≤ ± 0.25	19.7	22.4	6.00	19.7	16.0	0.25	1.9	2.8	3.1	40
8402-6100	0 ... 100 kN	≤ ± 0.5	≤ ± 0.25	26.5	44.0	15.00	35.0	38.0	0.5	3.0	7.0	7.5	260

* The figures specified are the combined values for non-linearity, hysteresis and non-repeatability.

Electrical values

Bridge resistance: full bridge circuit of foil strain gauge
350 Ω, nominal¹⁾

Excitation: recommended 3 DC or AC
max. 5 DC or AC

Nominal sensitivity: (standardized in the cable) 1.5 mV/V, ± 0.5 %

Insulation resistance: > 10 MΩ

¹⁾ Deviation from stated value is possible.

Environmental conditions

Range of operating temperature: - 30 °C ... + 100 °C

Nominal temperature range: + 15 °C ... 70 °C

Influence of temperature on zero: ≤ ± 0.05 % F.S./K

Influence of temperature on sensitivity: ≤ + 0.05 % Rdg./K

Mechanical values

Deflection: ≤ 50 μm

Overload: 150 % of capacity

Dynamic performance: recommended 70 % of capacity

Material: stainless steel 1.4542

Resonance frequency: all ranges > 20 kHz

Electrical connection:
4 wire, shielded, TPE coated cable, length approx. 2 m,
measuring range ≥ 0 ... 20 kN additionally with anti-kink coil
length approx. 35 mm, ø 3,5 mm

Standardization: circuit board (70 x 8 mm) at the connection cable,
30 cm away from the end

Bending radius: measuring range ≤ 0 ... 50 kN ≥ 20 mm
measuring range 0 ... 100 kN ≥ 30 mm

Protection class: acc. to DIN 60529 IP54

Wiring code: white excitation voltage positive
brown excitation voltage negative
yellow signal output positive
green signal output negative

Dimensions: refer to table and scale drawing

General tolerance of dimension: according to ISO 2768-f

Weight: according to measuring range, refer to table

Order Information

Miniature load cell, measuring range 0 ... 2 kN **Model 8402-6002**

Accessories

Mating connector
12 pins, suitable to all burster desktop devices **Model 9941**
9 pins, suitable to model 9235 and DIGIFORCE® model 9310
Model 9900-V209

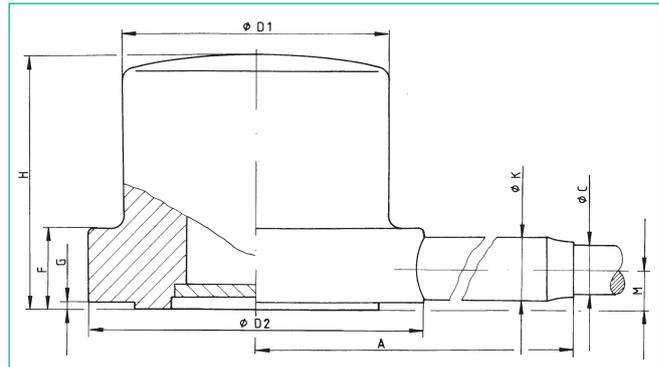
Mounting of mating connector to conductor cable
Order Code: 99004

Only for connection between sensor and SENSORMASTER model 9163 desktop version
Order Code: 99002

Amplifiers, sensor supplying instruments and process controllers as e.g. digital measuring indicator, series 9180, model 9163, model 9243 or DIGIFORCE® model 9306 **see section 9 of the catalog**

Strain gauge simulator as supporting accessory for creating strain gauge source signals in order to adjust amplifiers and monitors
Model 9405

Dimensional drawing model 8402

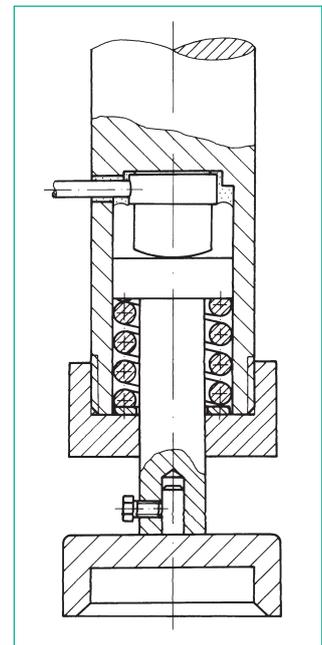


The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.

Download via www.burster.com or directly at www.traceparts.com. For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN

Application example

The load cell can be fastened either with wax or silicone to its lateral surface. An attachment is most appropriate by means of pre-loading (spring). The two surfaces affecting the cell must be polished evenly and at any time react angular to the sensor axle as well as they have to be through-hardened (HRC 60).



Manufacturer Calibration Certificate (WKS)

Calibration of the load cell separately as well as connected to an indicator is available. Standard is an 11 point run in 20 %-increments up and down.

Order Code: 84WKS-8402