

Ultra-Miniature Load Cell

Model 8416

Code:	8416 EN
Delivery:	ex stock
Warranty:	24 months



NEW
now measuring ranges
from 0 ... 20 N



- Inexpensive
- Measuring ranges from 0 ... 20 N to 0 ... 5 kN
- Dragchain cable
- Option standardization the nominal sensitivity
- Option temperature compensated range
- 40 °C ... 90 °C

Application

Due to their extremely compact design, these load cells can be used wherever static or dynamic load forces have to be measured in very tight spaces.

Model 8416 is perfect for use in micro-technology and just as suitable for measuring tasks in the research and development sector.

Typical applications for these ultra-miniature compression load cells include

- ▶ Equipment construction
- ▶ Production lines
- ▶ Measuring and control equipment
- ▶ Testing systems
- ▶ Handling gear
- ▶ Universal testing machines, etc.

Description

The ultra-miniature compression load cell model 8416 is a flat, circular disc, the bottom of which is sealed with a cover. The load application button for receiving the compression forces is an integrated part of the sensor.

The sensor element inside the body carries a strain gauge full bridge which outputs voltage directly proportional to the measurement variable upon application of force.

The short nominal measurement distance of the ultra-miniature compression load cells due to their design provides a high degree of rigidity. If needed, the nominal characteristic value can be standardized in the sensor connection cable. This allows for quick and easy interchange or simultaneous connection of several sensors to a single evaluation unit.

8416 EN

Technical Data

Order Code	Measuring Range	Dimensions [mm]					Resonance Frequency [kHz]
		ø D1	ø D2	ø D3	H1	H2	
8416-5020-V100	0 ... 20 N	10.6	3	7.6	4.5	5	6
8416-5050-V100	0 ... 50 N	10.6	3	7.6	4.5	5	6
8416-5100	0 ... 100 N	10.6	3	7.6	4.5	5	6
8416-5200	0 ... 200 N	10.6	3	7.6	4.5	5	20
8416-5500	0 ... 500 N	10.6	3	7.6	5.5	6	18
8416-6001	0 ... 1000 N	10.6	3	7.6	6.5	7	30
8416-6002	0 ... 2000 N	10.6	3	7.6	6.5	7	45
8416-6005	0 ... 5000 N	12.6	3	7.6	6.5	7.5	80

Electrical values

Bridge resistance:	350 Ω, nominal*
Excitation:	5 V DC
Nominal sensitivity:	1 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
Operating temperature:	0 °C ... + 80 °C
Influence of temperature on zero:	± 0.3 % F.S./10 K
Influence of temperature on sensitivity:	± 0.3 % Rdg./10 K

Mechanical values

Non-linearity:	< 0.5 % F.S.
Hysteresis:	0.25 % F.S.
Non-repeatability on unchanged mounting position:	< 0.1 % F.S.
Deflection:	approx. 20 µm
Static overload safe:	150 % of capacity
Dynamic performance:	
recommended	50 % of capacity
maximum	70 % of capacity

Material: High-grade stainless steel 1.4542

Electrical connection:
shielded, dragchain TPE coated cable with bare ends for soldering,
PUR coat, length approx. 2 m,
bending radius ≥ 20 mm moving, ≥ 6 mm rigidly laid

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 table and scale drawing

General tolerance of dimensioning: acc. to ISO 2768-f

Weight: approx. 10 g without cable

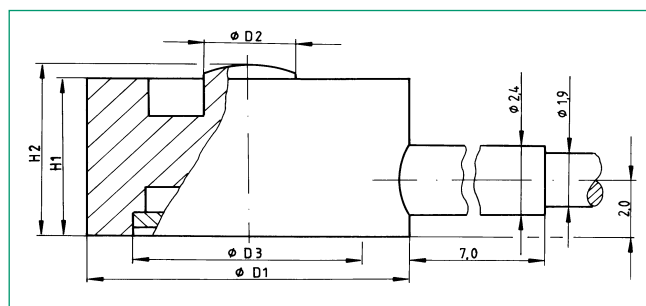
Mounting Instructions

The measuring force is to be applied centrally and free from lateral force. To prevent contact at just a few points, ensure that the sensor is installed on a flat surface.

The sensor can be secured using silicon, wax or an adhesive for example. Do not subject the sensor to lateral clamping forces as these would result in measurement errors.

When handling and installing the sensor, ensure that the cable outlet and sensor cable are not subjected to excessively high tensile or lateral forces. Strain relief may be necessary.

Dimensional drawing model 8416



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.

Order Information

Ultra-miniature compression load cell,
measuring range 0 ... 200 N

Model 8416-5200

Accessories

Mating connector
12 pins, to 9180 and 9186 in table housings **Model 9941**
9 pins, to TRANS CAL, SENSORMASTER and DIGIFORCE®
Order Code: 9900-V209

Mounting of a connector to the sensor cable **Order Code: 99004**

Only for connection of 8415 to SENSORMASTER model 9163
desktop version **Order Code: 99002**

Amplifiers, sensor supplying instruments and process controllers as e.g. digital measuring indicator for strain gauges model 9180, model 9163, modular amplifier model 9243

refer to section 9 of the catalog.

Option

Standardization of the sensitivity in the sensor connection cable, only for measuring ranges > 0 ... 100 N to 0.8 mV/V ± 0,25 % **...-V008**

Extension of temperature compensated range
- 40 °C ... 90 °C **...-V420**

Temperatures < - 20 °C: not approved for moving cable

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...