

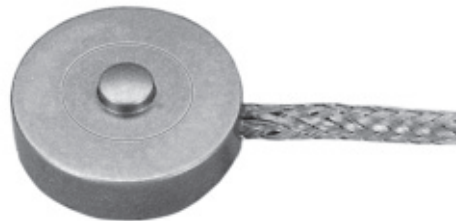
Subminiature Load Cell

Model 8413

Model 8414 with overload stop

Code:	8413 E
Manufacturer:	burster
Delivery:	ex stock
Warranty:	24 months

CAD data in 3D/2D available on
POWERPARTS by web2CAD
 Info: data sheet 80-CD-ROM-E



- Available ranges from 0 ... 2.5 up to 0 ... 500 N
- Very small dimensions
- Made of stainless steel
- High frequencies of resonance
- Accuracy < 0.5 % F.S.
- Model 8414 with overload stop

Application

The installation of this subminiature load cell needs to be done with caution and due diligence. These must be mounted on a flat and even surface by means of a contact glue, wax or a small laminated spring holding down the sensor body. Pre-strain forces that may influence the sensor output directly must be avoided as well as clamping the sensor on its sheath.

The force to be measured shall be inserted centrally and free of lateral forces. The latter must be neutralized by lever or mechanical guides. The mounting must always be done manually without the use of driven tools. Damages by overload during the mounting process can be avoided by connecting the sensor electrically and indicating the force value simultaneously.

Description

The subminiature load cells are flat, cylindrical discs with covered bottoms. The load insertion button for adapting compression forces is integrated part of the upper side which resembles the membrane of the sensor body. The strain gauges are applied on the interior side of it, wired to a Wheatstone bridge. The result is a voltage output proportional to the load applied.

The connecting cable of the load cell features a covered correction network on a small board. The temperature compensation is installed therein.

Due to its extremely small dimensions, this model is predestined for use in applications with limited space. The small diameters result in high frequencies of resonance.

Technical Data**Model 8413**

Order Code	Measuring	Dimensions [mm]				Frequency of resonance [kHz]	Output nominal [mV/V]	Weight [g]
		Ø D 1	Ø D 2	H 1	H 2			
8413 - 2.5	0 ... 2.5 N	9.7	2.3	3.4	2.6	3.0	15	1.2
8413 - 5	0 ... 5 N	9.7	2.3	3.4	2.6	4.0	15	1.2
8413 - 10	0 ... 10 N	9.7	2.3	3.4	2.6	7.0	1.5	1.2
8413 - 20	0 ... 20 N	9.7	2.3	3.4	2.6	11.0	2	1.2
8413 - 50	0 ... 50 N	9.7	2.3	3.4	2.6	18.0	2	1.2
8413 - 100	0 ... 100 N	9.7	2.3	3.4	2.6	26.0	2	1.2
8413 - 200	0 ... 200 N	9.7	2.3	3.4	2.6	40.0	2	1.2
8413 - 500	0 ... 500 N	12.7	3.0	3.8	3.3	67.0	2	3.2
8413 - 1000	0 ... 1000 N	12.7	3.0	3.8	3.3	85.0	2	3.3
8413 - 2000	0 ... 2000 N	19.1	6.4	6.4	5.7	98.0	2	10.3
8413 - 5000	0 ... 5000 N	19.1	6.4	6.4	5.7	167.0	2	10.3

Model 8414 with overload stop

Order Code	Measuring	Dimensions [mm]				Frequency of resonance [kHz]	Output nominal [mV/V]	Weight [g]
		Ø D 1	Ø D 2	H 1	H 2			
8414 - 2.5	0 ... 2.5 N	9.4	2.3	6.4	5.8	3.0	12	3.8
8414 - 5	0 ... 5 N	9.4	2.3	6.4	5.8	4.0	12	3.8
8414 - 10	0 ... 10 N	9.4	2.3	6.4	5.8	7.0	1	3.8
8414 - 20	0 ... 20 N	9.4	2.3	6.4	5.8	11.0	1	3.8
8414 - 50	0 ... 50 N	9.4	2.3	6.4	5.8	18.0	1	3.8
8414 - 100	0 ... 100 N	9.4	2.3	6.4	5.8	26.0	1	3.8

Electrical

Bridge resistance:

Measuring ranges $\leq 0 \dots 5$ N semiconductor 500 Ω , nominal
 Measuring ranges $\geq 0 \dots 10$ N foil 350 Ω , nominal

Excitation:

max. 5 V DC

Output:

see table

Insulation resistor:

 > 5000 M Ω by 50 VDC

Shunt calibration resistor:

59 k $\Omega \pm 0.1$ %

The bridge output voltage caused by a shunt of this value is shown in the calibration certificate.

Environmental

Temperature operating:

 -55 °C ... $+120$ °C

Temperature compensated:

 $+15$ °C ... $+70$ °C

Temperature effect on zero:

 $\leq \pm 0.02$ % v.E./K

Temperature effect on span:

 $< +0.02$ % v.S./K**Mechanical**

Accuracy:

Measuring ranges $\leq 0 \dots 5$ N $< \pm 0.5$ % F.S.
 Measuring ranges $\geq 0 \dots 10$ N $< \pm 0.25$ % F.S.

Hysteresis:

Measuring ranges $\leq 0 \dots 5$ N $< \pm 0.5$ % v.E.
 Measuring ranges $\geq 0 \dots 10$ N $< \pm 0.25$ % v.E.

Non Repeatability:

 $< \pm 0.1$ % v.E.

Deflection full scale:

Measuring ranges $\leq 0 \dots 5$ N 13 μ m ... 38 μ m
 Measuring ranges $\geq 0 \dots 10$ N 25 μ m ... 76 μ m

Static overload capacity:

50 % over capacity

Maximum static overload stop:

400 % capacity

Dynamic load:

recommended 70 % of capacity
 maximum 100 % of capacity

Material:

stainless steel 17-4 PH (similar 1.4542)

Elektrischer Anschluss:

hochflexible, farbocodierte, teflonisolierte Adern mit freien Lötenden, Länge ca. 1,5 m. Starre Platine, ca. 7 mm breit, 50 mm lang, für Brückenausgleich, Kalibration und Temperaturkompensation nach ca. 0,6 m vom Sensorkörper. Kabelschirm zwischen Sensor und Platine.

Protecting class according to DIN 60529:

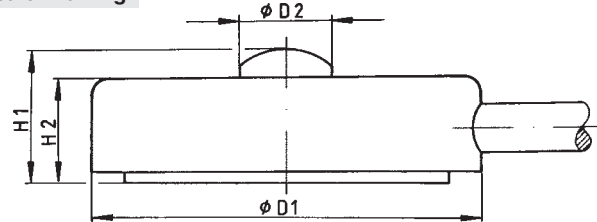
IP54

Wiring code :

red Excitation (positive)
 black Excitation (negative)
 green Signal output (negative)
 white Signal output (positive)

Dimensions / Weight:

see table and scale drawing without cable see table

Scale Drawing

Sensor CAD drawing can be imported in 3D or 2D version from CD-ROM or downloaded from the Internet.

For more information on **POWERPARTS** by web2CAD please refer to the introduction of product section 8 in the catalog.

Option

Standardization of the rated characteristic value for 350 Ω bridges only in the connection cable to 1 mV/V ± 0.5 %, **Order code: ...-V010**

Order information

Subminiatur-Load Cell,
 Measuring range 0 ... 10 N

Model 8413-10**Accessories**

Mating connector

12 pins, to all burster instrumentations in table housing

Order Code: 9941

9 pins, to model 9235 and model 9310

Order code: 9900-V209

Mounting of mating connector to conductor cable

Order Code: 99004

Amplifiers, sensors supplying instruments and process controllers as e.g. model 9162, model 9243 or DIGIFORCE® 9306

see section 9 of the catalog.**Manufacturer calibration**

Calibration of the load cell separately as well as connected to an indicator is available. Calculation with basic cost and additional cost per point. Please state the requested points. Standard is an 11-point-run in 20 %-increments up and down.