Column-shaped force sensor for the measurement of compressive forces

XCP-173

Contact surface for force application

Ø 41.2 x 25 mm
0...5 kg
0...10 kg
0...20 kg
0...30 kg
0...50 kg
0...100 kg
0...200 kg
0...300 kg
0...500 kg
0...1000 kg

Features

- Column-shaped force sensor with compact/stable compression body
- Measuring ranges available from 5 kg to 1000 kg

Application

Thanks to the columnar design, the XCP-173 has a very high stiffness. This force sensor is ideal for measuring compressive forces and is characterized by very high measurement accuracy.

The sensors are based on proven strain gauge technology and provide a linear signal, proportional to the centrally applied compressive force. The solid steel housing guarantees trouble-free operation, even under difficult environmental conditions.

Ordering code

Description	Measuring range	Output signal	Contact area in mm	Definition	Specification
XCP-173-D-5kg-3.0m-2-0	0…5 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-10kg-3.0m-2-0	0…10 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-20kg-3.0m-2-0	0…20 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-30kg-3.0m-2-0	0…30 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-50kg-3.0m-2-0	0…50 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-100kg-3.0m-2-0	0…100 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-200kg-3.0m-2-0	0…200 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-300kg-3.0m-2-0	0…300 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-500kg-3.0m-2-0	0…500 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3
XCP-173-D-1000kg-3.0m-2-0	0…1000 kg	2.0 mV/V	Ø 35.8 mm	Columnar compressive force sensor	page 3

Column pressure force sensor XCP-173

Ø 41.2 x 25 mm

From 0...1000 kg

Specifications

Performance	
Measuring range / Nominal force	0...5 kg 0...10 kg 0...20 kg 0...30 kg 0...50 kg 0...100 kg 0...200 kg 0...300 kg 0...500 kg 0...1000 kg
Zero signal unmounted	±2 % from fullscale
Output signal referred to the final value	2.0 mV/V
Deviation output signal	±10 %
Nonlinearity	< ±0.1 % from fullscale
Hysteresis	< ±0.1 % from fullscale
repeatability	< ±0.1 % from fullscale
Creep (30 min)	< ±0.05 % from fullscale
Temperature influence on final value	±0.05 % FS /10°C
Temperature influence on zero point	±0.05 % FS /10°C

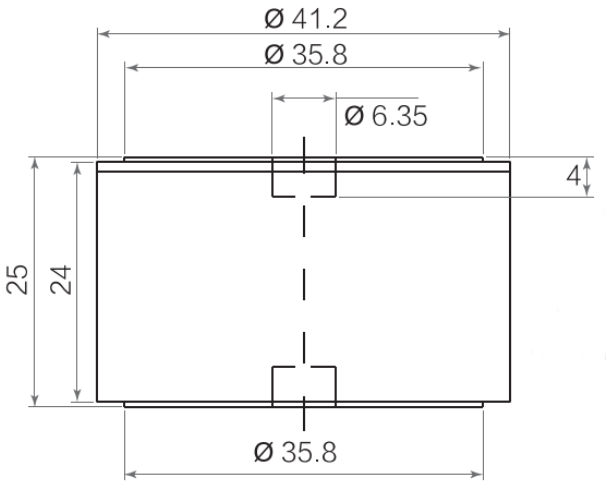
Electrical data	
Output signal referred to the final value	2.0 mV/V
Insulation resistance	≥5000 MΩ / 100 VDC
Input resistance	385 ± 5Ω
Output resistance	350 ± 3Ω
Recommended voltage	3 - 10 V
Output signal referred to the final value	2.0 mV/V

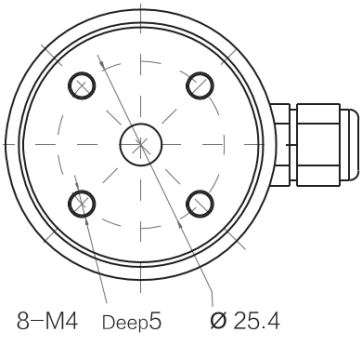
Materials	
Housing	Steel
Cable	PVC

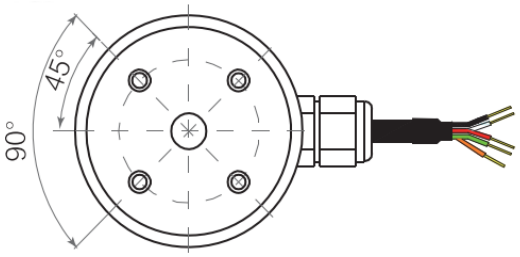
Mechanical data	
Force application	Contact area Ø 35.8 mm
Mounting/Assembly	Internal thread 8x M4
Overload	150 % from fullscale
Breaking load	200 % from fullscale
Electrical connection	Connection cable
Cable length	3 m
Plug type	Open stranded wires, connectors available on request

Environmental data	
Ambient temperature	- 20 ... 80 °C
Protection rate	IP40

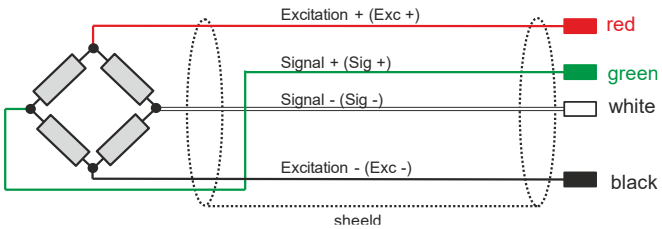
Mechanical dimensions







Wiring



Ordering code

The load cell is supplied without a calibration certificate.
Calibration certificate available on request.

For detailed ordering information, see page 2.

Definition of accuracy

For force sensors, there are the following points to consider regarding accuracy:

1. linearity, repeatability and hysteresis (combined error).
   The linearity, repeatability and hysteresis specify the measurement deviation compared to the ideal characteristic curve. This maximum measurement deviation is specified in relation to the final value. I.e. for example an inaccuracy of 0.3 % FS corresponds to a maximum measurement deviation of 0.3 kg over the entire measurement range for a force sensor with a measurement range of 0...100 kg.

2. sensitivity
   In the data sheet a sensitivity (= output signal to the final value) of the sensors is given. However, the sensitivity is not always exactly identical. For this reason, the deviation of the sensitivity is specified.