

## Column-shaped force sensor for the measurement of compressive forces



### XCP-172

#### Contact surface for the application of force

Ø 15 x 22 mm,

0...1 kg

0...2 kg

0...3 kg

0...10 kg

0...15 kg

0...20 kg

#### Features

- Column-shaped force sensor with compact/stable compression body
- Measuring ranges available from 1 kg to 20 kg

#### Application

Thanks to the columnar design, the XCP-172 has a very high stiffness. This force sensor is ideal for measurement of compressive forces and features a 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.

Description	Measuring range	Output signal	Contact area in mm	Definition	Specification
XCP-172-D-1kg-3.0m-2-0	0...1 kg	2.0 mV/V	Ø 13 mm	Column pressure force sensor	page 3
XCP-172-D-2kg-3.0m-2-0	0...2 kg	2.0 mV/V	Ø 13 mm	Column pressure force sensor	page 3
XCP-172-D-3kg-3.0m-2-0	0...3 kg	2.0 mV/V	Ø 13 mm	Column pressure force sensor	page 3
XCP-172-D-10kg-3.0m-2-0	0...10 kg	2.0 mV/V	Ø 13 mm	Column pressure force sensor	page 3
XCP-172-D-15kg-3.0m-2-0	0...15 kg	2.0 mV/V	Ø 13 mm	Column pressure force sensor	page 3
XCP-172-D-20kg-3.0m-2-0	0...20 kg	2.0 mV/V	Ø 13 mm	Column pressure force sensor	page 3

# Column pressure force sensor XCP-172

Ø 15 x 24 mm

From 0...20 kg



## Specifications

### Performance

<b>Measuring range / Nominal force</b>	0...1 kg 0...2 kg 0...3 kg 0...10 kg 0...15 kg 0...20 kg
<b>Zero signal unmounted</b>	±2 % from fullscale
<b>Output signal referred to the final value</b>	2.0 mV/V
<b>Deviation output signal</b>	±10 %
<b>Nonlinearity</b>	< ±0.1 % from fullscale
<b>Hysteresis</b>	< ±0.1 % from fullscale
<b>Repeatability</b>	< ±0.1 % from fullscale
<b>Creep (30 min)</b>	< ±0.05 % from fullscale
<b>Temperature influence on final value</b>	±0.1 % FS / 10°C
<b>Temperature influence on zero point</b>	±0.1 % FS / 10°C

### Electrical data

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

### Materials

<b>Housing</b>	Steel
<b>Cable</b>	PVC

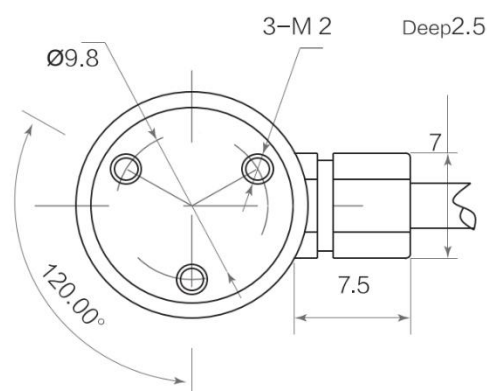
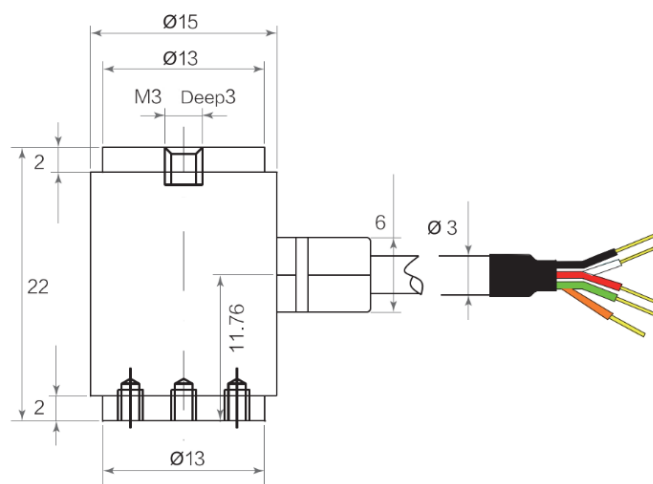
### Mechanical data

<b>Force application</b>	Contact area Ø 13 mm
<b>Mounting/Assembly</b>	Internal thread 3x M2 (2.5 mm)
<b>Overload</b>	120 % from fullscale
<b>Breaking load</b>	200 % from fullscale
<b>Electrical connection</b>	Connection cable
<b>Cable length</b>	3 m
<b>Plug type</b>	Open stranded wires, connectors available on request

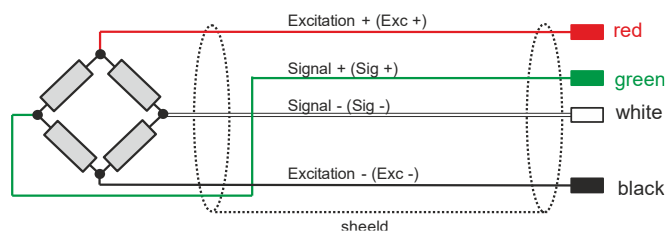
### Environmental data

<b>Ambient temperature</b>	- 20 ... 80 °C
<b>Protection rate</b>	IP40

## Mechanical dimensions



## Wiring



## Ordering code

The force sensor is supplied without a calibration certificate. Calibration certificate available on request.

For detailed ordering information, see page 2.

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 0.06 kg over the entire measurement range for a force sensor with a measurement range of 0...20 kg.

2. Sensitivity

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