

## Load cell for measurement of compressive forces



### **X-141**

**with bore hole**

Ø 78 x 30 mm,  
0...0.5 kN  
till  
0...20 kN

#### **Features**

- 4x Ø 9 mm through hole for easy mounting
- With Ø 12 mm through hole for centering the force application
- Encapsulated version IP65

#### **Application**

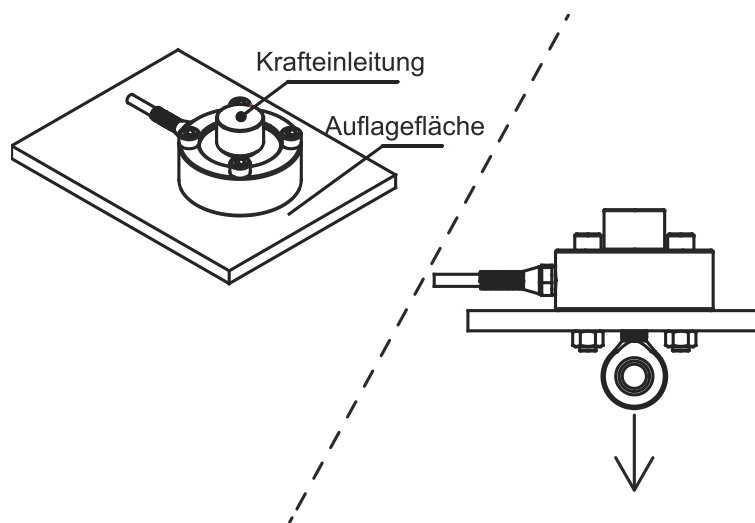
The load cell X-141 is suitable for universal use in industrial force monitoring and weighing applications.

The sensors are based on proven strain gauge technology and provide a linear signal, proportional to the centrally applied compression force. The solid steel housing and the tight design according to IP65 guarantee trouble-free operation, even under difficult environmental conditions.

## Ordering code

Description	Measuring range	Output signal	Contact area in mm	Assembly	Specification
X-141-D-0.5kN-3.0m-3-4-R-78	0...0.5kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3
X-141-D-1kN-3.0m-3-4-R-78	0...1kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3
X-141-D-2kN-3.0m-3-4-R-78	0...2kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3
X-141-D-3kN-3.0m-3-4-R-78	0...3kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3
X-141-D-5kN-3.0m-3-4-R-78	0...5kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3
X-141-D-10kN-3.0m-3-4-R-78	0...10kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3
X-141-D-20kN-3.0m-3-4-R-78	0...20kN	2.0 mV/V	Ø 78 mm	Ø 12 mm through hole top / 4x Ø 9 mm through hole bottom	page 3

## Installation situation



# Button force sensor X-141

Ø 78 x 30 mm,  
From 0.5 till 20 kN



## Specification

### Performance

<b>Measuring range / nominal force</b>	0.5 kN 1 kN 2 kN 3 kN 5 kN 10 kN 20 kN
<b>Zero point unmounted</b>	< ±1 % from fullscale
<b>Deviation Sensitivity</b>	±1.0 %
<b>Nonlinearity</b>	< ±0.05 % from fullscale
<b>Hysteresis</b>	< ±0.05 % from fullscale
<b>Repeatability</b>	< ±0.05 % from fullscale
<b>Temperature influence on full scale</b>	±0.05 % FS /10°C
<b>Temperature influence on zero point</b>	±0.05 % FS /10°C

### Electrical data

<b>Output signal referred to final value</b>	2.0 mV/V
<b>Bridge resistance / sensor element strain gauge full bridge</b>	700 Ohm
<b>Supply voltage</b>	5-12 VDC

### Materials

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

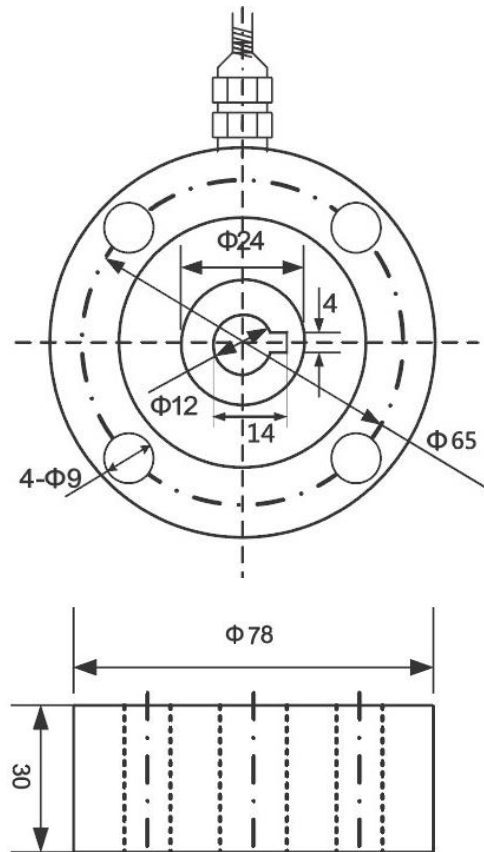
### Mechanical data

<b>Force application</b>	Ø 12 mm through bore
<b>Overload</b>	150 % from fullscale
<b>Electrical connection</b>	Connection cable
<b>Cable length</b>	3 m
<b>Plug type</b>	Open stranded wires, plugs available on request

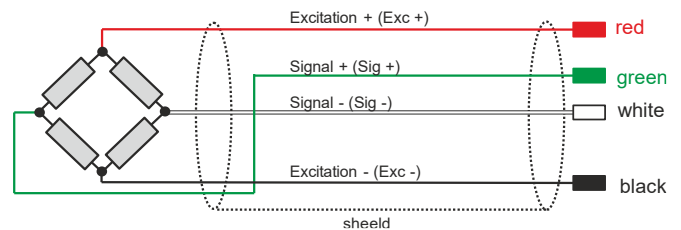
### Environmental data

<b>Ambient temperature</b>	-20...65 °C
<b>Protection class</b>	IP 65

## Mechanical dimensions



## Wiring



## Ordering code

The load cell is supplied without mounting screws and 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 0.15 % FS corresponds to a maximum measurement deviation of 0.03 kN over the entire measurement range for a force sensor with a measurement range of 0...20 kN.

2. Sensitivity

In the data sheet a sensitivity of the sensors is given. However, the sensitivity is not always exactly identical. For this reason, the deviation of the sensitivity is specified.