

Overview



The bending beam load cell is particularly suitable for use in small hopper and platform scales.

Design

The measuring element is a double bending beam made of stainless steel to which 4 strain gauges are applied.

The strain gauges are arranged so that two are stretched and two are compressed.

Under the influence of the load acting in the measuring direction, the spring bodies and therefore the friction-locked strain gauges are elastically deformed. This generates a measuring signal voltage that is proportional to the load.

Technical specifications

SIWAREX WL230 BB-S SA	
Possible applications	<ul style="list-style-type: none"> • Hopper scales • Belt scales • Platform scales
Type of construction	Bending beam load cell
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> • 10 kg (22.05 lb) • 20 kg (44.09 lb) • 50 kg (110.23 lb) • 100 kg (220.46 lb) • 200 kg (440.92 lb) • 350 kg (771.62 lb) • 500 kg (1 102.3 lb)
Minimum initial loading E_{min}	0% E_{max}
Maximum working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{Iq}	100% E_{max}
Measurement characteristic values	
Deflection h_n at E_{max}	0.3 mm
Rated characteristic value C_n	2.0 ± 0.02% mV/V
Tolerance D_0 of zero signal	< ± 1.0% C_n
Maximum scale interval n_{LC}	3 000 ¹⁾
Minimum scale interval V_{min}	$E_{max}/15 000$
Minimum application range $R_{min(LC)}$	20%
Combined error F_{comb}	≤ 0.02% C_n
Repeatability F_v	≤ 0.017% C_n
Creep error F_{Cr}	
• 30 min	≤ ± 0.02% C_n
Temperature coefficient	
• Zero signal T_{K0}	≤ ± 0.017% $C_n/5 K$
• Characteristic value T_{Kc}	≤ ± 0.014% $C_n/5 K$

SIWAREX WL230 BB-S SA

Electrical characteristic values

Recommended reference voltage U_{ref}	5 ... 10 V DC
Input resistance R_e	460 Ω ± 50 Ω
Output resistance R_a	350 Ω ± 3.5 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Current calibration	Standard

Connection and environmental conditions

Sensor material (DIN)	Stainless steel EN 1.4542
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Max. tightening torque of the fixing screws

• $E_{max} = 10, 200 kg$ (22.05 ... 440.92 lb)	23 Nm ²⁾
• $E_{max} = 350, 500 kg$ (771.62, 1 102.31 lb)	70 Nm ²⁾

Function

- EXC + (supply +)
- EXC - (supply -)
- SIG + (measured signal +)
- SIG - (measured signal -)
- Shield (not connected to the load cell body)

Color

- Green
- Black
- White
- Red
- Transparent

Rated temperature range B_{Tn}	-10 ... +40 °C (14 ... 104 °F)
Operating temperature range B_{Tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{Ts}	-35 ... +65 °C (-31 ... +149 °F)

Degree of protection according to EN 60529; IEC 60529	IP68
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Certificates and approvals

Accuracy class according to OIML R-60	C3
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1) Higher accuracy class available on request.

2) The tightening torque is to be selected according to the strength class of the screws.

Selection and ordering data

Article No.

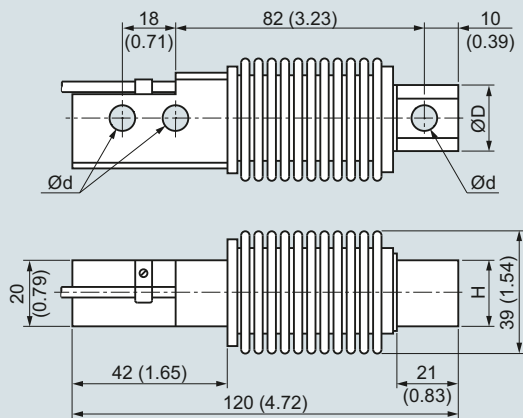
Load cell, type WL230 BB-S SA	↗ 7MH5106-
Legal-for-trade according to OIML R-60 up to 3 000d, connecting cable 3 m (9.84 ft)	D 0
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Rated load	
• 10 kg (22.05 lb)	2 A
• 20 kg (44.09 lb)	2 G
• 50 kg (110.23 lb)	2 P
• 100 kg (220.46 lb)	3 A
• 200 kg (440.92 lb)	3 G
• 350 kg (771.62 lb)	3 L
• 500 kg (1 102.31 lb)	3 P
Explosion protection	
Without	0
Explosion protection for zones 0, 1, 2, 20, 21, 22	1

Load Cells

Bending beam load cells
SIWAREX WL230 BB-S SA

Load cell

Dimensional drawings



Rated load [kg]	Ød	ØD	H
10, 20, 50, 100, 200	8.2 (0.32)	23 (0.91)	20 (0.79)
350, 500	10.3 (0.41)	24 (0.95)	19 (0.75)

SIWAREX WL230 BB-S SA load cell, dimensions in mm (inch)