

Overview



The bending beam load cell is particularly suitable for use in small-scale container 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 • Conveyor belt scales • Platform scales
Model	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) • 300 kg (661.39 lb) • 350 kg (771.62 lb) • 500 kg (1102.31 lb)
Minimum initial loading E_{\min}	0% E_{\max}
Maximum working load L_u	150% E_{\max}
Break load L_d	300% E_{\max}
Safe lateral load L_{lq}	100% E_{\max}

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Measurement characteristic values

Rated measuring path h_n at E_{\max}	0.3 mm (0.01 in)
Rated characteristic value C_n	$2.0 \pm 0.02\%$ mV/V
Tolerance D_O of zero signal	$< \pm 1.0\%$ C_n
Maximum load cell verification interval n_{LC}	3 000 ¹⁾
Min. load cell verification interval V_{\min}	$E_{\max}/15\ 000$
Minimum application range $R_{\min(LC)}$	20%
Combined error F_{comb}	$\leq 0.02\%$ C_n
Repeatability F_V	$\leq 0.017\%$ C_n
Creep error F_{Cr}	
30 min	$\leq \pm 0.02\%$ C_n
Temperature coefficient	
• Zero signal T_{K0}	$\leq \pm 0.017\%$ $C_n/5\ K$
• Characteristic value T_{Kc}	$\leq \pm 0.014\%$ $C_n/5\ K$

Electrical characteristic values

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

Connection and environmental conditions

Sensor material (DIN)	Stainless steel
Max. tightening torque of the fixing screws	
• $E_{\max} = 10, 20, 50, 100, 200\ \text{kg}$ (22.05, 44.09, 110.23, 220.46, 440.92 lb)	23 Nm ²⁾
• $E_{\max} = 350, 500\ \text{kg}$ (771.62, 1102.31 lb)	70 Nm ²⁾
Function	Color
• EXC + (supply +)	Green
• EXC - (supply -)	Black
• SIG + (measured signal +)	White
• SIG - (measured signal -)	Red
• Shield	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

Certificates and approvals

Accuracy class according to OIML R60	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.

Load Cells

Bending beam load cells
SIWAREX WL230 BB-S SA

Load cell

Selection and ordering data

Load cells type WL230 BB-S SA

Legal-for-trade according to OIML R60 to 3 000d,
connecting cable 3 m (9.84 ft)

➤ Click on the Article No. for the online configuration in
the PIA Life Cycle Portal.

Rated load

- 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 (1 102.31 lb)

Explosion protection

Without

Explosion protection for zones 0, 1, 2, 20, 21, 22

Article No.

7MH5106-

D 0

2 A

2 G

2 P

3 A

3 G

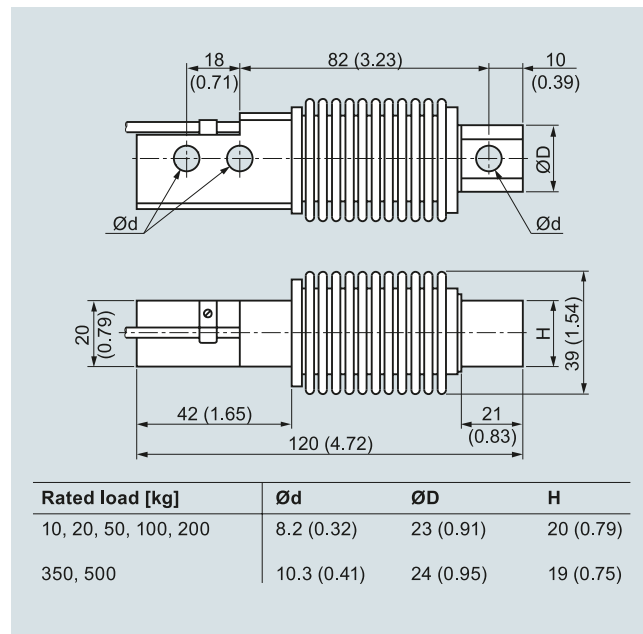
3 L

3 P

0

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Dimensional drawings



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