

Load Cells

Shear beam load cells

SIWAREX WL230 SB-S CA Load cell

Overview



The SIWAREX WL230 SB-S CA shear beam load cell is made of special nickel-plated steel. The 100 kg (220.46 lb) and 250 kg (551.16 lb) load classes are implemented as bending beams.

The WL230 SB-S CA load cells are especially suited for platform scales and hopper scales where it is easy to introduce the load into the load cell by means of an adjustable foot. The load cell is available in rated loads from 100 kg to 10 t (220.46 lb ... 0.98 tn I.). This means that scales with multiple weighing ranges can be equipped with a single cell type.

The load cells are legal-for-trade according to OIML R60. They are available in accuracy classes C3, C4 and 5.

Design

The measuring element is a spring body made of special steel. Due to the galvanic coating of nickel and the IP67 degree of protection it is suitable for use in harsh environments.

Selection and ordering data

Load cell, type SIWAREX WL230 SB-S CA Material: Steel, nickel-plated Length of the connecting cable: 4 m at rated load up to 2 t, 6 m from rated load 3 t	Article No. 7MH5121-	
	● ● ● 0 0	
Click the Article No. for online configuration in the PIA Life Cycle Portal.		
Rated load		
• 100 kg (220.46 lb)	3	A
• 250 kg (551.16 lb)	3	H
• 500 kg (1 102.31 lb)	3	P
• 1 t (0.98 tn. I.)	4	A
• 2 t (1.97 tn. I.)	4	G
• 3 t (2.95 tn. I.)	4	K
• 5 t (4.92 tn. I.)	4	P
• 10 t (9.84 tn. I.)	5	A
Accuracy class according to OIML R60		
• C3		D
• C4		E
• C5		F

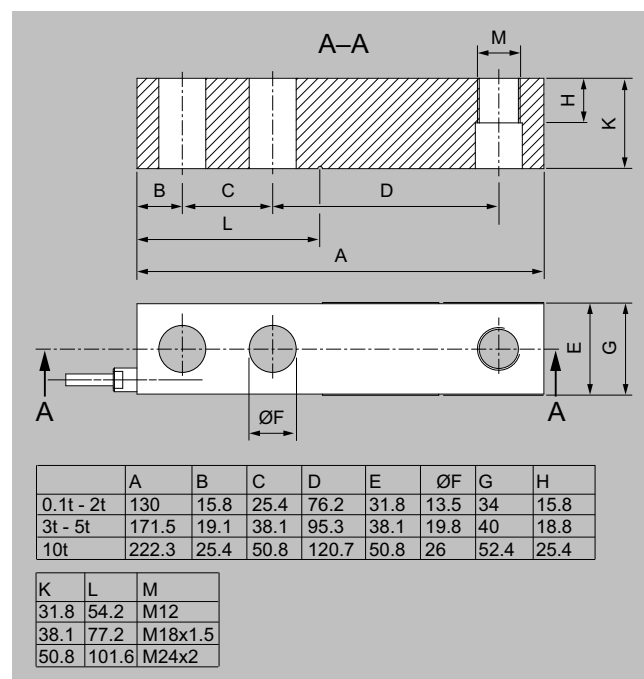
Technical specifications

SIWAREX WL230 SB-S CA	
Possible applications	<ul style="list-style-type: none"> Platform scales Hopper scales
Type of construction	<ul style="list-style-type: none"> Bending beam up to rated load 250 kg (551.16 lb) Shear beam from rated load 500 kg (1 102.31 lb)
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> 100 kg (220.46 lb) 250 kg (551.16 lb) 500 kg (1 102.31 lb) 1 t (0.98 tn. l.) 2 t (1.97 tn. l.) 3 t (2.95 tn. l.) 5 t (4.92 tn. l.) 10 t (9.84 tn. l.)
Minimum initial loading E_{min}	0 kg
Max. 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	
Rated displacement h_n at E_{max}	
• $E_{max} = 100$ kg (220.46 lb)	0.17 mm
• $E_{max} = 250$ kg (551.16 lb)	0.15 mm
• $E_{max} = 500$ kg (1 102.31 lb)	0.32 mm
• $E_{max} = 1$ t (0.98 tn. l.)	0.63 mm
• $E_{max} = 2$ t (1.97 tn. l.)	1.2 mm
• $E_{max} = 3$ t (2.95 tn. l.)	0.9 mm
• $E_{max} = 5$ t (4.92 tn. l.)	0.6 mm
• $E_{max} = 10$ t (9.84 tn. l.)	0.8 mm
Rated characteristic value C_n	3.0 ± 0.003 mV/V
Tolerance D_0 of zero signal	$\pm 1.0\%$ C_n
Max. scale interval n_{LC}	
• For accuracy class OIML C3	3 000
• For accuracy class OIML C4	4 000
• For accuracy class OIML C5	5 000
Min. scale interval V_{min}	
• At E_{max} 100 kg ... 10 t (220.46 lb ... 9.84 tn. l.) and accuracy class OIML C3	$E_{max}/10\ 000$
• At E_{max} 100 kg ... 10 t (220.46 lb ... 9.84 tn. l.) and accuracy class OIML C4	$E_{max}/15\ 000$
• At E_{max} 100 kg ... 2 t (220.46 lb ... 1.97 tn. l.) and accuracy class OIML C5	$E_{max}/20\ 000$
• At E_{max} 3 t ... 10 t (2.95 ... 9.84 tn. l.) and accuracy class OIML C5	$E_{max}/18\ 000$
Combined error F_{comb}	
• For accuracy class OIML C3	$\leq \pm 0.023\%$ C_n
• For accuracy class OIML C4	$\leq \pm 0.018\%$ C_n
• For accuracy class OIML C5	$\leq \pm 0.014\%$ C_n
Creep error F_{cr}	
• 30 min	$\leq \pm 0.015\%$ C_n
Electrical characteristic values	
Recommended supply voltage	5 ... 12 V DC
Maximum supply voltage	18 V DC
Input resistance R_e	350 ± 3.5 Ω
Output resistance R_b	350 ± 3.5 Ω
Insulation resistance R_{is}	$\geq 5\ 000$ M Ω at 50 V DC

Technical specifications (Continued)

SIWAREX WL230 SB-S CA	
Connection and ambient conditions	
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}	-40 ... +80 °C (-40 ... +176 °F)
Sensor material (DIN)	Steel, nickel-plated
Degree of protection acc. to EN 60529	IP67
Recommended tightening torque of the fixing screws	
• For M12	75 Nm
• For M18	500 Nm
• For M24	750 Nm
Length of the connecting cable (four-core)	
• For rated loads up to 2 t	Length 4 m (13.1 ft)
• For rated loads more than 2 t	Length 6 m (19.7 ft)
Diameter of the connecting cable	5 mm
Degree of protection acc. to EN 60529	IP67
Cable connection	
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green
• SIG - (measured signal -)	White
• Shield (not connected to the load cell body)	Transparent
ATEX	-
Certificates and approvals	
Accuracy class according to OIML R60	C3, C4, C5

Dimensional drawings



SIWAREX WL230 SB-S CA load cell, dimensions in mm (inch)

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SIWAREX WL230 SB-S CA Load foot

Overview



Load foot for SIWAREX WL230 SB-S CA

The self-centering load foot for SIWAREX WL230 SB-S CA load cells can be used for the quick and easy assembly of platform and hopper scales. Together with the load cell it forms a self-centering bearing unit. The load foot transmits the force directly into the load cell. The load foot is suitable for rated load cell ranges from 100 kg up to 10 t (220.46 lb up to 9.84 tn. l.).

Design



SIWAREX WL230 SB-S CA with load foot

You can adjust the height of the load cell with the threaded shaft on the load foot. The foot element has a ball joint with an oscillation function which is often used in weighing technology. Stresses can arise during installation or when the length of the load bearing implement changes due to thermal expansion. The rubber cap prevents the load foot from slipping.

Selection and ordering data

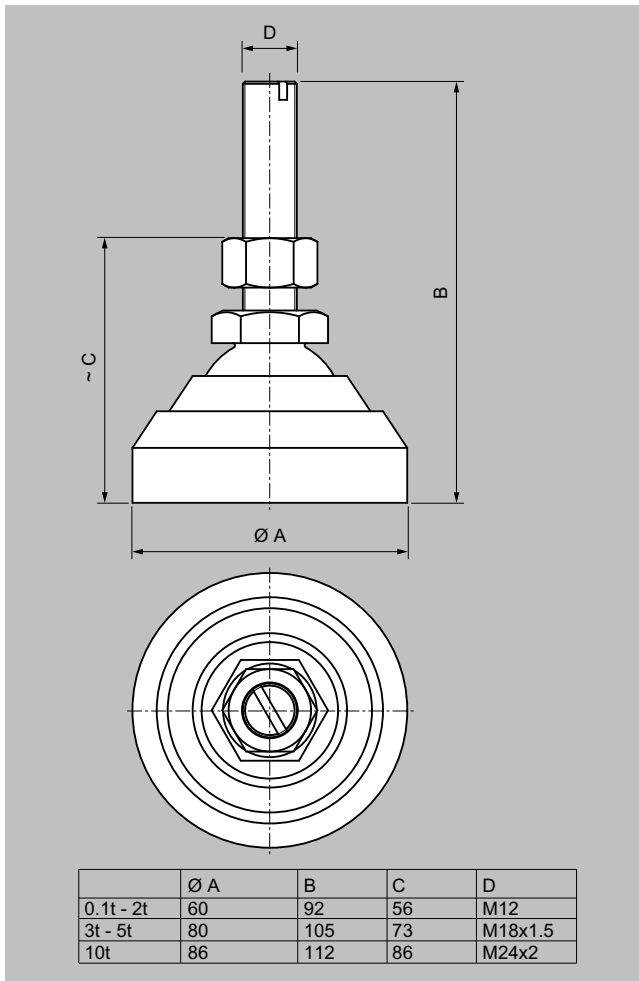
	Article No.
Load foot	
For SIWAREX WL230 SB-S CA load cells	
Material: Steel, nickel-plated, NBR (nitrile butadiene rubber)	
For load cells with a rated load of ¹⁾	
• 100 kg ... 2 t (220.46 lb ... 1.97 tn. l.)	7MH5721-4GH10
• 3 ... 5 t (2.95 ... 4.92 tn. l.)	7MH5721-4PH10
• 10 t (9.842 tn. l.)	7MH5721-5AH10

¹⁾ The load cell is not included in the scope of delivery.

Technical specifications

Load foot for SIWAREX WL230 SB-S CA load cells			
Rated load	100 kg ... 2 t (220.46 lb ... 1.97 tn. l.)	3 ... 5 t (2.95 ... 4.92 tn. l.)	10 t (9.842 tn. l.)
Maximum lateral deflection	± 1 mm (0.04 inch)	± 1 mm (0.04 inch)	± 1 mm (0.04 inch)
Maximum vertical load	30 kN	70 kN	130 kN

Dimensional drawings



SIWAREX WL230 SB-S CA load foot