

Overview



The SIWAREX WL290 DB-S CA double shear beam load cell is made of nickel-plated specialty steel.

WL290 DB-S CA load cells are especially suited for large platform and hopper scales. A special mounting unit makes them particularly suitable for assembling scales in vehicles. The double shear beam load cell is installed without oscillation or elastomer force-transmitting mechanisms since transverse forces do not result in the otherwise usual oscillating or deflection effects in the load cell.

The load cells are legal-for-trade according to OIML R-60. They are available in accuracy class C3.

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.

Technical specifications

SIWAREX WL290 DB-S CA	
Possible applications	<ul style="list-style-type: none"> Platform scales Hopper scales Vehicle scales
Type of construction	Double cutter
Loads	
Rated load/maximum load E_{max}	<ul style="list-style-type: none"> 2.3 t (2.26 tn. l.) 4.5 t (4.43 tn. l.) 9.1 t (8.96 tn. l.) 13.6 t (13.39 tn. l.) 18 t (17.81 tn. l.) 23 t (22.24 tn. l.) 27 t (26.77 tn. l.) 34 t (33.46 tn. l.) 45 t (44.29 tn. l.) 68 t (66.93 tn. l.) 91 t (89.56 tn. l.) 113 t (111.22 tn. l.)
Min. dead load E_{min}	0 kg
Max. working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Measurement characteristic values	
Deflection h_n at E_{max}	
• $E_{max} = 2.3$ t (2.26 tn. l.)	0.5 mm
• $E_{max} = 4.5$ t (4.43 tn. l.)	0.6 mm
• $E_{max} = 9.1$ t (8.96 tn. l.)	1.1 mm
• $E_{max} = 13.6 \dots 23$ t (13.39 ... 22.24 tn. l.)	0.5 mm
• $E_{max} = 27$ t (26.77 tn. l.)	0.6 mm
• $E_{max} = 34 \dots 68$ t (33.46 ... 66.93 tn. l.)	0.5 mm
• $E_{max} = 91, 113$ t (89.56, 111.22 tn. l.)	0.9 mm
Rated characteristic value C_n	3.0 ± 0.008 mV/V
Tolerance D_0 of zero signal	$\leq \pm 1.0\%$ C_n
Max. scale interval n_{LC}	3 000
Min. scale interval V_{min}	$E_{max}/10\,000$
Combined error F_{comb}	$\leq \pm 0.023\%$ C_n
Creep error 30 min F_{Cr}	$\leq \pm 0.015\%$ C_n

SIWAREX WL290 DB-S CA	
Electrical characteristic values	
Recommended supply voltage	5 ... 12 V DC
Maximum supply voltage	18 V DC
Input resistance R_e	$700 \pm 7 \Omega$
Output resistance R_a	$700 \pm 7 \Omega$
Insulation resistance R_{is}	$\geq 5\,000$ M Ω at 50 V DC
Connection and environmental conditions	
Rated temperature range B_{Tn}	-10 ... +40 °C (14 ... 104 °F)
Operating temperature range B_{Tu}	-35 ... +60 °C (-31 ... 140 °F)
Storage temperature range B_{Ts}	-40 ... +80 °C (-40 ... 176 °F)
Sensor material (DIN)	Steel, nickel-plated
Degree of protection according to EN 60529; IEC 60529	IP67
Cable connection	
Length of the connecting cable (four-core)	9 m
Diameter of the connecting cable	
• 2.3 ... 9.1 t (2.26 ... 8.96 tn. l.)	5 mm
• 13.6 ... 113 t (13.39 ... 111.22 tn. l.)	8 mm
Function	Color
• EXC +	Red
• EXC -	Black
• SIG +	Green
• SIG -	White
• Shield (not connected to the load cell body)	Transparent
ATEX	-
Certificates and approvals	
Accuracy class according to OIML R-60	C3

Load Cells

Double shear beam load cells
SIWAREX WL290 DB-S CA

Load cell

Selection and ordering data

Article No.

SIWAREX WL290 DB-S CA load cell

Material: Steel, nickel-plated

Length of the connecting cable: 9 m

Accuracy class C3 according to OIML R-60

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

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Rated load

- 2.3 t (2.26 tn. l.)
- 4.5 t (4.43 tn. l.)
- 9.1 t (8.96 tn. l.)
- 13.6 t (13.39 tn. l.)
- 18 t (17.81 tn. l.)
- 23 t (22.24 tn. l.)
- 27 t (26.77 tn. l.)
- 34 t (33.46 tn. l.)
- 45 t (44.29 tn. l.)
- 68 t (66.93 tn. l.)
- 91 t (89.56 tn. l.)
- 113 t (111.22 tn. l.)

4 G

4 N

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5 D

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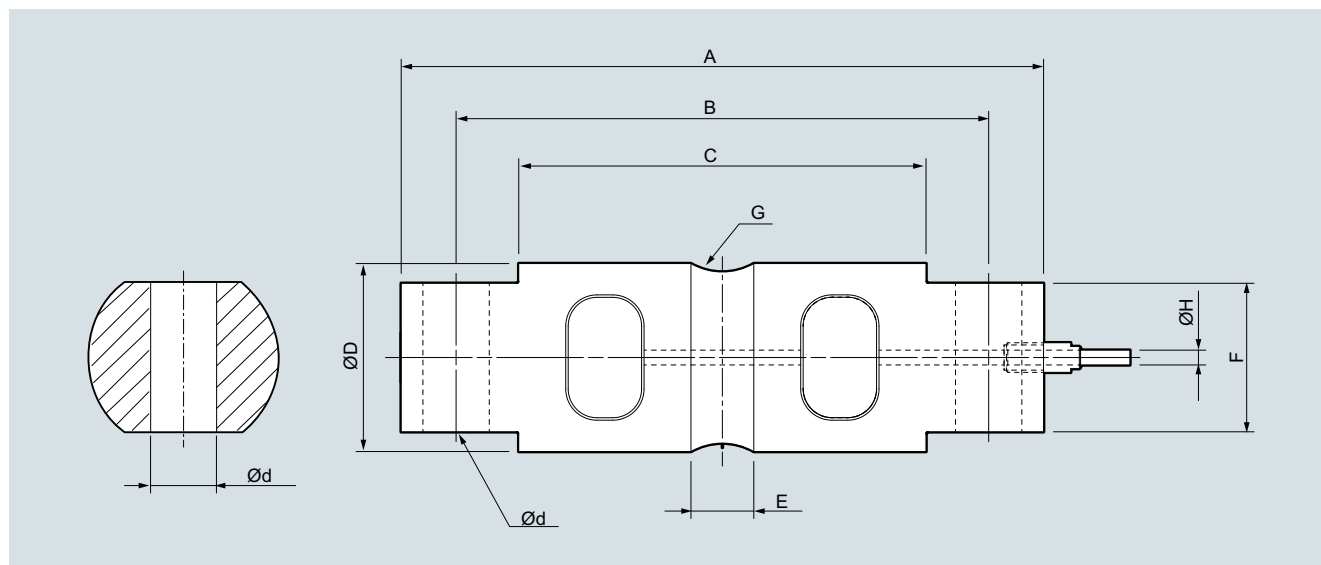
5 N

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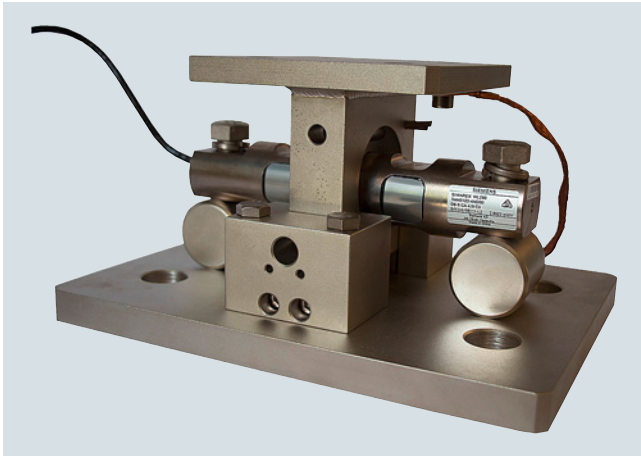
Dimensional drawings



SIWAREX WL290 DB-S CA load cell, dimensions in mm (inch)

Rated load t (tn. l.)	A	B	C	Ød	ØD	E	F	G	ØH
2.3 ... 4.5 (2.26 ... 4.43)	206.2 (8.12)	174.6 (6.87)	133.1 (5.24)	16.7 (0.66)	43.2 (1.70)	15.7 (0.62)	28.4 (1.12)	12.7 (0.50)	5 (0.20)
9.1 (8.96)	206.2 (8.12)	174.6 (6.87)	133.1 (5.24)	16.7 (0.66)	49.5 (1.95)	21.3 (0.84)	28.4 (1.12)	12.7 (0.50)	5 (0.20)
13.6 ... 34 (13.39 ... 33.46)	260.4 (10.25)	215.9 (8.50)	165.1 (6.50)	26.9 (1.06)	76.2 (3.00)	25.4 (1.00)	60.2 (2.37)	25.4 (1.00)	8 (0.31)
45 (44.29)	285.8 (11.25)	241.3 (9.50)	190.2 (7.49)	26.9 (1.06)	88.9 (3.50)	31.0 (1.22)	63.5 (2.50)	38.1 (1.50)	8 (0.31)
68 (66.93)	285.8 (11.25)	241.3 (9.50)	190.2 (7.49)	26.9 (1.06)	99.1 (3.90)	31.0 (1.22)	71.1 (2.80)	38.1 (1.50)	8 (0.31)
91 ... 113 (89.56 ... 111.22)	408.9 (16.10)	330.3 (13.00)	254 (10.00)	39.6 (1.56)	136.6 (5.38)	31.7 (1.25)	116.8 (4.60)	50.8 (2.00)	8 (0.31)

Overview



Silo mounting unit for SIWAREX WL290 DB-S CA load cells

This self-centering mounting unit for SIWAREX WL290 DB-S CA load cells is particularly suitable for implementation in hopper, platform, vehicle and roller conveyor scales. It was specially developed for installation in silos.

The mounting unit transmits the force directly into the load cell and is designed for load cell rated loads from 2.3 t to 113 t.

Design

It comprises a base plate onto which the load cell is attached with the help of a support and two screws, and a top plate which ensures the force is directed into the load cell. A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. Specially designed blocks fix the top plate over the base plate. In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs. The load cell can be inserted in the scale before mounting the mounting unit. It is also possible to insert the load cell in the mounting unit after mounting.

After the mounting unit has been mounted in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded.

The weight only rests on the load cells once the dummy blocks have been removed. The dummy blocks can be mounted onto the base plate to limit the pendulum movements. This also means they are safely stored for later use in servicing jobs.

Together with the load cell, the mounting unit ensures lift-off protection.

Another benefit is that the mounting unit and load cell adapt to the circumstances during thermal expansion.

Technical specifications

Silo mounting unit for load cells of the SIWAREX WL290 DB-S CA series

Rated load	2.3 ... 4.5 t (2.26 ... 4.43 tn. l.)	9.1 t (8.96 tn. l.)	13.6 ... 34 t (13.39 ... 33.46 tn. l.)	45 t (44.29 tn. l.)	68 t (66.93 tn. l.)	91 ... 113 t (88.58 ... 111.22 tn. l.)
Maximum lateral deflection	+/- 5 mm (0.2 inch)					
Lifting path of top plate	1.43 mm (0.056 inch)	1.26 mm (0.050 inch)	1.07 mm (0.042 inch)	1.69 mm (0.06 inch)	1.69 mm (0.067 inch)	0.97 mm (0.038 inch)
Permissible lateral force with load cell	18 kN	18 kN	68 kN	90 kN	136 kN	226 kN
Permissible lateral force as dummy	10 kN	10 kN	21 kN	41 kN	41 kN	68 kN
Permissible lifting force	15 kN	15 kN	50 kN	75 kN	75 kN	310 kN
Tightening torque of mounting bolts for load cells	20 Nm	20 Nm	25 Nm	25 Nm	25 Nm	30 Nm
Material	Steel, nickel-plated					

Selection and ordering data

Article No.

Silo mounting unit

For load cells of the SIWAREX WL290 DB-S CA series

Material: Steel, nickel-plated

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

For load cells with a rated load of¹⁾

- 2.3 ... 9.1 t (2.26 ... 8.96 tn. l.)
- 13.6 ... 34 t (13.39 ... 33.46 tn. l.)
- 45 t (44.29 tn. l.)
- 68 t (66.93 tn. l.)
- 91 ... 113 t (88.58 ... 111.22 tn. l.)

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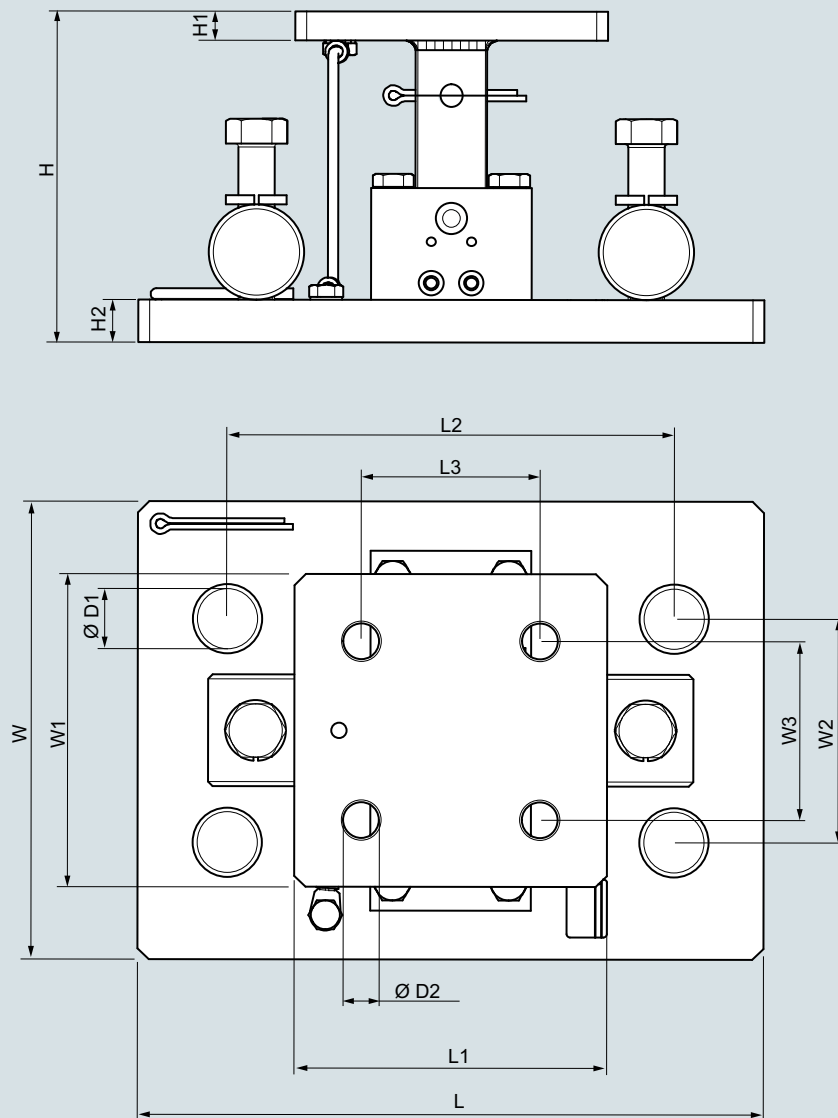
¹⁾ The load cell is not included in the scope of delivery.

Load Cells

Double shear beam load cells
SIWAREX WL290 DB-S CA

Silo mounting unit

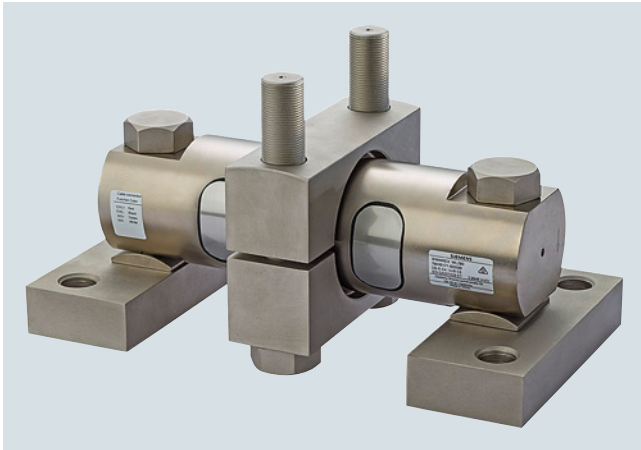
Dimensional drawings



Silo mounting unit for SIWAREX WL290 DB-S CA load cell (dimensions in mm)

Rated load t (tn. l.)	H	H1	H2	L	L1	L2	L3	W	W1	W2	W3	ØD1	ØD2
2.3 ... 9.1 (2.26 ... 8.96)	148	13	19	280	140	200	80	205	140	100	80	27	16
13.6 ... 34 (13.39 ... 33.46)	219	19	25	380	205	290	130	255	205	150	130	31	19
45 (44.29)	257	32	32	460	255	355	190	305	255	230	190	36	21
68 (66.93)	269	32	32	460	255	355	190	305	255	230	190	36	21
90 ... 113 (88.58 ... 111.22)	412	51	51	660	305	510	230	455	305	280	230	48	28

Overview



SIWAREX WL290 DB-S CA load cell with mounting unit

The mounting unit for the SIWAREX WL290 DB-S CA load cells makes setting up platform and hopper scales easy and safe. Since the load cell is securely bolted onto the bearing plates, it is particularly suitable for use in scales in vehicles. The mounting unit transmits the force directly into the load cell and absorbs any lateral and lifting forces which occur. The mounting unit covers load cell rated loads from 13.6 to 34 t (13.39 to 33.46 tn. l.).

Design

The load cell is bolted onto the bearing plates. By using a two-part bearing collar, the load bearing implement is also firmly connected to the load cell and without play. The bearing collar transfers the weight force centered into the load cell.

Since all connections are tight, possible acceleration forces, caused for example by a container on a vehicle, are directed to the chassis from the load cell and mounting unit. Additional latching mechanisms are not required. Due to the zero play mounting of the load cell no wear can occur, making any maintenance measures superfluous.

Technical specifications

Mounting unit for load cells of the SIWAREX WL290 DB-S CA series

Rated load	13.6 ... 34 t (13.39 ... 33.46 tn. l.)
Maximum lateral deflection	0 mm
Lifting path of top plate	0 mm
Permissible lateral force	20 kN
Permissible lifting force	35 kN
Tightening torque of mounting bolts for load cells	650 Nm
Tightening torque of mounting bolts for clamp collars	650 Nm
Material	Steel, nickel-plated

Selection and ordering data

Article No.

Mounting unit

For load cells of the SIWAREX WL290 DB-S CA series

Material: Steel, nickel-plated

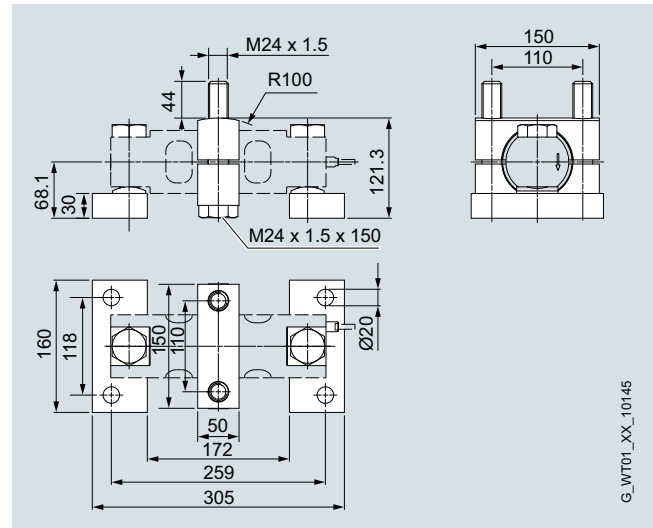
For load cells with a rated load of¹⁾

- 13.6 ... 34 t (13.39 ... 33.46 tn. l.)

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

Dimensional drawings



Mounting unit for SIWAREX WL290 DB-S CA load cell, dimensions in mm

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