Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

Overview



The ring torsion load cell is particularly suitable for use in hopper, belt, platform and roller conveyor scales.

Design

The measurement element is a ring torsion spring made of stainless steel. Two strain gauge spirals are applied to the upper and lower faces of the ring respectively. The spring element is deformed by the load acting centrically in the measurement direction. This compresses the strain gauge of the upper face of the ring and extends the strain gauge on the lower face of the ring. This causes a change in the electrical registrance of the force locked strain gauge, which is in the electrical resistance of the force-locked strain gauge, which is detected by means of a bridge circuit.
All load cells with a rated load of up to 13 t (12.79 tn. l.) are

equipped with integrated overload protection.

Selection and ordering data

SIWAREX WL280 RN-S SA load cell	Article No. 7MH5113-		
Stainless steel EN 1.4542, low mount Accuracy class C3 according to OIML	• • D 0 •		
	Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Rated load	Cable length		
• 60 kg (132.28 lb)	3 m (9.84 ft)	2 Q	
• 130 kg (286.60 lb)	3 m (9.84 ft)	3 D	
• 280 kg (617.29 lb)	3 m (9.84 ft)	3 J	
• 500 kg (1 102.31 lb)	3 m (9.84 ft)	3 P	
• 1 t (0.98 tn. l.)	3 m (9.84 ft)	4 A	
• 2 t (1.97 tn. l.)	6 m (19.68 ft)	4 G	
• 3.5 t (3.44 tn. l.)	6 m (19.68 ft)	4 L	
• 5 t (4.92 tn. l.)	6 m (19.68 ft)	4 P	
• 10 t (9.84 tn. l.)	15 m (49.21 ft)	5 A	
• 13 t (12.79 tn. l.)	15 m (49.21 ft)	5 D	
• 28 t (27.56 tn. l.)	15 m (49.21 ft)	5 J	
• 60 t (59.05 tn. l.)	15 m (49.21 ft)	5 Q	
Explosion protection			
• Without		0	
Explosion protection		1	

Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

Technical specifications

SIWAREX WL280 RN-S SA			
Possible applications	Hopper, belt, platform and roll	ler conveyor scales	
Type of construction	Ring torsion load cell	,	
Rated load/maximum capacity E_{max} .	• 60 kg (132.28 lb)	• 0.5 t (0.49 tn. l.)	• 13 t (12.80 tn. l.)
max.	• 130 kg (286.60 lb)	• 1 t (0.98 tn. l.)	• 28 t (27.56 tn. l.)
	• 280 kg (617.29 lb)	• 2 t (1.97 tn. l.)	• 60 t (59.05 tn. l.)
	3 (3 (3)	• 3.5 t (3.45 tn. l.)	,
		• 5 t (4.92 tn. l.)	
		• 10 t (9.84 tn. l.)	
Accuracy class according to OIML R60	C3	,	
Max. scale interval n _{IC}	3 000		
Min. scale interval V_{\min}	E _{max} /16 000	E max/17 500	
Minimum application range $R_{min(LC)}$	19%	17%	
-		1 / 70	
Combined error F _{comb}	≤ ± 0.023% C _n		
Repeatability F _v	$\leq \pm 0.01\% C_n$		
Return of zero signal	$\leq \pm 0.0167\% C_n^{1)}$		
Creep error F_{cr}	0.02450/.5.1\		
• 30 min	$\leq \pm 0.0245\% C_n^{1)}$		
• 20 30 min	$\leq \pm 0.0053\% C_n^{1)}$		
Temperature coefficient			
• Zero signal T _{KO}	$\leq \pm 0.004\% C_n/5K$		
• Characteristic value T_{Kc}	$\leq \pm 0.004\% C_n/5K$		
Min. dead load E _{min}	≥ ± 0% E _{max}		
Max. working load L _u	200% E _{max}	150% E _{max}	
Breaking load L _d	500% E _{max}	300% E _{max}	300% E _{max}
Safe side load L _{la}	75% E _{max}	100% E _{max}	75% E _{max}
Rated displacement h_n at E_{max}	0.07 mm	$0.1 \pm 0.02 \text{mm}$	0.11 0.2 mm
Overload protection	Integrated	Integrated	Integrated at 13 t
Supply voltage <i>U</i> _{sr} (reference value)	15 V	10 V	15 V
	5 30 V+	10 V	15 V
Supply voltage (range) Rated characteristic value C_n		2\/\/	2 22////
	1 mV/V	2 mV/V	2 mV/V
Tolerance D_c of characteristic value	Up to 500 kg (1 102.31 lb): 0.4 From 500 kg (1 102.31 lb): 0.7		
Tolerance D ₀ of zero signal	≤ ± 1.0% C _n		
Input resistance R _e			
	60 kg (132.28 lb): 1 260 Ω	1 100 $Ω ± 100 Ω$	13 t: 1 200 Ω ± 100 Ω
	60 kg (132.28 lb): 1 260 Ω ± 100 Ω	$1~100~\Omega \pm 100~\Omega$	28 t: 1 075 Ω ± 100 Ω
	± 100 Ω 130 kg (286.60 lb): 1 260 Ω	1 100 Ω ± 100 Ω	
	± 100 Ω 130 kg (286.60 lb): 1 260 Ω ± 100 Ω 280 kg (617.29 lb): 1260 Ω	$1100\Omega\pm100\Omega$	28 t: 1 075 Ω ± 100 Ω
	± 100 Ω 130 kg (286.60 lb): 1 260 Ω ± 100 Ω	$1100\Omega\pm100\Omega$	28 t: 1 075 Ω ± 100 Ω
Output resistance R_a	± 100 Ω 130 kg (286.60 lb): 1 260 Ω ± 100 Ω 280 kg (617.29 lb): 1260 Ω	1 100 Ω ± 100 Ω 1 025 Ω ± 25 Ω	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω
Output resistance R_a	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω		28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω
	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω \pm 0.5 Ω	1 025 Ω ± 25 Ω	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is}	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω		28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn}	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω \pm 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F)	1 025 Ω ± 25 Ω	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance $R_{\rm is}$ Rated temperature range $B_{\rm tn}$ Operating temperature range $B_{\rm tu}$	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω \pm 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F)	1 025 Ω ± 25 Ω	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance $R_{\rm is}$ Rated temperature range $B_{\rm tn}$ Operating temperature range $B_{\rm tu}$ Storage temperature range $B_{\rm ts}$	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω \pm 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F)	1 025 Ω ± 25 Ω	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN)	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542	1 025 Ω ± 25 Ω	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance $R_{\rm is}$ Rated temperature range $B_{\rm tn}$ Operating temperature range $B_{\rm tu}$ Storage temperature range $B_{\rm ts}$ Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN)	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529 Recommended tightening torque of the fixing screws	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω \pm 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68 8 Nm	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529 Recommended tightening torque of the fixing screws Current calibration ²⁾ Cable connection	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68 8 Nm	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529 Recommended tightening torque of the fixing screws Current calibration ²⁾ Cable connection Function	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68 8 Nm Standard	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529 Recommended tightening torque of the fixing screws Current calibration ²⁾ Cable connection Function • EXC +	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68 8 Nm Standard Color Pink	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is} Rated temperature range B_{tn} Operating temperature range B_{tu} Storage temperature range B_{ts} Sensor material (DIN) Degree of protection according to EN 60529; IEC 60529 Recommended tightening torque of the fixing screws Current calibration ²⁾ Cable connection Function	\pm 100 Ω 130 kg (286.60 lb): 1 260 Ω \pm 100 Ω 280 kg (617.29 lb): 1260 Ω \pm 250 Ω 1 020 Ω ± 0.5 Ω ≥ 5 000 MΩ -10 +40 °C (14 104 °F) -35 +70 °C (-31 158 °F) -50 +90 °C (-58 194 °F) Stainless steel EN 1.4542 IP66/68 8 Nm Standard	1 025 Ω ± 25 Ω ≥ 5 000 MΩ	28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω 13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω

Ring torsion load cells

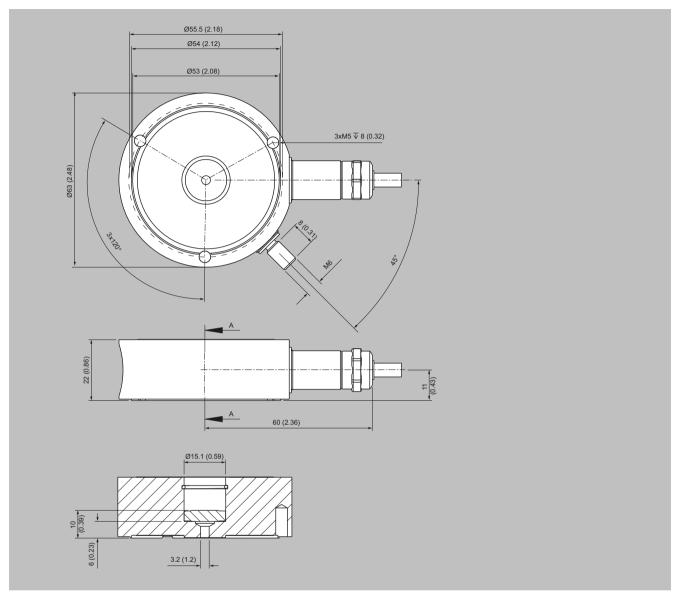
SIWAREX WL280 RN-S SA Load cell

Technical specifications (Continued)

SIWAREX WL280 RN-S SA							
• SIG -	White						
Shield (not connected to the load cell body)	Transparent						
Certificates and approvals							
Explosion protection	ATEX/IECEx II 1 G Ex ia IIC T4 Ga						
	ATEX/IECEx II 1 D Ex ia IIIC T73°C Da						
	ATEX/IECEx II 3 G Ex ic IIC T4 Gc						
	ATEX/IECEx II 3 G Ex nA IIC T4 Gc						
	ATEX/IECEx II 3 D Ex tc IIIC T63°C Dc						

 ¹⁾ For rated temperature -10 ... +40 °C (14 ... 104 °F).
 2) Current calibration: rated characteristic value and output resistance are adjusted so that the output current is calibrated within 0.05% of a reference value. This makes it easier to connect several load cells in parallel.

Dimensional drawings

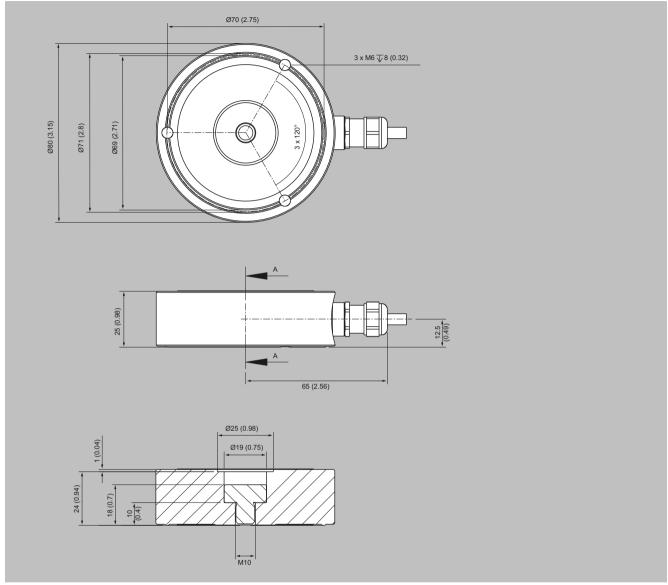


SIWAREX WL280 RN-S SA load cell 60 ... 280 kg (132.28 ... 617.29 lb), dimensions in mm (inch)

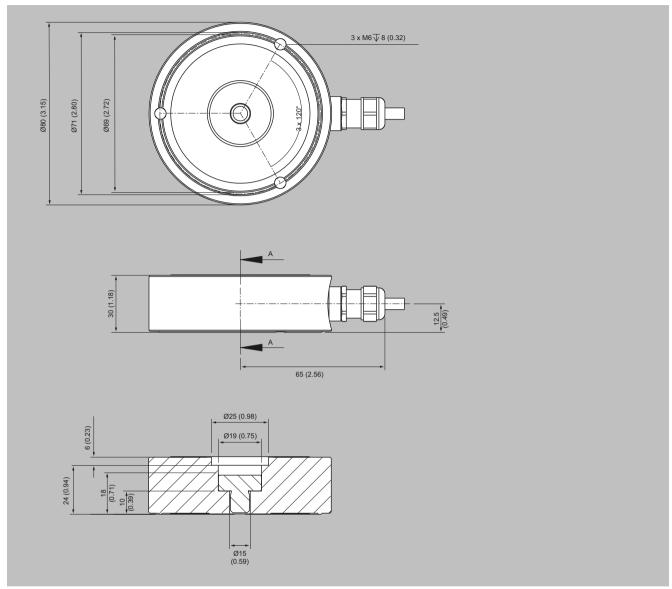
Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

Dimensional drawings (Continued)



SIWAREX WL280 RN-S SA load cell, 0.5 and 1 t (0.49 and 0.98 tn. l.), dimensions in mm (inch)

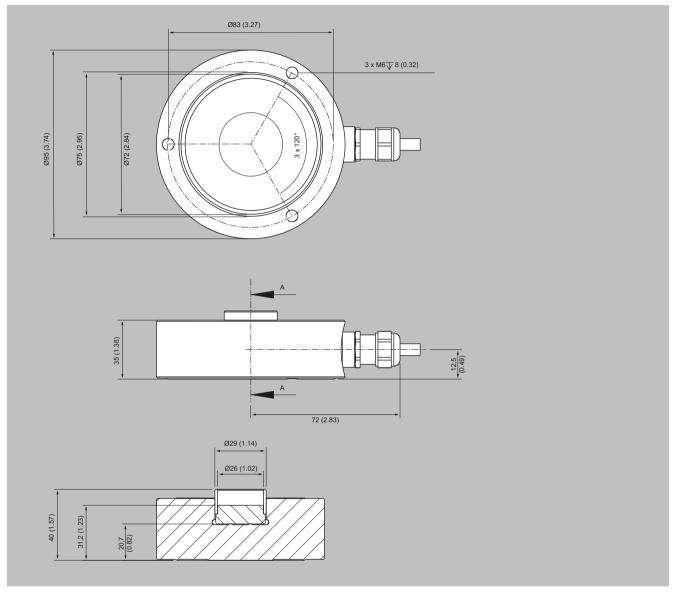


SIWAREX WL280 RN-S SA load cell, 2 ... 5 t (1.97 ... 4.92 tn. l.), dimensions in mm (inch)

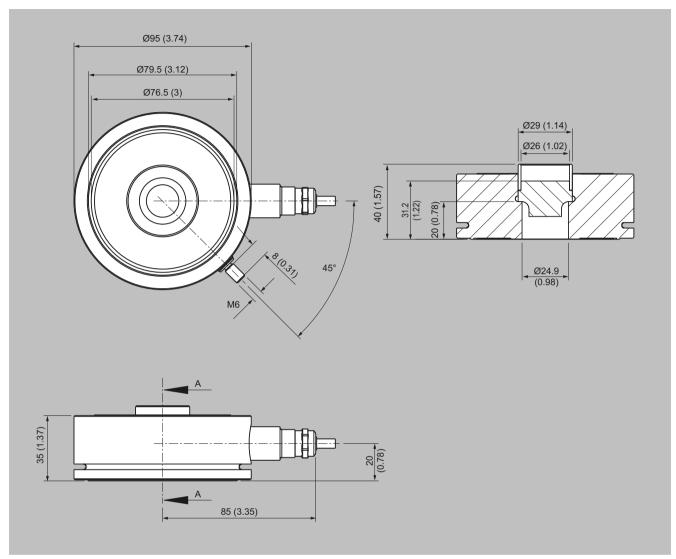
Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

Dimensional drawings (Continued)



SIWAREX WL280 RN-S SA load cell 10 t (9.84 tn. l.), dimensions in mm (inch)

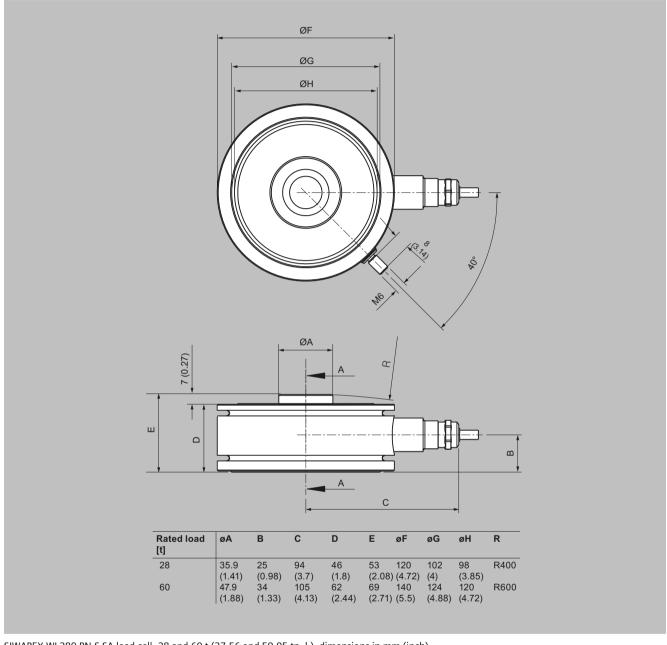


SIWAREX WL280 RN-S SA load cell 13 t (12.79 tn. l.), dimensions in mm (inch)

Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

Dimensional drawings (Continued)



SIWAREX WL280 RN-S SA load cell, 28 and 60 t (27.56 and 59.05 tn. l.), dimensions in mm (inch)

Ring torsion load cells

SIWAREX WL280 RN-S SA Self-aligning bearing

Overview



The self-centering self-aligning bearing for SIWAREX WL280 RN-S SA load cells is particularly suitable for container and platform scales due to its low mounting height.

Design

The self-aligning bearing comprises a pendulum bolt, a top plate (self-aligning bearing, top part) and a base plate (self-aligning bearing, base part).

The self-aligning pendulum bolt enables the top plate, and thus the load bearing implement, to follow horizontal displacements (e.g. due to temperature fluctuations). The design of the pendulum bolt creates a restoring force, which is dependent on the size of the displacement and the applied load.

Measures for restricting sideways play must be provided in the load bearing implement (e.g. in the form of guide elements) if the load bearing implement is displaced in the horizontal direction by:

- > 4 mm (0.16 inch) to 5 t (4.92 tn. l.) Rated load
- > 7 mm (0.28 inch) to 13 t (12.80 tn. l.) Rated load
- > 10 mm (0.39 inch) to 60 t (59.05 tn. l.) Rated load Lifting of the load support must be prevented by suitable measures provided in the construction of the load bearing implement. The load cell is not included in the scope of delivery of the selfaligning bearing.

Selection and ordering data

	Article No.
Self-aligning bearing top part ¹⁾²⁾ For SIWAREX WL280 RN-S SA load cells comprising: Top plate with seal holder and sealing ring, top plate pressure plate, pendulum bolt, cell pressure piece (not for 28 t and 60 t) Material: Stainless steel EN 1.4301 and EN 1.4112	
For load cells with a rated load of	
• 60 280 kg (132.28 617.29 lb)	7MH4115-3DB11
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH4132-4AK11
• 2 5 t (1.97 4.92 tn. l.)	7MH4132-4KK11
• 10, 13 t (9.84, 12.80 tn. l.)	7MH4115-5BB11
• 28 t (27.56 tn. l.)	7MH4115-5DB11
• 60 t (59.05 tn. l.)	7MH4115-5GB11
Self-aligning bearing base part ¹⁾ For SIWAREX WL280 RN-S SA load cells comprising: Base plate, 3 tension pins Material: Stainless steel EN 1.4301	
For load cells with a rated load of	
• 60 280 kg (132.28 617.29 lb)	7MH4115-3DC11
• 500 kg 5 t (1 102.31 lb 4.92 tn. l.)	7MH4132-4AG11
• 10, 13 t (9.84, 12.80 tn. l.)	7MH4115-5BC11

Selection and ordering data (Continued)

	Article No.
• 28 t (27.56 tn. l.)	7MH4115-5DC11
• 60 t (59.05 tn. l.)	7MH4115-5GC11
Accessories	
Pressure plate set For SIWAREX WL280 RN-S SA load cells. Comprising pressure plate and pendulum support. Th pressure plate set enables custom design installation requirements to be implemented. Material: Stainless steel FN 1 4117 For load cells with a rated load of ¹⁾	e
• 60 280 kg (132.28 617.29 lb)	7MH5713-3JD00
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH5713-4AD00
Shims (accessories) For mounting units of the SIWAREX WL280 RN-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾	
• 60 280 kg (132.28 617.29 lb); Content: 16 units, each 0.5 mm thick	7MH5713-3JG00
• 500 kg 1 t (1 102.31 lb 0.98 tn l.); Content: 24 units, each 0.5 mm thick	7MH5713-4AG00
• 2 5 t (1.97 4.92 tn. l.); Content: 4 units each 0.5 mm thick, 16 units each 1 mm thick	7MH5713-4PG00
• 10, 13 t (9.84, 12.80 tn. l.) Content: 4 units each 0.5 mm thick, 20 units each 1 mm thick	7MH5713-5DG00

- The load cell is not included in the scope of delivery.
 The self-aligning bearing base part is not included in the scope of delivery.

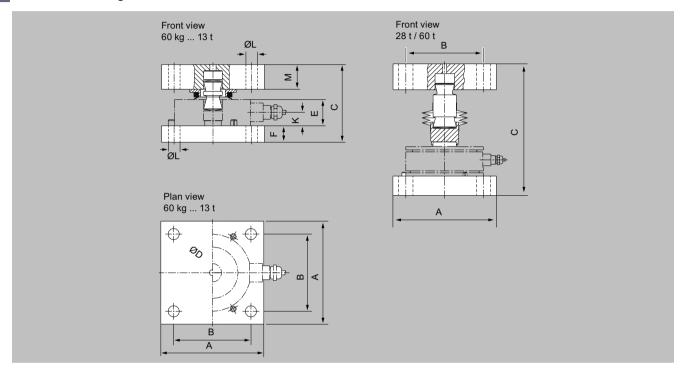
Ring torsion load cells

SIWAREX WL280 RN-S SA Self-aligning bearing

Technical specifications

Self-aligning bearing for SIWAREX WL280 RN-S SA load cells								
Rated load t (tn. l.)	0.06 5 (0.06 4.92)	10 13 (9.84 12.80)	28 60 (27.56 59.02)					
Permissible lateral deflection in mm (inch):	± 4 (0.16)	± 7 (0.28)	± 10 (0.39)					

Dimensional drawings



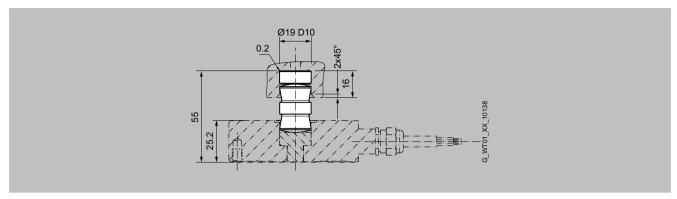
Self-aligning bearing for SIWAREX WL280 RN-S SA load cells, for 0.06 ... 60 t (0.06 ... 59.05 tn. l.), dimensions in mm (inch)

Rated load	Α	В	С	ØD	E	F	K	ØL	M	s*
60 280 kg	80 (3.15)	60 (2.36)	52 (2.05)	63 (2.48)	22 (0.87)	8 (0.31)	11 (0.43)	9 (0.35)	12 (0.47)	4 (0.16)
0.5, 1 t	100 (3.94)	75 (2.95)	79 (3.11)	80 (3.15)	25 (0.98)	15 (0.59)	10 (0.39)	11 (0.43)	25 (0.98)	4 (0.16)
2, 3.5, 5 t	100 (3.94)	75 (2.95)	79 (3.11)	80 (3.15)	30 (1.18)	15 (0.59)	8.5 (0.33)	11 (0.43)	25 (0.98)	4 (0.16)
10, 13 t	120 (4.72)	90 (3.54)	121.2 (4.77)	95 (3.74)	35 (1.97)	20 (0.79)	20 (0.79)	14 (0.55)	40 (1.57)	7 (0.28)
28 t	160 (6.30)	120 (4.72)	203 (7.99)	40 (1.57)	46 (1.81)	30 (1.18)	25 (0.98)	22 (0.87)	40 (1.57)	10 (0.39)
60 t	200 (7.87)	140 (5.51)	254 (10.0)	50 (1.97)	62 (2.44)	36 (1.42)	34 (1.34)	28 (1.10)	50 (1.97)	10 (0.39)

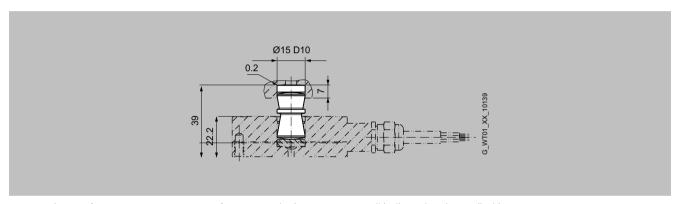
^{*} Permissible lateral defection

SIWAREX WL280 RN-S SA Self-aligning bearing

Dimensional drawings (Continued)



Pressure piece set SIWAREX WL280 RN-S SA, for 0.5 and 1 t (0.49 and 0.98 tn. l.), dimensions in mm (inch)



Pressure piece set for SIWAREX WL280 RN-S SA, for 60 ... 280 kg (132.28 ... 617.29 lb), dimensions in mm (inch)

Ring torsion load cells

SIWAREX WL280 RN-S SA Elastomer bearing

Overview



Elastomer bearings for SIWAREX WL280 RN-S SA load cells, 60 \dots 280 kg (132.28 \dots 617.29 lb)



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 0.5 ... 13 t (0.49 ... 12.80 lb)

Used in combination with the self-aligning bearing base part, the self-centering elastomer bearing for SIWAREX WL280 RN-S SA load cells is the ideal load introduction element for scales without guide elements. It is used in container, platform and roller table scales and dampens vibrations and shocks.

Design

Elastomer bearings are rubber-metal composites made of neoprene and stainless steel. They ensure large spring excursions (i.e. a high degree of damping) despite small dimensions. If the load bearing implement is displaced by more than 4 mm (0.16 inch) in the horizontal direction 1, measures for restricting sideways play (e.g. in the form of guide elements) must be provided in the construction of the load bearing implement. Lifting of the load support must be prevented by suitable measures provided in the construction of the load bearing implement. The load cell and the self-aligning bearing base part are not included in the scope of delivery of the elastomer bearing. 16 mm (0.24 inch) with a rated load of 10 t (9.84 tn. l.) or 13 t (12.80 tn. l.).

Selection and ordering data

	Article No.
Elastomer bearings ¹⁾ For SIWAREX WL280 RN-S SA load cells Comprising: Elastomer package with fixing plate, force transfer, seal Material: Neoprene, stainless steel EN 1.4301	
For load cells with a rated load of	
• 60 280 kg (132.28 617.29 lb)	7MH4130-3EE11
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH4130-4AE11
• 2 5 t (1.97 4.92 tn. l.)	7MH4130-4KE11
• 10, 13 t (9.84, 12.80 tn. l.)	7MH4130-5CE11

¹⁾ The load cell and the self-aligning bearing base part are not included in the scope of delivery.

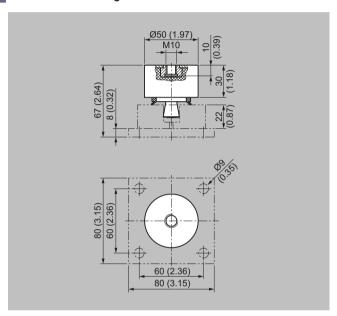
Ring torsion load cells

SIWAREX WL280 RN-S SA Elastomer bearing

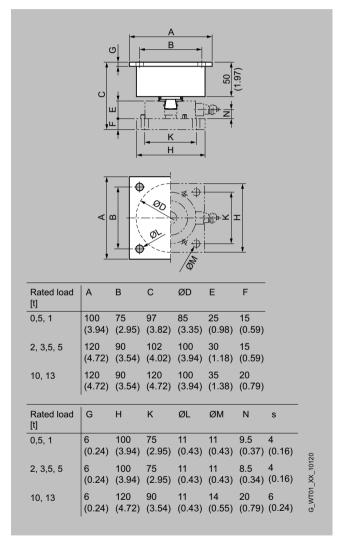
Technical specifications

Elastomer bearings for load cells of the type SIWAREX WL280 RN-S SA										
Rated load	60 kg (132.28 lb)	130 kg (286.60 lb)	280 kg (617.29 lb)	500 kg (1 102.31 lb)	1 t (0.98 tn. l.)	2 t (1.97 tn. l.)	3.5 t (3.44 tn. l.)	5 t (4.92 tn. l.)	10 t (9.84 tn. l.)	13 t (12.79 tn. l.)
Max. permissible lateral deflection	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 6 (0.24)	± 6 (0.24)
Vertical rigidity	0.89 kN/mm	0.89 kN/mm	0.89 kN/mm	5.9 kN/mm	5.9 kN/mm	27.3 kN/mm	27.3 kN/mm	27.3 kN/mm	58.07 kN/mm	58.07 kN/mm
Horizontal rigidity	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.57 kN/mm	0.57 kN/mm	0.57 kN/mm	0.62 kN/mm	0.62 kN/mm
Spring compression at rated load	0.65 mm	1.40 mm	2.85 mm	0.68 mm	1.28 mm	0.62 mm	1.04 mm	1.46 mm	1.72 mm	2.24 mm

Dimensional drawings



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 60 \dots 280 kg (132.28 \dots 617.30 lb), dimensions in mm (inch)



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 0.5 ... 13 t (0.49 ... 12.80 tn. l.), dimensions in mm (inch)

Ring torsion load cells

SIWAREX WL280 RN-S SA Mounting unit with guide element

Overview



SIWAREX WL280 RN-S SA mounting unit with guide element, front



SIWAREX WL280 RN-S SA mounting unit with guide element, rear

The mounting unit, together with the load cells of the SIWAREX WL280 RN-S SA series, forms a self-centering unit. The guide elements prevent containers, for example, from moving sideways due to an external lateral force. The guide elements can be mounted on one or both sides of the mounting unit.

Design

The mounting unit comprises a base plate and a top plate, a pressure piece with a flat gasket and a pendulum support. A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. The top plate is connected to the base plate by means of two countersunk head screws. On both sides of the base and top plate there are threaded holes for the later flange-fitting of guide elements.

The top plate is fixed above the base plate by means of two countersunk head screws. This results in a single unit that is easily handled. The top plate must be precisely aligned above the base plate. The height of the top plate is set so that it is 2 mm (for 60 ... 280 kg versions) or 3 mm (for 0.5 ... 13 t versions) above the installation height with load cell.

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, together with the pendulum support and the pressure piece, can be inserted into the mounting unit. Load cell and pressure piece are secured with clamping washers.

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.

The fixing holes of the mounting unit are 6 mm wider in diameter than the necessary fixing screws. This means that a greater tolerance error is permissible in the connection measurements. The mounting unit is clamped tightly using the washers supplied.

Design (Continued)

After the mounting units have been installed in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded. Finally, the load bearing implement is lowered by loosening the hexagon nuts under the top plate. The weight now rests on the load cells

In this state, the load cell and the mounting unit together form a self-centering bearing unit. The mounting unit allows the top plate (and thus the load bearing implement) to be displaced up to 2 mm (for the 60 ... 280 kg (132.28 ... 617.29 lb) versions) or 3 mm (for the 0.5 ... 13 t (1 102.31 lb, 0.98 tn. l.) versions) to the side in all directions. The countersunk head screws prevent the load bearing implement from being lifted off or tipping. The countersunk head screws secure the load bearing implement against sharp lateral movement on the occurrence of sporadic lateral forces. Using the mounting unit as an installation aid results in optimum alignment of the load cells. This is essential to enable the load cells to perform at their best in terms of accuracy. For maintenance or troubleshooting purposes, the load cell can be relieved again by tightening the hexagon nuts. After loosening the clamping wash-

ers, it can then easily be replaced.
Guide elements are used if the lateral movement of a load bearing implement is to be prevented. Lateral movements can be initiated by agitator start-up in a container, by braking or accelerating forces in a roller conveyor, or through forces exerted by the wind on out-

A guide element consists of two flanges and one clamping screw. The clamping screw is adjusted to the correct length. The guide element is attached to the operational mounting unit. A guide element can be mounted on the front or rear of the mounting unit. If necessary, two guide elements can be used in parallel in order to double the transferrable lateral force.

In the case of scales with four load cells, only three mounting units may be equipped with guide elements.

Shims are used to compensate for angular errors and delays in the lug plates. If more than three load cells are used, the shims are also used to adjust the height of the lugs.

Selection and ordering data

	Article No.
Mounting unit For SIWAREX WL280 RN-S SA load cells Material: Stainless steel EN 1.4301 and EN 1.4112	
For load cells with a rated load of 1)	
• 60 280 kg (132.28 617.29 lb)	7MH5713-3JA00
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH5713-4AA00
• 2 5 t (1.97 4.92 tn. l.)	7MH5713-4PA00
• 10, 13 t (9.84, 12.80 tn. l.)	7MH5713-5DA00
Guide elements (optional) For mounting units of the SIWAREX WL280 RN-5 SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of 1) • 60 280 kg (132.28 617.29 lb); Permissible lateral force: 1.5 kN • 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.);	7MH5713-3JE00
Permissible lateral force: 2.5 kN	/WIIS/ IS-TALOU
• 2 5 t (1.97 4.92 tn. l.); Permissible lateral force: 5 kN	7MH5713-4PE00
• 10, 13 t (9.84, 12.80 tn. l.); Permissible lateral force: 10 kN	7MH5713-5DE00
Shims (accessories) For mounting units of the SIWAREX WL280 RN-S SA series Material: Stainless steel EN 1.4301	

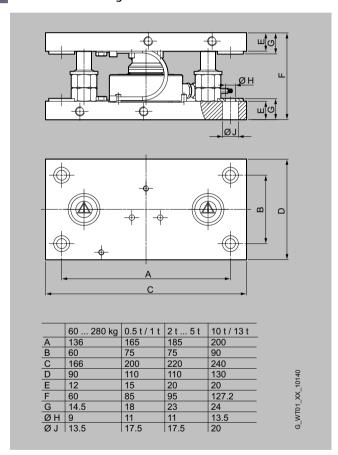
Ring torsion load cells

SIWAREX WL280 RN-S SA Mounting unit with guide element

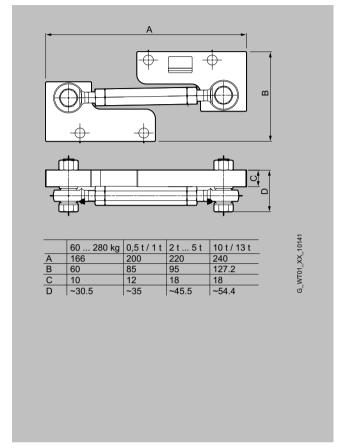
Selection and ordering data (Continued)

For load cells with a rated load of¹) • 60 ... 280 kg (132.28 ... 617.29 lb); Content: 16 units, each 0.5 mm thick • 500 kg ... 1 t (1 102.31 lb ... 0.98 tn l.); Content: 24 units, each 0.5 mm thick • 2 ... 5 t (1.97 ... 4.92 tn. l.); Content: 4 units each 0.5 mm thick, 16 units each 1 mm thick • 10, 13 t (9.84, 12.80 tn. l.); Content: 4 units each 0.5 mm thick, 20 units each 1 mm thick

Dimensional drawings



SIWAREX WL280 RN-S SA mounting unit, dimensions in mm



SIWAREX WL280 RN-S SA guide element, dimensions in mm

¹⁾ The load cell and guide elements are not included in the scope of delivery.