

## Load Cells

Compression load cells  
SIWAREX WL270 K-S CA

### Load cell

#### Overview



This can compression cell is particularly suitable for use in hopper scales and bin weighing equipment.

#### Design

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

The load which acts centrally in the measuring direction elastically deforms the spring body and thus the force-fitted strain gauges. This generates a measuring signal voltage that is proportional to the load. The load cell's rated measuring path depends on the rated load and is between 0.23 and 3.11 mm (0.01 and 0.12 in).

An enclosure made from painted steel protects the strain gauge from environmental influences. The load cell is fitted with a heat-resistant cable as standard.

#### Heavy load versions

Heavy load versions with a rated load of 350 and 500 t (344.47 and 492.10 tn. l.) are available for extreme requirements.

#### Option: Two measuring circuits for your plant safety

In especially sensitive applications such as cranes, enhanced safety is required. This is also true of measurement plants. Using double bridges in load cells achieves the equivalent of a redundant configuration. Both measuring bridges supply consistent measured values. If one bridge fails, the other takes over.

This option can be ordered for all load classes from 13 t (12.79 tn. l.).

#### Technical specifications

SIWAREX WL270 K-S CA	
Possible applications	<ul style="list-style-type: none"> <li>Hopper scales</li> <li>Bin weighing equipment</li> </ul>
Type of construction	Can compression cell
<b>Loads</b>	
Rated load $E_{max}$	<ul style="list-style-type: none"> <li>2.8 t (2.76 tn. l.)</li> <li>6 t (5.91 tn. l.)</li> <li>13 t (12.79 tn. l.)</li> <li>28 t (27.56 tn. l.)</li> <li>60 t (59.05 tn. l.)</li> <li>130 t (127.95 tn. l.)</li> <li>280 t (275.58 tn. l.)</li> <li>350 t (344.47 tn. l.)</li> <li>500 t (492.10 tn. l.)</li> </ul>
Minimum initial loading $E_{min}$	0% $E_{max}$
Maximum working load $L_u$	120% $E_{max}$
Breaking load $L_d$	300% $E_{max}$
Safe side load $L_{iq}$	10% $E_{max}$

SIWAREX WL270 K-S CA	
<b>Measurement characteristic values</b>	
Deflection $h_n$ at $E_{max}$	
• 2.8 t (2.76 tn. l.)	0.23 mm (0.009 inch)
• 6 t (5.91 tn. l.)	0.38 mm (0.015 inch)
• 13 t (12.79 tn. l.)	0.54 mm (0.02 inch)
• 28 t (27.56 tn. l.)	0.82 mm (0.03 inch)
• 60 t (59.05 tn. l.)	1.19 mm (0.05 inch)
• 130 t (127.95 tn. l.)	1.81 mm (0.07 inch)
• 280 t (275.58 tn. l.)	2.66 mm (0.10 inch)
• 350 t (344.47 tn. l.)	2.73 mm (0.11 inch)
• 500 t (492.10 tn. l.)	3.11 mm (0.12 inch)
Rated characteristic value $C_n$	1.5 mV/V
Tolerance $D_o$ of zero signal	$\leq \pm 1.5\% C_n$
Tolerance $D_c$ of characteristic value	$\pm 0.5\%$
Combined error $F_{comb}$	$\leq \pm 0.1\%$
Repeatability $F_v$	$\leq \pm 0.1\%$
Creep error $F_{CR}$	
30 min	$\leq \pm 0.06\%$
Temperature coefficient	
• Zero signal $T_{K0}$	$\leq \pm 0.25\% C_n/5 K$
• Characteristic value $T_{Kc}$	$\leq \pm 0.25\% C_n/5 K$

#### Technical specifications (continued)

SIWAREX WL270 K-S CA		SIWAREX WL270 K-S CA	
<b>Electrical characteristic values</b>		<b>Connection and environmental conditions</b>	
Recommended reference voltage $U_{ref}$	6 ... 12 V DC	Sensor material (DIN)	Steel, painted
Supply voltage $U_{sr}$ (reference value)	6 V	<b>Function</b>	<b>Color</b>
Input resistance $R_e$		• EXC + (supply +)	Red
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	275 $\Omega \pm 50 \Omega$	• EXC - (supply -)	White
• 350, 500 t (344.47, 492.10 tn. l.)	840 $\Omega \pm 30 \Omega$	• SIG + (measured signal +)	Black
Output resistance $R_a$		• SIG - (measured signal -)	Blue
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	245 $\Omega \pm 0.2 \Omega$	• Shield (not connected to the load cell body)	Transparent
• 350, 500 t (344.47, 492.10 tn. l.)	703 $\Omega \pm 5 \Omega$	Rated temperature range $B_{rn}$	-10 ... +40 °C (14 ... 104 °F)
Insulation resistance $R_{is}$	$\geq 5\ 000\ M\Omega$	Operating temperature range $B_{ru}$	-20 ... +70 °C (-4 ... +158 °F)
		Storage temperature range $B_{rs}$	-30 ... +70 °C (-22 ... +158 °F)
		Degree of protection according to EN 60529; IEC 60529	IP66
		Accuracy class	0.1%

#### High temperature versions

Some technical data of the high temperature versions change according to the temperature range. For this reason, values are given for three different temperature ranges.

SIWAREX WL270 K-S CA, high temperature versions	-30 ... +150 °C (-22 ... +238 °F)	150 ... 180 °C (238 ... 356 °F)	180 ... 250 °C (356 ... 482 °F)
Rated characteristic value $C_n$			
• 2.8 ... 13; 130 ... 500 t (2.76 ... 12.79; 127.95 ... 492.10 tn. l.)	1.5 $\pm 0.02$ mV/V	1.5 $\pm 0.1$ mV/V	1.5 $\pm 0.1$ mV/V
• 28 t (27.56 tn. l.)	1.9 $\pm 0.02$ mV/V	1.9 $\pm 0.2$ mV/V	1.9 $\pm 0.2$ mV/V
• 60 t (59.05 tn. l.)	1.8 $\pm 0.02$ mV/V	1.8 $\pm 0.2$ mV/V	1.8 $\pm 0.2$ mV/V
Tolerance $D_o$ of zero signal	$\leq \pm 1.0\% C_n$	$\leq \pm 1.5\% C_n$	$\leq \pm 3\% C_n$
<b>Measurement characteristic values</b>			
Combined error $F_{comb}$	$\leq \pm 0.3\%$	$\leq \pm 0.5\%$	$\leq \pm 5\%$
Repeatability $F_v$	$\leq \pm 0.3\%$	$\leq \pm 0.5\%$	$\leq \pm 5\%$
Creep error $F_{CR}$			
30 min	$\leq \pm 0.3\%$	$\leq \pm 0.4\%$	$\leq \pm 4\%$
Temperature coefficient			
• Zero signal $T_{K0}$	$\leq \pm 0.25\% C_n/5\ K$	$\leq \pm 0.25\% C_n/5\ K$	$\leq \pm 0.5\% C_n/5\ K$
• Characteristic value $T_{KC}$	$\leq \pm 0.25\% C_n/5\ K$	$\leq \pm 0.5\% C_n/5\ K$	$\leq \pm 0.5\% C_n/5\ K$
<b>Electrical characteristic values</b>			
Input resistance $R_e$			
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	275 $\Omega \pm 7 \Omega$	275 $\Omega \pm 15 \Omega$	275 $\Omega \pm 15 \Omega$
• 350, 500 t (344.47, 492.10 tn. l.)	840 $\Omega \pm 30 \Omega$	840 $\Omega \pm 30 \Omega$	840 $\Omega \pm 30 \Omega$
Output resistance $R_a$			
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	245 $\Omega \pm 0.5 \Omega$	245 $\Omega \pm 1 \Omega$	245 $\Omega \pm 1 \Omega$
• 350, 500 t (344.47, 492.10 tn. l.)	703 $\Omega \pm 5 \Omega$	703 $\Omega \pm 5 \Omega$	703 $\Omega \pm 5 \Omega$
Insulation resistance $R_{is}$	$\geq 5\ 000\ M\Omega$		
<b>Connection and environmental conditions</b>			
Rated temperature range $B_{rn}$	-30 ... +180 °C (-22 ... +356 °F)		
Operating temperature range $B_{ru}$	-30 ... +250 °C (-22 ... +482 °F)		
Storage temperature range $B_{rs}$	-30 ... +250 °C (-22 ... +482 °F)		

## Load Cells

### Compression load cells SIWAREX WL270 K-S CA

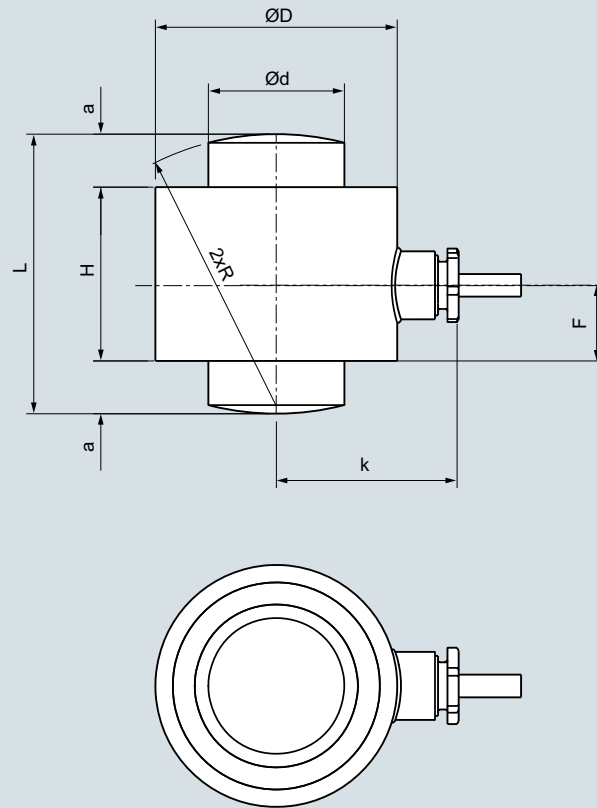
#### Load cell

Selection and ordering data		Article No.	
<b>SIWAREX WL270 K-S CA load cell</b>		7MH5114-	
Accuracy class 0.1%		L	
Heat-resistant connecting cable <sup>1)</sup>			
<a href="#">Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>			
<b>Rated load</b>	<b>Cable length</b>		
• 2.8 t (2.76 tn. l.)	6 m (19.68 ft)	4 J	
• 6 t (5.91 tn. l.)	6 m (19.68 ft)	4 Q	
• 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	
• 130 t (127.95 tn. l.)	20 m (65.62 ft)	6 D	
• 280 t (275.58 tn. l.)	20 m (65.62 ft)	6 J	
• 350 t (244.47 tn. l.)	25 m (82.02 ft)	6 L	
• 500 t (492.10 tn. l.)	25 m (82.02 ft)	6 P	
<b>Explosion protection</b>			
• Without			0 0
• Explosion protection for zones 2, 22			0 1
<i>Options</i>			
<b>Double bridge<sup>2)</sup></b>			6 0
Load cell, redundant design, without explosion protection			
<b>High temperature<sup>2)</sup></b>			7 0
Temperature range -30 °C ... +250 °C (-22 °F ... +482 °F), accuracy varies over temperature range, cables and components designed for temperature range, without explosion protection.			
<b>Double bridge and high temperature<sup>2)</sup></b>			8 0
Redundant design load cell, temperature range -30 °C ... +250 °C (-22 °F ... +482 °F), accuracy varies over temperature range, cables and components designed for temperature range, without explosion protection.			

<sup>1)</sup> Heat-resistant cable: -60 ... +180 °C (-76 ... +356 °F) The cable for high temperatures versions is heat resistant to 250 °C (238 °F).

<sup>2)</sup> Can be ordered from 13 t (12.79 tn. l.).

## Dimensional drawings

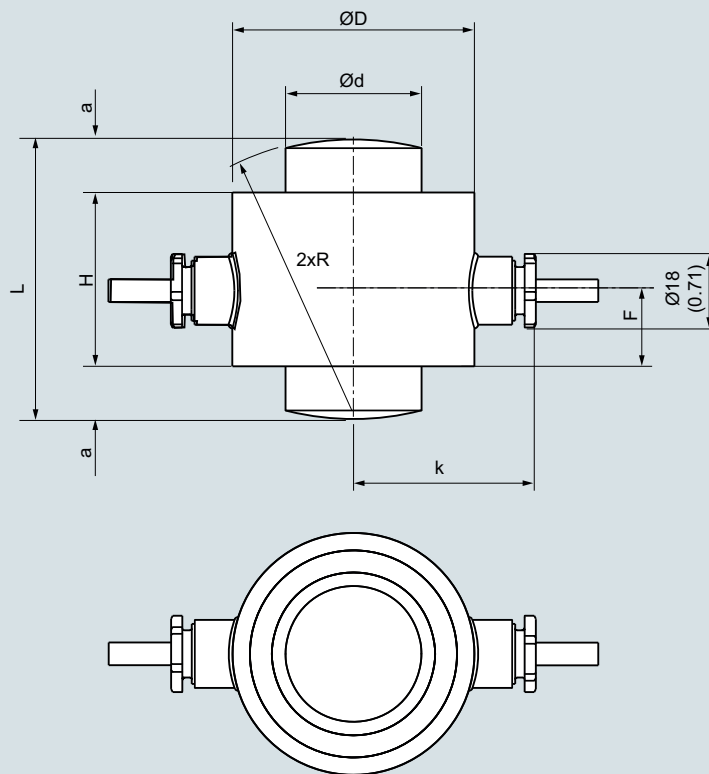


Rated load [t (tn. L.)]	a	ød	øD	F	H	k	L	R
2.8, 6 (2.76, 5.91)	8 (0.31)	16.7 (0.65)	45 (1.77)	20 (0.59)	40 (1.57)	40.5 (1.59)	56 (2.2)	50 (1.96)
13 (12.79)	12 (0.47)	24.5 (0.96)	55 (2.16)	20 (0.59)	44 (1.73)	45.5 (1.79)	68 (2.67)	66 (2.6)
28 (27.56)	14 (0.55)	36 (1.41)	64 (2.51)	20 (0.59)	46 (1.81)	50 (1.89)	74 (2.91)	72 (2.83)
60 (59.05)	20 (0.78)	52.7 (2.07)	90 (3.54)	20 (0.59)	50 (1.96)	63 (2.48)	90 (3.54)	100 (3.93)
130 (127.95)	26 (1.02)	77.5 (3.05)	121 (4.76)	20 (0.59)	64 (2.51)	78.5 (3.09)	116 (4.56)	125 (4.92)
280 (275.58)	45 (1.77)	114 (4.48)	165 (6.5)	20 (0.59)	90 (3.14)	100.5 (3.96)	170 (6.7)	183 (7.2)
350 (344.47)	40 (1.58)	132 (5.20)	192 (7.95)	50.5 (1.97)	139 (6.30)	124 (5.00)	240 (9.45)	325 (12.80)
500 (492.10)	47 (1.85)	155 (6.10)	236 (9.29)	99.5 (1.97)	164 (7.13)	146 (5.67)	275 (10.83)	450 (17.72)

SIWAREX WL270 K-S CA load cell, dimensions in mm (inch)

**Load Cells**

Compression load cells  
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**Load cell****Dimensional drawings** (continued)

Rated load [t (tn.L.)]	a	Ød	ØD	F	H	k	L	R
13 (12.79)	12 (0.47)	24.5 (0.96)	55 (2.16)	20 (0.79)	44 (1.73)	45.5 (1.79)	68 (2.67)	66 (2.6)
28 (27.56)	14 (0.55)	36 (1.41)	64 (2.51)	20 (0.79)	46 (1.81)	50 (1.88)	74 (2.91)	72 (2.83)
60 (59.05)	20 (0.78)	52.7 (2.07)	90 (3.54)	20 (0.79)	50 (1.96)	63 (2.48)	90 (3.54)	100 (3.93)
130 (127.95)	26 (1.02)	77.5 (3.05)	121 (4.76)	20 (0.79)	64 (2.51)	78.5 (3.09)	116 (4.56)	125 (4.92)
280 (275.58)	45 (1.77)	114 (4.48)	165 (6.5)	20 (0.79)	90 (3.14)	100.5 (3.96)	170 (6.7)	183 (7.2)
350 (344.47)	40 (1.58)	132 (5.20)	192 (7.95)	50.5 (1.97)	139 (6.30)	124 (5.00)	240 (9.45)	325 (12.80)
500 (492.10)	47 (1.85)	155 (6.10)	236 (9.29)	99.5 (1.97)	164 (7.13)	146 (5.67)	275 (10.83)	450 (17.72)

SIWAREX WL270 K-S CA load cell, with double bridge, dimensions in mm (inch)