

# Load Cells

## SIWAREX R5T series

### Load cell

#### Overview



The shear beam load cell is particularly suitable for implementation in container, overhead rail conveyor and platform scales.

#### Design

The measuring element is a shear tension spring made of stainless steel to which strain gauges are applied. The strain gauges are arranged at 45° to the longitudinal axis on the side of the spring body and are therefore subject to shear forces. 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 R 5T series

Possible applications	Container, conveyor, overhead rail and platform scales
Model	Shear beam
Rated load/maximum load $E_{max}$	0.5/1/2/5 t
Accuracy class acc. to OIML R60	C3
Max. load cell verification intervals $n_{LC}$	3 000
Min. load cell verification intervals $V_{min}$	$E_{max}/10\ 000$
Minimum application range $R_{min(LC)}$	30 %
Combined error $F_{comb}$	$\pm 0.02\ %\ C_n$
Repeatability $F_v$	$\pm 0.01\ %\ C_n$
Return of zero signal	$\pm 0.0167\ %\ C_{n1}$
Creep error $F_{cr}$	
· 30 min	$\pm 0.0245\ %\ C_{n1}$
· 20 ... 30 min	$\pm 0.0053\ %\ C_{n1}$
Temperature effect	
· Zero signal $T_{K0}$	$\pm 0.007\ %\ C_n/5\ K$
· Characteristic value $T_{Kc}$	$\pm 0.0045\ %\ C_n/5\ K$
Min. dead load $E_{min}$	0 % $E_{max}$
Safe load limit $L_u$	150 % $E_{max}$
Ultimate load $L_d$	300 % $E_{max}$
Safe side load $L_{iq}$	100 % $E_{max}$
Rated measuring path $h_n$ at $E_{max}$	0.5 mm
Supply voltage $U_{sr}$ (reference value) 10 V	
Supply voltage (range)	5 ... 18 V
Rated characteristic value $C_n$	2 mV/V
Tolerance $D_c$ of characteristic value	$\pm 1\ %$
Tolerance $D_0$ of zero signal	$\pm 1.0\ %\ C_n$
Input resistance $R_e$	350 $\pm 3.5$
Output resistance $R_a$	350 $\pm 3.5$

Insulation resistance $R_{is}$	5 000 M
Rated temperature range $B_{rn}$	-10 ... +40 °C
Operating temperature range $B_{ru}$	-40 ... +80 °C
Storage temperature range $B_{rs}$	-40 ... +90 °C
Sensor material (DIN)	Stainless steel, mat. no. 1.4542
Degree of protection to EN 60529; IEC 60529	IP66/IP68
Recommended tightening torque of the fixing screws	110 Nm (0.5 - 2 t) 540 Nm (5 t)
Current calibration <sup>2)</sup>	Standard
Ex protection to ATEX (optional)	II 2 G EEx ib IIC T6/T4 II 3 G EEx nA/nL IIC T6/T4 II 1D/2D/3D T 70 °C

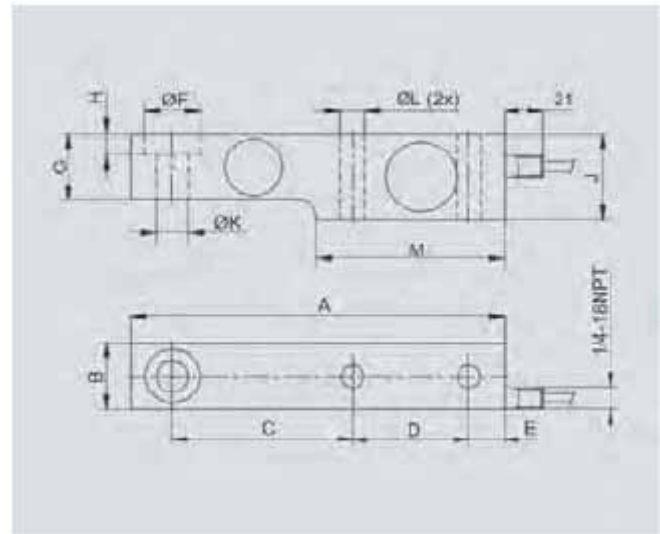
#### Cable connection

Function	Color
· EXC +	· Green
· EXC -	· Black
· SIG +	· White
· SIG -	· Red
· Screening	· Transparent

<sup>1)</sup> For rated temperature -10 ... +40 °C.

<sup>2)</sup> "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



Rated load	A	B	C	D	I	ØF
0.5 ... 2 t	203.2	36.5	98.4	63.5	19.1	30.2 $\pm 0.2$
5t	235.0	47.5	123.8	66.7	20.6	41.3 $\pm 0.2$
Rated load	G	H	J	ØK	ØL	M
0.5 ... 2 t	36.5	11.9	47.6	17.5 $H_{11}$	14	101.6
5t	47.6	15.8	69.9	25.5 $H_{11}$	22	111.2

SIWAREX R5T series, dimensions in mm