



Compressive - Force Ring Load Cell



1. Application

Their extremely flat and robust design and their oil-resistant construction make this compressive-force ring load cells to be integrated immediately in front of bearings for to measure axial forces for example directly inside gearings or at supporting bearings.

Large inside diameters allow shafts to be led through directly.

Typical applications are e.g.:

- Force measuring at bearings
- Axial forces control in gearings
- Tension and compression forces adjustment
- Insert press forces measuring

2. Description

The acting force effects a tension of material on the diaphragm surface between inner and outer band of the sensor.

Strain gauges connected together in a full bridge are applied on this diaphragm to convert this tension to a linear output signal, which is proportional to the measured force.

High accuracy characterizes this type of ring load cells, which are available in measuring ranges up to 1 MN.

3. Special features

- Measuring ranges from 0 ... 50 kN up to 0 ...1000 kN
- robust construction
- extremely flat design with large inside diameter
- oil resistant

10.96

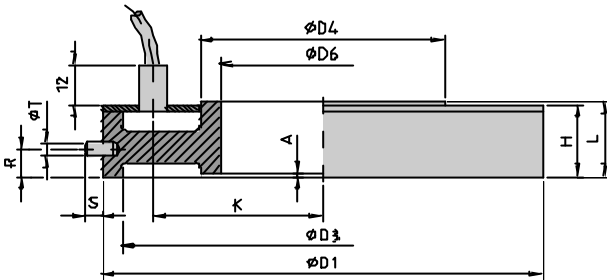
Compressive - Force
Ring Load Cell

10 3270/01

4. Dimensions

Meas. range [kN]	Article No.	Form	Dimensions [mm]														Weight [kg] approx.	
			Ø D1	Ø D2	Ø D3	Ø D4	Ø D5	Ø D6	Ø D7	H	L	A	K	Y	R	S		Ø T
0 ... 50	11 189	A	129.9 ^{-0,1}	-	118	72	-	60	-	21	22	1	50	-	8	5	4	1.1
0 ... 300	11 531	B	294	270	220	214	194	130	296	-	60	2	120	24	16	6	6	17.5
0 ... 400	12901	B	330	300	240	240	200	150	332	-	65	2	135	28	18	10	6	25
0 ... 1000	12902	B	478.9 ^{-0,2}	460	450	376	364	346	480	-	40	0.1	215	18	18	10	8	24

Form A



Temperature influence

on zero signal: 0.015 % F.S./K
on the characteristic: 0.025 % Rdg./K

5.3 Mechanical specifications:

Non-linearity: 0.25 % F.S.

Hysteresis: 0.2 % F.S.

Relative span with unchanged mounting position: 0.15 % F.S.

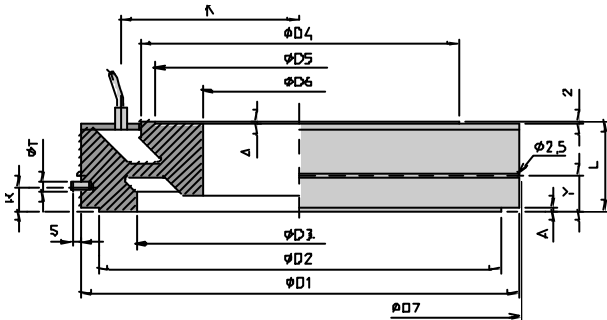
Overload: 200 % of capacity

Material: tempered steel

Weight: see table

Protection class in acc. with DIN 40050: IP 65 (without plug)

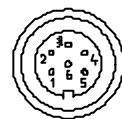
Form B



5.4 Electrical connection:

Cable (length approx. 0.4) with connection plug, 6-poles

Pin connection:



Top view connection plug

Pin	wire	signal	
1	green	excitation	-
2	brown	excitation	+
3	(blank)	shield	
4	orange	signal output	+
5	blue	signal output	-
6	violet	100% control input	

5. Technical Data

5.1 Electrical specifications:

Bridge resistance: 350 Ω, nominal
Foil SG, full bridge (deviations are possible)

Excitation: max. 12 V DC

Output: 1 mV/V

5.2 Environmental conditions:

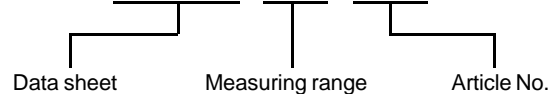
Operating temperature range: 0 °C ... + 80 °C

Nominal temperature range: + 10 °C ... + 65 °C

6. Order Information

e.g. Compressive-force ring load cell, 0...1 MN

103270/01 - 1 MN - 12902



For signal amplifiers and display units please refer to the data sheets of product group 4.