

Web tension load cell PD 23 / PD 24

Reliable web tension monitoring helps avoid web tears and thus reduce production costs. E+L load cells continuously record the tension in the moving web and supply this value as an analog signal. As such, they provide the prerequisite for reliable web tension measuring and control.

The high grade steel PD 23/PD 24 load cell permits problem-free implementation in difficult ambient conditions. Especially, for instance, in the textile industry, in e.g. washing machines or mercerising plants with an aggressive environment, the advanced protection class IP 65 and sophisticated sealing on the load cell guarantee a high degree of operational reliability.

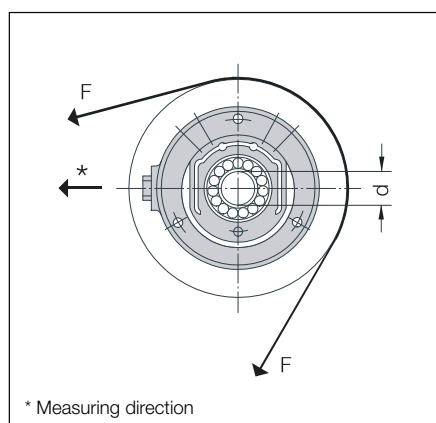


Technical features

- Maximum operational reliability due to an overload factor of 20 (20 times the nominal measuring force).
- Advanced protection class IP 65 due to sealing and encapsulated connection cable.
- No influence of the roller weight on the measuring result given horizontal mounting.
- Wide measuring range from 1 : 25 (e.g. given $F_{nom.} = 1000\text{ N}$ linear signal from 40 N to 1000 N)
- Favourable temperature behaviour and high degree of linearity of the measuring elements due to strain gauge application on a level surface.
- Easy, flexible mounting anywhere with various mounting options, e.g. flange bearing, pedestal bearing, inner or outer securing.
- High permissible operational speed for measuring roller due to high load cell spring coefficient.
- Compatible with the standard PD 21 and PD 22 series due to identical design.

Function

The web tension load cell consists mainly of an outer ring with a cover, centering flange and an inner ring, which both functions as a measuring element and accommodates the measuring roller bearing. It records the radial bearing forces of the measuring roller covered by the textile web. The inner ring is designed as a dual flexible beam to which the strain gauges are attached and switched to form a measuring bridge. Due to the influence of the forces to be measured, a change in resistance in the strain gauges takes place, effecting a deviation in the electrical output signal corresponding to the radial force components.

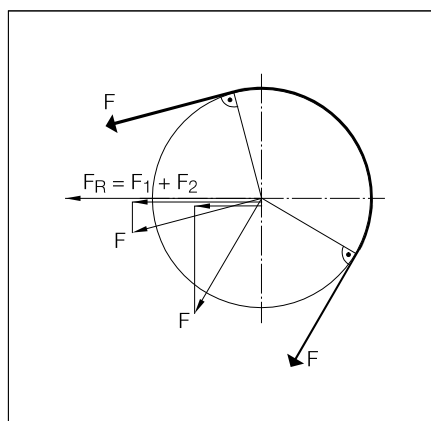


Option table

Type	Drill hole on one side	Drill hole on both side	d (mm)	Nominal measuring force (kN)			
PD 2317	PD 2417	17	0,1*	0,2	0,5*	1	
PD 2325	PD 2425	25	0,15*	0,3	0,75*	1,5	
PD 2335	PD 2435	35	0,3*	0,6	1,5*	3	

* Preferred variables

Calculation



For measuring purposes, only those components, i.e. F_1 und F_2 effective in the direction of measuring, are relevant. The resultant measuring force is the sum of $F_1 + F_2$. This is halved, given centred web travel, between the two load cells.

Technical data PD 23 / PD 24

Precision class	0.5
Nominal characteristic value (sensitivity)	1 mV/V
Combined error (Hysteresis/non-linearity)	< 0.5 %
Characteristic value tolerance	0.2 %
Measuring principle	Full strain gauge bridge
Nominal strain gauge bridge resistance	700 ohms
Bridge supply voltage	
- Nominal value	10 V
- max. permissible value	14 V
Mechanical stop	1.8 to 2.4 F_N depending on type
Normal load	1.8 to 2.4 F_N
Limit load	20x F_N
Nominal measuring path	0.1 to 0.2 mm depending on type
Nominal temperature range	-10 to +60 °C
Normal temperature range	-10 to +90 °C
Temperature coefficient	
- of the characteristic value	±0.3 % / 10 K
- of the zero signal	±0.3 % / 10 K
Protection class	IP 65
Max. permissible axial transversal force	1x F_N
Weight	2.3 kg (d = 17 mm) 3.6 kg (d = 25 mm) 8.5 kg (d = 35 mm)

Technical data subject to modification without notice