Web tension load cell PD 25 / PD 26

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.

Besides the standard PD 21 and PD 22 series for high-precision web tension measuring and control, the newly developed PD 25/PD 26 load cell offers an exceptionally low-cost alternative for web tension measuring. The proven measuring principle using a dual flexible beam assures maximum operating reliability and a good standard of reproducibility.

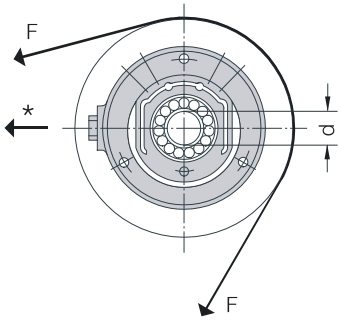
Technical features

- Maximum operational reliability due to an overload factor of 10 (10 times the nominal measuring force).
- 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 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.

Erhardt + Leimer GmbH
Postfach 10 15 40
D-86136 Augsburg
Telefon +49 (821) 24 35-0
Telefax +49 (821) 24 35-666
Internet http://www.erhardt-leimer.com
E-mail info@erhardt-leimer.com

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.

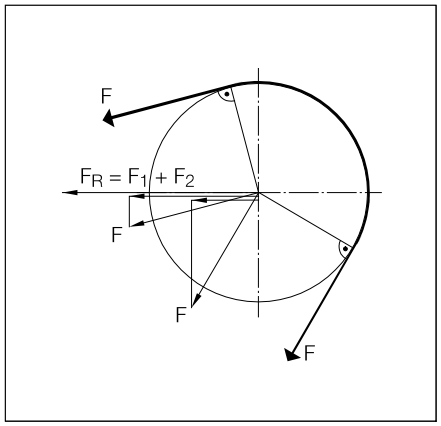


* Measuring direction

Option table

Type Drill hole on one side	Drill hole on both sides	d (mm)	Nominal measuring force (kN)		
PD 2517	PD 2617	17	0,1	0,2	0,5
PD 2525	PD 2625	25	0,15	0,3	0,75
PD 2535	PD 2635	35	0,3	0,6	1,5

Calculation



For measuring purposes, only those components, i.e. F_1 and 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 25 / PD 26

Precision class	1
Nominal characteristic value (sensitivity	1 mV/V
Combined error (Hysteresis/non-linearity)	< 1 %
Characteristic value tolerance	0.2 %
Measuring principle	Full strain gauge bridge
Nominal strain gauge bridge resistance	700 ohms
Bridge supply voltage - Nominal value - max. permissible value	 10 V 14 V
Mechanical stop Normal load Limit load	1.8 to 2.4 F_N depending on type 1.8 to 2.4 F_N 10x F_N
Nominal measuring path	0.1 to 0.25 mm depending on type
Nominal temperature range Normal temperature range	-10 to +60 °C -10 to +90 °C
Temperature coefficient - of the characteristic value - of the zero signal	 ±0.5 % / 10 K ±0.5 % / 10 K
Protection class	max. IP 54 with suitable connector inserted
Max. permissible axial transversal force	1x F_N
Weight	0.8 kg (d = 17 mm) 1.25 kg (d = 25 mm) 2.94 kg (d = 35 mm)

Technical data subject to modification without notice