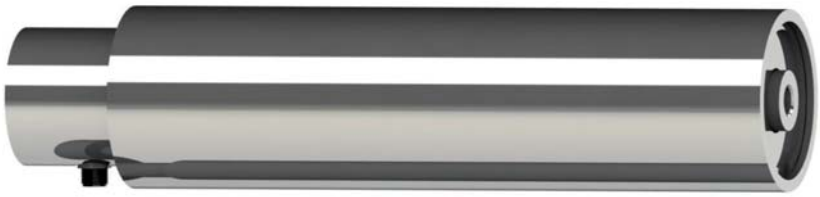
WAT-C Series

Cantilever Load Cell Roller



The MEROBEL Cantilever Load Cell Roller has two dual beams placed in each end of the roller and is designed to mount on the side of a machine frame or bracket. The dual load cell beam design reduces load cell deflection compared to traditional load cell designs.

Lower deflection means fewer tracking and steering problems on your machine and greater accuracy in the control. The total tension reading is always accurate across the face of the roller, so once the load cell is calibrated, you can align the web anywhere along the face of the roller and the cantilevered load cell will accurately measure tension.

Benefits

- Compact design easy to install
- Dual beam giving lowest possible deflection
- Industry standard M12x1 connector. With turnable socket for L-plug
- Overload ratings typical 200 – 500%
- As standard, available in 90mm roller diameter
- Cable length 5 m included

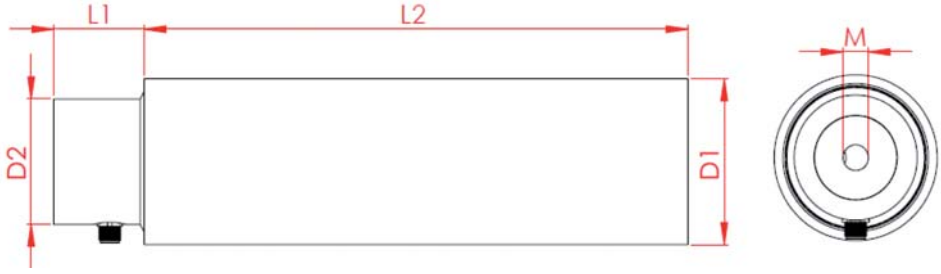
Specifications

Max operating force relative to Fn	150%
Force limit relative to Fn	200%
Strain gauge resistance	350 ohm
Strain gauge configuration	full bridge
Supply	5 to 10 VDC
Nominal output	1mV/V
Combined error relative to Fn	< 0.5%
Temperature coefficient	<0.4% / 10K
Operating temperature range	-20 to +850 C
Deflection at Fn	< 0.1 mm

Reference	Load rating **Fn**(N)	Part N#
WAT-C 10	125	Consult us
WAT-C 50	500	Consult us
WAT-C 100	1000	Consult us

Roller > 400 mm = max load rating 500N

Dimensions

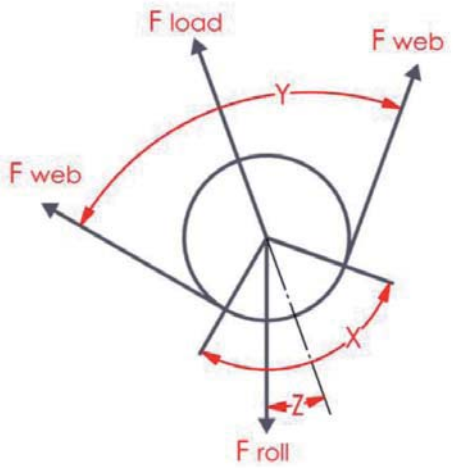


	D1	D2	L1	M	L2 (available in standard)			
mm	90	68	50	M16x20	150	250	350	450

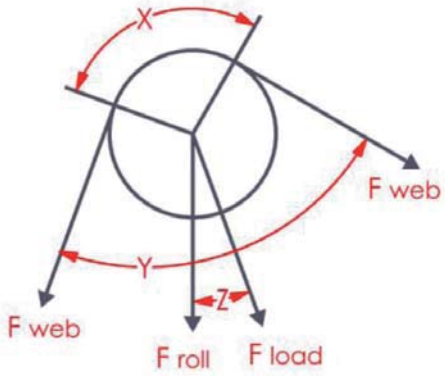
Calculating the force sizing

The correct Load Cell load rating for an application is determined by maximum web tension, web wrap angle around the roller, and mass of the roll.

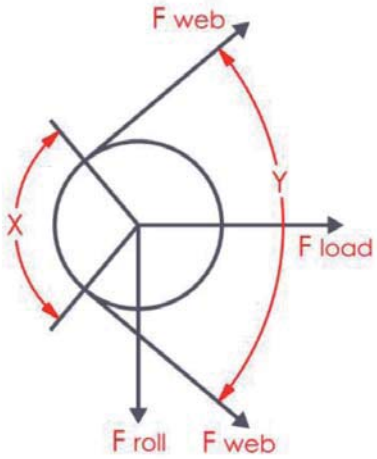
The force F(roll) from the mass m(roll) of the roll, is determined as F(roll) = m(roll) x 9.82 (N)
The force F(Load), from the web tension F(web), is determined as F(Load) = 2 x F(web) x Sin(X/2)
To determine the load cell size the 2 forces must be added together



Load direction upwards
[(½ x F(Load) x 1,5] - [½ F(roll) x cos(Z)]



Load direction downwards
[(½ x F(Load) x 1,5] + [½ F(roll) x cos(Z)]



Load direction Sidewards
[½ x F(Load) x 1,5]

The minimum load cell size has to be > ½ x F(roll) and 1,5 = safety factor

m(roll) = mass of the roller in kg
F(web) = maximum web tension
Z = angle between F(Load) and vertical
X = web wrap angle = 180° - Y°

Roller weight	Aluminum	Stainless steel
Kg	0,036 kg/cm	*Contact us*

Connector orientation and wirings