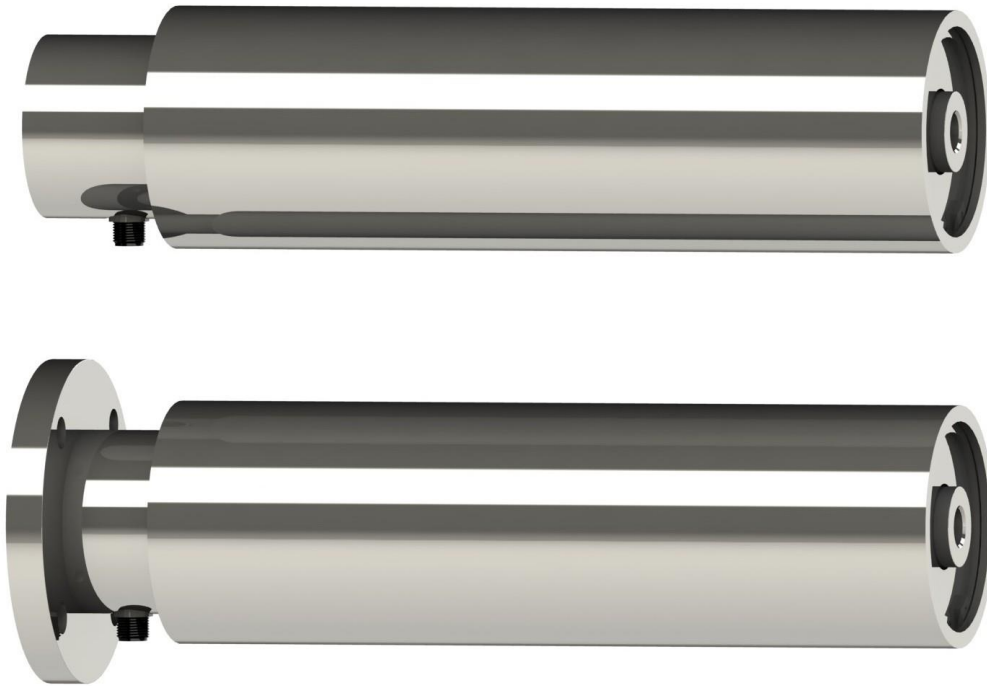


OWECON Series OWL400 Cantilever Load Cell Roller

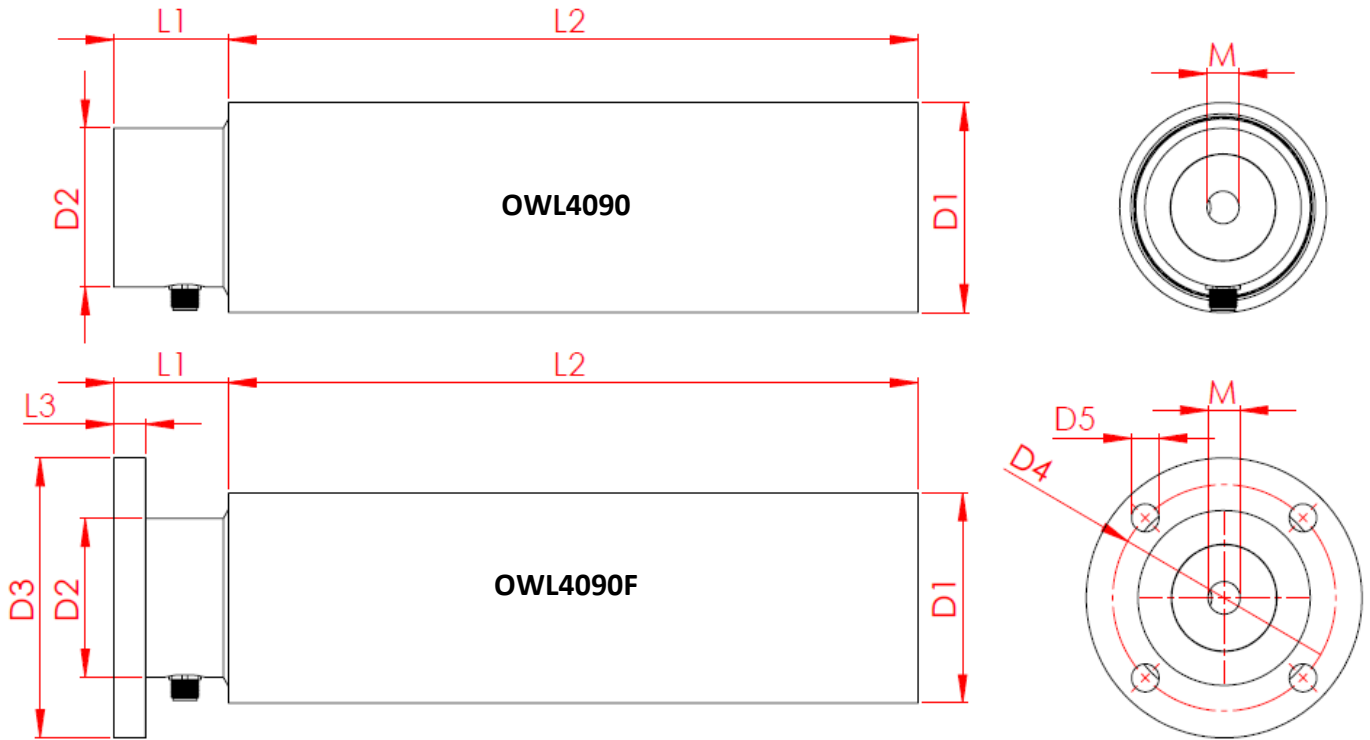


The OWECON Cantilever Load Cell Roller has two dual beams placed in each end of the roller and is designed to mount on the side of a machine frame or bracket. The dual load cell beam design reduces load cell deflection compared to traditional load cell designs. Lower deflection means fewer tracking and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

Advantages:

- ✓ Compact design easy to install
- ✓ Dual beam giving lowest possible deflection
- ✓ Choose between Semiconductor or Foil strain gauge
- ✓ Industry standard M12x1 connector. With turnable socket for L-plug
- ✓ Stud mount and flange mount standard versions
- ✓ Connector position available in 4 different positions relative to the load direction
- ✓ Overload ratings typical 200 – 500%
- ✓ As standard available in 50mm, 80mm, 90mm, 100mm and 120mm roller diameter
- ✓ Custom load cells and rollers made to your application

Metric dimensions for OWL400 Cantilever Load Cell Roller



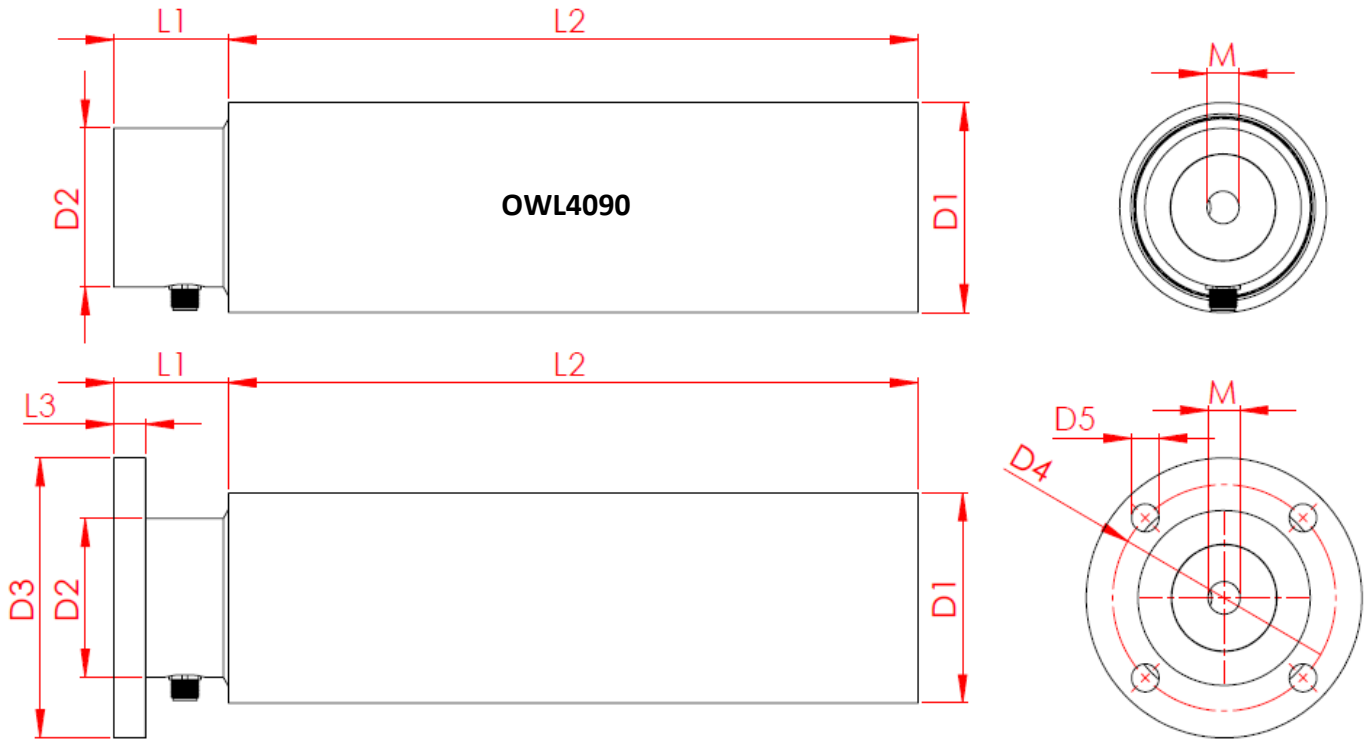
Dimensions mm										
Type		D1	D2	D3	D4	D5	L1	L2	L3	M
OWL4050 / F	mm	50	45	74	58	7	40	See below	8	M10 x 15
OWL4080 / F	mm	80	68	120	97	12	50	See below	14	M16 x 20
OWL4090 / F	mm	90	68	120	97	12	50	See below	14	M16 x 20
OWL4100 / F	mm	100	68	120	97	12	50	See below	14	M16 x 20
OWL4120 / F	mm	120	110	164	138	14	60	See below	20	M20 x 30

Type	L2 = standard length available in mm														
OWL4050 / F	mm	150	200	250	300	350	400								
OWL4080 / F	mm	150	200	250	300	350	400	450	500						
OWL4090 / F	mm	150	200	250	300	350	400	450	500						
OWL4100 / F	mm	150	200	250	300	350	400	450	500						
OWL4120 / F	mm				300		400		500	600	700	800	900	1.000	

Other dimensions available on request

		Load rating N									
OWL4050 / F	N	50	125	250							Roller > 300 mm = max load rating 125N
OWL4080 / F	N		125	250	500	1.000					Roller > 400 mm = max load rating 500N
OWL4090 / F	N		125	250	500	1.000					Roller > 400 mm = max load rating 500N
OWL4100 / F	N		125	250	500	1.000					Roller > 400 mm = max load rating 500N
OWL4120 / F	N			250	500	1.000					Roller > 800 mm = max load rating 500N

Imperial dimensions for OWL400 Cantilever Load Cell Roller



Dimensions in Inches										
Type		D1	D2	D3	D4	D5	L1	L2	L3	M
OWL4050 / F	in	1.97	1.77	2.91	2.28	0.28	1.57	See below	0.31	M10 x 0.59
OWL4080 / F	in	3.15	2.68	4.72	3.82	0.47	1.97	See below	0.55	M16 x 0.79
OWL4090 / F	in	3.45	2.68	4.72	3.82	0.47	1.97	See below	0.55	M16 x 0.79
OWL4100 / F	in	3.94	2.68	4.72	3.82	0.47	1.97	See below	0.55	M16 x 0.79
OWL4120 / F	in	4.72	4.33	6.46	5.43	0.55	2.36	See below	0.79	M20 x 1.18

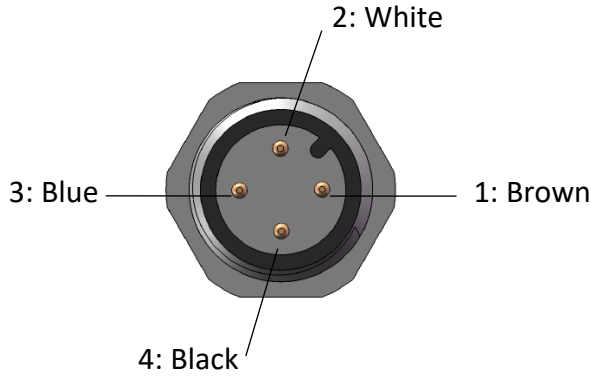
Type	L2 = standard length available in Inches													
OWL4050 / F	in	5.90	7.87	9.84	11.81	13.80	15.75							
OWL4080 / F	in	5.90	7.87	9.84	11.81	13.80	15.75	17.72	19.70					
OWL4090 / F	in	5.90	7.87	9.84	11.81	13.80	15.75	17.72	19.70					
OWL4100 / F	in	5.90	7.87	9.84	11.81	13.80	15.75	17.72	19.70					
OWL4120 / F	in				11.81		15.75		19.70	23.62	27.56	31.50	39.73	35.43

Other dimensions available on request

Load rating in Lbs.							
OWL4050 / F	Lbs	11	28	56			Roller > 11.81 in = max load rating 28 Lbs
OWL4080 / F	Lbs		28	56	112	225	Roller > 15.75 in = max load rating 112 Lbs
OWL4090 / F	Lbs		28	56	112	225	Roller > 15.75 in = max load rating 112 Lbs
OWL4100 / F	Lbs		28	56	112	225	Roller > 15.75 in = max load rating 112 Lbs
OWL4120 / F	Lbs			56	112	225	Roller > 31.50 in = max load rating 112 Lbs

Electrical connector:

M12 - 4 pin male, Code A, IEC61076-2-101



Half bridge wiring diagram:



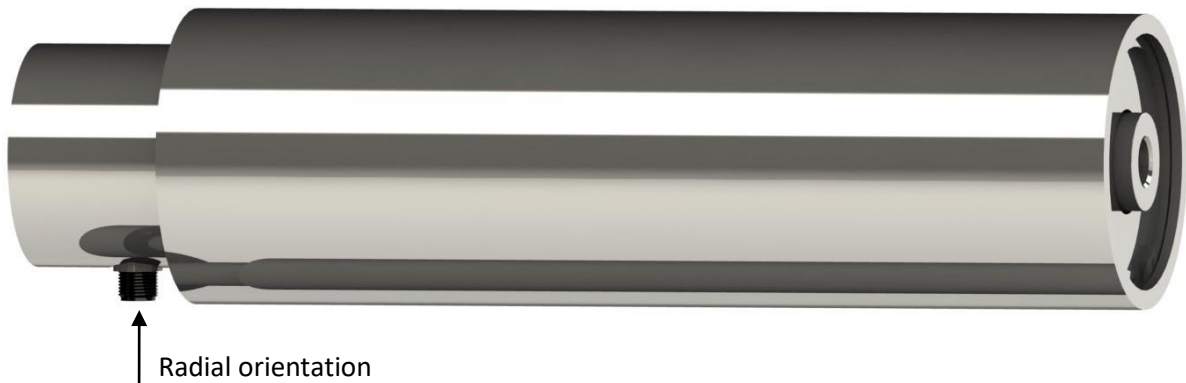
Full bridge wiring diagram:



Connector orientation and position:

All OWL400 series Load Cells come with an M12x1 standard connector. The connector position is always radial oriented, but available in different positions and if not mentioned on order the following standards will be used.

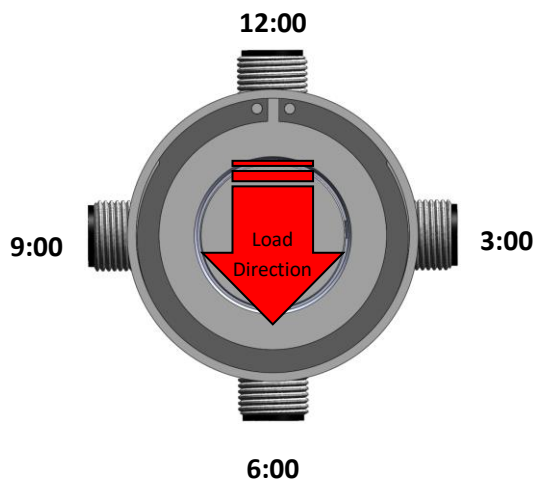
Connector orientation:



Connector position and load direction:

For the radial oriented connector there are 4 possible mounting positions named as 3:00 o'clock, 6:00 o'clock, 9:00 o'clock and 12:00 o'clock, please see illustration.

As standard the Load Cells come with the 6:00 o'clock connector position and load direction will be the same. The actual load direction is always shown on the label. Any other connector position has to be specified on order.



Calculating the force sizing for OWL400 Load Cell:

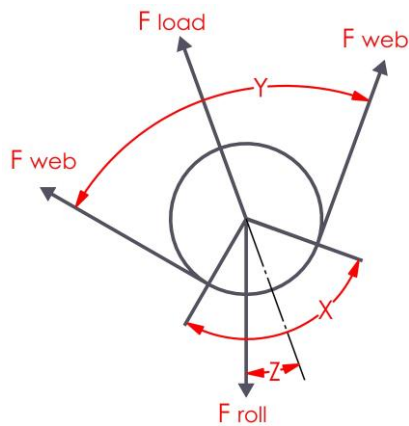
The correct Load Cell load rating for an application is determined by maximum web tension, web wrap angle around the roller, and mass of the roll.

The force $F_{(roll)}$ from the mass $m_{(roll)}$ of the roll, is determined as $F_{(roll)} = m_{(roll)} \times 9.82 \text{ (N)}$

The force $F_{(Load)}$, from the web tension $F_{(web)}$, is determined as $F_{(Load)} = 2 \times F_{(web)} \times \sin(X/2)$

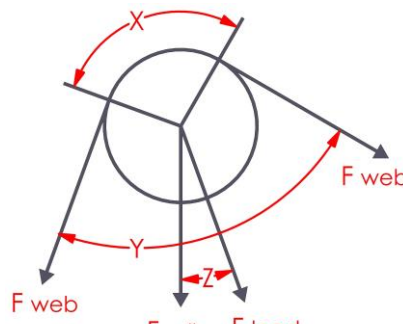
To determine the load cell size the 2 forces must be added together

Load direction upwards:



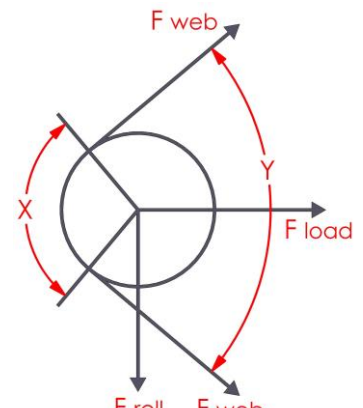
$((\frac{1}{2} \times F_{(Load)} \times 1,5) - (\frac{1}{2} F_{(roll)} \times \cos(Z)))$

Load direction downwards:



$((\frac{1}{2} \times F_{(Load)} \times 1,5) + (\frac{1}{2} F_{(roll)} \times \cos(Z)))$

Load direction Sideways:



$(\frac{1}{2} \times F_{(Load)} \times 1,5)$

Note: The minimum load cell size has to be $> \frac{1}{2} \times F_{(roll)}$ and 1,5 = safety factor

$m_{(roll)}$ = The mass of the roller in kg, $F_{(web)}$ = Maximum web tension, Z = Angle between $F_{(Load)}$ and vertical, X = Web wrap angle = $180^\circ - Y^\circ$

Roller weight		Aluminum	Stainless Steel	
OWL4050 / F	Kg	0,012 kg/cm	0,034 kg/cm	
	Lbs	0.068 lb/in	0.190 lb/in	
OWL4080 / F	Kg	0,032 kg/cm	0,076 kg/cm	
	Lbs	0.179 lb/in	0.425 lb/in	
OWL4090 / F	Kg	0,053 kg/cm	0,106 kg/cm	
	Lbs	0.297 lb/in	0.596 lb/in	
OWL4100 / F	Kg	0,061 kg/cm	0,120 kg/cm	
	Lbs	0.341 lb/in	0.672 lb/in	
OWL4120 / F	Kg	0,073 Kg/cm	0,130 kg/cm	
	Lbs	0.409 lb/in	0.728 lb/in	

Specifications half bridge:

Max operating force relative to F_n150%
 Force limit relative to F_n200%
 Strain gauge resistance.....80 to 120 ohm
 Strain gauge configuration.....half bridge
 Supply.....5VDC
 Nominal output......50mV/V
 Combined error relative to F_n< 0.5%
 Temperature coefficient.....<0.4% / 10K
 Operating temperature range.....(-4 to 185°F) -20 to +85° C
 Deflection at F_n(< 0.0039") < 0.1 mm

Specifications full bridge:

.....150%
200%
 Foil gauge resistance.....350 ohm
 Foil gauge configuration.....full bridge
10 VDC
1mV/V
< 0.5%
<0.4% / 10K
(-4 to 185°F) -20 to +85° C
(< 0.0039") < 0.1 mm