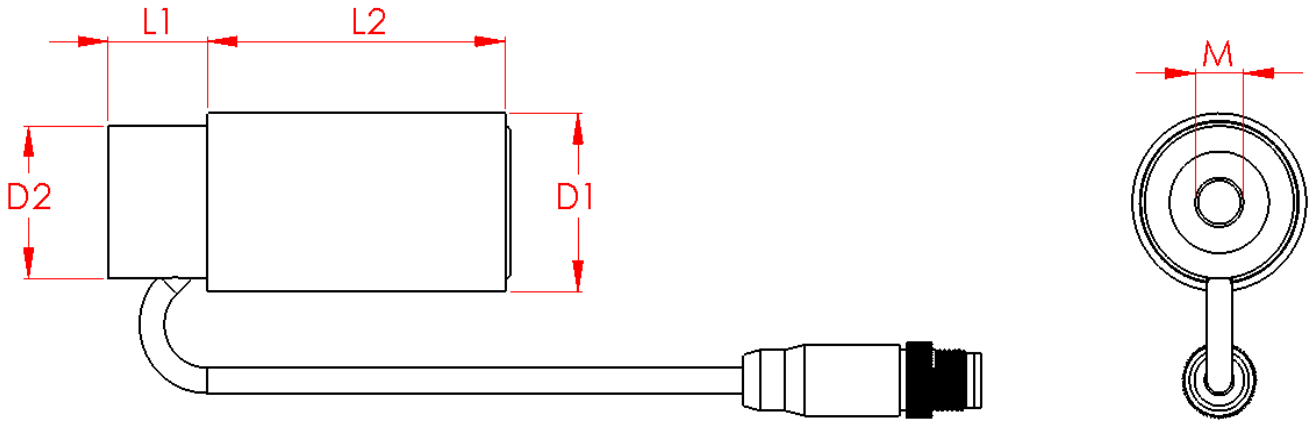
OWECON OWL400N Narrow Web Load Cell Series

The OWECON Narrow Web Load Cell is a single side mounted design to cover the range from ribbon applications to standard label applications. The dual load cell beam design reduces load cell deflection compared and ensures a parallel movement when force is added to the roller. Lower deflection means fewer tracking and steering problems on your machine and greater accuracy in the control. The tension reading is always linear over the whole measuring range.

Advantages:

- ✓ Compact design easy to install
- ✓ Dual beam giving lowest possible deflection
- ✓ Industry standard M12x1 connector on pigtail cable.
- ✓ Stud mount and flange mount standard versions
- ✓ Custom load cells and rollers made to your application

Metric dimensions for OWL400N Narrow Web Load Cell



Cable 500 mm with M12 Connector

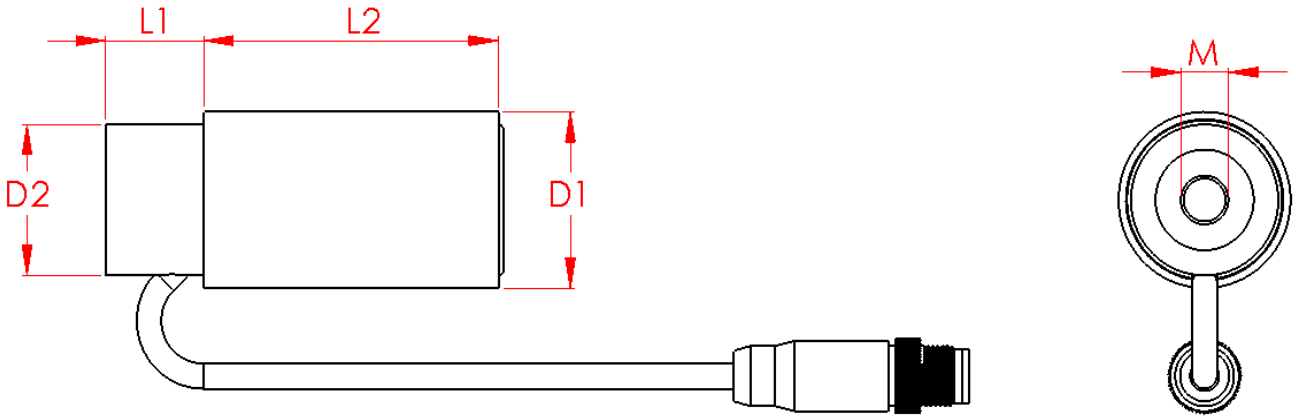
Dimensions mm						
Type		**D1**	**D2**	**L1**	**L2**	**M**
OWL4035N	**mm**	35	30	20	See below	M10 x 15
OWL4060N	**mm**	60	53	20	See below	M12 x 15

Type	**L2 = standard length available in mm**							
OWL4035N	**mm**	60	100	160				
OWL4060N	**mm**		100	160	200			

Other dimensions available on request

	Load rating in N						
OWL4035N	**N**	50	125	250			Roller L2 > 100 mm = max load rating 125N
OWL4060N	**N**		125	250	500		Roller L2 > 100 mm = max load rating 250N

Imperial dimensions for OWL400N Narrow Web Load Cell



Cable 19.69 in with M12 Connector

Dimensions in Inches						
Type		**D1**	**D2**	**L1**	**L2**	**M**
OWL4035N	**in**	1.37	1.18	0.79	See below	M10 x 0.59
OWL4060N	**in**	2.36	2.09	0.79	See below	M16 x 0.59

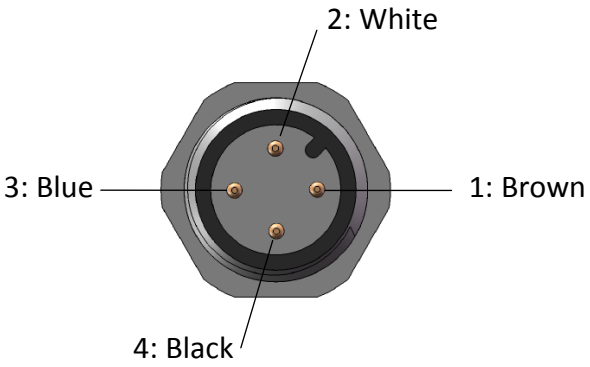
Type	**L2 = standard length available in Inches**							
OWL4035N	**in**	2.36	3.94	6.30				
OWL4060N	**in**		3.94	6.30	7.87			

Other dimensions available on request

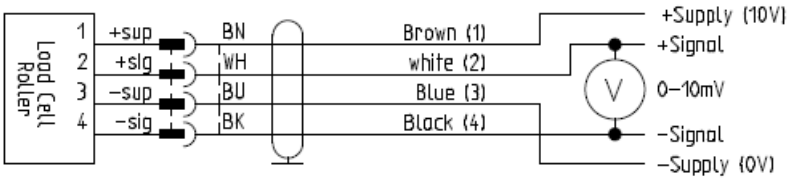
	Load rating in Lbs.						
OWL4035N	**Lbs**	11	28	56			Roller L2 > 3.94 in = max load rating 28 Lbs
OWL4060N	**Lbs**		28	56	112		Roller L2 > 3.94 in = max load rating 56 Lbs

Electrical connector:

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



Full bridge wiring diagram:



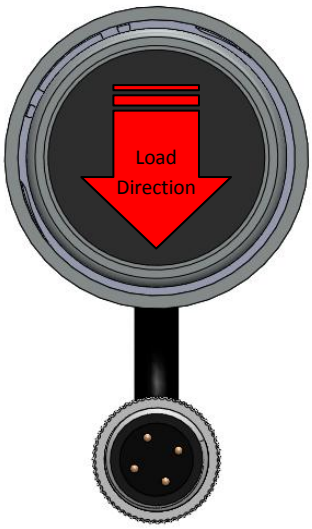
Connector orientation and position:

All OWL400N series Load Cells come with an M12x1 standard connector. The connector is as standard mounted on a 500 mm cable.

Connector and cable illustration:

Load direction:

The load direction is always towards the cable position.



Calculating the force sizing for OWL400N Load Cell:

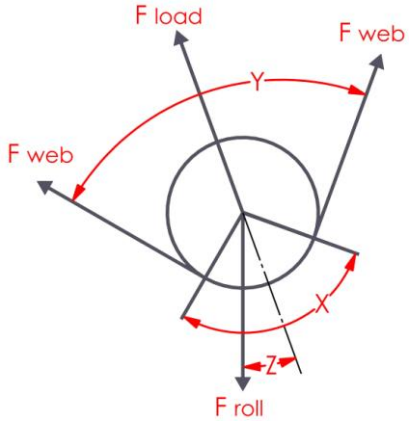
The correct Load Cell load rating for an application is determined by maximum web tension, web wrap angle around the roller, and mass of the roll.

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

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

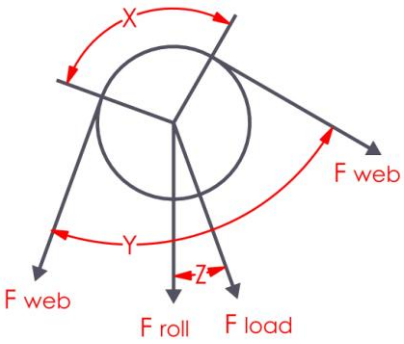
To determine the load cell size the 2 forces must be added together

Load direction upwards:



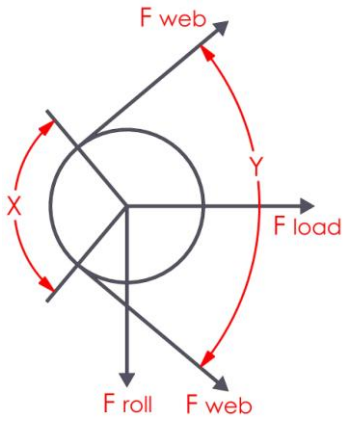
$((½ \times \mathbf{F_{(Load)}} \times 1,5) - (½ \mathbf{F_{(roll)}} \times \cos(\mathbf{Z}))$

Load direction downwards:



$((½ \times \mathbf{F_{(Load)}} \times 1,5) + (½ \mathbf{F_{(roll)}} \times \cos(\mathbf{Z}))$

Load direction sidewards:



$(½ \times \mathbf{F_{(Load)}} \times 1,5)$

Note: The minimum load cell size has to be > ½ x $\mathbf{F_{(roll)}}$ and 1,5 = safety factor

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

Specifications full bridge:

Max operating force relative to F_n 150%
Force limit relative to F_n 200%
Foil gauge resistance.....350 ohm
Foil gauge configuration.....full bridge
Supply .....10 VDC
Nominal output 1mV/V
Combined error relative to F_n .....< 0.5%
Temperature coefficient .....<0.4% / 10K
Operating temperature range ..... to 185°F) -20 to +85^0 C
Deflection at F_n .....(< 0.0039") < 0.1 mm