

N-Series

Cantilever Load Cells



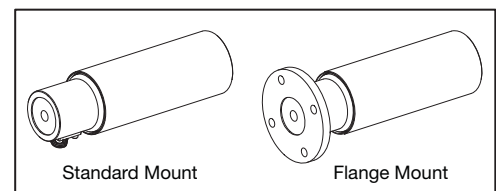
IP54

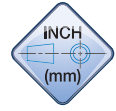
Montalvo N-Series Cantilever Load Cells

Precise, repeatable, superior tension measurement for label, film, foil, and other narrow web applications utilizing single side machine frames. Montalvo's N-Series Cantilever Load Cells feature four semiconductor strain gauges (two on each end) for a higher quality signal, sensitive to the slightest changes in tension across the entire load cell, without being affected by the position of the web on the roller. N Series are available in multiple standard diameters and roll lengths, two mounting options and a wide range of load ratings to meet the specific needs of your application.

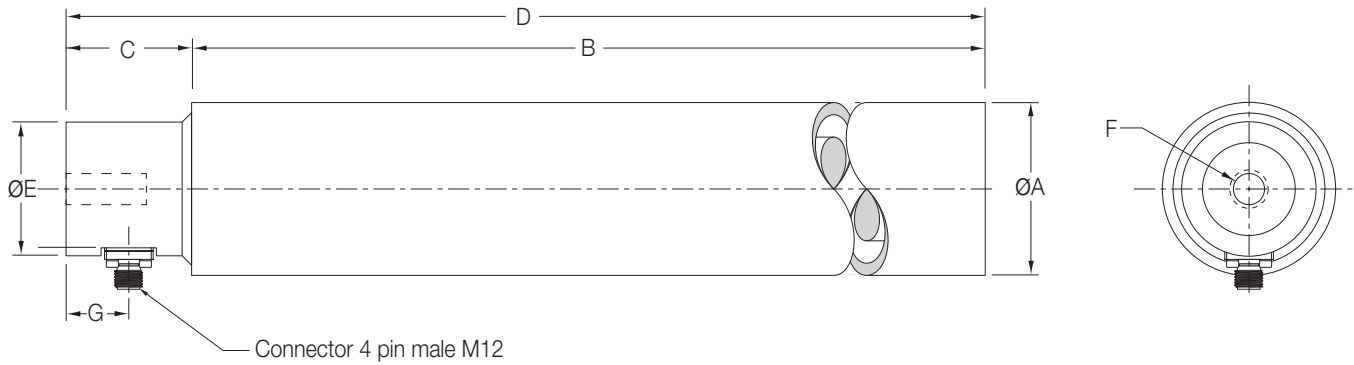
Features

- ▶ Easy Installation
- ▶ All in One System – Load Cell and Idler Roller
- ▶ Anti Deflection Design
- ▶ Eliminates Web Steering
- ▶ Radial Stops to Prevent Overload Damage - 360° protection
- ▶ Custom Rolls Widths, Diameters, and Roll Finishes Available
- ▶ Enhanced Reliability and Repeatability





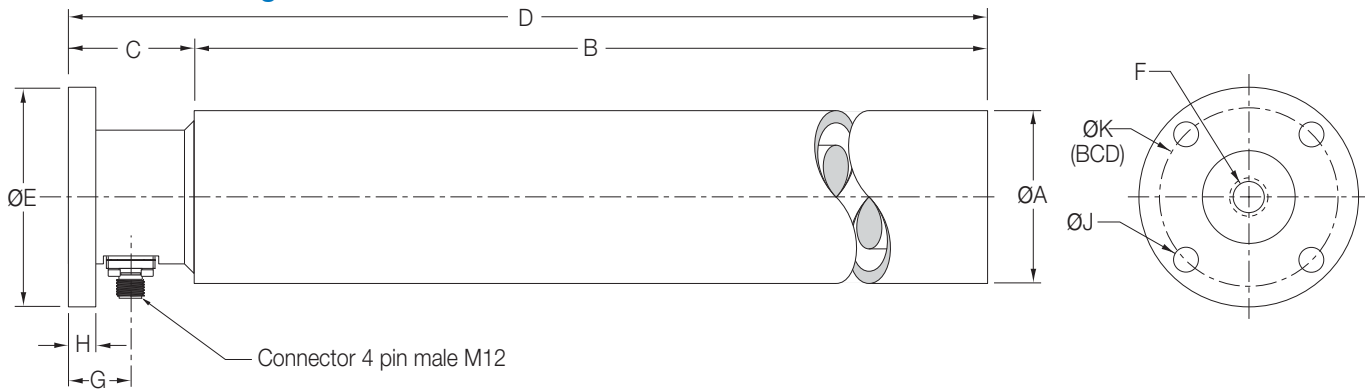
Dimensions - Standard Mount



Size	A		B					C	D	E	F	G			
N2-S	1.97 (50)	5.90 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78* (350)*	15.75* (400)*	1.57 (40)	B+C (B+C)	1.57 (40)	M10 x 1.5 (15 deep)	0.91 (23)			
N3-S	2.95 (75)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)		1.97 (50)	B+C (B+C)	1.77 (45)	M12 x 1.75 (24 deep)	1.02 (26)			
N4-S	3.94 (100)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	21.65 (550)	23.62 (600)	1.97 (50)	B+C (B+C)	2.68 (68)	M16 x 2.0 (32 deep)	1.08 (27.5)

* Available in 10LB (50N) and 25LB (125N) Load Ratings only

Dimensions - Flange Mount



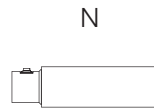
Size	A	B					C	D	E	F	G	H	J	K				
N2-F	1.97 (50)	5.90 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78* (350)*	15.75* (400)*	1.57 (40)	B+C (B+C)	2.91 (74)	M10 x 1.5 (15 deep)	0.91 (23)	0.31 (8)	0.28 (7)	2.28 (58)			
N3-F	2.95 (75)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)		1.97 (50)	B+C (B+C)	4.72 (120)	M12 x 1.75 (24 deep)	1.02 (26)	0.55 (14)	0.47 (12)	3.5 (88.9)			
N4-F	3.94 (100)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	21.65 (550)	23.62 (600)	1.97 (50)	B+C (B+C)	4.72 (120)	M16 x 2.0 (32 deep)	1.08 (27.5)	0.59 (15)	0.51 (13)	3.82 (97)

* Available in 10LB (50N) and 25LB (125N) Load Ratings only

How To Specify

Series

N, ES, U etc.



Size

2, 3 or 4

Consider the following:
 Load rating, roller length
 & dimensions



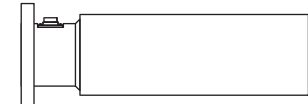
Mount

S or F

S (standard)



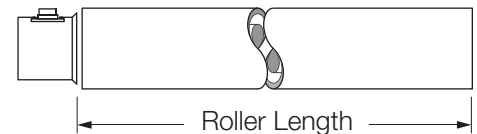
F (flange)



Roller Size dia x length (mm)

- N2** 50 x 150, 200, 250, 300, 350* or 400*
- N3** 75 x 200, 250, 300, 350 or 400
- N4** 100 x 200, 250, 300, 350, 400, 450, 500, 550 or 600

*Available in 10LB (50N) and 25LB (125 N) Load Ratings only



Load Rating LB/N

- N2** 10/50, 25/125, 50/250* or 100/500*
- N3** 10/50, 25/125, 50/250, 100/500, 150/750 or 200/1000
- N4** 25/125, 50/250, 100/500, 150/750 or 200/1000

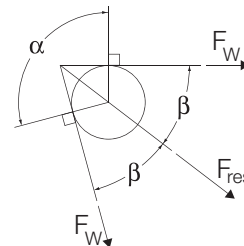
* Not available in 350 and 400 mm Roller Lengths

F_{res} = resultant force

F_w = maximum web force (total web tension)

α = wrap angle

β = angle between resultant force and web



$$\beta = 90 - 1/2 \times \alpha$$

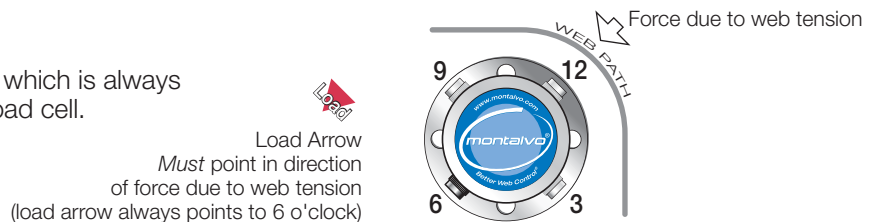
$$F_{res} = 2 \times F_w \times \cos \beta$$

Connector Position

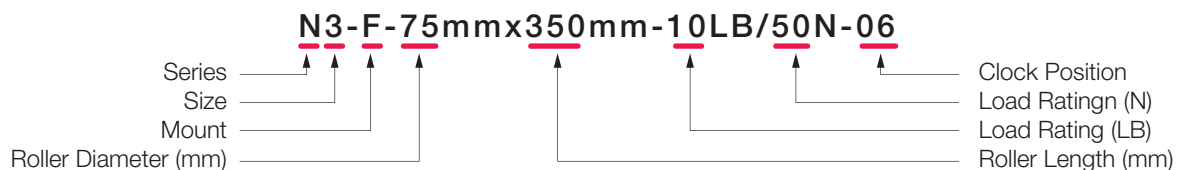
03, 06, 09 or 12 o'clock

Position is relative to LOAD ARROW, which is always
 6 o'clock, as observed from end of load cell.

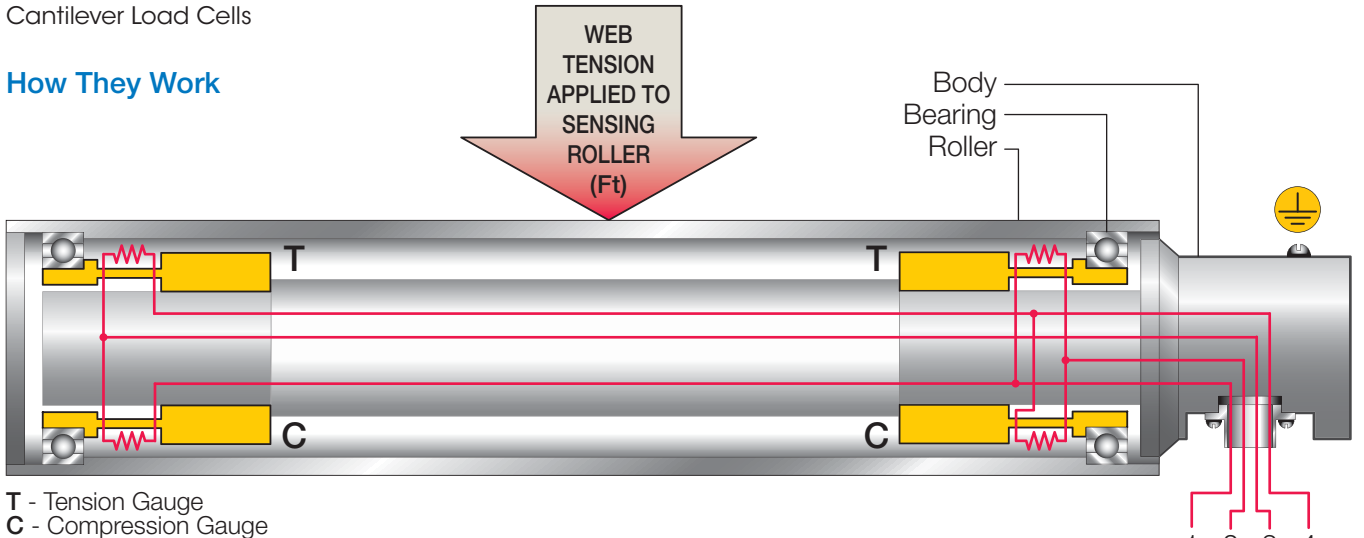
6 o'clock is **standard**
 3, 9 and 12 are **optional**



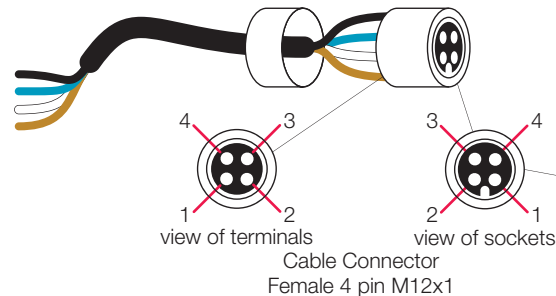
Example



How They Work

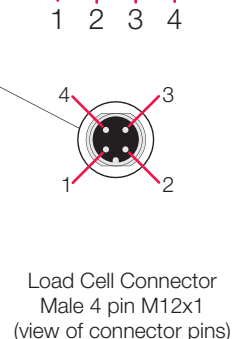


T - Tension Gauge
 C - Compression Gauge



Male 4 pin M12 connector (on load cell)
 Pin 1 Excitation
 Pin 2 Signal
 Pin 3 Signal
 Pin 4 Excitation

Female 4 pin M12 connector (on cable)
 Pin 1 BROWN or RED Excitation
 Pin 2 WHITE Signal
 Pin 3 BLUE or GREEN Signal
 Pin 4 BLACK Excitation



Specifications

Electrical
 Excitation 5 VDC
 Output - Nominal 50 mV/V
 Gauge Resistance 80 - 130 Ω
 Type full bridge semi-conductor
 Non-Repeatability ±0.25% full span
 Non-Linearity and hysteresis (combined) ±0.50% full span

Connector
 Type Male 4 pin M12
 Pin 1 Excitation
 Pin 2 Signal
 Pin 3 Signal
 Pin 4 Excitation

Loading LB (N)
 Rated N2 10(50), 25(125), 50(250)*, 100(500)*
 N3 10(50), 25(125), 50(250), 100(500), 150(750), 200(1000)
 N4 25(125), 50(250), 100(500), 150(700), 200(1000)
 Overload 300% max. of rated
 * Not available in 350 and 400 mm Roller Lengths

Environmental
 Classification IP54
 Temperature Compensated 14 to 131°F (-10 to 55°C)
 Operating -4 to 185°F (-20 to 85°C)
 Effect on zero 0.015% / °C
 Effect on span 0.015% / °C

Mechanical
 Deflection in(mm) < 0.010 (0.25)
 Finish Mount stainless steel
 *Roller 32 microinch aluminum
 *Optional roller surface coatings available

Related Montalvo Products

- Z4 Hybrid Digital Tension Controller
- S4 Digital Tension Controller
- A4 Digital Load Cell Amplifier
- M Series Analog Load Cell Amplifiers
- Tension Indicators
- and... Cables

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