



*Stainless steel construction*

*Sensitive to high & low tension*

*360° beam overload stop protection*

*Wide load range from 5 to 1000 pounds*

*High output, excellent linearity, low hysteresis*

*Unique design compensates for shaft expansion, misalignment & bending*

**IP54**

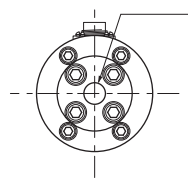
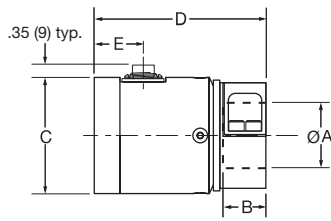
## Montalvo Load Cells

### *T-Series Idler Shaft Load Cells*

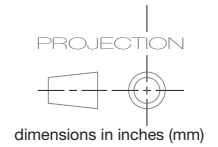
Montalvo T-Series load cells are used in conjunction with a dead shaft idler roller. The toleranced radial stop design protects the sensing beam from damage while maintaining sensitivity and performance. They are long service life products that are extremely durable and meet IP54 protection classification. T-Series Idlers are available in two sizes, each offering a variety of load ratings and four mounting configurations.

# T-Series Idler Shaft Load Cells

## Model ST-I

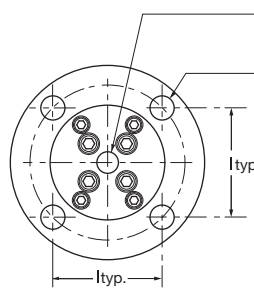
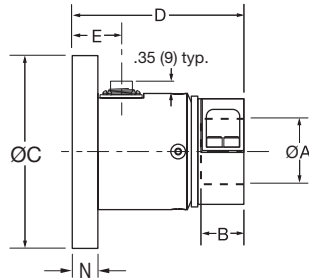


K  
Hole tapped for metric fastener  
size 2 M16-2.0 x 12 deep  
size 0 M10-1.5 x 10 deep



Model	A	B	C	D	E	K
ST2-I	1.50 (38.10)	1.10 (28.07)	2.85 (72.50)	4.28 (108.79)	1.22 (31)	M16-2.0x12
ST0-I	1.125 (29)	.53 (13)	2.26 (57.50)	3.00 (76)	1.12 (28.50)	M10-1.5x10

## Model FT-I

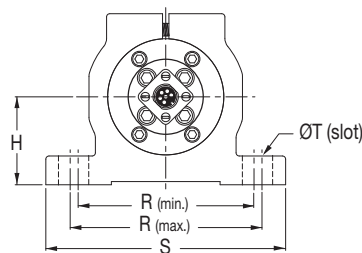
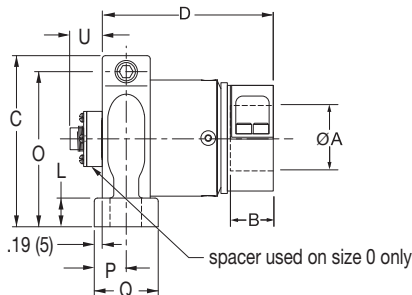


K  
Hole tapped for metric fastener:  
size 2 M16-2.0 x 12 deep  
size 0 M10-1.5 x 10 deep

ØL  
Thru 4 places  
size 2 3.78 (96) BCD  
size 0 2.874 (73) BCD

Model	A	B	C	D	E	I typ.	K	L	N
FT2-I	1.50 (38.10)	1.10 (28.07)	4.72 (120)	4.28 (108.79)	1.22 (31)	2.67 (67.88)	M16-2.0x12	0.53 (13.50)	.63 (16)
FT0-I	1.125 (29)	.53 (13)	3.50 (89)	3.00 (76)	1.12 (28.50)	2.03 (51.62)	M10-1.5x10	0.35 (9)	.59 (15)

## Model PBT-I



Model	A	B	C	D	H	L	O	P	Q	R (min.)	R (max.)	S	T	U
PBT2-I	1.50 (38.10)	1.10 (28.07)	4.21 (107)	4.28 (108.79)	2.17 (55)	.71 (18)	3.82 (97)	.79 (20)	1.57 (40)	4.33 (110)	4.73 (120)	5.91 (150)	.55 (14)	.47 (12)
PBT0-I	1.125 (29)	.53 (13)	3.27 (83)	3.00 (76)	1.65 (42)	.47 (12)	2.99 (76)	.59 (15)	1.18 (30)	3.39 (86)	3.71 (94)	4.57 (116)	.35 (9)	.83 (21)

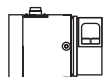
Note: Dimension A is nominal. Bushings to accept smaller shafts are available (at no extra cost).

# How to specify a Montalvo IDLER SHAFT load cell

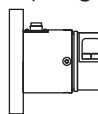
## Mount

S, F, or PB

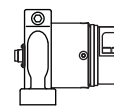
S (standard)



F (flange)

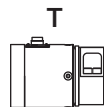


PB (split pillow block)



## Series

T, N, U or F



N



U



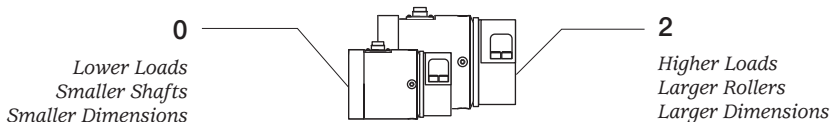
F



## Size

0 or 2

Consider the following:  
Load rating, shaft size  
& dimensions



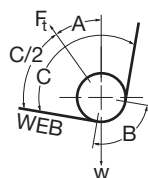
## Load Rating

Size 0 5, 25, 50, 75, 100 or 150  
Size 2 75, 150, 250, 500 or 1000\*

\*F & PB mounts only

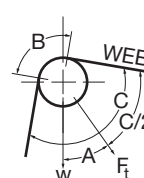
- LR = load rating
- P = maximum tension (pull) on web
- B = wrap angle
- W = weight of roller in pounds
- A = angle between  $F_t$  and vertical axis
- C = angle between entering and exiting web
- F = resultant force

$F_t$  points **ABOVE** horizon



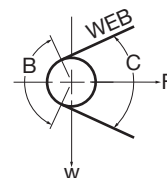
$$LR = \frac{4P \sin(B/2) - W \cos(A)}{2}$$

$F_t$  points **BELOW** horizon



$$LR = \frac{4P \sin(B/2) + W \cos(A)}{2}$$

$F_t$  is **HORIZONTAL**



$$LR = \frac{4P \sin(B/2)}{2}$$

**Important!** Not all load ratings are available in all mounting configurations. For optimum performance and safety, we highly recommend that you contact a Montalvo Application Specialist to assist you in selecting the correct product for your particular application.

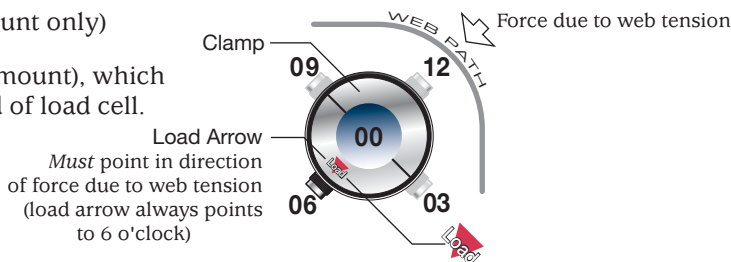
## Connector Position

03, 06, 09 or 12 o'clock (specify 00 for PB mount only)

Position is relative to LOAD ARROW (except PB mount), which is always 6 o'clock, as observed from clamp end of load cell.

Standard position:

- 6 o'clock for S & F mounts
- 3 & 9 for a pair of P mounts
- 00 for PB mount (only position available)



## Roller Type / Shaft Size

I = Idler Shaft consisting of the following components:

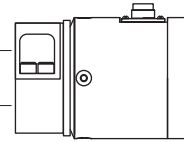
- Shaft
- Bearing
- Roller



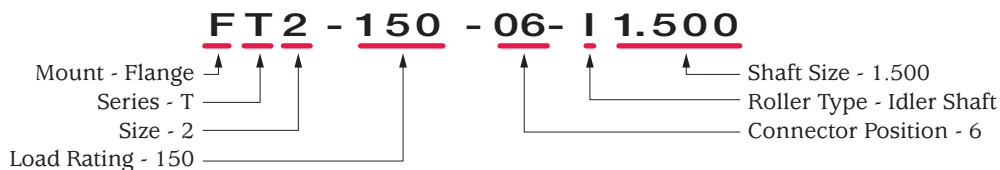
Maximum shaft size

- 1.125" (Size 0)
- 1.500" (Size 2)

Bushings available for smaller size shafts at no charge.



## Example

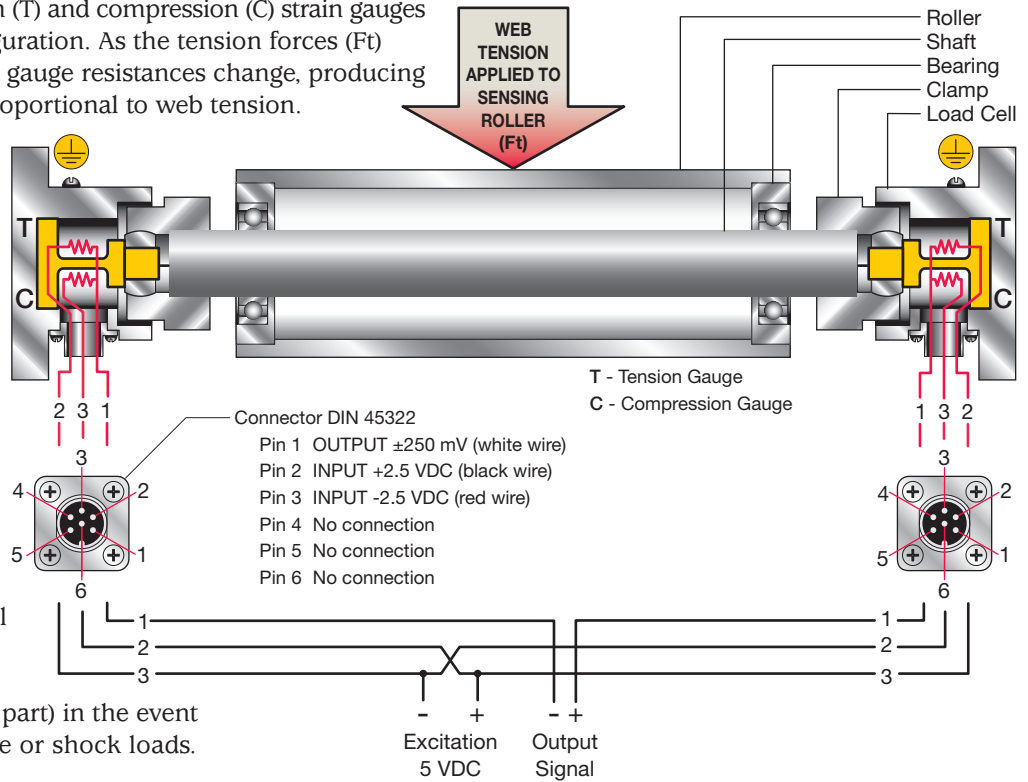


How they work...

Montalvo T-Series use tension (T) and compression (C) strain gauges connected in a bridge configuration. As the tension forces ( $F_t$ ) bend the beams slightly, the gauge resistances change, producing an output signal which is proportional to web tension.

The unique patented joint design of the T-Series idler shaft load cell allows for shaft bending, misalignment and changes in shaft length due to temperature variations. It also includes an integral, high performance, spherical bearing assembly.

Size 0 and Size 2 idler roll load cells accommodate a variety of shaft diameters from 0.375-1.5" (9-38mm). The idler shaft load cells include an integral overload protection system which protects the sensing beam (a costly replacement part) in the event of idler roller bearing failure or shock loads.



Specifications

Electrical	
Excitation	5 VDC
Output	250 mV, nominal @ full load
Gauge Resistance	80 - 130 $\Omega$
Type	semi-conductor
Non-Repeatability	$\pm 1/4\%$ full span
Non-Linearity and hysteresis (combined)	$\pm 1/2\%$ full span

Connector	
Type	DIN 45322 (6 pin)
Pin 1	$\pm 250$ mV output
Pin 2	+ 2.5 VDC input
Pin 3	- 2.5 VDC input
Pin 4	no connection
Pin 5	no connection
Pin 6	no connection

Loading lb (N)	
Rated Size 0	5 (25), 25 (125), 50 (250), 75 (375), 100 (500), 150 (750)
Size 2 all mounts	75 (375), 150 (750), 250 (1250), 500 (2500)
Size 2 F & PB mounts only	1000 (5000)
Overload	tested @ 300% max. of rated
Overload Stops	110% of full load

**Important** - Not all load ratings are available in all mounting configurations. For optimum performance and safety, we highly recommend that you contact a Montalvo Application Specialist to assist you in selecting the correct product for your particular application.

Environmental	
Classification	IP54
Temperature Operating range	-4° to 150°F (-20° to 70°C)
Coefficient	0.02% per °F typ.

Mechanical	
Deflection	0.008 to 0.015 (0.203 to 0.381)
Alignment	1° max.
Bore* Size 0	1-1/8" std.
Size 2	1-1/2" std.
Finish	stainless steel
Dimensions (WxDxH) inch (mm)	
ST0-I	3.00 x 2.26 x 2.26 (76 x 57 x 57)
ST2-I	4.28 x 2.86 x 2.86 (109 x 73 x 73)
FT0-I	3.00 x 3.50 x 3.50 (76 x 89 x 89)
FT2-I	4.28 x 4.75 x 4.75 (109 x 121 x 121)
PBT0-I	3.77 x 4.57 x 3.27 (96 x 116 x 83)
PBT2-I	5.05 x 5.91 x 4.21 (129 x 150 x 107)

Weight lb (kg)	
ST0-I	~ 2.25 (1.02)
ST2-I	~ 4.67 (2.12)
FT0-I	~ 3.11 (1.41)
FT2-I	~ 6.48 (2.95)
PBT0-I	~ 3.39 (1.54)
PBT2-I	~ 7.52 (3.42)

\*Bushings available for smaller shaft sizes.