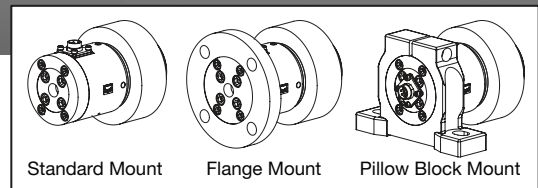


ES-Series

Extended Sensitivity Live Shaft Load Cells



IP54

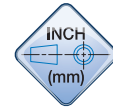


Montalvo ES-Series Extended Sensitivity Live Shaft Load Cells

Montalvo's ES-Series has evolved from intelligent design to delivering the finest sensitivity in the industry. The **live shaft** version provides safe, secure support of a Live Shaft roller. All ES-Series offer multiple load ranges, three mounts and two body sizes.

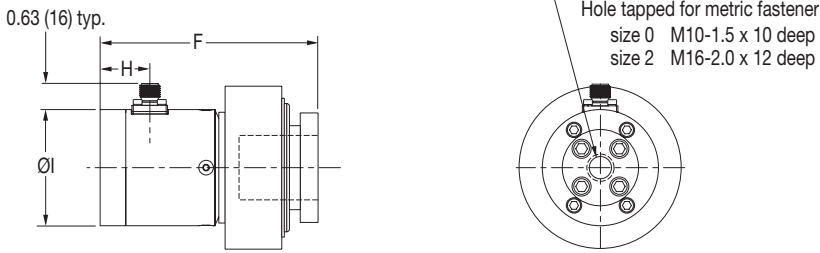
Features & Benefits

- ▶ **Industry Leading Resolution** - and sensitivity for superior accuracy and response
- ▶ **M12 Connector** - industry standard for wide cable selection
- ▶ **Multiple Mounting Options** - standard, flange or pillow block to fit most any machine frame
- ▶ **Stainless Steel Construction** - & dust proof (IP54) rating for durability & extended, dependable service life
- ▶ **Mechanical Variance Compensation** - for shaft expansion & misalignment from installation variables
- ▶ **360° Overload Protection**



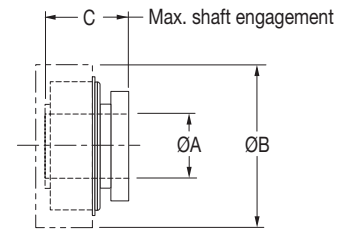
Dimensions

Standard Mount (S)



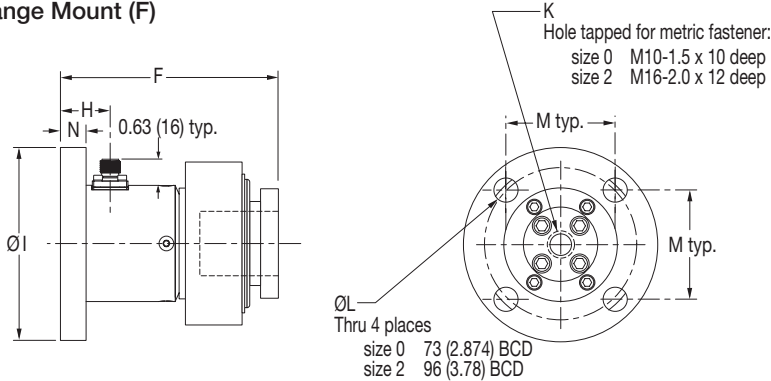
Model	F	H	I	K
ES-L/S-S0	4.13 (105)	1.12 (28.50)	2.26 (57)	M10-1.5x10
ES-L/S-S2	5.33 (135)	1.22 (31)	2.85 (72.50)	M16-2.0x12

Available bearings



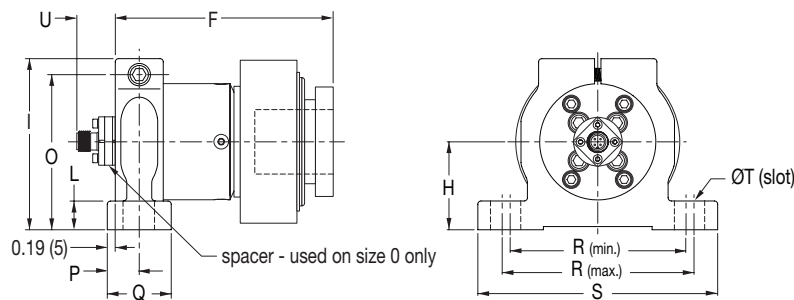
Size	Bearing #	ØA	ØB	C
0	ER14	7/8	73 (2-7/8)	
0	ER-15	15/16	73 (2-7/8)	
0	ER-16	1 (25)	73 (2-7/8)	
0	ER-205	25mm	73 (2-7/8)	
0	ER-17	1-1/16	83 (3-1/4)	
0	ER-18	1-1/4	83 (3-1/4)	
0	ER-19*	1-3/16	83 (3-1/4)	40 (1-9/16)
0	ER-20R	1-1/4	92 (3-5/8)	
2	ER-206	30mm	92 (3-5/8)	
2	ER-20	1-1/4	92 (3-5/8)	
2	ER-21	1-5/16	92 (3-5/8)	
2	ER-22	1-3/8	92 (3-5/8)	
2	ER-23	1-7/16	92 (3-5/8)	
2	ER-207	35mm	92 (3-5/8)	
2	ER-24*	1-1/2	102 (4)	51 (2)
2	ER-25	1-9/16	102 (4)	
2	ER-208	40mm	102 (4)	

Flange Mount (F)

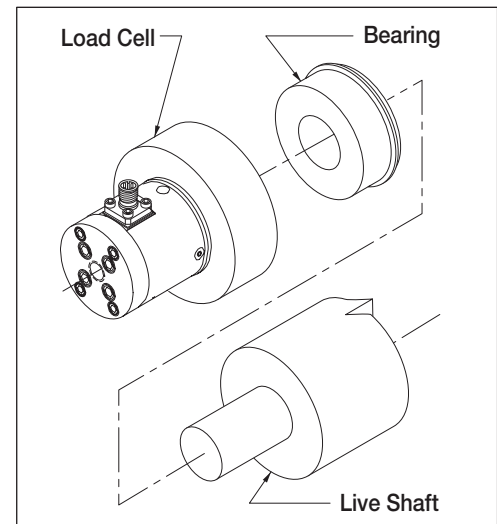


Model	F	H	I	K	L	M	N
ES-L/S-F0	4.13 (105)	1.12 (28.50)	3.50 (89)	M10-1.4x10	0.35 (9)	2.03 (52)	0.59 (15)
ES-L/S-F2	5.33 (135)	1.22 (31)	4.72 (121)	M16-2.0x12	0.53 (13.50)	2.69 (68)	0.63 (16)

Pillow Block Mount (P)



Model	F	H	I	L	O	P	Q	R (min.)	R (max.)	S	T	U
ES-L/S-P0	4.13 (105)	1.65 (42)	3.27 (83)	0.47 (12)	2.99 (76)	0.59 (15)	1.18 (30)	3.39 (86)	3.71 (94)	4.57 (116)	0.35 (9)	1.08 (28)
ES-L/S-P2	5.33 (135)	2.17 (55)	4.21 (107)	0.71 (18)	3.82 (97)	0.79 (20)	1.57 (40)	4.33 (110)	4.73 (120)	5.91 (150)	0.55 (14)	0.75 (19)

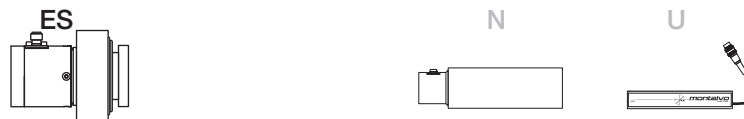


* Standard "INCH" bearing supplied by Montalvo

How To Specify

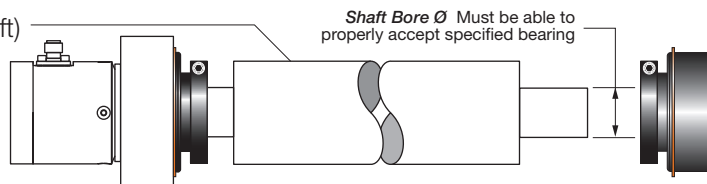
Series

ES, N, U or F



Shaft / Bearing Size (ER#)

L/S (Live Shaft)



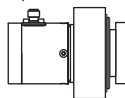
Size 0 ER-19 Ø (1-3/16") std.
Size 2 ER-24 Ø (1-1/2") std.

Non-standard bearings available by request.
IMPORTANT - Roller preparation to accept specified bearing is critical. Roller preparation drawings are available by request.

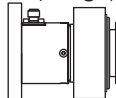
Mount

S, F, or P

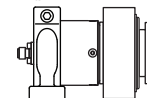
S (standard)



F (flange)



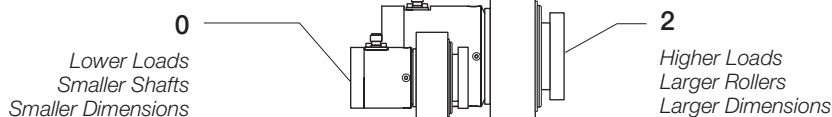
P (pillow block)



Size

0 or 2

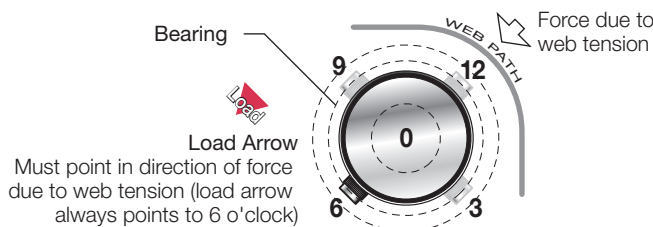
Consider the following:
Load rating, shaft size
& dimensions



Connector Position

6 (standard on S and F mounts)
3, 9 or 12 (available upon request)
0 (only position available for P mount)

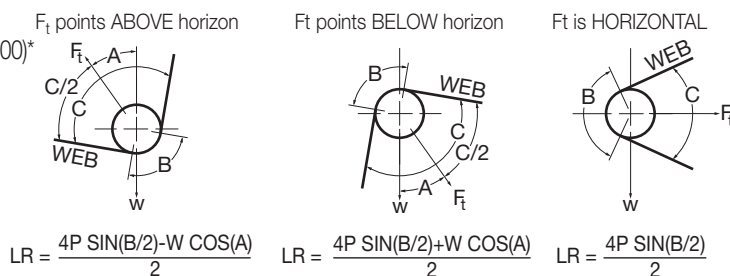
Position is relative to LOAD ARROW (except P mount), which is always 6, as observed from clamp end of load cell.



Load Rating lb (N)

Size 0 25(125), 50(250), 75(375), 100(500), 150(750)
Size 2 75(375), 100(500), 150(750), 250(1250), 500(2500), 1000*(5000)*

- 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

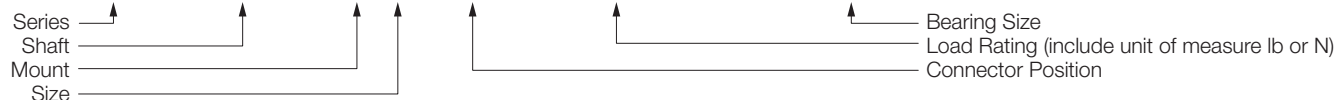


$$LR = \frac{4P \sin(B/2) - W \cos(A)}{2} \quad LR = \frac{4P \sin(B/2) + W \cos(A)}{2} \quad LR = \frac{4P \sin(B/2)}{2}$$

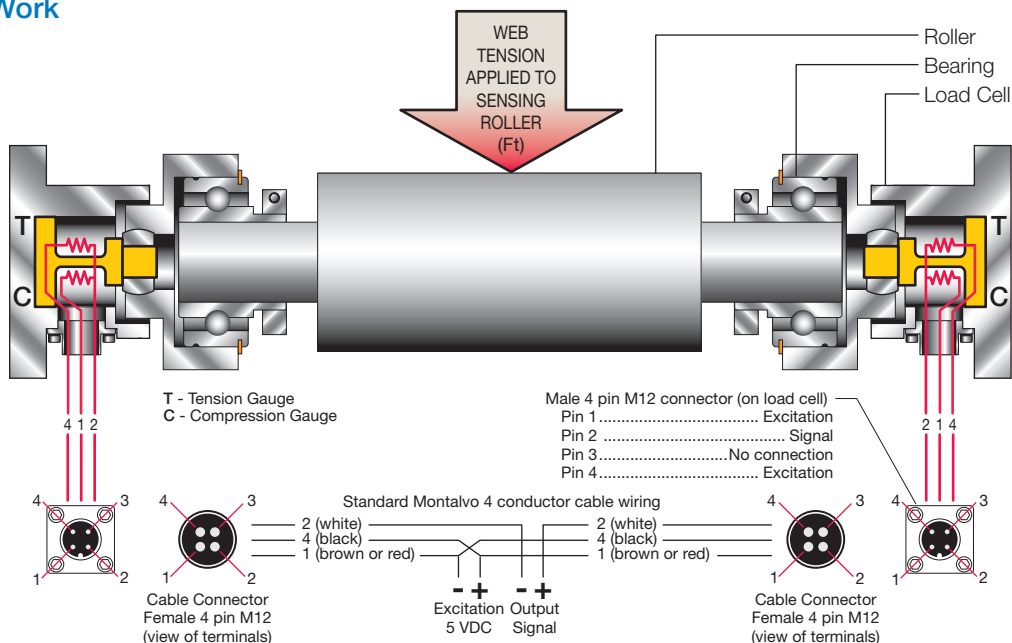
* For F and P mounts only.
Note: It is recommended that Montalvo be contacted to ensure proper sizing.

Example

ES - L/S - F 2 - 6 - 500 lb - ER - 24



How They Work



Specifications

Electrical
 Excitation.....5 VDC
 Output..... 250 mV, nominal @ full load
 Output..... 500 mV, nominal @ full load
 Gauge Resistance.....80 - 130 Ω
 Gauge Type.....semi-conductor strain
 Non-Repeatability..... ±1/4% full span
 Non-Linearity and Hysteresis (combined)..... ±1/2% full span

Connector (Male 4 pin M12) - Pin Out

	Half Bridge Option	Full Bridge Option
Pin 1.....	Excitation	Excitation
Pin 2.....	Signal	Signal
Pin 3.....	No connection	Signal
Pin 4.....	Excitation	Excitation

Load Ratings - lb (N)

Size 0.....	25(125), 50(250), 75(375), 100(500), 150(750)
Size 2.....	75(375), 100(500), 150(750), 250(1250), 500(2500), 1000*(5000)*
Overload Stops	110% of Load Rating
Overload Rating.....	300% of Load Rating

* For F and P mounts only.

Note: It is recommended that Montalvo be contacted to ensure proper sizing.

Environmental
 Classification IP54
 Temperature °F (°C)
 Operating range -4 to +150 (-20 to +70)
 Coefficient (% per degree).....0.02 (0.01) typ.

Mechanical
 Deflection in (mm)..... 0.008 to 0.015 (0.203 to 0.381)
 Alignment 1° max.
 Standard Bearing (shown in drawings)
 Size 0..... ER-19
 Size 2..... ER-24
 Finish.....stainless steel

Weight¹ lb (kg) approximately

ES-L/S-S0.....	3.00 (1.37)
ES-L/S-S2.....	7.67 (3.47)
ES-L/S-F0.....	3.86 (1.76)
ES-L/S-F2.....	9.49 (4.31)
ES-L/S-P0.....	4.14 (1.88)
ES-L/S-P2.....	10.53 (4.79)

¹ Including standard bearing

Related Montalvo Products

Tension Controllers
 Load Cell Amplifiers
 Tension Indicators
 and... Cables

	207-856-2501 / 800-226-8710
	+86-21-52188010
	+45 75 57 27 11
	+49 (0)511 760 691 41



The Montalvo Corporation

EST. 1947

montalvo

Better Web Control®

50 Hutcherson Drive, Gorham, Maine 04038 USA
 Fax: 1-800-644-5097 / 207-856-2509

1-800-226-8710 / info@montalvo.com / www.montalvo.com

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