



The MAGPOWR TLC series of load cells are extremely accurate devices used to measure web tension in any unwind, rewind or intermediate web processing application.

The TLC line of load cells deliver precise web tension measurement with low temperature drift due to a full Wheatstone bridge construction on each load cell. The load cells allow for force measurement and 10 times overload protection in both force directions.

With a low profile design, space between the machine frames dedicated to the load cell is minimized. The load cells can also be mounted on the outside of the machine frames, eliminating any space required for the load cells.

The TLC is flange mounted to any vertical machine surface or on top of horizontal surfaces utilizing the optional pillow block bracket.



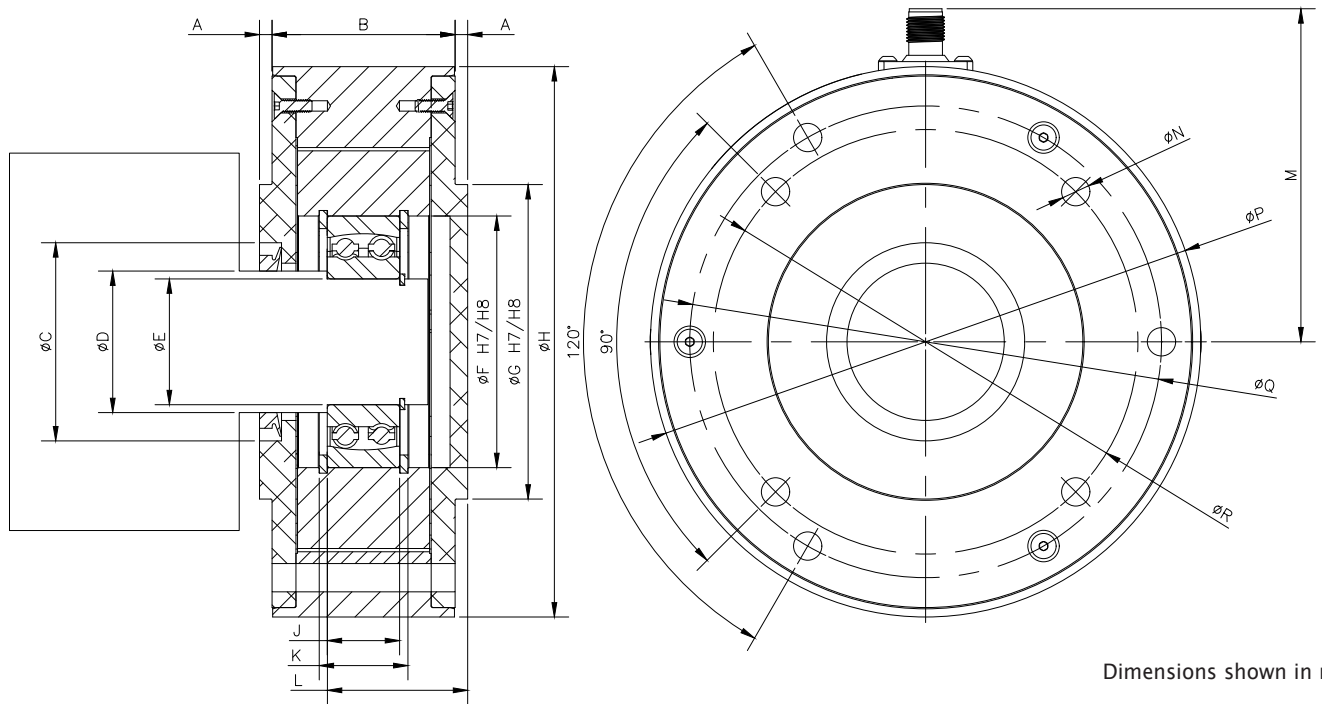
GENERAL SPECIFICATIONS

Product Name TLCA and TLCB Load Cell Series	Load Ratings TLCA: 50, 100, 250, 500, 750, 1000N TLCB: 500, 1000, 2000, 3000N
Gage Resistance 350Ω nominal	Construction Beam: Nickel plated steel Covers: Nickel plated aluminum
Excitation Voltage 10VDC maximum	Overload Stops Engagement 105% to 150% of full load rating
Output Signal 1,5 mV/V, 15mVDC maximum per sensor at full load rating	Overload Protection 10X of full load rating
Operating Temperature -20°C to 80°C	Deflection at Full Load Size A: 0.17 mm Size B: 0.15 mm
Combined non-linearity and hysteresis 0.5% of full scale maximum	Cable LCC series with straight connector LCCRA series with 90° connector
Temperature effect on zero 0.02% of rating per °C	Climate Class 3K3 (EN60721)
Repeatability 0.2% of full scale maximum	Certifications IP-54, RoHS

KEY FEATURES

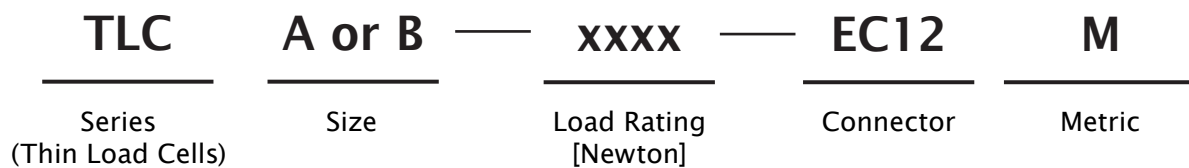
- Used in live shaft applications
- Standard in metric models
- Flange and pillow block mounting
- Six load ratings from 50 to 1000N in size A, four load ratings from 500 to 3000N in size B
- Ruggedly constructed for long life and dependability
- Mechanical overload stops for 10x protection under severe overloads
- Full Wheatstone bridge design for measurement accuracy and low temperature drift
- Can be mounted on the inside of machine frames or hidden on the backside of the machine frames
- Size A can be mounted using three bolts on a 90 mm bolt circle or four bolts on a 75 mm bolt circle
- Size B can be mounted using three bolts on a 150 mm bolt circle or four bolts on a 135 mm bolt circle

DIMENSIONS



	A	B	C	D	E	F	G	H
TLCAXXXEC12M	2.5	32.2	36	22	17	40	60	105
TLCBXXXEC12M	4	58.2	63	45	40	80	100	175
	J	K	L	N	M	P	Q	R
TLCAXXXEC12M	12	15.7	24.65	71.3	6.5	105	90	75
TLCBXXXEC12M	23	28.3	44.6	105.9	9	175	150	135

MODEL NUMBER KEY

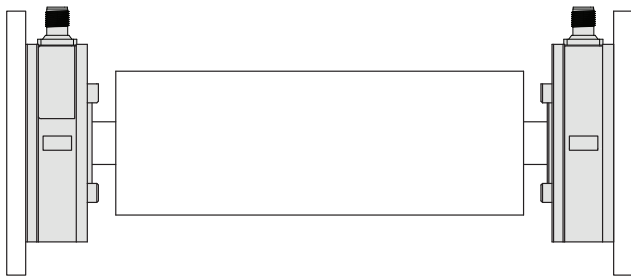


AVAILABLE MODELS

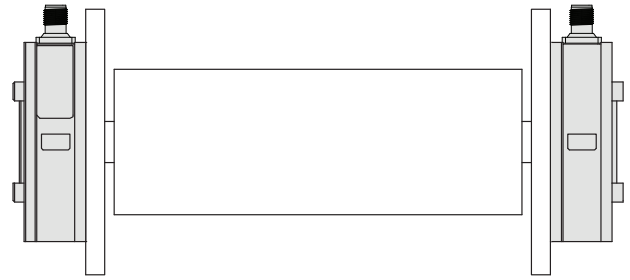
PART NUMBER	MODEL NUMBER	LOAD RATING [N]	LOAD RATING [KG]
M388754	TLCA-50-EC12M	50	5
M396651	TLCA-100-EC12M	100	10
M388483	TLCA-250-EC12M	250	26
M380391	TLCA-500-EC12M	500	51
M444315	TLCA-750-EC12M	750	77
M439300	TLCA-1000-EC12M	1000	102
M400437	TLCB-500-EC12M	500	51
M400122	TLCB-1000-EC12M	1000	102
M399482	TLCB-2000-EC12M	2000	204
M381443	TLCB-3000-EC12M	3000	306

TYPICAL INSTALLATION

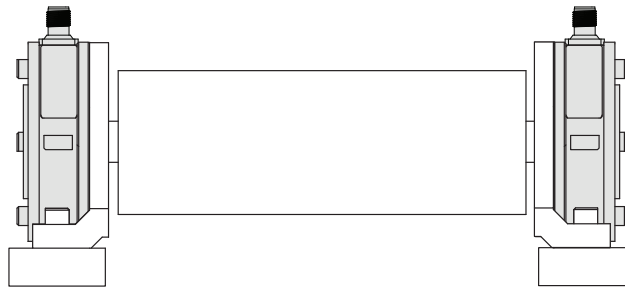
FLANGE MOUNT
(INSIDE OF VERTICAL FRAMES)



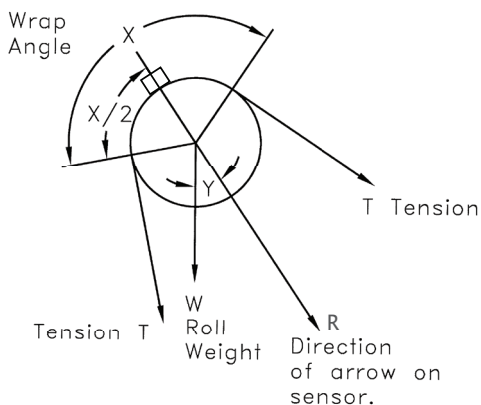
FLANGE MOUNT
(OUTSIDE OF VERTICAL FRAMES)



PILLOW BLOCK
(ON TOP OF HORIZONTAL FRAMES)



Can be mounted on inside of brackets if desired



- T = web tension
- X = web wrap angle
- R = resultant force direction from web tension that bisects the wrap angle
- Y = angle between wrap angle midpoint (R) and the roll weight
- L = calculated minimum force rating for each load cell

Note: The connector should always be aligned with (R).

To size and select the tension sensors, the total load on the sensing roll must be calculated. This load consists of the tension components plus the roll weight components in the sensing plane. Using the known maximum tension, roll weight and angles as shown, apply the equation below to calculate the actual load.

$$\text{LOAD} = 2T (\sin X/2) \pm W (\cos Y)$$

This is the total load, but since tension transients are generally quite large, the "T" should be multiplied by 2, and since there are two sensors supporting this load, the total load is divided by 2. The final equation for load rating required for each sensor is then:

$$L = [4T (\sin X/2) \pm W (\cos Y)] \div 2$$

Note: Use + W (cos Y) if the resultant force is in the direction opposite the connector on the load cell and - W (cos Y) if pulling towards the connector.

After calculating L, select 2 sensors, each with a load rating greater than L.

For example, if the roll weight is 4,5 kg, the maximum tension is 111 N, the angle Y is 60°, the wrap angle is 90° and the resultant force is away from the connector the resulting TLC sensor is:

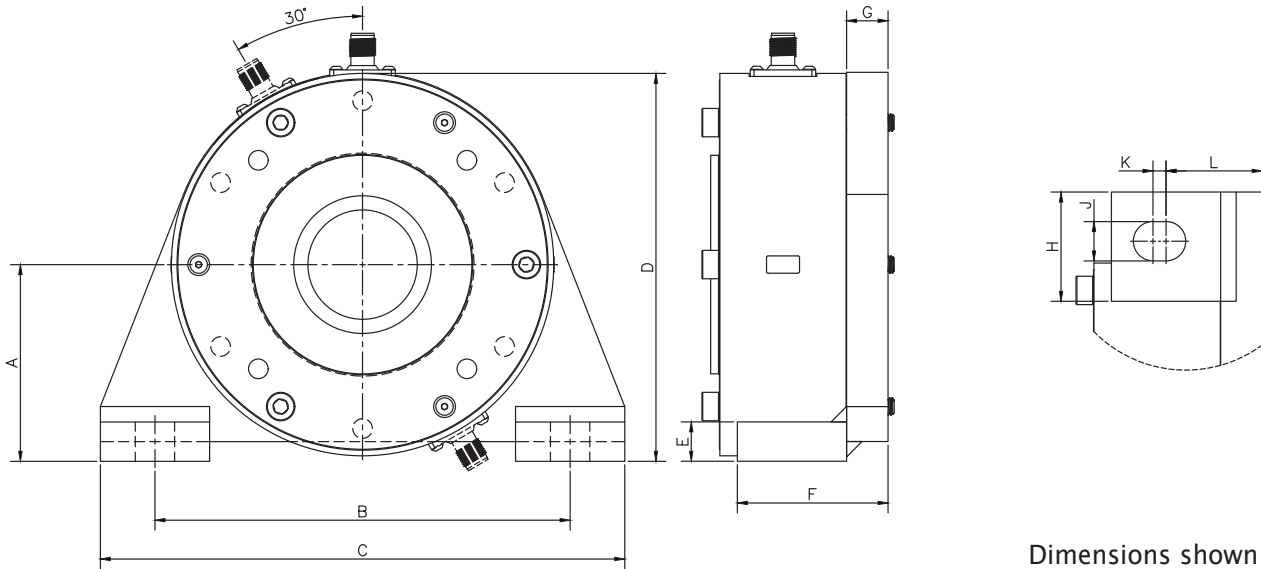
$$L = [4 * 111 \text{ N} (\sin(90^\circ/2)) + 45 \text{ N} (\cos 60^\circ)] \div 2$$

$$L = 168 \text{ N}$$

Use (2) TLCA-250-EC12M Load Cells

MAGPOWR TLC THIN LOAD CELLS

MOUNTED ON PILLOW BLOCK BRACKETS



Dimensions shown in mm

	A	B	C	D	E	F
TLCAXXXEC12M	56	115	140	109	13	40
TLCBXXXEC12M	90	190	240	178	18	69
	G	H	J	K	L	
TLCAXXXEC12M	10	25	9	3	24	
TLCBXXXEC12M	19	50	18	6	44	

OPTIONAL ACCESSORIES

SIZE A

- Self-aligning bearings to use in load cells, 17 mm bore, part number M284953 (Magpowr: 30A23-4), one per load cell needed
- TLCA-PBK (M404448), pillow block bracket (one per load cell needed)

SIZE B

- Self-aligning bearings to use in load cells, 40 mm bore, part number M404505, Magpowr: 30A23-7, one per load cell needed
- TLCB-PBK (M404433), pillow block bracket (one per load cell needed)

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