

Tension Load Cells

Delivers a high-accuracy weighing system for suspended in-process vessels

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TECHNICAL SPECIFICATIONS



Standard Tension Cell

Tension Load Cells deliver a high-accuracy weighing system for suspended in-process vessels. The TC1 and high capacity TC2 are designed for industrial scale measurement of inventory and process applications.

Construction is alloy steel with nickel plate for high accuracy and corrosion resistance and is fully sealed to IP67 rating, making it ideal for outdoor as well as indoor applications.

Both standard and high capacity tension cells have full bridge electrical circuits and can be connected to any of the Kistler-Morse controller models to provide an output value.

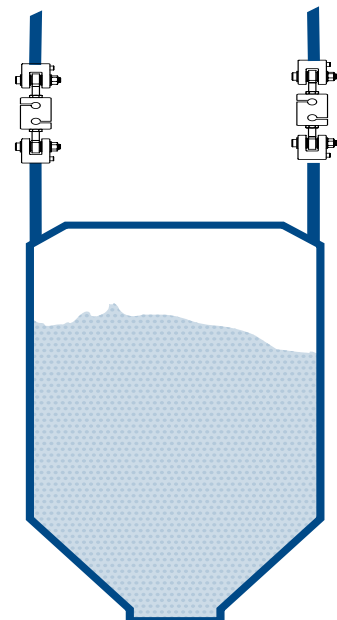
Capacity ratings should correspond with total weight of the vessel including material. Capacity of tension cells are sumable (ie. four tension cells rated at 220 lbs (100 kg) can support a 800 lb (362 kg) vessel). Tension cells cannot be linked directly together for greater capacity.



High Capacity Tension Cell

APPLICATIONS

- **Limited floor space** to add another tank
- Tank is required to be in a **specific location** above another to drop in at a particular temperature, color or other additive
- **Vertical process**
- Complex **plant configuration** where piping and conduit may be blocking areas



TENSION CELL

TC1 - -

Mounting Hardware - Eyebolt or Rod End & Clevis

H = 2 Eyebolts

R04 = 2 Rod End and Clevis Assemblies (44 lb)

R110 = 2 Rod End and Clevis Assemblies (110 lb to 220 lb)

R2200 = 2 Rod End and Clevis Assemblies (440 lb to 2,200 lb)

R4400 = 2 Rod End and Clevis Assemblies (4,400 lb)

R6600 = 2 Rod End and Clevis Assemblies (6,600 lb)

R11000 = 2 Rod End and Clevis Assemblies (11,023 lb)

X = No Hardware Included

Rated Load

0.04K = 44 lb (20 kg)

0.11K = 110 lb (50 kg)

0.22K = 220 lb (100 kg)

0.44K = 440 lb (200 kg)

01.1K = 1,100 lb (500 kg)

02.2K = 2,200 lb (1,000 kg)

04.4K = 4,400 lb (2,000 kg)

0.66K = 6,613 lb (3,000 kg)

11.0K = 11,023 lb (5,000 kg)

Tension Load Cell (Includes 10 ft (3m) Pigtail Cable)

HIGH CAPACITY TENSION CELL

TC2 - -

Mounting Hardware - Shackles

A = 26,400 lb

B = 55,000 lb

C = 77,000 lb

D = 121,000 lb

X = No Hardware Included

Rated Load

22.0K = 22,046 lb (10,000 kg)

44.0K = 44,092 lb (20,000 kg)

66.1K = 66,138 lb (30,000 kg)

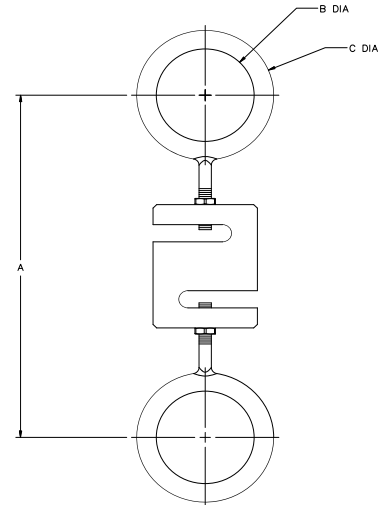
110K = 110,231 lb (50,000 kg)

Tension Load Cell - High Capacity (Includes 16 ft (5 m) Pigtail Cable)

MOUNTING HARDWARE

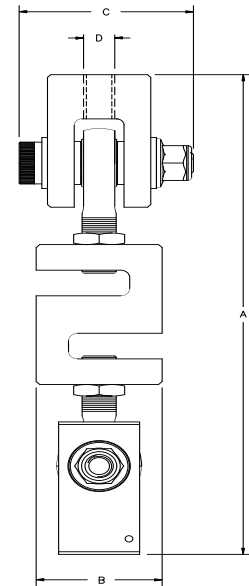
EYEBOLT DIMENSIONS

CAPACITY	A	B DIA	C DIA
lb (kg)	in. (mm)	in. (mm)	in. (mm)
44 (20)	6.44 (164)	0.75 (19)	1.50 (38)
110 (50)	6.44 (164)	0.75 (19)	1.50 (38)
220 (100)	6.44 (164)	0.75 (19)	1.50 (38)
440 (200)	7.59 (193)	1.50 (38)	3.00 (76)
1,100 (500)	7.59 (193)	1.50 (38)	3.00 (76)
2,200 (1,000)	7.33 (186)	2.00 (51)	4.00 (102)
4,400 (2,000)	12.33 (313)	2.00 (51)	4.00 (102)
6,613 (3,000)	12.54 (319)	2.00 (51)	4.00 (102)
11,023 (5,000)	12.54 (319)	2.00 (51)	4.00 (102)



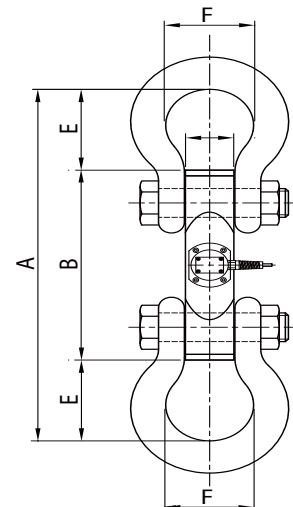
ROD END & CLEVIS DIMENSIONS

CAPACITY	A	B	C	D
lb (kg)	in. (mm)	in. (mm)	in. (mm)	Thread Type
44 (20)	7.15 (182)	2.00 (51)	1.74 (44)	1/4-28
110 (50)	7.15 (182)	2.00 (51)	1.74 (44)	1/4-28
220 (100)	7.15 (182)	2.00 (51)	1.74 (44)	1/4-28
440 (200)	9.70 (246)	2.00 (51)	2.93 (74)	1/2-20
1,100 (500)	9.70 (246)	2.00 (51)	2.93 (74)	1/2-20
2,200 (1,000)	9.45 (240)	2.00 (51)	2.93 (74)	1/2-20
4,400 (2,000)	13.14 (334)	3.00 (76)	4.27 (108)	7/8-14
6,613 (3,000)	15.04 (382)	3.50 (89)	4.45 (113)	1-8
11,023 (5,000)	15.04 (382)	3.50 (89)	4.45 (113)	1-8



SHACKLE DIMENSIONS

CAPACITY	A	B	E	F
lb (kg)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
22,046 (10,000)	17.45 (443)	10.08 (256)	3.68 (93)	3.13 (80)
44,092 (20,000)	24.76 (629)	13.23 (336)	5.25 (133)	4.88 (124)
66,138 (30,000)	28.00 (711)	15.75 (400)	6.12 (155)	5.44 (138)
110,231 (50,000)	37.50 (953)	19.52 (496)	8.99 (228)	7.25 (184)



SENSOR SPECIFICATIONS

FUNCTIONAL	STANDARD TENSION CELL - TC1	HIGH CAPACITY TENSION CELL - TC2
Functional Overload Capacity*	± 150% of rated capacity	± 150% of rated capacity
Ultimate Overload Capacity*	± 300% of rated capacity	± 500% of rated capacity
Excitation Voltage - Standard	10 VDC	10 VDC
Excitation Voltage - Maximum	15 VDC	15 VDC
Input Resistance	350 ± 3.5 ohms	800 ± 20 ohms
Insulation Resistance	> 2000 m ohms	> 2000 m ohms
PERFORMANCE		
Non-linearity	< 0.03% of rated output	≤ 0.1% of rated output
Hysteresis	< 0.03% of rated output	≤ 0.1% of rated output
Non-repeatability	< 0.02% of rated output	≤ 0.05% of rated output
Creep (after 20 minutes)	0.03% of rated output (determined at rated capacity; performance at reduced loads proportional to applied load)	0.03% of rated output
Nominal Output	3 mV/V ± 0.5%	1.0 mV/V ± 0.5%
Zero Balance	< 1% of rated output	≤ 1% of rated output
Output Resistance	350 ± 5 ohms	700 ± 10 ohms
PHYSICAL		
Temperature Range	Operational: -65° to 200° F (-20° to 80° C)	Operational: -65° to 200° F (-20° to 80° C)
	Compensated: 0° to 150° F (-10° to 70° C)	Compensated: 0° to 150° F (-10° to 70° C)
	Rated Output: < 0.1% of rated output/10° C	Rated Output: ≤ 0.03% of rated output/10° C
	Zero Shift: < 0.05% of rated output/10° C	Zero Shift: ≤ 0.03% of rated output/10° C
PHYSICAL		
Construction	Electroless nickel-plated steel	Alloy Tool Steel
Cable	4-connector shielded cable (AWG22); 10 ft (3 m)	16 ft (5 m)
Environmental Protection Rating	Meets IP67	Meets IP67
Shipping Weight (without hardware)	1 to 4 lb (453 to 1814 g)	12 to 90 lb (6 to 41 kg)

* Overload capacities apply to sensor only. When sensors are used with Kistler-Morse supplied mounting hardware, the maximum system load (including live loads, overloads, environmental, etc.) should not exceed rated capacity.

APPROVALS

TC1 Sensors Only

