Monitor with Confidence

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RST Instruments Ltd.
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ISO 9001

Annular Load Cell

Solid Load Cell

Annular load cell shown with top and bottom platens.

PRODUCT CATEGORY:
LOAD CELLS + PRESSURE SENSORS + STRESS METERS

Vibrating Wire Load Cells

Vibrating Wire Load cells are available in both solid and annular styles to monitor compressive loads. Load elements are manufactured from high tensile, heat treated, stress relieved steel, with precision bearing surfaces. Machined overall, high tensile matching load platens are recommended to provide a smooth parallel bearing surface and spread the load.

Solid style cells incorporate 3 to 6 Vibrating Wire strain sensing elements mounted parallel to the longitudinal axis of the cell. Optional spherical platens are available to enhance alignment to the load axis.

Annular cells incorporate 3 to 6 vibrating wire strain sensors, mounted parallel to the longitudinal axis, equidistant around the circumference.

With the multi sensor configuration, it is possible to obtain accurate readings under mildly eccentric loading conditions, as the sensors are read individually. In multi strand anchors, it is possible to tension the strands uniformly by monitoring the load in each sensor as appropriate.

Submerged service designs are available on special order. The electrical cable to the readout may be either hard wired to the cell or connect via a metal Mil-spec type bayonet connector.

Sensors are read with the pluck and read technique, permitting compatibility with various brands of readouts and loggers. Gauges employing the autoresonant reading technique are available on special order.

> APPLICATIONS

Measurement of loads in tie-backs, struts, ground anchors and rock bolts.

Measure loads during the testing of piles.

> FEATURES

Manufactured from high tensile, heat treated, stress relieved steel, with precision bearing surfaces.

> BENEFITS

- ✓ **Increase Safety**
- ✓ **Increase Productivity**
- ✓ **Custom Options**
- ✓ **High Accuracy**
- ✓ **High Reliability**

High capacity load cells for multi-strand anchors used in the seismic retrofit of a dam.

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SPECIFICATIONS + ORDERING

VW LOAD CELLS SPECS

ITEM	DESCRIPTION
Capacity	225 kN to 10675 kN (50,000 to 2,400,000 lbs)
Overrange Capacity	150% full scale
Sensitivity	0.01% full scale
Accuracy	0.5% full scale
Temperature Range	-40°C to +75°C.
Material	High tensile, stress relieved steel
Hole Size	As requested

ORDERING INFO

Application
Annular or solid cell
Environmental data
Cable type, connection method to cell, and length
Load platens
Maximum load
ID of annular cell
Size limitations

OPTIONAL EQUIPMENT

VW2106 Vibrating Wire Readout
Connector for VW2106 Vibrating Wire Readout
Data loggers
Spherical platens
Terminal stations
Electrical cable
Centralizer bushings, if required

TYPICAL DIMENSIONS: ANNULAR LOAD CELLS †

CAPACITY		I.D.		O.D.		HEIGHT		PLATEN THICKNESS *	
KIPS	KN	IN	MM	IN	MM	IN	MM	IN	MM
136	605	1.4	35.6	3.0	76.2	4.0	101.6	1.0	25.4
200	890	1.75	44.5	3.75	95.3	4.0	101.6	1.0	25.4
255	1135	2.0	50.8	4.125	104.8	4.0	101.6	1.5	38.1
300	1335	2.0	50.8	4.5	114.3	4.0	101.6	1.5	38.1
300	1335	3.0	76.2	5.0	127.0	4.0	101.6	1.5	38.1
400	1780	2.5	63.5	5.25	133.4	4.0	101.6	1.5	38.1
400	1780	3.5	88.9	5.75	146.1	4.0	101.6	2.0	50.8
600	2670	3.0	76.2	6.375	161.9	4.0	101.6	2.5	63.5
600	2670	4.0	101.6	6.875	174.9	4.0	101.6	2.5	63.5
800	3560	5.0	127.0	8.25	209.6	4.0	101.6	3.0	76.2
800	3560	6.5	165.1	9.25	235.0	4.0	101.6	4.0	101.6
1000	4450	5.0	127.0	8.75	222.2	4.0	101.6	4.0	101.6
1000	4450	6.5	165.1	9.8	248.9	4.0	101.6	4.0	101.6
1000	4450	8.0	203.2	10.75	273.1	4.0	101.6	4.0	101.6

† NOTES: These specifications are typical only - custom sizes and capacities are available to suit individual project requirements. All loadcell design stress is 25 ksi

The model number is determined as follows:
eg. VWA-X where X is # of sensors (3, 4, 6 depending on capacity & ID);
VWA-Platen;
VWA – Vibrating Wire Annular (Customer to specify maximum capacity in Kips and hole size in inches)

* Platen thickness is for each of the two platens (top and bottom).

TYPICAL DIMENSIONS: SOLID LOAD CELLS ‡

CAPACITY		O.D.		HEIGHT		PLATEN THICKNESS*	
KIPS	KN	IN	MM	IN	MM	IN	MM
100	445	2.375	60.3	4.0	101.6	1.0	25.4
200	890	3.25	82.6	4.0	101.6	1.0	25.4
300	1335	4.0	101.6	4.0	101.6	1.5	38.1
400	1780	4.625	117.5	4.0	101.6	1.5	38.1
500	2225	5.125	130.2	4.0	101.6	2.5	63.5
600	2670	5.625	142.9	4.0	101.6	2.5	63.5
800	3560	6.5	165.1	4.0	101.6	3.0	76.2
1000	4450	7.25	184.1	4.0	101.6	4.0	101.6

‡ NOTES: These specifications are typical only - custom sizes and capacities are available to suit individual project requirements. All loadcell design stress is 25 ksi

The model number is determined as follows:
eg. VWS;
VWS-Platen;
VWS – Vibrating Wire Solid Load Cell (Customer to specify maximum capacity in Kips)