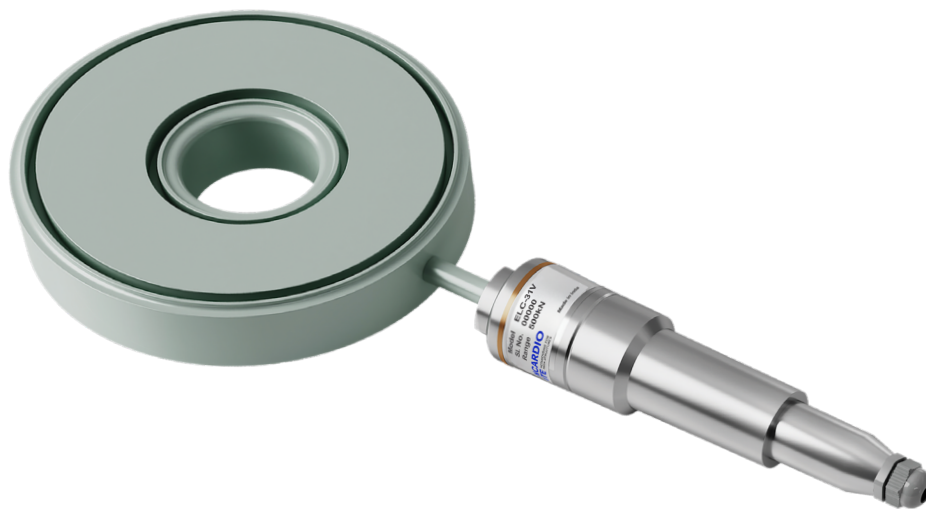


CENTER HOLE LOAD CELL VIBRATING WIRE FLUID FILLED

MODEL ELC-31V

DATASHEET



OVERVIEW

The Encardio Rite model ELC-31V is a precision-engineered vibrating wire hydraulic center hole load cell, specifically designed for civil engineering applications. Constructed from stainless steel and filled with de-aired fluid, this load cell provides durability and accuracy for a wide range of structural monitoring applications.

The ELC-31V load cell is utilized for determining loads in rock bolts, foundation anchors, and soil anchors. It is also effective in measuring roof convergence in underground mines and plays a key role in the proof testing and long-term performance monitoring of various anchor systems. Additionally, it is used to measure compressive loads between structural members, such as tunnel supports or at the junction between a beam and a pile strut.

FEATURES

- **Reliable & accurate:** Offer long-term stability, high sensitivity, and a broad range for dependable measurements in various scenarios.
- **Robust construction:** Made from high-strength martensitic stainless steel, the load cell is highly resistant to corrosion and mechanical stress.
- **Low intrusion, high speed:** Minimal volumetric displacement and fluid-filled design ensure fast, accurate responses, even in dynamic environments.
- **Hermetically sealed pressure sensor:** Sealed under a vacuum of 0.001 Torr, providing superior protection against environmental elements and ensuring long-term reliable performance.
- **Temperature compensated:** Individually temperature compensated to minimize temperature-induced measurement errors.
- **Calibration and Compliance:** Each load cell is calibrated and complies with industry standards, ensuring accuracy and quality.
- **Long-distance signal transmission:** Maintains signal integrity over long distances, ensuring accurate data collection.
- **Versatile datalogging:** Compatible with various readout units for manual data collection. For continuous monitoring, it can be connected to a suitable datalogger, allowing for data acquisition at desired frequencies. Encardio Rite offers a range of NexaWave dataloggers equipped with GSM/GPRS or RF communication capabilities, ensuring reliable and efficient data transmission.
- **Infrastructure data intelligence platform:** Integrates with Proqio software to facilitate data processing, analysis, and real-time visualization, and generates instant alarms for critical events to keep all stakeholders informed.
- **Cross-compatibility:** The load cell can work with any manufacturer's Dataloggers and Data Management Systems.

DESCRIPTION

The ELC-31V load cell is available in capacities ranging from 250 kN to 2000 kN, with an additional option of a 2500 kN load cell without a center hole.

The load cell features a sensitive pressure pad made by joining two stiff steel discs at their periphery. This is connected to a high-precision vibrating wire pressure sensor via a tube. The space between the plates is filled with de-aired fluid.

When a load is applied, the pressure on the fluid changes. This change in fluid pressure is sensed by the pressure sensor's diaphragm, deflection of which alters the tension of the internal vibrating wire, changing its resonant frequency. The measured frequency directly correlates to the variation in load being applied to the load cell.

The load is distributed equally over the loading area of the cell by a thick distribution plate. The load distribution plates can be used both above and below the load cell, to ensure even load distribution across the cell. However, the bottom plate is optional if a suitable bearing plate is included in the installation.

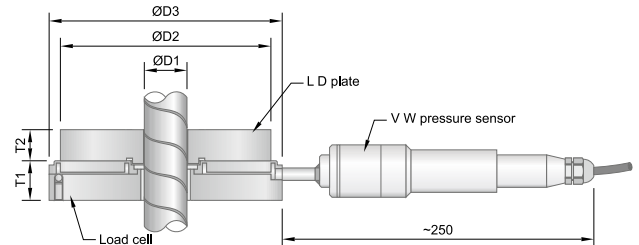
SPECIFICATIONS

| | |
|----------------------|--|
| Type | Vibrating wire, fluid filled |
| Range (kN)/ID (mm) | 250/52, 500/52, 750/78, 1000/105, 1500/105, 2000/130, 2500/0 |
| Over range capacity | 110 % |
| Calibration accuracy | 1% fs |
| Non linearity | 2 % fs |
| Temp. effect on zero | <0.06 % fs/°C |
| Pressure sensor | Electron beam welded |
| Temperature limit | -10 to 55°C |
| Cable connection | Six pin glass to metal seal |

ORDERING INFORMATION

Model ELC-31V- X/Y
Capacity kN/ID _____

DIMENSIONS



| Vibrating wire hydraulic center hole load cell | | | | | | Load distribution/bearing plates (each) | | | |
|--|------------|-------|------------|-------------|--------|---|------------|-------------|--------|
| Capacity kN | ID (D1) mm | D2 mm | OD (D3) mm | Ht. (T1) mm | Wt. kg | ID (D1) mm | OD (D2) mm | Ht. (T2) mm | Wt. kg |
| 250 | 35 | 123 | 139 | 28 | 4 | 35 | 123 | 25 | 3 |
| 500 | 52 | 144 | 160 | 28 | 5 | 52 | 144 | 35 | 4 |
| 750 | 78 | 180 | 196 | 28 | 6 | 78 | 180 | 35 | 6 |
| 1000 | 105 | 219 | 235 | 28 | 8 | 105 | 219 | 40 | 9 |
| 1500 | 105 | 249 | 235 | 28 | 8 | 105 | 249 | 40 | 13 |
| 2000 | 130 | 265 | 281 | 30 | 12 | 130 | 265 | 50 | 16 |
| 2500 | 0 | 260 | 281 | 30 | 15 | 0 | 260 | 50 | 20 |

*All specifications are subject to change without prior notice

DATASHEET | 1153-12 R4



Dams



Mining



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Transportation



Construction



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Energy



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Pipelines



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