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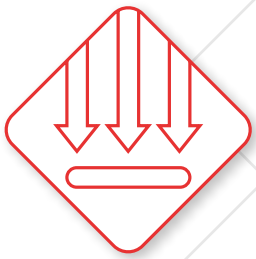
Electrical Center Hole Load Cells



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Instruments and Systems for Geotechnical and Structural

Electrical Center Hole Load Cells

Description

Load cells for tie rods (toroidal cells) are generally used for measuring the stress state of tie rods and reinforcing bars. Load cells of both hydraulic and mechanical type are available, with direct manual or automatic readout, with electrical strain gauge or vibrating wire sensor.

Oil cells are also available, with manual reading through a Bourdon pressure gauge. Toroidal cells are usually installed with the aid of two special plates for load distribution which serve the purpose of adjusting the surface contact of the cell with the point of support and contrast.

Applicazioni

Toroidal cells allow the accurate measurement and monitoring of stress-strain failure caused by the relaxation of tie rods in use or pressure increases due to the force of earth on retaining structures. They are therefore used for:

- **Measurement of changes in tie bars rods or strands**
- **Diaphragm walls, bulkheads and containment structures**
- **Galleries**
- **Dams**
- **Bridges**
- **Viaducts**
- **Riveting of sheet metal and rock anchors**
- **Landslides**
- **Various**

Features and benefits

- **Robust construction, stainless steel, suitable for harsh environments**
- **IP67 protection**
- **Strain gauge or vibrating wire technology**
- **Wide range of measuring range and sizes**
- **Easy installation**
- **Economical**

Measuring principle

The principle is simple; a circular toroidal-shaped stainless steel cell, is equipped with strain gauge sensors fixed internally to the longitudinal part, guaranteeing sensitivity of 10 ÷ 20Kg/cm2.

The load on the cell deforms its longitudinal body, the strain is perceived by the sensor and measured and data provided as a variation of resistance.

Appropriate portable and automatic units are available for taking measurements. Special regularization and load distribution plates optimize the installation of the instrument. Instruments with simple Bourdon pressure gauge without automatic sensors are available.

Technical specifications – Strain gauge sensor

Measuring Range	From 200 to 2000 KN (others upon on resquest)
Sensitivity Rating	2 mV/V
Tolerance on sensitivity	+/- 0,1% f.s.
Combined error (non-linearity, hysteresis, repeatability)	+/- 0,2% f.s.
Thermal Drift of the compensated range (zero)	+/- 0,005% f.s./°C
Input and output resistance	1400-1500 Ohm
Power Supply	2-15 Vcc
Compensated temperature range	-10 …… +40 °C
Operation Temperature	-20 …… +70 °C
Maximum overcharge allowable	150% f.s.
Failure Load	>300% f.s.
Protection	IP67
Material	Stainless steel

Dimensions and full scale

CODICE	"Φ" inside hole (mm)	"Φ" outside hole (mm)	"Φ" force load crown (mm)	FS (KN)
CTE-018	18	50	30	200
CTE-036	36	73	50	300
CTE-60	60	160	92	500 - 750 - 1000
CTE-120	120	200	150	1000 - 1200
CTE-16556	165	250	190	1000 - 1500 - 2000
Other	Upon request	Upon request	Upon request	Upon request

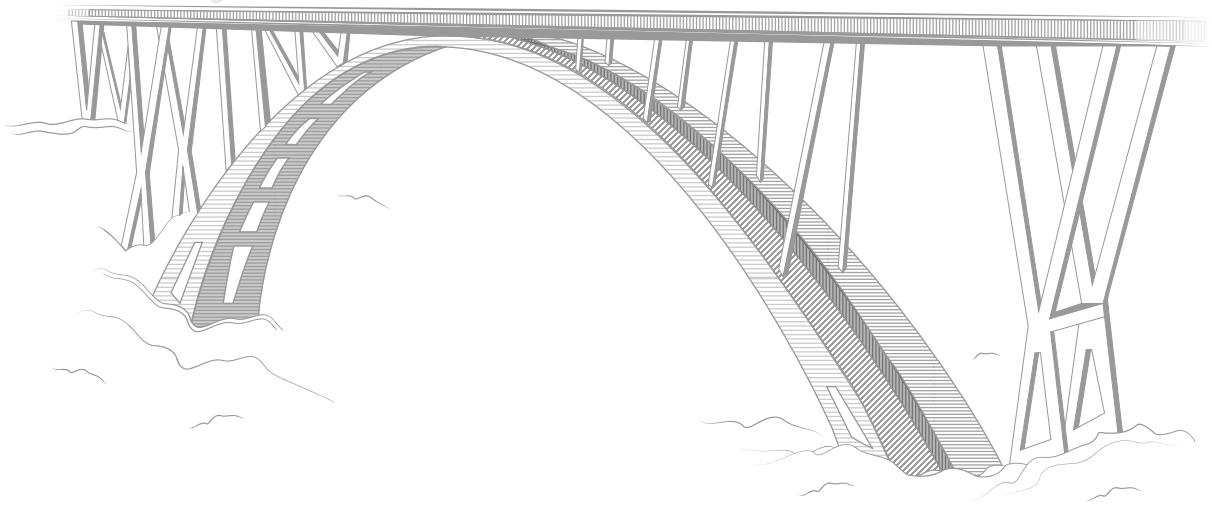
Technical specifications – Vibrating wire sensors

Range	15 KN, 20 KN
Sensitivity	1÷ 2 KN/cm^2
Precision	0,2% f.s.
Working Temperature	-40 °C ÷ +70 °C
Connection cable	6 x 2 x 0,5 mm^2

The Company

For over 40 years we have been producing precision and large facility monitoring instruments sold throughout the world.

Accuracy in design, efficiency in construction, reliability in management; these are the prerogatives that every major work must have and that Structural Monitoring Systems must guarantee.



Technical assitance

If you have any requests or questions about our instruments or if you have special needs that require different solutions from the standard, please contact us. Our team will provide all the necessary information and will be very happy to work with you to study, develop and customize instruments and solutions suitable for your specific needs.

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