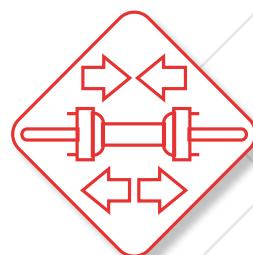




Vibrating wire extensometer for concrete

MOD. ECV. S. 1507133 E 3007133



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Instruments and Systems for Geotechnical and Structural

Vibrating wire extensometer for concrete

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Description

The vibrating wire extensometer for concrete, in the ECVCS, 150/133 and 300/133 models, was designed for direct application in reinforced concrete structures where the machining actions that are carried out in the vicinity of the installed instrument can be quite heavy and invasive and where the risk of possible damage to the instrument itself during these phases is evident. This type of instrument was specifically created for applications in reinforced concrete dams, where it is necessary to satisfy two fundamental requirements: sturdiness and reliability over time.

Our extensometer was designed and built to guarantee both of these requirements, in addition to many others typical of vibrating wire sensors.

The thermal expansion coefficient of the entire instrument is very close to that one in concrete; this minimizes the disturbing effect of the temperature. The connecting cables and joints do not affect the measurements.

The connection to the measuring stations is carried out by means of a highly insulated cable, suitable for being directly buried in the concrete. Special models, with particular values of the above characteristics, are supplied on request.

Applications

The instrument could be applied in:

- **RCC and Concrete Dams**
- **Earth dams with inspection gallery**
- **Spillways, bridges and large structures in general**

Features and Benefits

- High resolution and sensitivity
- Resistant, ideal for long-term monitoring
- Reliability
- Can be integrated into automatic monitoring systems
- Absence of drifts
- Resistant to induced phenomena

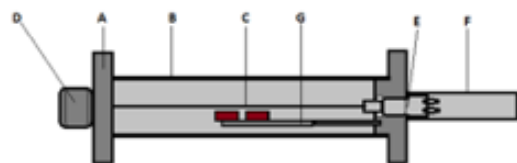
Principle of Measurement

The instrument consists of two end flanges (A), connected by a support tube (B); the vibrating string (C) is fixed between the two heads. One of the two flanges carries a closing cap (D) to access the nut for adjusting the tension of the vibrating wire. The other flange carries the watertight terminal (E) for connecting the conductors to the measurement stations; the connection is protected by a rigid fitting.

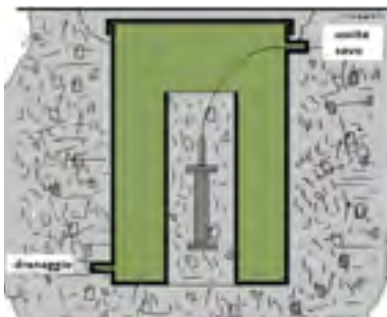
These instruments are connected to our DEC 3000 Readout Unit. A bipolar cable is used for extensometer measurements and a tripolar cable if you also want to perform thermometric measurements; in both cases the section of the conductors is 1 mm² and the external diameter of the cable, which is insulated in Santoprene, is 11 mm. Various accessories are available for the installation of the strain gauges to be arranged in a rosette configuration, or for the measurement of the deformations in the three orthogonal directions; vertical, horizontal and 45 ° inclined positional formwork, rods for checking the position during the casting phase, and formwork for installing the insulated strain gauge.

This formwork is particular and allows you to install a strain gauge in the body of the structure without being subjected to the loads of the structure but which is only affected by the effects of the shrinkage of the concrete (F)

Both flanges have threaded holes for fixing bolts that increase anchoring and for orient the tool in the concrete mass.



The excitation and the detection of the vibrations of the string are given by an electromagnet (G) whose coils constitute an electrical thermometer with variation of resistance thus also providing the temperature value. The connection to the measuring stations is carried out by means of a highly insulated cable, suitable for being directly buried in the concrete. Special models, with particular values of the above characteristics, are supplied on request.



Technical Features

Measuring Base	150 mm o 300mm
Length of the wire	133mm for both models
Sensitivity	0,0%4 del f,s
Range	0,2mm; 0,4mm
Accuracy	0,2% .s

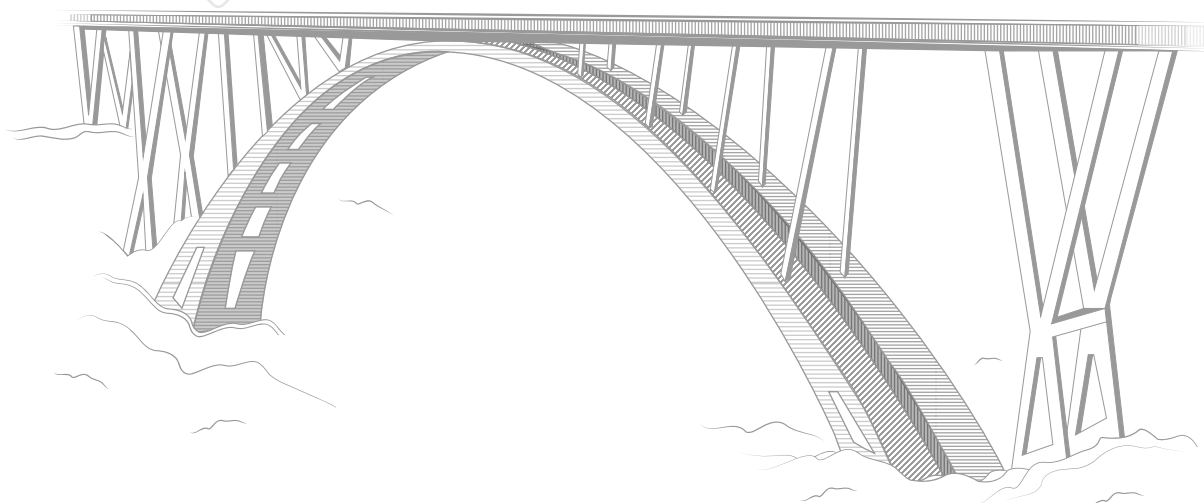
Accessories and related products

Junction Panel	Available in different models for connecting different instruments
Selection and Measurement Panel	Complete measuring panel with MUX cards for automatic selection
Measurement Panel	Simple measuring panel
DEC 5	Portable reading unit
DEC 3000	Portable datalogger
CUM 3000	Multi-channel Datalogger
MUX	Multiplexer for connecting several sensors to the Datalogger
Horizontal Formwork	Formwork for installing the strain gauge in a horizontal position
Vertical Formwork	Formwork for installing the strain gauge in a vertical position
Inclined Formwork	Formwork for installing the strain gauge in a 45 ° inclined position
Conical Sticks	Cylindrical bar in stainless steel for verifying the maintenance of the strain gauge of the installation direction
Formwork for insulated	Formwork for installing the insulated strain gauge, with cover.
Cable for concrete to be embedded	2x1 mm ² cable, Santoprene insulated with thick insulation; Dest = 11mm
Cable for concrete and temperature to be embedded	3x1mm ² cable, Santoprene insulated with thick insulation, Dest = 11mm
Cast resin joint	Cast resin joint complete with two-component resin for joining instrument cables

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 assistance

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.

All data present in the sheets could change without notice.

Please check the release carefully and for more details contact Pizzi Instruments.

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