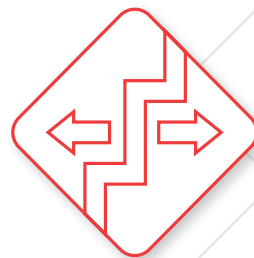


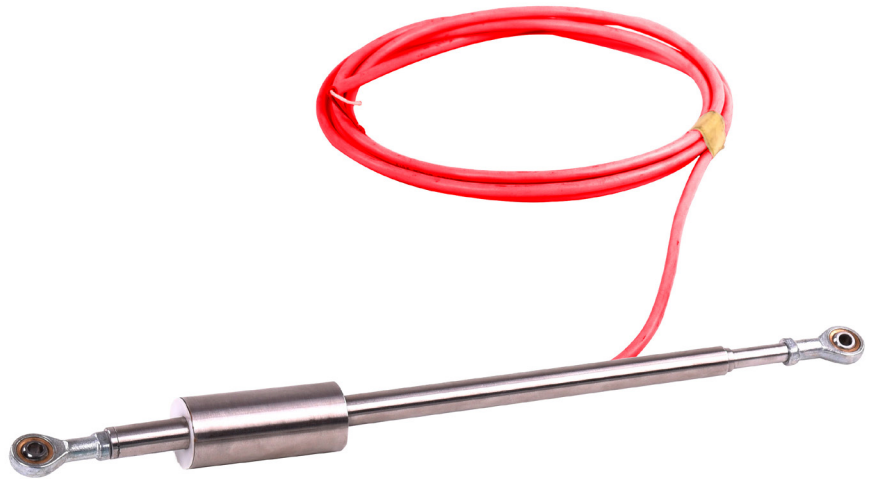
## Vibrating wire long stroke extensometer



[www.pizzi-instruments.it](http://www.pizzi-instruments.it)

Instruments and Systems for Geotechnical and Structural Monitoring

## Vibrating wire long stroke extensometer



### Description

Long-stroke vibrating wire extensometers, commonly called “crackmeters”, are used to measure surface movements of structural cracks and joints, rock movements and ground deformations.

They consist of a cylindrical body in stainless steel which houses the vibrating wire transducer and a sliding rod connected to the transducer itself through a spring. The two final parts of the instrument are equipped with anchoring devices with self-aligning spherical joints, for fixing over the slot or joint whose movements you want to measure.

Optional accessories are available for correct installation even in particular applications, such as cracks at corners or edges, where normal fixtures cannot be used.

The long stroke vibrating wire extensometers, developed by Pizzi-Instruments, are produced with measuring ranges from 5mm up to 100mm, greater ranges are available upon request.

Models with IP67 protection and IP68 protection with pressure resistance up to 100 meters of water column or higher are available. Long-stroke strain gauges can be applied on mechanical, biaxial or triaxial devices and supports, to control deformations in two or three orthogonal directions (2D or 3D control). These vibrating wire instruments are compatible and usable with most of the vibrating wire data loggers available on the market.

However, we suggest, for manual readings, our portable datalogger DEC 3000 and DEC5 and, for automatic readings and systems, our datalogger CUM3000, VWBrick 2, VW-Brick 8; they can be integrated into automatic monitoring systems with real-time control of the phenomenon, management of local and remote alarms in real time. Long-stroke vibrating wire strain gauges can be developed and manufactured with different measuring ranges or models with characteristics different from the standard on specific needs.

### Applications

- Cracks in structures or rock
- Structural Joints
- Dams
- Galleries
- Rock Clusters
- Reinforced concrete or masonry constructions
- Monuments and buildings
- Landslides
- various
- Immersion applications at great depths

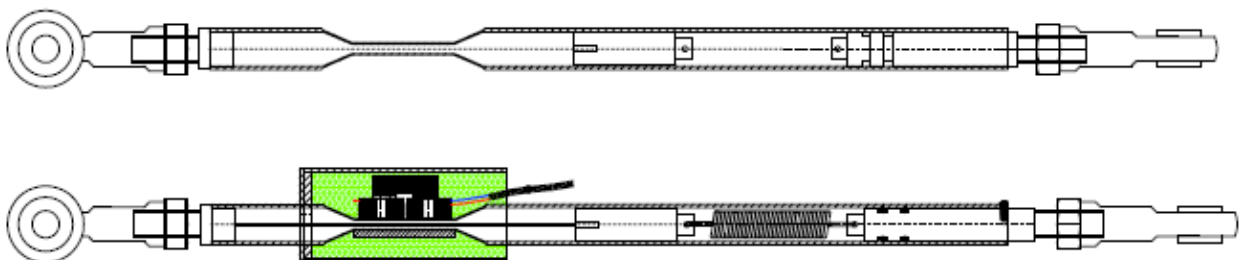
### Features and advantages

- Elevata robustezza
- High strength
- Ease of Installation
- Excellent resolution and sensitivity
- Excellent precision and linearity
- Accessories for 3D movement monitoring
- Completely in stainless steel
- Integrated temperature sensor (on request)
- Ideal for long-term monitoring
- High reliability over time

### Measurement principle

The body of the instrument is made from two stainless steel tubes of different diameters and such as to slide one inside the other. A harmonic steel string is placed inside the two cylinders, the ends of which are connected, through an amplification system, to the two tubes. The sliding of the two tubes between them causes an elongation or shortening of the string which will result in a variation of the vibration frequency of the same. Since the two ends of the instrument are fixed at the two points whose distance variations are to be measured, the elongation of the string will be proportional to the variation in the distance between them.

They have an IP67 degree of protection, guaranteed by two ORings placed to protect the sliding area of the two tubes; the IP68 version is equipped with three O-rings with a special profile, that is, like those used for sealing in pistons, or with external bellows.



## Technical Features

Technology	Vibrating wire
Sensor of temperature	integrated
Range	5 ÷ 100 mm
Accuracy	0,2% f.s.
Linearity	< ±0,2% f.s.
Resolution	< 0,02% f.s.
Frequency Range	500 Hz ÷ 1000 Hz
Material	Stainless steel
Wire	Harmonic Steel
Anchorage type	Dowels, threaded rods, fixtures
Protection	IP67 or IP68 until 10 atm
Signal Cable	2 x 0.5; 3 x 0.5 with integrated thermistor
Maximum distance to Datalogger	1000 mt

## Accessories or related products

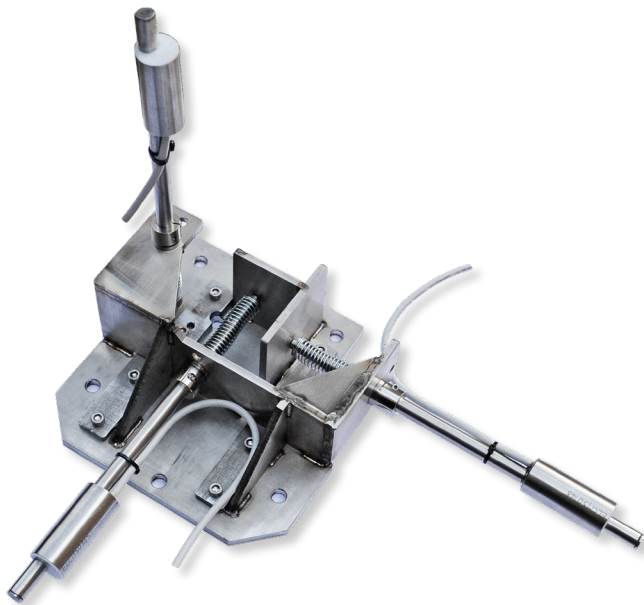
3D Jointmete	Allows the installation of 3 strain gauges for the control of fixtures in the 3 directions x; y; z.
Fixing Kit for axis Y	Allows the assembly of the crack meter for the control of the Y axis
Fixing kit for axis Z	Allows the assembly of the crack meter for the control of the Z axis
Junction Panel	Available in different models for the connection of different instruments
Multipolar Cable	Available with “n” conductors for connecting several sensors with a single cable
DEC 5	Portable readout unit
DEC3000	Portable Datalogger
CUM3000	Mutichannel Datalogger
MUX	Multiplexer for connecting different sensors to the Datalogger

### Vibrating wire 3D jointmeter

The vibrating wire 3d Jointmeter, is used to control and monitor the movements in 3 orthogonal directions of the anchor points. It is generally applied in the monitoring and control of the joints in the dam body or in the masonry.

The 3D joint meter consists of two steel elements (3D block), positioned astride a slot, on which three longstroke vibrating wire strain gauges are fixed.

The measurements can be performed either manually, through our portable control units, or automatically by connecting the sensors to an automatic acquisition system.



Our instrument maintains the possibility of performing manual measurements, in addition to the automatic ones, by means of a mechanical comparator. This important function, which uniquely characterizes our jointmeter, integrates in the same instrument a system for checking, checking and validating electrical measurements, as well as an alternative measurement system in case of interruption of sensor measurement.

### Technical Features of the triaxial group

Material	Stainless steel
Dimension	L x L x H 220 mm x 200 mm x 100 mm

## 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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