Embedded VW Strain Gauges

Model 5508-RT-EM Series

FEATURES

- ***Long-term reliability***
- ***High resolution and accuracy***
- ***Adjustable 3000 microstrain range***
- ***Very high compliance***
- ***Rugged construction***
- ***Temperature reading***
- ***Flanges fitted with mounting holes***
- ***Frequency signal easy to process and transmit over long distances***

APPLICATIONS

The EM Series of Vibrating Wire Strain Gauges are designed for concrete embedment in order to measure strains caused by stress variations. The stress can also be evaluated when the concrete's modulus of elasticity is known, following compensation for temperature, creeping and concrete reaction effects. The EM is embedded in structures such as:

- *Dams*
- *Nuclear power plants*
- *Bridges and overpasses*
- *Tall buildings*
- *Tunnels*
- *Harbours*
- *Foundations, walls, linings, footings, and piles*

EM-5 Strain Gage

Description

The EM is composed of two end pieces joined by a tube that protects a length of steel wire. The wire is sealed in the tube by a set of O rings on each end piece. Both end pieces have a flat circular flange to allow transfer of concrete deformation to the wire. An electromagnet is fitting at the centre of the gauge. Strain developing in the concrete modifies the tension in the wire and its resonant frequency, which is read by the electromagnet.

*The **EM-5** is the standard model and is used in different types of structures as mentioned above. The **EM-I0** consists of a rugged version to be embedded in concrete with coarse aggregates. The shorter **EM-2** model is designed for laboratory use or for limited spaces.*

Unless specified otherwise, the gauge tension is factory-adjusted at mid-range.

The gauge is very compliant. It does not induce stresses in the host media and can therefore be embedded in young curing concrete as well as in hard, synthetic materials such as resins, fibreglass and urethane.

A thermistor incorporated into the EEM supplies information on the effects of temperature on the materials.

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FOR FURTHER INFORMATION
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Installation

There are several ways to install the gauge:

- *Attaching it to a rebar with tie wire*
- *Inserting it directly into wet concrete or grout*
- *Pre-casting it in briquette with the same mix for subsequent embedment*

A mounting rosette that allows gauges to be precisely oriented is offered as an accessory. Also offered is a "no-stress" strain gauge that consists of a compressible cylinder filled with the concrete mix from the mass being poured.

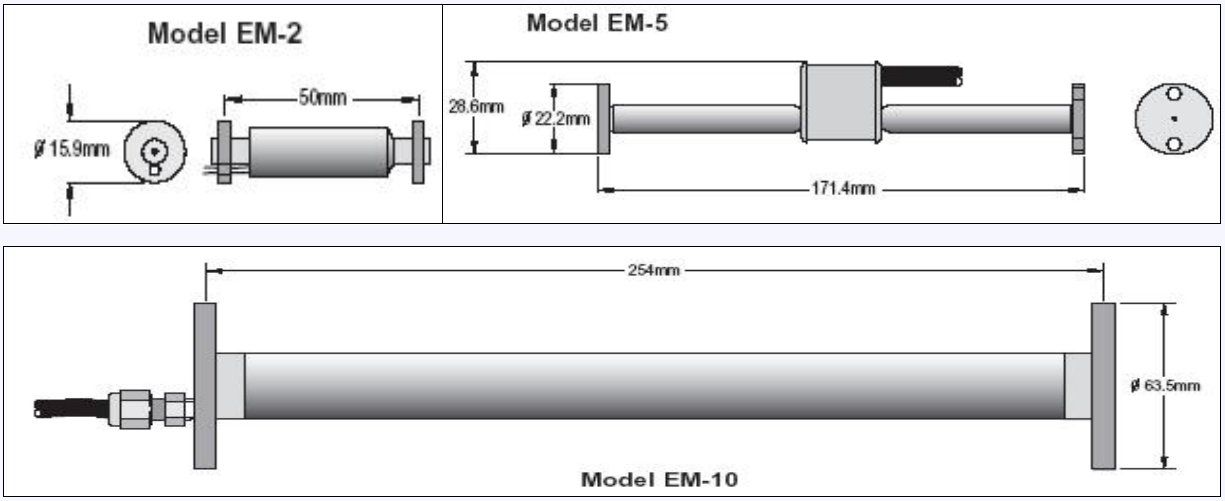
This unit, containing an EM, is placed adjacent to the gauge installation and is used as a reference to measure any internal variation of strain in the concrete due to ageing, temperature, humidity and factors independent of external loads.

Accessories

- *Portable readout units (MB-6T(L), PAMETO VW)*
- *Data acquisition system (SENSLOG)*
- *Rosette mounting block*
- *"No-stress" strain gauge*
- *Terminal and junction boxes.*
- *Lightning protection box*
- *Splicing kit*

Options

- *Type of thermistor and cable*



Specifications

Model:	EM-2	EM-5	EM-10
Strain Range:	3000 με		
Resolution: - *Wire:* - *Temperature:*	0.4 με	1 με (min.)	0.4 με
Operating Temperature Range:	-50°C to +60°C		
Thermistor: - *Type:* - *Accuracy:*	3 kW (2 kW optional) ± 0.5% F.S.		
Electrical Cable:	- IRC-41A (standard): 2 twisted shielded pairs 22 AWG, 6.2 mm O.D., PVC jacket - IRC-41P (optional): identical to IRC-41A except that jacket is polyethylene		

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