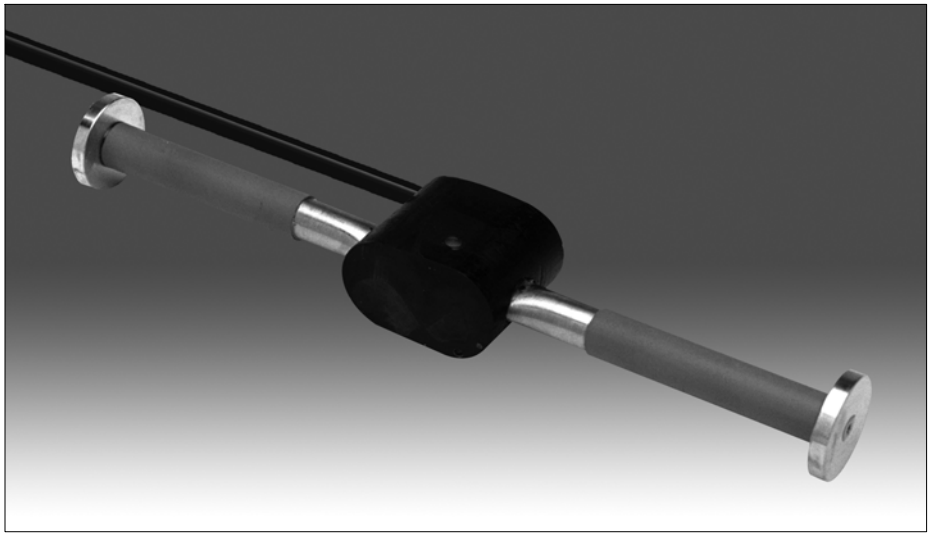
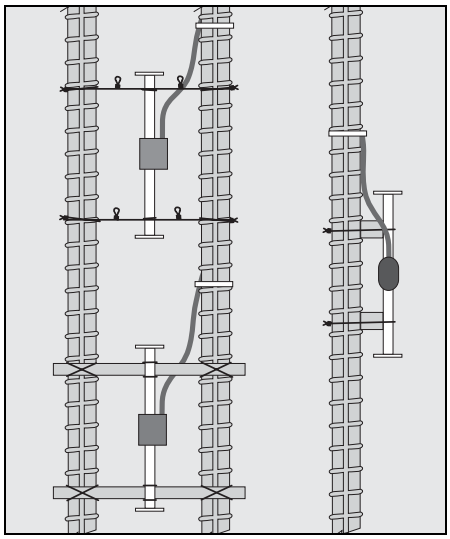
VW Embedment Strain Gauge





Applications

VW Embedment Strain Gauges are used to measure strain in reinforced concrete and mass concrete structures.

Operation

The strain gauge operates on the principle that a tensioned wire, when plucked, vibrates at its resonant frequency. The square of this frequency is proportional to the strain in the wire.

The gauge is constructed so that a wire is held in tension between two end flanges. Loading of the concrete structure changes the distance between the two flanges and results in a change in the tension of the wire.

An electromagnet is used to pluck the wire and measure the frequency of vibration. A change in strain is the difference between the current reading and the initial reading multiplied by a gauge factor.

Installation

In reinforced or pre-stressed concrete, the strain gauge is usually tied to the reinforcing cage, as shown above. Some specifications require that the gauge be cast in a concrete briquette prior to installation.

In mass concrete applications, the gauge may be installed either before or immediately after placement of the concrete.

Advantages

Permanently Attached Coils: The coils used to excite and read the vibrating wire are permanently attached to the gauge. This prevents accidental separation of the coil from the body during installation and wiring operations.

Built-in Temperature Sensor: The temperature sensor is useful for monitoring temperature and for making temperature corrections.

Reliable Signal Transmission: The strain gauge provides a strong signal that can be transmitted reliably over long distances with properly shielded cable.

EMBEDMENT STRAIN GAUGE

VW Embedment Strain Gauge 52640126

Vibrating wire strain gauge for monitoring strain in reinforced or mass concrete. Includes a built-in thermistor or RTD. Signal cable not included.

Range: 3,000 microstrain, set mid-range.

Resolution: 1 microstrain with VW Indicator.

Accuracy: ± 0.1% FS.

Thermal Coefficient: 12 ppm /°C.

Length: 150 mm (5.875").

SIGNAL CABLE

Signal Cable 50613324

Shielded cable with four 24-gauge tinned-copper conductors and flexible polyurethane jacket rated to 80°C(176°F).

Terminal Box for 6 sensors 57711606
Terminal Box for 12 Sensors. 57711600
Terminal Box for 24 Sensors. 97711624

Provides terminals for signal cable from 6, 12, or 24 sensors. Sensors are selected by rotary switch. Dimensions of 6-sensor box are 240 x 190 x 120 mm (9.5 x 7.5 x 4.75"). Dimensions of 12 and 24-sensor boxes are 290 x 345 x 135 mm (11.5 x 13.5 x 5.25").

Universal Connector. 57705001

For terminating a single cable. Connector not required when sensors are connected to a terminal box, a data logger, or to the terminal posts on the VW Data Recorder.

READOUT

VW Data Recorder. 52613500
Jumper Cable for Terminal Box . . .52613557

The VW Data Recorder displays VW sensor readings in Hz or H^2/1000 and thermistor data in degrees C. It can also record the readings. See separate datasheet.

The jumper cable is required when the VW Data Recorder is to be connected to a terminal box or to a connector attached to signal cable.

DATA LOGGERS

VW MiniLogger 52613310

The VW MiniLogger is a compact, low-cost data logger for one sensor. See separate datasheet.

Campbell Scientific Data Loggers

Campbell data loggers with a VW interface and the AM16/32 multiplexer can accommodate 16 sensors with temperature readings or 32 sensors without without temperature readings.

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