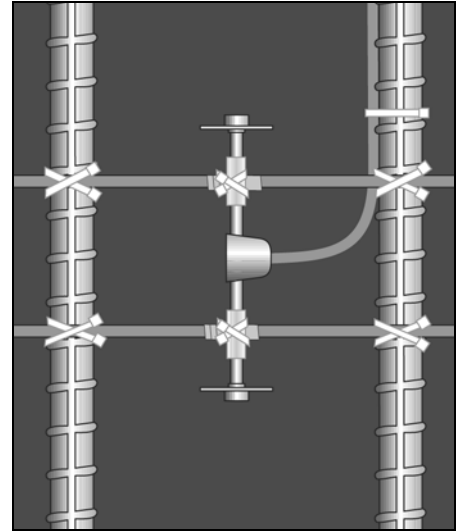
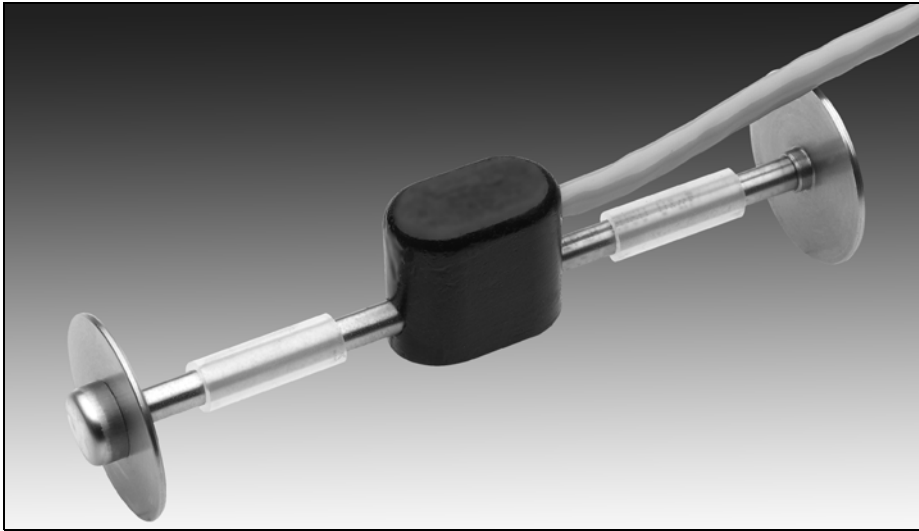


VW Embedment Strain Gauge



Applications

VW Embedment Strain Gauges are used to monitor 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.

VW EMBEDMENT STRAIN GAUGE**Standard Strain Gauge**52650126**Long-Base Strain Gauge**52640250

Vibrating wire strain gauge for monitoring strain in reinforced or mass concrete. Includes a built-in thermistor or RTD. Requires signal cable.

Gauge Length: Standard gauge has gauge length of 140mm (5.5"). Long-base gauge has gauge length of 250 mm (9.8"). Gauges can be special ordered with gauge lengths from 50 to 250 mm (2 to 10").

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

Resolution: 1 microstrain with VW Data Recorder.

Accuracy: $\pm 0.1\%$ FS.

Thermal Coefficient: 11 ppm / °C.

Operating Temp: -20 °C to 80 °C.

SIGNAL CABLE**Signal Cable** 50613324

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

Universal Connector 57705001**Universal Terminal Box** 57711600

Provides connections for 12 sensors. Indicator plugs into universal connector on panel. Sensors selected by rotary switch. Weatherproof fiberglass box is 290 x 345 x 135 mm deep (11.5 x 13.5 x 5.25").

READOUTS

Compatible readouts include the VW Data Recorder and other pluck-type VW readouts. See separate data sheets for details.

DATA LOGGERS

Compatible with Campbell Scientific CR10X datalogger with VW interface. See separate data sheet for details.