REBAR STRAIN METER

Model SIS - VWS-4000 series vibrating wire Rebar Strain Meters (often known as 'sister bars') are designed to be embedded in concrete to measure strains due to imposed loads in mass concrete. The location of installation defines whether it is a Rebar Strain meter or a Sister Bar.

SISTER BAR

The VWS-4000 Sister Bar is installed by tying it alongside an existing length of rebar within the cage.

REBAR STRAIN METER

The VWS-4001 Rebar Strain Meter is installed by welding it into the existing rebar cage at a location within the structure where loads can be accurately passed from the concrete into the gauge. They comprise two lengths of ribbed rebar welded to a central gauge section. The central gauge section has a miniature stainless steel, hermetically sealed vibrating wire strain gauge element, fitted along the longitudinal axis of the gauge. They are normally installed in pairs within the structure on either side of the neutral axis to separate bending moments from axial loads. 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 consists of two end blocks with a tensioned steel wire between them. Around the wire is a magnetic coil which when pulsed by a vibrating readout or data logger interface plucks the wire and measures the resultant resonant frequency of vibration. As the steel or concrete surface undergoes strain the end blocks will move relative to each other. The tension in the wire between the blocks will change accordingly thus altering the resonant frequency of the wire.

The coil units and cable connection are encapsulated with a proprietary rigid epoxy resin to keep the gauge de-bonded from the concrete.

FEATURES:

- Reliable long-term performance
- Rugged, suitable for demanding environments
- High accuracy
- Insensitive to long cable lengths
- Direct concrete embedment

TYPICAL APPLICATION:

The Rebar Strain Meter is designed to measure:

Concrete Piles
Tunnel Linings
Mass concrete structures
Diaphragm walls and barrettes

SPECIFICATION

Thermistor 3k 0hms at 25°C

Over-range +20%

Resolution 0.4με

Accuracy ±0.5%FS

Non-linearity <0.75%FS

Operating range 2500 micro strain

Cable 2 pair PUR outer sheath

Installation Direct Embedment

Effective Gauge Length 50mm (nominal)

Debonded Length 175mm

Overall Length 1.39m

Standard Diameter 16mm

Coefficient of thermal expansion 12ppm/ºC