



**PRODUCTS**  
**VIBRATING WIRE REBAR**  
**STRAIN METERS**  
**( SISTER BARS )**



**Applications:-**

Strain determination in:-

- Concrete Piles
- Tunnel Linings
- Mass concrete structures
- Diaphragm walls and barettes

**Features:-**

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

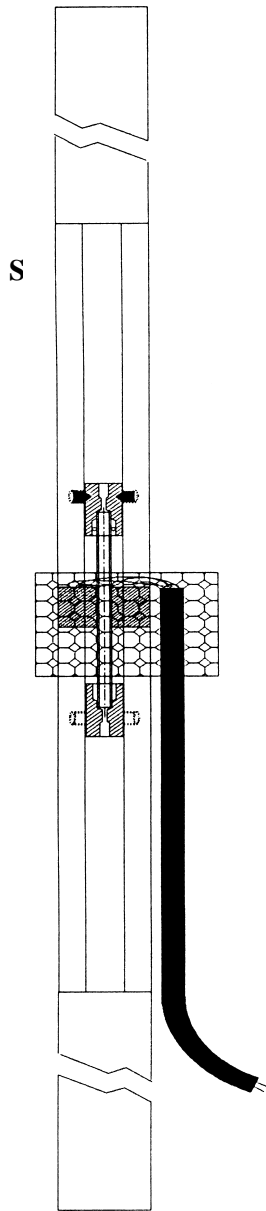
**GAGE TECHNIQUE INTERNATIONAL** vibrating wire Rebar Strain Meters (commonly known as “sister bars”) are designed to measure strains in mass concrete.

The Rebar Strain Meter comprises of 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 coincident with the longitudinal axis of the gauge. Incorporated within the gauge section are two orthogonally mounted coils for excitation and output of the vibrating wire strain gauge element. The coil units and cable connection are encapsulated within a proprietary rigid sub-sea grade polyurethane resin.

Sister bars are very long relative to their diameter and each rebar extension is in excess of fifty times the bar diameter to satisfy bond length requirements. To prevent bonding to the concrete, the central gauge portion is fitted with a polyolefin sleeve. As the overall length of the instrument is long, inclusion effects are minimal.

**GAGE TECHNIQUE INTERNATIONAL** vibrating wire Rebar Strain Meters are particularly rugged and reliable. They are particularly applicable for strain measurements in mass concrete pours where placing of concrete is remote and uncontrolled such as typically occurs in diaphragm walls or deep piles, since the instruments are capable of withstanding impact from tremie pipes and large concrete flows. For installation, the sister bars are simply tied by soft iron tie wire to an adjacent reinforcing bar. As the sister bars are of long length, they are readily able to maintain their orientation to the reinforcing cage

Vibrating wire Rebar Strain Meters output a frequency signal, and are therefore insensitive to resistance changes in connecting cables caused by contact resistance or leakage to ground. Cable may be readily and simply extended on site without special precautions. Gauges may be read up to 1000 metres away from their installed location without change in calibration. Thus are capable of being read by the majority of vibrating wire readout equipment, by Datataker and Campbell Scientific data loggers with a vibrating wire interface module, or similar devices.



**SPECIFICATION**

Installation	Direct embedment
Effective Gauge length	50 mm ( nominal )
Debonded length	175 mm
Overall length	1.39 m

**15 mm**

Resolution	0.5 microstrain
Strain range	2500 microstrain
Coefficient of thermal expansion	12 ppm /deg C

Ordering Information required

- Cable length
- Rebar size
- Thermistor
- Lightning protection

**Options and Accessories**

- Rebar size
- Thermistor
- Cable length
- In-house calibration
- NAMAS calibration
- High temperature version
- Readout units
- Terminal units
- Thermistor readouts
- Data-logger systems

Please see our other data sheets for details of readout equipment, terminal boxes and data loggers specific to vibrating wire devices.

Our technical staff have extensive experience in the use of vibrating wire devices in Civil and Geotechnical projects. We are always ready to advise you on the correct technical specification for your project.