

Bonded Strain Gauge Sister Bar

Applications

The Bonded Strain Gauge Sister Bar is designed to be used for monitoring strain changes in concrete structures. With the optional thermistor they can also be used to monitor temperature gradients of concrete during or after curing. Typical applications include:

- Reinforced or unreinforced piles and mass concrete
- Monitoring strains in reinforcing bars during construction, pile testing, and service life.
- Monitoring of strain due to load and induced strain during testing
- Diaphragm and slurry walls
- Monitoring of bridge and dam construction

Features

- Integrally attached cable to length required
- Optional Temperature Sensor
- Optional waterproof field splicing kits

The Technology

The small diameter sister bar consists of a nominal 12mm diameter rebar that is 1M long. Instrumentation grade T rosette strain gauges are attached using meticu-



lous cleaning and gauging procedures. The gauges are connected in a full bridge configuration and waterproofed to withstand pressures seen in concrete construction. The full bridge configuration reduces temperature dependence to a minimum and virtually eliminates spurious data due to bending.

The additional benefit of strain gauges is having the range of ± 3000 microstrain without requiring multiple range VW type sister bars. Strain gauge sensors can also be read by a large variety of

data logging equipment without the need for specialized frequency converters and excitation modules.

Installation

The sister bar can be directly welded into a rebar cage prior to concrete emplacement or it can be held in position with tie wire or nylon tie straps. Sister bars can be installed in pairs on opposite sides of a neutral axis to monitor strain due to bending in walls. Three bars can be utilized at 120 degrees in piles to determine strain due to directional transverse loading.

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Specifications

Range	±3000 microstrain
Resolution	<0.5 microstrain
Accuracy	±1% FS
Temperature Range	-20 to +80°C
Frequency Range	1800-2800Hz
Strain Gauge Output	350 ohm full bridge
Strain Gauge Zone Diameter	25mm
Sister Bar Diameter	12mm (.5")
Reinforcing Bar Length	1 meter (36")

Coil Housing

Type	Integral, with Thermistor
Standard Cable Lengths	3, 10 & 25m
Thermistor Type	NTC 3k Ω
Thermistor Accuracy	±0.5°C
Thermistor Resolution	±0.1°C
Water Proof Rating	Up to 2000kPa
Cable Weight Per Metre	30g
Cable Type	4 Core PVC Sheath, Foil Screen & Drain Wire 4mm Ø

Installation Accessories

- Nylon Ties
- Colored Adhesive Tapes

Readouts

- Handheld Readout