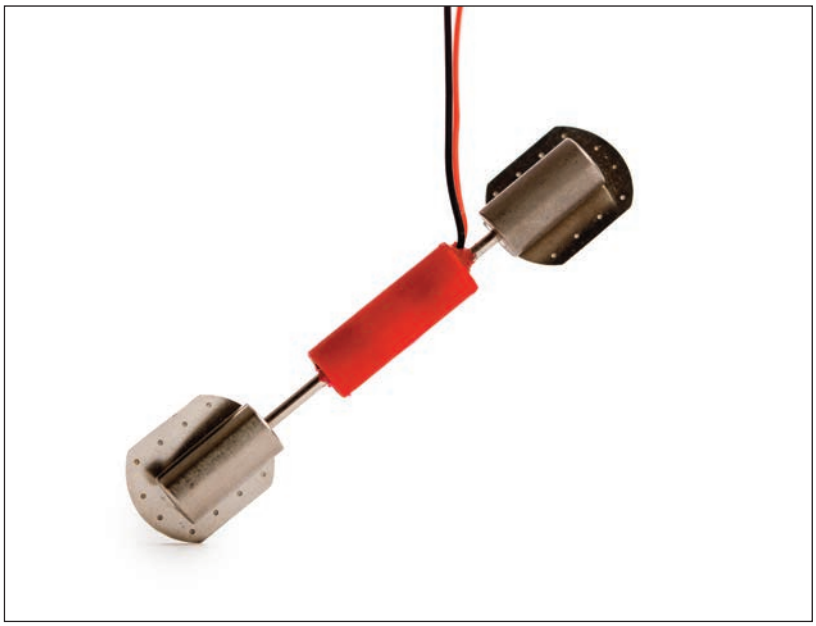
DATASHEET

VW Strain Gauge - Spot Weld

VWS-2020 SERIES



Geosense® VWS-2020 series vibrating wire strain gauges are designed primarily to measure strains on the surface of steel structures but may also be used on other types of material.

The gauge consists of two end blocks with a tensioned steel wire between them. The end blocks are attached to stainless steel tabs which may be attached to steel structures by spot welding or, using alternative end blocks, bonded or grouted.

Precision tensioning is carried out on site using a special tensioning jig and the gauge can be set for compression, tension or at mid point.

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.

Around the wire is a magnetic coil which when pulsed by a vibrating wire readout or data logger interface plucks the wire and measures the resultant resonant frequency of vibration.

As the steel or other 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.

VWS-2020 strain gauges are available in two versions:

- **Gauge with integral coil housing**
- **Gauge only with separate coil housing**

Applications

Measurement of stress and strain deformation in:

- Bridges & Dams
- Buildings
- Struts and support systems.
- Pipelines
- Tunnel linings
- Piles & Mass Concrete
- Reinforcement bars

Features

- Small size
- Can be used in confined spaces
- Easily tensioned on site
- Reliable long term performance
- Rugged, suitable for demanding environments
- Insensitive to long cable lengths.
- High accuracy
- Integral Thermistor
- Suitable for remote reading and data logging

CE

VIBRATING WIRE TECHNOLOGY

GEOSENSE

Strain Gauge - Spot Weld

VWS-2020 Series

Specifications

TYPE	VWS-2020	VWS-2025	VWS-2026
Fixing method	Spot welding	Spot welding	Bond/grout
Coil type	Separate	Integral	Integral
Gauge length	49mm	49mm	49mm
Overall length	65mm	65mm	65mm
Resolution	0.4 με	0.4 με	0.4 με
Strain Range	3000 με	3000 με	3000 με
Accuracy[1]	±0.1% to ±0.5% FS	±0.1% to ±0.5% FS	±0.1% to ±0.5% FS
Non linearity	<0.5% FS	<0.5% FS	<0.5% FS
Temperature range	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C
Frequency range	1500-3500	1500-3500	1500-3500

[1] ±0.1% with individual calibration, ±0.5% FS with standard batch calibration

Model VWS-2020 consists of the gauge plus a separate plucking coil housing which is placed over the top of the gauge and secured using stainless steel straps.
The plucking coil housing is made from tough corrosion resistant plastic and also acts as protection to the gauge. It can also be used as a portable readout unit

Model VWS-2025 consists of an integral coil pluck housing which is encapsulated around the gauge.

Model VWS-2026 is the same as 2025 except the end blocks have pins which are designed to be grouted or bonded into holes drilled into the material under test.

For Models VWS-2025 & 2026 a separate cover plate is placed over the gauges to protect them and is secured using stainless steel straps.

The VWS-2020 series of vibrating wire strain gauges may be read by the VW-2106 or any vibrating wire readout device and may be readily data logged using Campbell Scientific or any other data loggers with vibrating wire interface modules. Vibrating wire strain gauges 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.

Ordering Information

- Fixing method
- Coil type
- Protective cover
- Cable length
- Readout

Specifications may change without prior notice

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