GEOSYSTEMS

RWE - RESISTANCE WIRE EXTENSOMETER

Rock & Soil Displacement Instrumentation

APPLICATIONS The resistance Wire Extensometer (RWE) is designed as a simple low cost instrument for monitoring rock and soil displacements. They are installed in underground hard rock mines typically in pillar and slope wall to monitor displacements. They are a handy tool for monitoring displacement in roof pillars in underground coal mines. In dams RWEs are ideal for measuring lateral strains beneath earth and rock fill, as well as displacement across construction joints in concrete.

FEATURES

- High resolution (up to 0.005mm), large tensile range (up to 200mm)
- insensitive to moderate cross-borehole deformations
- Remote readout
- Supplied with quarter or full wheatstone bridge configurations; full bridge can be supplied with integral voltage regulators to assist data logging
- high resistance to moisture ingress
- can be connected directly to a datalogger
- available in any length between 1.0m and 4.0m

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MADE IN AUSTRALIA

bsi. ISO 9001 Quality Management

GEOTECHNICAL SOLUTIONS

OPERATING PRINCIPLE

A resistance wire extensometer (RWE) basically consists of an electrical resistance wire element situated inside a 1m-4m long, PVC hollow tube. The wire is attached, under mild tension, to each end of the tube and is configured to have a resistance of 120 Ohms. Thus configured, the RWE can be monitored with a resistance meter, conventional strain gauge measuring equipment, or a data logger.

No additional displacement transducer is required to convert movement of the extensometer into a proportional electrical signal. A RWE is installed by grouting into a percussive or diamond drilled borehole. A number of RWEs can be installed end to end into a borehole by attaching them to a suitable carrier (such as PVC conduit) to facilitate installation.
The resistance wire is pre-tensioned within the hollow tube enabling up to 0.5% compressional strain to be measured. However, up to 18-20% tensile strain can be measured, with high sensitivity. Due to the hollow tube construction, the RWE has low sensitivity to moderate displacements across a borehole.

TECHNICAL SPECIFICATIONS

CONSTRUCTION	PVC, 16mm Length between 1.0-4.0m profiled end anchors with tensioning facility 120 Ohm resistance wire configuration with various sensitivities to suit readout instrument Resistance wire polyolefin insulation housed in grease filled PVC tube
COMPANION PRODUCTS	digital strain indicator single or multi channel data loggers

Other Applications include slope stability monitoring of natural and cut slopes and retaining walls. RWE's have been successfully applied to measure displacement in bridge piers and abutments including many other civil type environments.

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