



## HOLLOW INCLUSION (H.I.) CELL



### OVERVIEW

A Hollow Inclusion (H.I.) Cell is a proven, reliable and accurate instrument to determine the full stress tensor in rock or concrete. It operates with an array of strain gauges encapsulated in a thin walled hollow pipe specifically placed to allow the stress field to be resolved from one instrument.

Applications include the measurement of virgin in-situ stress by the overcoring method and the monitoring of stress changes over time. The inclusion of a temperature measuring thermistor allows for changes in rock temperature to be evaluated during overcoring and at the installation site.

A biaxial pressure test of a recovered overcore containing an H.I. Cell also provides values of elastic modulus, Poisson's ratio, estimates of any anisotropy and the stress/strain condition of the test material.

H.I. Cells have been installed in metalliferous mines, coal mines, underground caverns, tunnels, dams and other civil engineering projects where knowledge of the stress condition is critical to proper design and thus, the long term stability and reliability of the construction.

# HOLLOW INCLUSION (H.I.) CELL

## FEATURES

- Determine full stress tensor from the overcoring of one instrument
- Can be used to measure absolute stress or for long term stress monitoring
- Recommended by the International Society of Rock Mechanics (ISRM) for stress determination
- Fully encapsulated sensors and electronics
- Range of glue packs available for specific applications
- Capable of being read by a handheld readout or a data logger

## ACCESSORIES

- Light weight installation equipment
- Manual switch strain gauge readout
- Data logger system to take readings during overcoring and from stress monitoring cells
- Biaxial pressure test cell and pressurisation equipment

## SPECIFICATIONS

- Diameter: 36 mm
- Length of gauged section: 110 mm
- Number of strain gauges: 11 or 12
- Strain gauge length: 10 mm
- Strain gauge resistance: 120  $\Omega$
- Circuit configuration: 3 wire – quarter bridge
- Effective Gauge Factor: with 20m cable 2.103
- Stress range (overcoring): to 100 MPa
- Temperature range: 5° to 50°C

For further information on instrumentation and monitoring systems or our range of specialist services, please contact us at:

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