

Vibrating Wire NATM Stress Cells

Description

NOTE: This is a legacy and discontinued product not available for order.

RST Vibrating Wire NATM Stress Cells are designed to measure stresses in concrete (shotcrete) linings in tunnels and other underground workings. They feature a higher stiffness than Earth Pressure Cells, and are therefore more suitable for stress measurement in concrete.

The instrument name is associated with New Austrian Tunneling Method (NATM), which is also known as Sprayed Concrete Lining (SCL) and Sequential Excavation Method (SEM). Monitoring of radial and tangential stresses within and on shotcrete lining, along with measurement of tunnel convergence and deformation is an integral, very important part of the method and its successful implementation.

Vibrating Wire NATM cells are constructed of two rectangular steel plates welded around their periphery. The annular space between the plates is filled with fluid. The cell is connected via a stainless steel tube to a vibrating wire pressure transducer. The stress on the cell is then converted to a signal and may be read either with vibrating wire readout or a data logger. Each cell also incorporates a compensating tube that allows adjustment of the cell volume to compensate for shrinkage in the concrete. The compensating tube is squeezed to force more fluid into the cell. This increases the cell volume thereby assuring proper contact with the concrete around the cell.

VIBRATING WIRE NATM STRESS CELL SPECIFICATIONS

Tangential

MODEL	CELL DIMENSION	PRESSURE RANGES
VW3201-7	100 X 200 mm (3.9 X 7.8 in.)	7 MPa
VW3201-20	100 X 200 mm (3.9 X 7.8 in.)	20 MPa
VW3201-35	100 X 200 mm (3.9 X 7.8 in.)	35 MPa

Radial

MODEL	CELL DIMENSION	PRESSURE RANGES
VW3202-2	150 X 250 mm (5.9 X 9.8 in.)	2 MPa
VW3202-3	150 X 250 mm (5.9 X 9.8 in.)	3 MPa
VW3202-5	150 X 250 mm (5.9 X 9.8 in.)	5 MPa

PRESSURE TRANSDUCER SPECIFICATIONS

ITEM	SPECIFICATION
Type	Vibrating wire
Overrange	200% F.S.
Accuracy	± to 0.1% F.S.
Resolution	± 0.025% F.S. minimum
Signal Output	2000-3000 Hz
Signal Cable	Two twisted pairs cable with polyurethane jacket

SPECIFICATIONS