

Convergence meter – CMCX01

Convergence meter is an accurate steel tape which measures any changes in distance between two reference points. It consists of a frame, a punched steel measuring tape and a precision digital gauge by which the measurement with 0.01mm accuracy is made possible. Two springs in the frame guarantees that pulling force to the tape remains constant in each measurement. This device is widely used in tunnels and underground openings. By one device, several reference points (pins) can be read and any unusual rock movement can be detected. Measurement of movement in this instrument is relative (between two moving pins) so for absolute movement monitoring for each pin, a borehole extensometer should be used in parallel.

Application

Some of the applications of this instrument are :

- Measurement of deformation around tunnels.
- Monitoring rock displacement in metro stations.
- Stability assessment in shafts and mine tunnels.
- Measuring mine roof movement.

Operation and Installation

Several pins are installed around periphery of tunnel by drilling and grouting. The convergence meter is attached from its both ends to the pins and a spring loaded handle pulls the tape to remove the slack. Once the force on tape reaches a preset value, the system locks. Meters and centimeters are read from the tape and millimeters and 1/100 mm is read from the gauge. The same thing repeats in coming days or weeks and rock displacement versus time is plotted. The amount of displacement as well the rate of displacement is used as a guide to judge about the stability of tunnel.

Technical Spec	
Measuring length	15/30 m
Accuracy	0.01 mm
Tape measure	13mm acid itched steel tape
Gauge type	Dial / Digital gauge (0.01mm)
Weight	5 kg
Peripheral accessories	Thermometer, fixing tools
Pin spec	
Pin type	Galvanized heat treated Steel
Length	10, 30, 45 and 60 cm
Diameter	16 mm
Pin connection type	Thread / hook



Order information

CMC-X-01-AA
X: Dial Gauge (B) or Digital Gauge (C)
AA: Tape length (15 or 30m)