

Increx System

Advantages

High Resolution and Accuracy:

The Increx system can measure changes as small as 0.001 mm with an accuracy of ± 0.01 mm per meter.

Omni-Directional: The Increx probe can operate in any orientation, from vertical to horizontal.

Efficient Use of Borehole: The Increx operates in inclinometer casing so that both lateral and vertical deformation can be measured in the same borehole.

Graphic Display of Data: Increx software processes data and provides a graph of settlements.



Applications

The Increx system from Interfels is used with inclinometer casing to obtain high resolution measurements of ground deformation in the axis of the borehole. Typical applications include:

- Monitoring vertical or lateral deformations around underground openings.
- Monitoring settlements in the path of tunneling operations.
- Monitoring settlement and heave in the foundations of dams and power plants.
- Providing axial deformation data to complement inclinometer data.

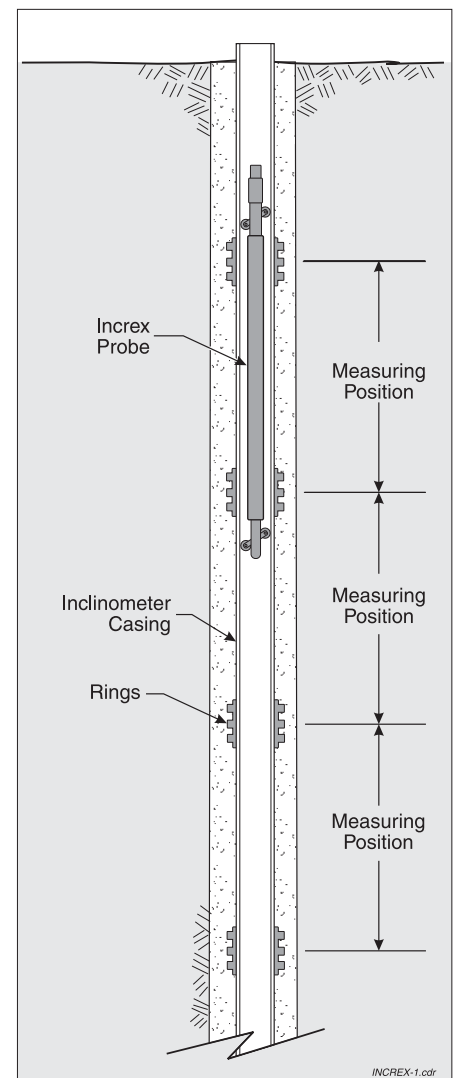
Operation

The Increx system consists of a number of brass rings that are positioned at one-meter intervals along inclinometer casing, and a probe and readout that are used to measure the distance between successive rings.

An Increx survey is typically started at the bottom of the casing. The probe is positioned to span the distance between the two deepest rings, and a reading is taken. The probe is then raised about one meter so that it spans the distance between the second and third deepest rings, and another reading is taken. This is repeated until readings have been taken for the entire casing.

The first survey establishes the distances between rings as installed. Subsequent surveys are compared to the initial survey to reveal changes in the distance between rings. An increase in the distance indicates extension, and a decrease indicates compression.

Movements may be referenced to the deepest ring if it is located in stable ground or to the reference stand, which can be surveyed optically.



SYSTEM SPECIFICATIONS

Measurement Range: ± 20 mm per m.

Resolution: 0.001 mm.

Accuracy: ± 0.01 mm per meter.

INSTALLED COMPONENTS

Measuring Ring 122.2501

Brass ring fits onto inclinometer casing. Order one ring for the bottom and one additional ring for each meter to be monitored. Use accessory mounting template for positioning ring on casing.

Head Cover Plate 122.2860

Used to hold portable reference stand. Permanently installed at borehole collar.

Set of 3 anchor bolts. 122.2870

Used with Head Cover Plate above.

QC Inclinometer Casing

Precision ABS inclinometer casing. Quick-connect coupling system provides snap-together convenience and strong flush joints. See separate data sheet for specifications and part numbers.

INSTALLATION ACCESSORIES

Mounting Template 122.2750

For accurate positioning of measurement rings.

Packer Anchor 122.2500

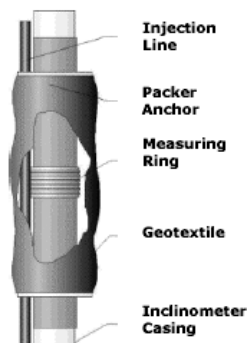
Optional method of securing measuring ring to borehole wall. Suitable for boreholes up to 150 mm in diameter.

Injection Line 121.1515

Grout tubing for packer anchor above.

Manual Grout Pump 51815880

Hand operated pump for inflating packer anchor above. Supplies a maximum pressure of 15 bar (225 psi) and outputs 19 l/m (5 gpm).



INCREX PROBE

Increx Probe 122.0110

Increx probe has a gauge length of 1 meter and a measurement range of ± 20 mm per meter. Built-in temperature sensor provides temperature measurements for temperature compensation, if required. Probe is waterproof to 15 bar and operates in temperatures between -5 and 50° C. Probe weighs 5 kg and is 46 mm in diameter and 1,550 mm long.

INCREX CABLE

Cable 122.0120

Shielded cable with six 20-gauge conductors and polyurethane jacket. Specify length in meters.

Connector 122.0121

Cable Reel 122.0128

Heavy duty, slip-ring cable reel holds 100 meters of cable, and can be operated with readout connected. 620 x 370 x 450 mm, 13.5 kg.

POSITIONING RODS & STAND

Positioning Rod 122.0135

Used to position Increx probe. 2 m x 20mm rod (tubing) has quick coupling and weighs 0.25 kg.

Reference Stand 122.0130

Portable reference stand helps operator position the Increx probe quickly and accurately. Attaches to the base plate installed at the borehole collar.

READOUT

Increx Readout 122.0141

Readout indicates when probe is positioned properly. Displays Increx reading and temperature reading. Optional serial port allows connection to computer.

Increx Software 122.0156

Increx software is used to process, display, and print Increx data and graphs.

PROTECTIVE CASES

Case for Increx Probe 122.0160

Aluminum case (1,690 x 95 x 120 mm) for Increx probe.

Case for Positioning Rods 122.0164

Aluminum case (2,050 x 30 x 180 mm) for positioning rods.

Case for Stand & Readout 122.0162

Aluminum case (810 x 420 x 470 mm) for reference stand, cable reel, and readout.

CALIBRATION FRAME

Calibration Frame 122.0158

Optional calibration frame is used to check calibration of Increx probe. 1,630 x 155 x 130 mm, 14.4 kg.