

Fixed Re-Installable Micrometer (FIM)

Fixed Re-Installable Micrometers may be installed for continuous deformation measurements along the borehole axis.







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In applications where the Sliding Micrometer or the Trivec has been used, Fixed Re-Installable Micrometers (refered to as FIM) may be installed for continuous deformation measurements along the borehole axis. Each FIM is temporarily locked in place between two Sliding Micrometer or Trivec measuring marks and connected to the readout unit or data logger. When desired, the FIM may be removed from the borehole and readings at all measurement positions taken using the Sliding Micrometer or Trivec. For additional long term micrometer readings the FIM is again placed between two of the measuring marks.

Several FIMs may be installed between measurement marks at any depth along the measuring line. Variable probe lengths allow the FIM to be placed between measuring marks of 1 to 5 meters apart. Two probes can also be installed immediately following each other. As with the Sliding Micrometer and Trivec probes, the cone-sphere principle is used to precisely locate the FIM between measurement marks. Precise location of the probe allows high precision measurements to be taken.







Applications

The FIM is designed to be installed in boreholes (or measuring lines) where deformations for the entire borehole are only measured at specific times but the deformations in areas of special interest must be measured more frequently or continuously.



The FIM may be used:

- to monitor deformations along measuring lines with limited access.
- or where access is only temporarily available (examples might include flooded measuring lines at reservoirs, weirs, or drifts, or measuring lines which are covered by snow).
- Readings from the FIM may be used to trigger alarms or other warning devices.





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Specifications

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Base length:	1 to 5 meters
Measuring range:	± 10 mm / ± 50 mm
Resolution:	0.001 mm / 0.01 mm
Sensor type:	LVDT-Type displacement sensor linearity within ± linear potentiometric sensor
Water tightness:	tested up to 15 bar

- Cable: shielded four wire cable in protective sheath
- Optional:
- Readout units:

temperature sensor in addition to displacement sensor

for recording FIM data a variety of readout units and Solexperts Data (SDL) Loggers are available

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Calibration

The FIM is calibrated with its readout unit by placing a steel pin through specified holes in the inner and outer telescopic probe housing. If necessary the transducer output signal can be fine tuned to the desired reading in the middle of the measurement range. An initial reading in the middle of the measuring range allows the readout unit to use higher gain and thus increases the probes resolution.

Installation

The FIM is installed and removed with the same guide rods used with the Sliding Micrometer or Trivec probes. The FIM is locked between the measuring marks by its spring loaded mechanism. After removing the guide rods additional FIMs may be installed in the borehole.

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