

INCLINOMETER CASING

Model GTI-1A

APPLICATIONS

The GTI-1A inclinometer casing is used to house inclinometer probes that measure either lateral movement and deformation of soil, rock and structures when installed in near vertical boreholes, or settlement when installed horizontally in boreholes or trenches.

Applications include:

- Monitoring of landslide
- Monitoring of dam and embankment performances
- Monitoring of movement in retaining walls, diaphragm walls, sheet piles and laterally loaded piles
- Measuring of ground movement due to tunneling
- Monitoring of settlement in landfills, tank foundations and embankments

DESCRIPTION

The GTI-1A inclinometer casing is an extruded ABS pipe with four internal orthogonal grooves and an external alignment key. When installed in a borehole, one set of grooves is aligned in the anticipated direction of movement. The grooves act as guides for the wheels of the inclinometer probe, maintaining the orientation of the probe as it traverses the casing.

The alignment key of the GTI-1A inclinometer casing engages the internal alignment groove of the coupling. Couplings are assembled with solvent cement and rivets.

Spiral surveys may be performed on deep installations, or where high accuracy is critical. Spiral data allows inclinometer data to be corrected for twisting of the casing that may occur during installation.

Guiding

Probe guidance is ensured by four 3-mm internal grooves spaced 90 degrees apart. The high accuracy guidance achieved with the GTI-1A casing produces quality measurements similar to those obtained with other high quality casings. The orientation accuracy is affected more by the measuring equipment itself than by the casing.



GTI-1A casing with coupling and caps

FEATURES

- Self-aligning couplings
- Manufactured to tight tolerances: extrusion process is tightly controlled to ensure consistent groove profile and spiral control
- Compatible with all inclinometer probes

Assembling

The casing has an external longitudinal alignment key located in the same orientation as the internal grooves. The coupling has a precisely machined notch to accept the alignment key. PVC cement or another appropriate solvent cement is used to glue the sections together and to ensure that the joint is watertight.

Angular location

Proper angular location is ensured by the casing's external alignment key, which is on the same plane as two of the four internal grooves. By convention, the main angular measurement direction corresponds to the alignment key.

SPECIFICATIONS

| CASING | |
|---------------------|-------------|
| OD | 60 mm |
| Minimal ID | 48.5 mm |
| Groove ID | 54 mm |
| Standard length | 3 m |
| Material | ABS |
| Weight | 0.8 kg/m |
| COUPLING | |
| OD | 68 mm |
| ID | 60 mm |
| Standard length | 350 mm |
| Weight | 0.270 kg |
| TOP AND BOTTOM CAPS | |
| Material | ABS and PVC |

INSTALLATION

Axial deformation

GTI-1A casing length must be assembled so that no gap exists between the coupling and the casing. The standard casing is not suitable for highly compressible soils. In these cases, telescoping casing is required. This kind of casing is not available for model GTI-1A; please refer to models GEO-LOK and ICA-2000. The ratio of the effective section versus the total external section entails an equivalent modulus elasticity of 1000 MPa.

Sealing and grouting

Sealing method and grout composition are generally defined by the user. The GTI-1A casing can withstand an external grout pressure greater than a 50-meter column of cement grout, provided that the casing is filled with water. Deeper installation will require grouting in stages.