

SPECIFICATION – DURHAM GEO / SLOPE INDICATOR QC INCLINOMETER CASING

1. General

The Contractor shall furnish and deliver Durham Geo Slope Indicator (DGSI) Quick-Connect (QC) Inclinator Casing, including all necessary couplings, end caps, grout valves, and accessories. The casing shall be used for vertical inclinometer installations to facilitate monitoring of subsurface lateral movement.

Inclinometer casing shall maintain clear access for a Digitilt probe, control probe orientation with precisely manufactured grooves, and conform to ground movement while remaining serviceable.

2. Casing Type

The casing shall be DGSI Quick-Connect (QC) style inclinometer casing, featuring precision-machined internal grooves and an integral snap-together coupling system with O-ring seals.

Required Characteristics:

- Snap-together built-in couplings
- Flush, self-sealing joints
- Grout-tight O-ring connection (no glue, rivets, tape, or solvent cement required),
- Spiral-free, machine-broached grooves ensuring accurate repeatable probe tracking
- Suitable for installation in boreholes, fills, or structures

3. Dimensions

QC casing shall be supplied in one of the following standard diameters:

70 mm (2.75 in) OD QC Casing

- 10 ft (3.05 m) section: P/N 51150210
- 5 ft (1.52 m) section: P/N 51150211
- Telescoping section: P/N 51150220
- Bottom cap: P/N 51150230
- Top cap: P/N 51101500
- Locking cap: P/N 51101550
- Male splice kit: P/N 51150250
- Female splice kit: P/N 51150251

85 mm (3.34 in) OD QC Casing

- 10 ft (3.05 m) section: P/N 51150310
- 5 ft (1.52 m) section: P/N 51150311
- Telescoping: P/N 51150320
- Bottom cap: P/N 51150330
- Top cap: P/N 51100500
- Locking cap: P/N 51100550
- Male splice kit: P/N 51150350

- Female splice kit: P/N 51150351
- Grout valves (gasket or quick-connect): P/N 51150335 / 51150340

4. Materials and Construction

The inclinometer casing shall be manufactured from high-quality ABS plastic engineered specifically for geotechnical monitoring applications.

Required Attributes:

- Thick-walled ABS pipe designed to resist deformation and grout pressures
- Precisely machined grooves with controlled width and depth to provide a smooth, flat surface for probe wheels
- Grooves shall be wide enough to allow minor side-to-side movement through curved sections, yet narrow enough to ensure tracking accuracy
- Flush, alignment-locked joints preventing twisting, separation, or leakage under grouting pressure (QC patented coupling)

5. Coupling System

All QC casing sections shall use DGSI's patented Quick-Connect (QC) coupling technology.

Coupling Requirements:

- Snap-together action with audible/physical engagement
- Integrated O-ring seal ensuring grout-tight performance
- No solvent, glue, rivets, or tape required
- Joints shall resist pull-apart, twisting, and collapse under typical borehole grouting pressure

6. Performance Requirements

The casing shall:

- Provide unobstructed access for Digitilt AT probe at 0.5 m or 2 ft measurement intervals
- Maintain correct probe orientation via internal orthogonal grooves
- Withstand deformation associated with expected ground movement for the project duration
- Resist collapse during grouting operations through adequate wall thickness and structural design

Diameter Selection:

- 85 mm (3.34") recommended for landslides, long-term monitoring, multiple shear zones, or high deformation risk
- 70 mm (2.75") acceptable for construction monitoring or moderate deformation zones,

7. Accessories

Accessories shall be DGSI-compatible and include (as applicable):

- Bottom caps (standard or heavy-duty)
- Top caps or locking caps

- Grout valves (gasket-type or quick-connect)
- Male/female splice kits
- Telescoping sections for settlement-sensitive installations

8. Installation Requirements

Installation shall follow DGSI's QC Inclinator Casing Installation Guide. Requirements include:

- Proper alignment of grooves throughout full casing length
- Full engagement of snap couplings and installation of O-rings
- Verification of verticality and plumbness
- Proper grouting procedures to avoid casing collapse

9. Approved Manufacturer

Durham Geo Slope Indicator (DGSI)

Tucker, Georgia, USA

Products: QC Casing 70 mm / 85 mm and associated fittings