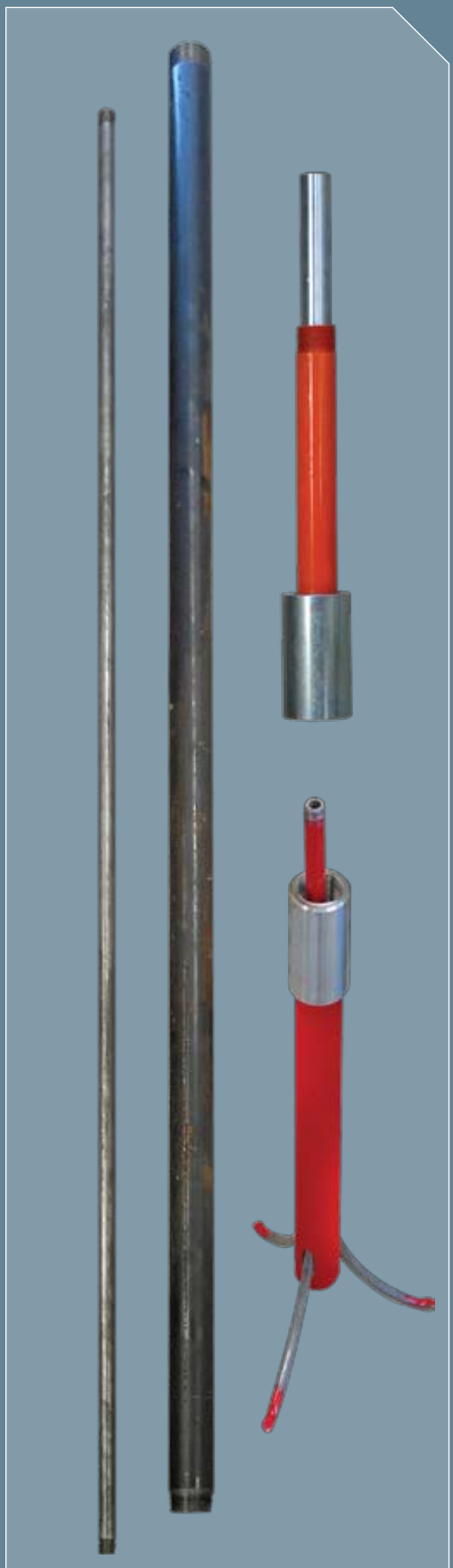
Subsurface Settlement / Heave Points (Borros Anchors)



Settlement points with Borros type anchors are mechanical, single point devices used to monitor subsurface settlement or heave of ground. The system consists of a three pronged anchor, a 6 mm (¼ in.) steel inner pipe and a 25 mm (1 in.) steel outer pipe. Pipes are assembled using standard couplings. After installation, the outer pipe serves as a friction reducer, allowing the inner pipe to move freely. Measurement of the elevation of the top of the inner pipe is conducted using standard optical survey methods. Changes in surveyed elevation are equal to the movement of the anchor.

Anchors are most commonly deployed by pushing on the inner rod to extend the anchor prongs. Hydraulically actuated anchors are also available.

Care must be taken in soft clays as the loss in strength caused by the pore pressures generated by extending the prongs may cause settlement due to the weight of the riser pipe. Both installation-related settlement, and long term settlement of the anchor in soft clays due to riser weight may be mitigated by counterweighting the riser.

Standard Borros anchor systems are prone to binding of the rods, or downdrag on the anchors caused by the rods binding where the riser pipe exits the friction reducer pipe at the anchor. RST Borros systems avoid this problem by incorporating a bearing/bushing at this critical location.

In a surcharge or embankment application, as the fill rises, sections of inner and outer pipe are added to maintain the top at a manageable elevation. The top of the inner pipe should be surveyed before and after the addition of any pipe section. Fill around the installation should be placed by hand and care taken that installation is not damaged.

In an excavation, pipe sections are removed, as necessary. Again, we recommend survey before and after pipe removal to ensure good high quality data.

ordering info

ITEM	PART #
Borros Point Mechanical	SSBP4000
Borros Anchor Installation Set - Mechanical	SSBP4010
1" x 5' Steel Pipe	FIPS00100
1/4" x 5' Steel Pipe	FIPS00025
1" Pipe Coupling	FIPSC0100
1/4" Pipe Coupling	FIPSC0025

RST Instruments Ltd.
200 - 2050 Hartley Ave.
Coquitlam, BC
Canada V3K 6W5

Telephone: 604 540 1100
Facsimile: 604 540 1005
Toll Free: 1 800 665 5599

info@rstinstruments.com
www.rstinstruments.com

applications

- As a datum for standard surface settlement plates negating the need for costly survey.
- Settlement monitoring under fills, preloads, and embankments.
- Bottom heave in excavations.
- Settlement and rebound associated with tunneling.
- Heave as a result of grouting.

features

- Simplicity of operation.
- Low cost.
- Uses locally sourced common steel riser pipe.