

Applications

GEO's versatile geotextile packer anchor for borehole extensometers can be used in nearly any type of soil or rock.

MPBX Overview

An MPBX includes anchors, rods, a reference head, and sensors. Anchors are joined to rods and installed at specified depths in the borehole. Rods run upwards from the anchors to the reference head, which is installed at the surface. Sensors inside the reference head monitor the rods, which follow the upward or downward movement of the anchors.

Standard Anchors

Geotextile packer anchors are suitable for nearly any type of soil and have characteristics that may make them superior to standard anchors, which are summarized below.

Groutable anchors are simple lengths of rebar used to terminate the rod. The anchors are bonded to the surrounding ground when the borehole is backfilled with grout. Until the grout hardens, the anchors have no hold on the surrounding soil, making it difficult to keep rods in tension and straight.

Prong anchors are used in soft soils, where they are more reliable than groutable anchors. The prongs are extended hydraulically with oil, which may be prohibited in some locales.

Bladder anchors are used in fractured rock, where grouting is difficult. Expanded hydraulically, the copper bladder mechanically locks the anchor to the rock. Bladder anchors have some similarity to packer anchors, but are limited to rock installations.

Geotextile Packer Anchors

The geotextile packer anchor consists of a steel sleeve wrapped with an inflatable geotextile packer. The sleeve has a fitting for the rod and the packer has a fitting for a grout tube.

The packer is flattened while the extensometer is installed downhole and then inflated with grout when the extensometer is in place. A hand pump is used for inflation. The geotextile packer expands as it captures the solids of the grout.

The steel sleeve provides an opening through the center of the anchor. This allows rods from deeper anchors to pass through and provides access for grouting the borehole after the packers are inflated.

The packer anchor weighs enough to counter the buoyancy of the rods, easing installation and yielding straighter rods.

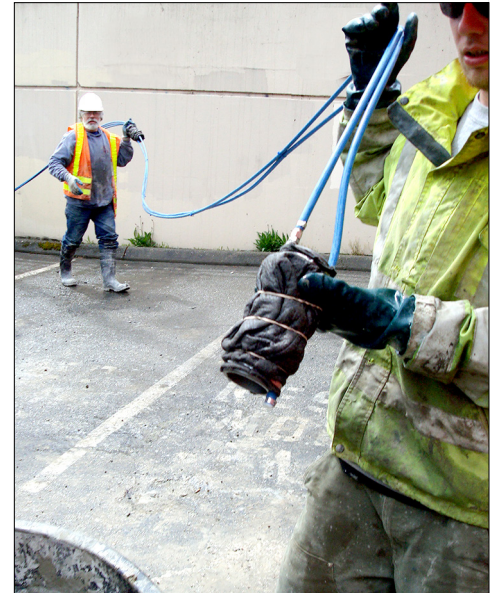
Advantages of Packer Anchors

Superior Bonding: Once inflated, the packer provides more contact area than any other type of anchors, ensuring a good bond with the surrounding soil or rock.

Better Response: The superior bonding of the packer anchor allows rods to be straightened during installation. This provides improved response to small movements of the anchor. In addition, a soft, conforming grout can be used between anchors, further increasing responsiveness.

Environment Friendly: The packer anchor is inflated with grout rather than hydraulic oil. This makes it suitable for environmentally sensitive sites.

Adaptable: Packer anchors are usually joined directly to rods, but can also be factory-fitted to the groutable anchors supplied with pre-assembled extensometers.



Installing a fiberglass-rod MPBX equipped with packer anchors. After the anchors are inflated, rods can be straightened for improved performance.



The inflated packer provides good contact with the surrounding soil or rock. Rods from deeper anchors can pass through the center of the anchor.