39 GDS Helpsheet

World Leaders in Computer Controlled Testing Systems for Geotechnical Engineers and Geologists

Hardware

Mid Plane Pore Pressure Probe

Installing in a triaxial cell

1. Overview

The GDS Mid-Plane Pore Pressure Probe (M4P) is designed to provide measurement of pore pressure on the surface of the mid-height of the triaxial test specimen. Shear strain is concentrated in the middle third of the test specimen and so it is logical to measure pore pressure in this region of maximum activity.

2. Installation

The kit supplied comprises the following components: Druck PDCR 81 pressure transducer, 8.5mm drill and 3/8" UNF Tap, Cutter and Rubber Block, Flanged Grommet, Pair of o-rings and o-ring stretcher, Right Angle Bracket. Their purpose and installation is described below.

1. Druck PDCR 81 pressure transducer. The transducer is provided with a small ceramic tip. This is the sensing end of the transducer and is placed against the surface of the triaxial test specimen. The transducer is shrouded in heat-shrink sleeving which is connected to a bulkhead gland. The bulkhead gland is provided with an o-ring seal to seal against the outside of the triaxial cell. The flying lead is provided with a LEMO connector which is colour-matched to the GDS Digital Transducer Interface (DTI).

2. Drill and Tap. The 8.5mm drill and 3/8" UNF Tap are provided so you can drill and tap a threaded hole in the base of the large-chambered Bishop & Wesley "stress-path" triaxial cell. Normally, this cell is already provided with a plugged access hole. You could use this as the pilot hole for the 8.5mm drill.

3. Cutter and Rubber Block. The cutter is provided to cut a small hole in the middle of the rubber sleeve subsequently used to jacket the triaxial test specimen. Lay the rubber sleeve on a flat surface. The Rubber Block is positioned inside the rubber sleeve at the midpoint. Hold the cutting tool vertically above the block with the brass serrated end touching the rubber sleeve. Press down on the brass top of the cutter against the reaction of the rubber block while rotating the outer body of the cutter. Rotate a few times until a hole is cut in the sleeve through to the rubber block. This hole is exactly the right size to take the flanged grommet. Use a small self-adhesive label to cover the hole to make it airtight while you use a suction sleeve stretcher to apply the sleeve to the test specimen. When you have done this simply peel off the label.

4. Flanged Grommet. The grommet is designed to fit exactly through the hole bored in the rubber membrane jacketing the triaxial test specimen. The flange is designed to lie under the

membrane against the surface of the test specimen. The grommet pokes through the membrane to receive the transducer tip.

5. Pair of o-rings and o-ring stretcher. Slide the pair of o-rings over the sensor and onto the transducer lead. Slip the o-ring stretcher over the thinner part of the transducer lead between the sensor and the bulkhead gland with the tapered end away from the sensor. Slide the two o-rings onto the stretcher from the tapered end. Push the sensor into the grommet so that the ceramic tip is against the surface of the test specimen. Slide the o-ring stretcher along the cable, over the sensor, and up against the test specimen. Roll the o-rings off so that the grommet grips the sensor and holds it in place against the surface of the test specimen.

6. Right Angle Bracket. Close to the sensor, slip one end of the Right Angle Bracket onto the cable. Then bend the cable gently around into a right angle and slip the cable into the other end of the Right Angle Bracket. This leads the cable nicely away from the wall of the triaxial cell and down to the bulkhead gland.