

Site Investigation

The Driven Pressuremeter

The Driven Pressuremeter is an in situ technique for rapid, low cost testing of the ground to obtain soil parameters. The benefits are significant; more intensive testing, with more ground coverage, in less time; delivering high quality information for on the spot decisions about ground investigation strategy or foundation design.

Simple and Robust

In addition to a range of conventional pressuremeters Soil Mechanics operates a full displacement pressuremeter developed by Newcastle University to overcome some of the limitations of traditional pressuremeters. It is specifically designed to be simple and robust enough to allow efficient and economic testing in a wide range of soil conditions while providing reliable and accurate data suitable for interpretation of geotechnical parameters for engineering purposes.

Wide Range of Soils

The central expanding section is inflated by gas from the surface whilst pressure and displacement is measured using transducers in the pressuremeter connected to a logging computer at the surface via a 25m long cable. The instrument has a large strain capacity to ensure that the test is representative of the soil beyond the zone disturbed during installation enabling the testing of a wide range of soils from soft to stiff.

Easily Mobilised

The pressuremeter is used in conjunction with a cable percussion boring rig and requires no additional support equipment, it can therefore be easily mobilised to site. At the required test depth the pressuremeter is lowered to the base of the borehole on Standard Penetration Test (SPT) rods and driven into the ground using the SPT hammer. The pressuremeter can also be operated in a similar manner using a rotary, dynamic probing or cone penetration rig.

In situ Testing

Testing can begin immediately after driving to test depth and takes 30 to 45 minutes to carry out a full cycle of loading and unloading with one or more unload/reload cycles.

Strength and Stiffness Parameters

Our technical experts carry out the interpretation of the test data to obtain the soil strength (the undrained shear strength of clays or the angle of shearing resistance of sands) and the soil stiffness.



Small Strain Measurement

The accuracy of the equipment enables the shear modulus to be determined for small strains of the order of 0.01% up to 1%.

Other Types of Pressuremeter Testing

As well as the Driven Pressuremeter, Soil Mechanics can provide a range of pressuremeters to measure in situ stress, strength and stiffness properties in a variety of soil and rock types:

- **Self-Boring Pressuremeter** - Inserted with minimal disturbance for tests in soils ranging from very soft clays to fine running sands. It can be used to measure pore water pressure during self-boring and testing and in conjunction with boring/drilling rigs
- **Weak Rock Self Boring Pressuremeter** - A self boring instrument for use in stronger materials
- **High Pressure Dilatometer** - For tests in pre-drilled holes, primarily in rock and over consolidated clays
- **Flat Plate Dilatometer** - Used in fine to coarse grain soils (clays, silts and sands) to provide stress correlations.

