

PRESSUREMETER TESTING

DRIVEN / REAMING PRESSUREMETER (DPM/RPM)

In Situ Site Investigation offer a full range of pressuremeter testing services to suit a variety of ground conditions.

The Driven or Reaming Pressuremeter (DPM/RPM) is designed to perform in situ load-displacement tests to determine strength and stiffness properties of the ground. It is primarily designed for testing in superficial deposits, such as loose to medium dense sands and soft to very stiff clays. The DPM is typically pushed into undisturbed ground and so is a full displacement pressuremeter.

The DPM/RPM is predominantly used in conjunction with a Cone Penetration Test (CPT) rig but can also be utilised from a rotary drilling or cable percussion boring rig with minimal additional support equipment.

The sequence of testing, in DPM mode, involves the use of a piezocone to obtain a ground profile and identify suitable test zones. The CPT is halted and the pressuremeter test is carried out.

In RPM mode, a borehole is drilled to above the scheduled test depth. Then a 1.0 m long test pocket is drilled using either a small open holing bit or an SPT split spoon and the instrument lowered in.

Production rate for DPM/RPM testing is typically 3 to 5 tests per shift. However, this is dependent on a number of factors; for example, the test spacings, ground conditions, other tests within the CPT or borehole, etc.



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www.insitusi.com/pressuremeter-testing

PRESSUREMETER TESTING

DRIVEN / REAMING PRESSUREMETER SPECIFICATION

Generic type	Full-Displacement
Test type	Stress controlled
Manufacturer	Cambridge Insitu Ltd
Nominal diameter, mm	47
Instrument length, m	0.90
Expanding section length, m	0.30
Strain Capacity	42% diametric strain / 10mm radial displacement
Maximum working pressure, MPa	10
Displacement measurement	3 arms at 120°
Pore pressure measurement	None fitted
Deployment	Pushed into the ground using a CPT rig or test pocket drilled with small open holing bit or an SPT split spoon, depending on drilling rig type and ground conditions.
Reliability of test results	Due to displacing the ground on insertion, the initial in situ stresses can be altered and should be regarded with caution. Following initial stages data quality is comparable to other pressuremeter types.
Preferred ground conditions for use	Developed for homogeneous clays (soft to very stiff), silts and sands, soft rocks such as flint-free chalk.
Limiting ground conditions	Dense material, gravel or hard layers can cause refusal or damage the membrane.
Strength – Clay or rock (assumes test carried out under undrained conditions)	Reasonable / Good
Strength - Sand (assumes test carried out under drained conditions)	Good
Stiffness - shear modulus, G (including non-linear stiffness-strain parameters if appropriate)	Good
In situ lateral stress (difficult to obtain by other means)	Low / Reasonable
Testing Standard	BS EN ISO 22476-8:2018