PRESSUREMETER TESTING

SELF BORING PRESSUREMETER (SBP)

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

The Self Boring Pressuremeter (SBP) is designed to perform in situ load-displacement tests to determine strength and stiffness properties of the ground. It is effective in materials from loose sands and soft clays to very stiff clays and extremely weak rock. It will not operate in gravel or materials hard enough to damage the sharp cutting edge. pressuremeter.

The SBP is typically operated in conjunction with a rotary drilling rig which is used to lower the probe into the borehole, on specialist rods (inner & outer), and then advance the SBP to create its own test pocket. Alternatively, the SBP can also be used with a cable percussion boring rig with some additional equipment.

The sequence of testing involves drilling at full borehole diameter to above the scheduled test depth, then self boring the instrument into the ground to for the test pocket. Throughout insertion the drilling flush pressure and rotation/thrust of the rotary head are monitored to ensure minimal disturbance to the test pocket wall quality.

Experience has shown that the self boring disturbance is low enough to remain within the elastic range of the material.

Production rate for SBP testing is typically 1 to 2 tests per shift. However, this is dependent on a number of factors; for example, the test spacings, drilling progress rate, other tests within the borehole, etc.

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FOR FULL RANGE OF PRESSUREMETER TESTING, PLEASE DOWNLOAD ALL OF OUR DATA SHEETS FROM OUR WEBSITE AT:

www.insitusi.com/pressuremeter-testing

PRESSUREMETER TESTING

SELF BORING PRESSUREMETER SPECIFICATION	
Generic type	Self-bored (SBP)
Test type	Strain controlled
Manufacturer	Cambridge Insitu Ltd
Nominal diameter, mm	88
Instrument length, m	1.20
Expanding section length, m	0.49
Strain Capacity	10% radial strain
Maximum working pressure, MPa	10
Displacement measurement	6 arms at 60º (3 diametrically opposite pairs)
Pore pressure measurement	Two sealed gauge pore pressure cells at 180°
Deployment	Self bored into undisturbed ground using a rotary rig, or under a cable tool rig via a separate hydraulic cutter drive motor and rams. A minimum insertion depth of 1m should be achieved prior to testing. In favorable ground, a second self bore can be attempted without removing instrument from the ground.
Reliability of test results	The SBP gives the highest quality pressuremeter test with minimal insertion disturbance. Results can be affected by disturbance during self boring in very soft or gravelly material.
Preferred ground conditions for use	Developed for homogeneous clays (soft to very stiff), silts and sands, soft rocks such as flint-free chalk. Normally set up in 'weak rock' mode which can allow some penetration into very weak material.
Limiting ground conditions	Gravel or hard layers can cause damage to cutting shoe edge which results in disturbance during insertion. Also, difficult to self bore in very gravelly or weak rock. No sample recovery, only disturbed cut material returned via flush.
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)	Good (By direct measurement during test of lift off and by interpretation of loading curve)
Testing Standard	BS EN ISO 22476-6:2018