

# PRESSUREMETER TESTING

## MÉNARD PRESSUREMETER (MPM)

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

The Ménard pressuremeter (MPM) test is performed by the radial expansion of the cylindrical tri-cell probe within a test pocket. The test is carried out by injecting liquid into the central measuring cell and gas into the guard cells to expand the probe to induce displacement of the ground. It is designed for testing in superficial deposits, such as loose to medium dense sands and soft to very stiff clays.

The MPM is operated in conjunction with a rotary drilling rig which is used to drill the test pocket, lower the probe into the borehole on drill rods and advance the borehole between test locations.

The sequence of testing involves drilling at full borehole diameter to above the scheduled test depth, then drilling a 1.0 to 2.0 m long test pocket. Test pockets are 63-65mm diameter and created either by coring with a barrel or open hole drilling with a suitable bit.

Production rate for MPM testing is typically 2 to 6 tests per shift. However, this is dependent on a number of factors; for example, the test spacings, drilling progress rate, test depth, other tests within the borehole, etc.



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[www.insitusi.com/pressuremeter-testing](http://www.insitusi.com/pressuremeter-testing)

## MÉNARD PRESSUREMETER SPECIFICATION

<b>Generic type</b>	Pre-bored (PBP)
<b>Manufacturer</b>	APAGEO
<b>Nominal diameter, mm</b>	60
<b>Instrument length, m</b>	0.70
<b>Expanding section length, m</b>	0.45 - 1no. 0.21 central measuring cell - 2no. 0.12 guard cells (above and below)
<b>Volumetric expansion capacity, cm<sup>3</sup></b>	700
<b>Maximum working pressure, MPa</b>	10
<b>Deployment</b>	Inserted into test pocket drilled by drag bits or rock roller bits with specially designed axial bottom discharge nozzles using a rotary rig. Test sections can be drilled long enough to allow for multiple tests, depending on borehole and ground conditions (see ISO 22476-4 Annex C).
<b>Reliability of test results</b>	Drilling of test pocket results in some stress relief of ground which is accounted for in interpretation of data. Results can be affected by disturbance or over size test pocket, dependent on ground conditions and quality of drilling.
<b>Preferred ground conditions for use</b>	Suitable for most types of superficial deposits and weak rock (using high pressure equipment).
<b>Limiting ground conditions</b>	Requires clean stable test pocket. Limited usefulness of data in rocks.
<b>Derived Parameters</b> (assumes test carried out under undrained conditions)	Ménard Pressuremeter Modulus (Em), Creep Pressure (Pf) Limit Pressure (PL)
<b>Testing Standard</b>	BS EN ISO 22476-4:2012