

PRESSUREMETER TESTING

BOREHOLE (GOODMAN) JACK (BHJK)

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

The Borehole (Goodman) Jack is a borehole probe used for the measurement of wall deformation as a function of applied load. Data obtained from the load-deformation measurements give the in situ deformation modulus of the rock directly. Hydraulic pressure is transmitted to the rock through the movable plates with LVDT displacement transducers mounted to them.

The BHJK 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 typically involves drilling at full borehole diameter to above the scheduled test depth, then drilling a 1.5 m long test pocket. Test pockets are preferably cored, at NX size (76.3 mm), so that the test material can be examined and to maximize the uniformity of the pocket diameter and wall quality.

Longer test pockets can be drilled in suitable ground to enable 2 or more successive tests to be carried out.

Production rate for BHJK testing is typically 2 to 5 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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www.insitusi.com/pressuremeter-testing

BOREHOLE (GOODMAN) JACK SPECIFICATION

Generic type	Borehole Jack
Test type	Stress controlled
Manufacturer	Slope Indicator
Nominal diameter, mm	70
Instrument length, m	0.45
Strain Capacity	18.6% diametric strain
Maximum working pressure, MPa	70
Displacement measurement	2 plates at 180°
Deployment	Inserted into test pocket drilled with NX size equipment using a rotary rig. Test pocket can be drilled long enough to allow 2 or more tests, depending on borehole and ground conditions.
Reliability of test results	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.
Preferred ground conditions for use	Rock.
Limiting ground conditions	Requires clean stable test pocket. Limited usefulness of data in weaker rocks where yield is induced early.
Derived parameter	Modulus of deformation – ratio of stress to strain for a material under given loading conditions
Testing Standard	BS EN ISO 22476-7:2012