

Hydraulic Point Load Tester

Model 6600



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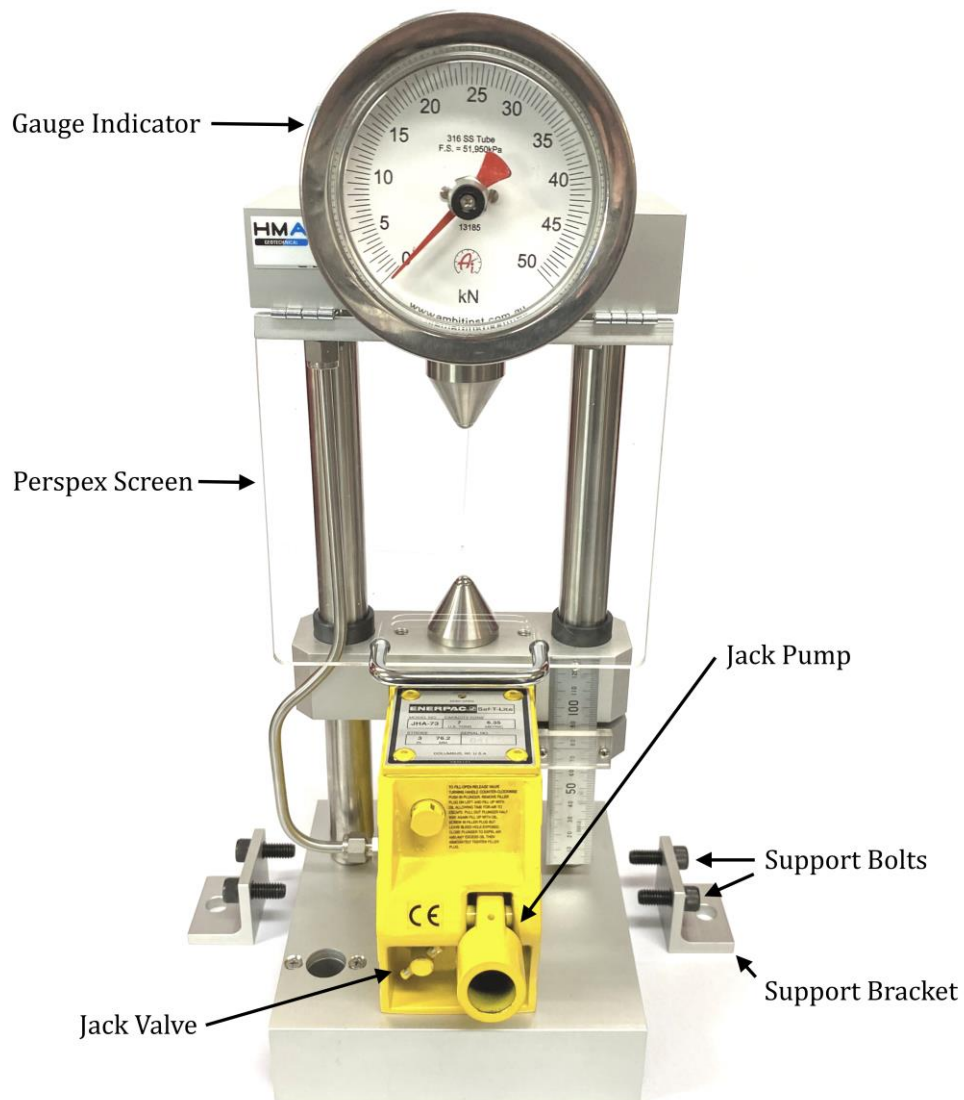
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1. Introduction

The HMA Geotechnical Hydraulic Point Load Tester consists of a two column loading frame, giving minimum dimensions and weight while maintaining rigidity and load capacity. Load is applied through a single acting, hand operated, hydraulic jack mounted below the bottom platen. The travel of the bottom platen is guided by closely toleranced bushings on the guide shafts. Platen separation is measured by a sliding scale. The load measuring device consists of a 50kN load gauge which is placed above the top platen. The peak load reading at failure is recorded with the red needle on the gauge. The operator is protected from rock fragments by a transparent safety screen which can be removed if not required. Hardened steel balls are used at the tip of the platen points to provide a true 5mm radius.



2. Specifications:

Hydraulic Point Load Tester

Gauge

Range 0-50 kN

Accuracy 0.5 kN

Temperature Range 0-50°C

Functions

Peak Retain peak load during testing

Platens

Separation 76 mm Maximum

Hydraulic Jack

Capacity 67 kN

Stroke 76 mm

Dimensions

Instrument 180 x 205 x 475 mm

Carry Case 250 x 300 x 525 mm

Weight 13 kg

3. Description

The HMA Geotechnical Point Load Tester consists of a two-column loading frame, giving minimum dimensions and weight while maintaining rigidity and load capacity.

Load is applied through a hand operated hydraulic jack mounted on the lower reaction plate. Close tolerance bushes guide the travel of the bottom platen on the guide shafts while platen separation is measured by a sliding scale with an adjustable datum. The platen points contain hardened steel balls to provide a true 5mm radius.

The applied load is measured via an analogue force gauge that attaches to the top front of the unit. This measures the hydraulic pressure (converted to load) that is applied via the ram at the front of the unit. The peak test value is shown on the force gauge with the red needle. Load is displayed directly in kilonewton (kN).

The testing frame can be supported by holding the lifting handle while loading the sample. If possible, the unit should be anchored to a suitable mounting base with the tapped holes in the lower reaction plate.

This point load tester has been developed to comply with the International Society for Rock Mechanics "Suggested method for determining point load strength". It is recommended that the user be familiar with this methodology and refer to the above paper for details concerning the point load strength test and its application.

Types of Tests

There are three types of point load test configurations available for core logging.

Diametral Test

This test is suitable for core specimens with length/diameter ratio greater than 1.0. It is the most repeatable test and is independent of core length provided that that above condition is met.

Axial Test

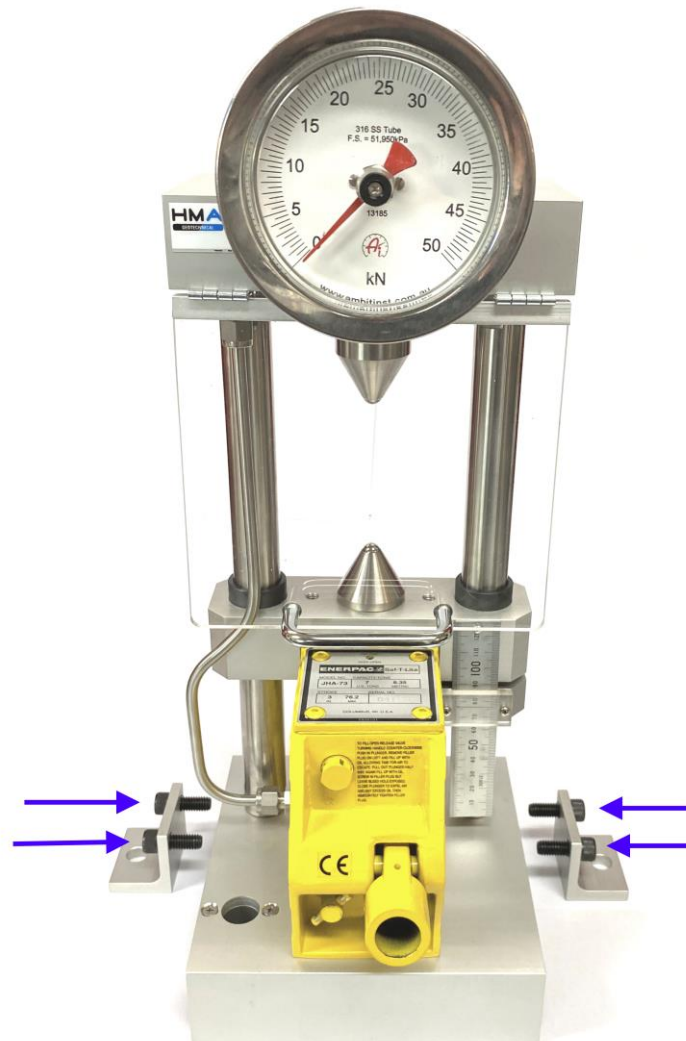
When only rock discs are available or when discs are produced with the diametral test, the axial test can be performed on core specimens with length/diameter ratios between 0.3 and 1.0 This test is useful to evaluate strength anisotropy.

Block or Irregular Lump Test

If irregularly shaped rock pieces are the only specimens available, tests can be performed on lumps having an equivalent core diameter close to 50mm and an overall approximately cubical shape. In order to fit this requirement, specimens may be prepared from larger pieces by trimming.

4. Operating Instructions

1. If possible the Point Load Tester should be anchored to a suitable mounting base with the tapped holes in the sides of this reaction plate. Two support brackets are supplied with bolts shown below. Once the bolts are screwed into the sides of the PLT base you will need to attach it to your secure platform through the remaining vertical bolt holes on the brackets.

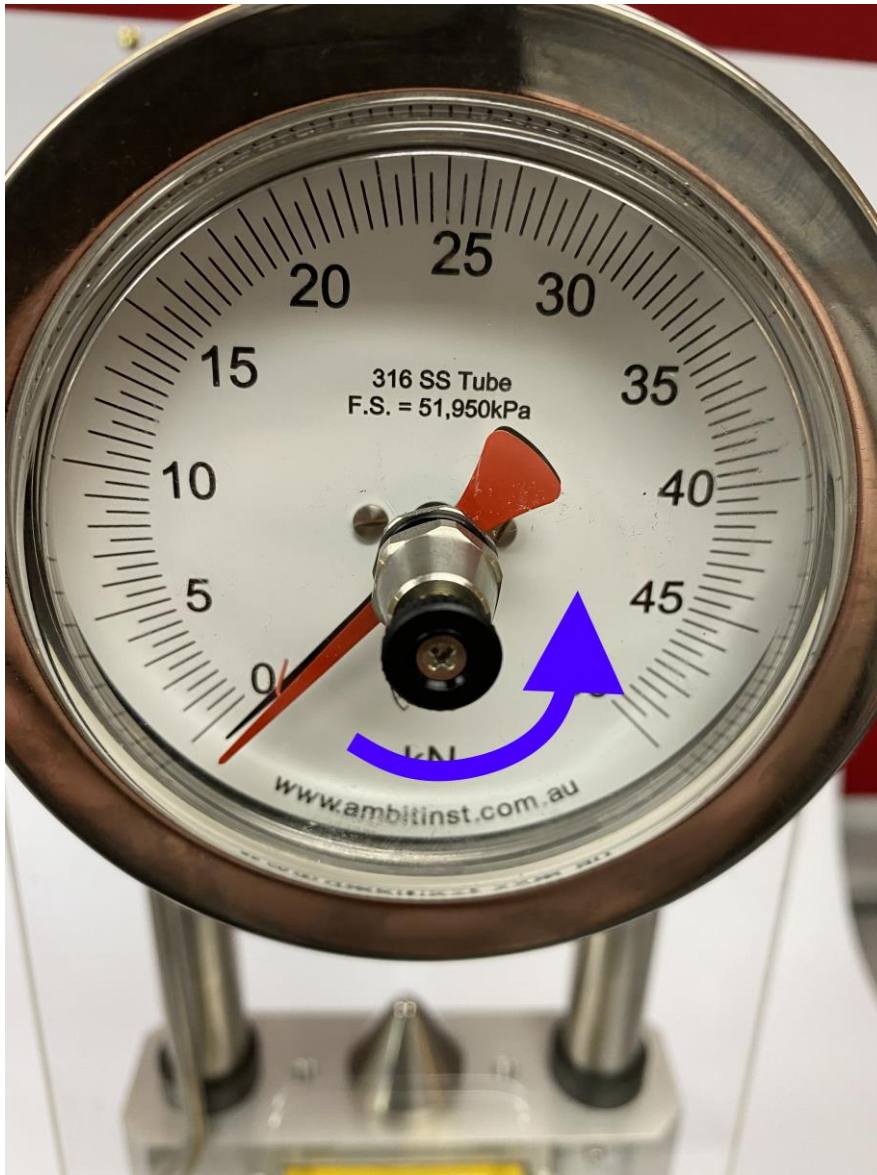


2. When the PLT is secured to a bench or other solid platform, tighten the jack valve by using the handle to screw the valve clockwise.



To tighten - rotate the
valve clockwise until
it stops freely spinning.

3. Rotate the red indicator needle on the dial counter-clockwise to zero. As the PLT is pumped up with a sample between the cones, the black needle will push the red needle to a higher value.



4. Insert the jack handle in the hydraulic jack.



5. Insert the sample and pump the jack handle until the upper and lower cone are touching the sample. Note the reading on the ruler, this is the thickness of the sample.



6. Pump the jack until the sample breaks. The red needle will now indicate the peak load experienced at fracture.