Point Load Tester
Model 7270-RT-PIL7

FEATURES

- ***Conical platens conform to ISRM suggested method***
- ***Direct reading of specimen diameter***
- ***Maximum load indicator***
- ***Portable***
- ***Shield protects from flying chips upon failure***
- ***Extreme rigidity***

GENERAL

The Point Load Tester permits the determination of the Point Load Strength Index ($I_{s\,(50)}$). This index provides a useful method to establish a rock strength classification.

The index can also be used to determine the rock anisotropy as well as to predict other rock strength properties, such as the uniaxial, tensile and compressive strengths.

Description

The Roctest Model 7270-RT-PIL7 Point Load Tester consists of a loading frame, a mounted hydraulic ram and a pressure gauge for maximum load indication. An upper conical platen is fixed on the frame and a lower one on the jack piston. A graduated scale is fixed on the frame and indicates the specimen diameter.

Test Procedure

Three point load test configurations are used depending on the available rock specimens:

TESTS: DIAMETRICAL– AXIAL- IRREGULAR LUMP

The diametrical and axial tests use core specimens with length/ diameter (L/D) ratios greater than 1.0 in the first case and between 0.3 and 1.0 in the second case. Rock pieces of suitable irregular shapes are used when cores are not available.
The testing steps are the same for the three configurations:

1) *The specimen is positioned between the conical platens. The platens are then closed to make contact.*
2) *The distance "D_e" between the points of contact is read on the scale.*
3) *The load is increased such that failure occurs within 10 to 60 sec. and the failure load "P" is recorded.*

Interpretation

The Point Load Test allows the user to determine an "Uncorrected Point Load Strength Index" (I_s). This index must be corrected to a standard equivalent diameter (D_e) of 50 mm. It then becomes a unique property of the rock tested ($I_{s\,(50)}$) which is most useful in rock strength classification.

Rock anisotropy is quantified by the "Strength Anisotropy Index" ($I_{a\,(50)}$). This index is the ratio of the greatest to least ($I_{s\,(50)}$) index measured respectively perpendicular and parallel to the existing planes of weakness.

The uniaxial tensile (UTS) and

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compressive (UCS) strengths can be approximated from the ($I_{s\,(50)}$) index. The UTS is about 1.25 times ($I_{s\,(50)}$) and the UCS is normally between 20 and 25 times the ($I_{s\,(50)}$) index.

I_s is obtained from the following equation:

$$I_S = \frac{P}{D_e^{\,2}}$$

Where:
I_s: Is in MPa or psi
P: Failure load in MN or lbf (maximum pressure x jack piston area)
D_e: Equivalent core diameter in meter or in. (D_e = D for diametral tests)

The procedure for size correction follows the ISRM (International Society for Rock Mechanics) "Suggested Method for Determining Point Load Strength". $I_{s\,(50)}$ is obtained either graphically, mathematically (correction factor) or by testing specimens of 50 mm (or close) in diameter.

Accessories

- *Set of spare conical platens*
- *Spare high pressure gauge (0-1000 bar, 0-14500 psi)*
- *Spare front protective shield*
- *Spare back protective shield*
- *Set of optional flat platens*
- *Set of optional spherical seats*
- *Optional low pressure gauge (0-300 bar, 4350 psi)*
- *Carrying case for point load tester*

Specifications

Maximum specimen size:	102 mm (4 in.)
Maximum load:	70 kN (15,700 lbf)
Scale minor division:	0.5 mm
Pressure Gauge: - **Range:** - **Accuracy:**	 100,000 kPa (14,500 psi) ± 0.2% F.S.
Height:	48 cm
Length:	27 cm
Depth:	25 cm

Due to on-going design improvements and reviews, we reserve the right to amend product and specifications without prior notice

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