

Borehole pressuremeter



Description

Pressuremeter tester (PMT) is the lateral load testing equipment of borehole whose pressure capacity is 20MPa.

This equipment is the LLT test equipment and aims to measure hard soil layer that is impossible to measure.

It is the test equipment developed for the range that is from some of soft ground to hard ground (layer of weathered rock). Hydraulic pressure (hand pump of high pressure), oil pressure and, etc. are used as pressure source.

It is designed to measure compressive force with the sensor that is attached to readout device and the variation of the borehole diameter with LVDT sensor of caliper arm method embedded in pressuremeter probe regarding deformation of the ground in person, and then display them in readout device through the cable.

The data logger called PMT-75D, stores data and allows you to directly check the graph of the relationship between radius displacement and pressure, and the data measured for each measured holes are saved as a file.

It is waterproof and rust-proofed to enable use in harsh field environments.



[PMT-75 Composition of test set]

Component



[Pressuremeter probe]



[Data logger]



[Hydraulic pump]



[Hydraulic hose & signal cable]



[Testing jig]

Features

- Possible to use probe(OD: $\varnothing 72\text{mm}$) at NX borehole($\varnothing 75\text{mm}$)
- The amount of displacement detection is wide with maximum 20mm, It can be used for various grounds ranging from soft soil layer with big displacement to hard soil layer.
- Displacement can be read easily because it is displayed in digital.
- Easy to handle because it is made of rubber tube.

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Specification

Model	PMT-75	
Data logger (PMT-75D)	Display	Graphic LCD (displacement, pressure)
	Accuracy	$\pm 0.05\%$ FSR
	Resolution	0.001mm, 0.001MPa
	Memory	15000 Data points (Max. 100 points / Hole)
	Power	7.2VDC / Rechargeable Ni-MH battery
	Operating time	14 hours continuous (when fully charged)
	Material	ABS case
	Dimensions	247 × 227 × 155(h)mm
	Weight	2.7kg
	Accessories	Charger (12VDC 3Ah)
Pressuremeter probe (PMT-75)	Sensor type	Measuring displacement of diameter : LVDT sensor Measuring to water pressure of probe : water pressure sensor
	Range of measuring displacement of diameter	Ø72~Ø92mm (20mm)
	Linearity	$\pm 0.1\%$ FSR
	Detection method displacement	Caliper arm type
	Maximum hydraulic pressure	20 MPa(2850 psi)
	Temperature range	-20~60°C
	Material	Stainless steel
	Dimensions	Ø72 × 1170mm
	Weight	18kg
	Length of probe	520mm
	Maximum pressure	20 MPa
	Rubber tube	Hard rock (PMT-75TH) 20MPa (hard rock)
		Soft rock (PMT-75TS) 10MPa (soft rock)
Hand pump (PMT-75P)	Max. hydraulic pressure	30 MPa (4300 psi)
	Dimensions	570 × 160 × 330(h)mm
	Material	Stainless steel
	Weight	5kg
	Ingredient	Water
Hyd. hose	Maximum pressure	25MPa (3500 psi)
	Weight	2.6kg / 50m (STD)
Signal cable	Dimensions	Ø7mm, 0.37mm ² × 4C PU jacket cable
	Weight	3.0kg / 50m (STD)

Use of component

Component	Use
Data logger (PMT-75D)	It is stored measured displacement (mm, MPa) of pressuremeter probe
Probe (PMT-75)	LVDT sensor and pressure sensor will measure the displacement of diameter of borehole and the hyd. pressure of inside of probe.
Hyd. pump	It is possible to hyd. pressure up to 30MPa by hand pump.
Hyd. hose & signal cable	Outer diameter of hyd. hose is Ø8mm that endures up to 25MPa pressure and 7 cores of urethane sheath signal cable is used for enduring rough environments.
Standard testing jig	For testing, inner diameter is designed as same as NX drill borehole(Ø75mm)