SMARTEC

DMP^{e}

Borehole Dilatometer

HIGH ACCCURACY DILATOMETER
COMPATIBLE WITH DEEP BOREHOLE
USER-FRIENDLY TABLET-OPERATED READOUT

The DMP^{e} Borehole - or Flexible - Dilatometer equipment is designed for the in situ determination of the deformation modulus of rock masses in 96 mm or 101 mm boreholes

Description

The **DMP^{e}** Dilatometer consists of a probe with a metal central body. The probe includes:

- An inflatable membrane (rubber sleeve) equipped with three pairs of metallic inserts spaced at 120° intervals
- A split spring-ring and double cone membrane retaining system
- Three pairs of inductive displacement sensors with two measurement points each.
- A pressure sensor allowing to measure pressure in the probe
- A sediment collector

The probe is read with the **D/P BOX** Readout which is operated with an Android tablet (see datasheet D/P BOX for more details). A dedicated application, allows configuring the tests and calibrations, displaying and plotting the test results in real-time, logging the data.

The dilatometer probe is designed to be lowered down into the borehole using a string of rods. Nitrogen compressed dry gas is used for pressurizing the probe.

The borehole dilatometer test consists in loading the rock in progressive pressure steps and measuring the diametrical deformation resulting from this loading.

The test is used for generating the following parameters:

- A modulus of global deformation
- Elastic modulus measured on cyclic loadings
- Creep parameters
- Anisotropy of the rock mass

Key Features

- Electronic version of the DMP
- Direct contact between sensors and borehole walls via solid inserts in the membrane for optimum reliability
- Modulus of deformation obtained without correction thanks to the flexible membrane and solid inserts
- Allows measurements of rock anisotropy
- Compatible with deep boreholes (> 100 m)
- Automatic acquisition and real-time visualisation for enhanced control of the test
- Compliant with ISO 22476-5 & AFNOR P94-443.1
- DMPe 90 for 96 mm borehole
- DMPe 95 for 101mm borehole

Applications

- Investigation of soil bearing capability for large civil engineering structures
- Investigation of tunnels crossing rocky mass
- Geomechanical characterization of underground storage sites and mines

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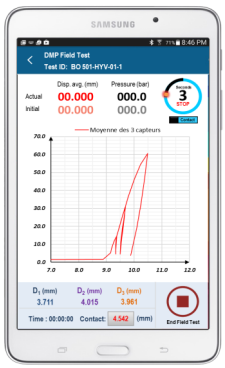
Specifications

DMPe Probe

Weight	45 kg
Diameter	90 mm (96-mm borehole) 95 mm (101-mm borehole)
Probe / Membrane Length	1.8 m / 1 m
Membrane standard 90 ou 95	For soft to hard rock
3 Inductive Displacement Sensors	
Calibrated Range	20 mm
Resolution (D/P BOX)	1 µm
Pressure Sensor	
Max Working Presssure	20 000 kPa
Resolution (D/P BOX)	1 0 kPa

D/P BOX Readout

User Interface	Bluetooth communication with an Andoid tablet
Power Supply	2 x 12 V, 2.3 A, rechargeable batteries
Data Output Format	CSV, spreadsheet compatible
Dimensions	25 x 28 x 12 cm (l x w x h)
Housing	Splashproof, resistant ABS case
Autonomy	> 8 hours typically
Power supply interface	Universal AC wall plug with US/Euro adapter + adapter cable for car (lighter) & for external battery



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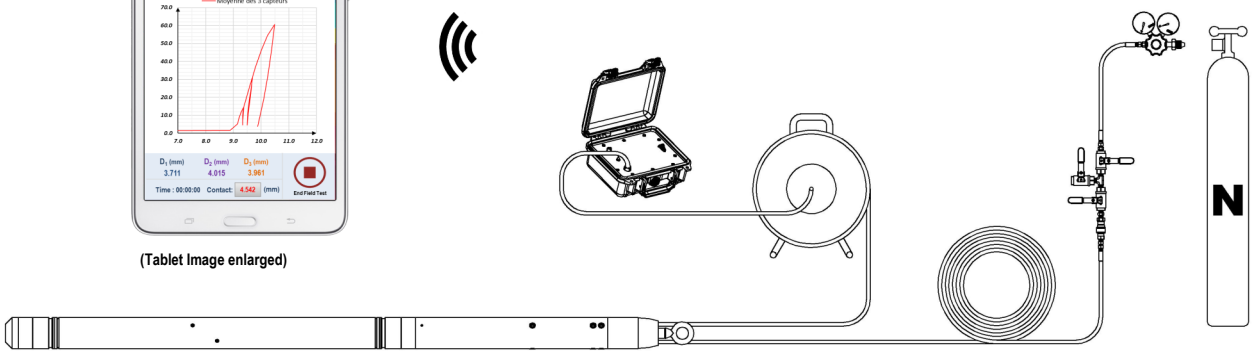

DMPe Complete Assembly

Optional Accessories

- Spare Set of Displacement Sensors
- Tools Kit for Assembling and Disassembling the Membrane
- Carrying Box for the Dilatometer Probe
- Kit to transform **DMPe 90** into **DMPe 95**
- Kit to transform **DMPe 95** into **DMPe 90**

Accessories

- Flexible High Pressure Pneumatic Tubing with Connector
- Electrical Cable
- CRAELIUS 50 & 60 Type Connectors
- Cable Reel
- Pressure Regulator, Manometers & Valves
- DP Box Readout Unit
- Spare Membrane 90 or 95

Ordering Information

Please Specify:
- DMPe design, 90 or 95
- Tubing & Cable Length (Special configuration required over 150 m)
- Accessories

Smartec SA
Via Pobiette 11
CH-6928 Manno,
Switzerland

Phone +41 91 610 18 00
Fax. +41 91 610 18 01

Email info@smartec.ch
Web www.smartec.ch

E50182-030621

Roctest reserves the right to make any changes in the specifications without prior notice

NOVA METRIX