

CP40II Cone Penetrometer

FEATURES

- Easy to assemble
- Easy to handle
- LCD display
- Contrast Control
- Backlight display
- Graphic display
- Multiple data points
- Scientific accuracy
- Factory calibrated
- GPS option
- Quick observations

APPLICATIONS

- Soil density
- Compaction
- Trafficability
- Farm machinery
- Foundation

Penetrometer measures the resistance to penetration in soil. The instrument consists of a data logger, load cell, a cone attached to a shaft and GPS. The data logger records the cone index value of the load required for insertion of the cone through the soil as well as time, date and GPS coordinates. The logger plots these cone index values against the depth.

Application

The Penetrometer can help to measure soil density, compaction, tracing compacted layers, trafficability, basic advice for foundation etc. This can help monitor the compactness of soil caused by the movement of tractors or farm machinery. The instrument is a useful tool to measure soil compaction for the foundation of buildings, bridges and roads.



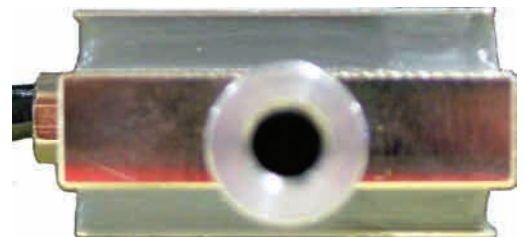
Data logger



The data logger can display the measurements on screen and store the data in memory that can be downloaded to PC. It has capacity to record 2047 insertions with optional GPS data point recordings. The logger has LCD screen with 160 x 128 pixel equipped with contrast and backlight controls for the better display of all menus and data. The user can create new files for recording data at different locations without having to download the already recorded observations.

Load cell

The load cell is fitted under the data logger with a connector connected to the logger. It has provision for the attachment of shaft with insertion cone. The load cell can measure the pressure of insertion up to 5600 kPa to measure the resistance in soil.



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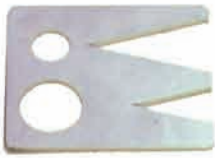
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Insertion cone, shaft and cone wear guide

Insertion cones are of ASAE 130 mm² and ASAE 323 mm² diameters to suit hardness of the soil. These cones are fitted to the shaft that can facilitate the insertion to measure compaction up to 750 mm deep. The Cone Wear guide helps to know the excessive wear and tear of the cones to avoid incorrect readings of the soil density down the profile. If the small cone slips through small hole, the small cone must be discarded and large cone slips



Cone Wear Gauge

through the large hole, the large cone must be discarded. Cone Wear cutouts are used to check whether the cone has deformed excessively.



Large and Small Cones



Shafts

GPS

The penetrometer is fitted with a GPS receiver to record position information with every insertion. GPS settings can be set on and off. If the setting is on, the logger locks the GPS information before allowing the insertion.



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SPECIFICATIONS

Maximum small cone index:
5600 kPa, 75 kg

Maximum large cone index:
2200 kPa, 75 kg

Resolution: 0.03 kg

Maximum insertion depth:
750 mm

Interval spacing:
10 mm, 15 mm, 20 mm, 25 mm

Memory capacity: 2047
(number of insertions)

Operating temperature:
-10–60°C

Operating humidity: 60 %RH

Baud rate/download speed:
9600 bps

Screen resolution:
160 x 128 pixels
Conforms to Standard ASAE
S313.3 feb99

Power supply:

Battery life: 3000 mAh

System dimensions:

Small cone size:
diameter: 12.83 mm
area: 130 mm²

Large cone size:
diameter: 20.27 mm
area: 323 mm²

Shaft diameter: 9.53 mm

Weight: 3.9 kg
(assembled without GPS)

Weight: 9 kg (in case)

Dimensions: 560 mm x
1073 mm x 130 mm
(assembled without GPS)

Case dimensions:
470 mm x 358 mm x 175 mm