



**LIGHTWEIGHT, COMPACT, SIMPLE  
CONICAL PROBE  
NO COMPRESSED GAS NECESSARY**

The PENCEL is a small Pressuremeter System used to run in situ loading tests in soils.

### Description

The PENCEL pressuremeter, also known as pavement, pushed-in or cone pressuremeter, is comprised of three main components:

#### The Probe

The mono-cellular probe consists of a cylindrical body fitted with an inflatable sheath, fluid inlet and saturation ports, a conical drive shoe and a drive rod adapter.

#### The Control Unit

The control unit consists of an ABS enclosure supported on an aluminum tripod and containing the cylinder, pressure gauge, digital volume indicator, control valves and tubing connectors.

#### The Tubing

The standard tubing consists of a single conduit fitted with shutoff quick connectors at both extremities, which allow the probe or tubing to be uncoupled without desaturating the circuit.

The PENCEL is a highly portable system that offers simplicity and economical operation. The probe is set directly in a borehole prepared in advance using a hand auger or driven pipe. It can also be inserted by static pushing or by light dynamical driving. No heavy drilling equipment is required for testing with the PENCEL, making it an especially attractive instrument for use on sites where access with heavy equipment is impractical, or in an economically restrained situation.

### Key Features

- Lightweight, compact, simple
- Directly driven probe
- Low cost, versatile pressuremeter
- Can be used in series with electrical static cones
- No compressed gas necessary
- Probe compatible with Texam control unit

### Applications

- Footings
- Piles
- Pavements
- Laterally loaded pylons
- Compaction control

### Specifications

#### Control Unit

Dimensions (L×W×H)	48 × 37 × 15 cm
Working pressure (max.)	2500 kPa
Pressure gauge range	-100 to +2500 kPa
Pressure gauge accuracy	1% F.S.
Reservoir volume	140 cc
Resolution	
Volume measurement	0.1 cc
Pressure measurement	25 kPa
Weight	10 kg
<b>Tripod</b>	
Dimensions (folded)	47 cm dia. × 74 cm high
Weight	3 kg

#### Probe

Length (complete with rod adapter and drive shoe)	69 cm (std) / 74 cm (hollow)
Measuring cell O.D. (min.)	32 mm
Test zone length	240 mm
Shoe O.D.	35 mm
Rod adapter	For EW or AW rods
Weight	3 kg

#### Tubing

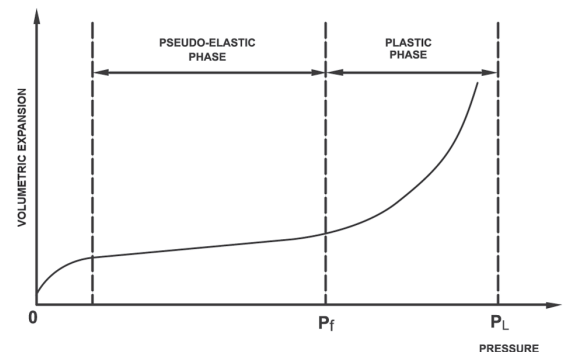
O.D.	6.3 mm
Length (std.)	10 m (or to order)
Weight	0.4 kg + 0.04 kg/m
Total System Weight	16 kg

### Test Procedure and Results

The probe is set in place. The test is then typically run in steps of equal volume increments.

The test data gathered with the PENCEL pressuremeter, like that gathered with other pressuremeters, yields a stress-strain curve from which two main parameters are obtained:

- The limit pressure  $P_L$  which corresponds to a twofold volume increase of the probe, and is a direct reflection of the soil's bearing capacity.
- The modulus of deformation  $E$  is determined on the quasi-linear initial portion of the curve. It can be used for estimating settlement.



Example of pressuremeter test results

### Ordering Information

Please specify:

- Optional hollow probe for use with a static electrical cone
- Maximum testing depth