

## DESCRIPTION

The dilatometer test (DMT) comprises pushing a flat blade into the ground using a CPT rig. At regular depth intervals, penetration is stopped and a circular membrane on the side of the DMT blade is inflated using gas pressure. The pressure required to inflate the membrane against the ground is measured at two points; one when the membrane lifts off the blade and another at 1.1 mm displacement. This allows the in situ lateral earth pressure and lateral stiffness to be determined. The test depth intervals are usually at 200 mm centres, although alternative depth intervals (as close as 100 mm centres) can be used.

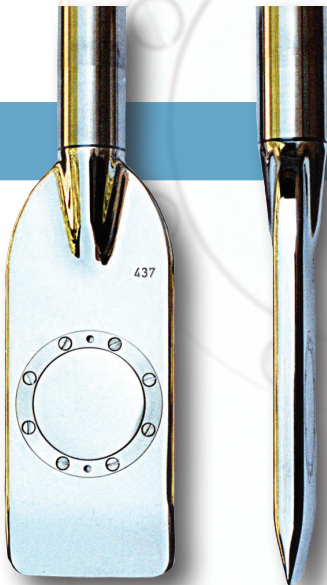
With the addition of a seismic module behind the DMT blade, the test is then referred to as the 'seismic dilatometer test' (SDMT). The seismic module has two geophones at 500 mm centres which allows for true interval shear wave velocity measurements. The acquisition software automatically re-phases the measured seismographs to give immediate and accurate shear wave velocities without the need for detailed post-analysis.



## DERIVED PARAMETERS

The following soil parameters are either measured directly or empirically derived:

- Equilibrium pore pressure,  $U_0$  (in free draining soils)
- Material type index,  $I_d$
- Overconsolidation ratio, OCR
- Friction angle,  $\phi$
- Unit soil weight,  $\gamma$
- Small strain shear modulus,  $G_0$
- Coefficient of earth pressure,  $K_0$
- Undrained shear strength,  $C_u$
- Constrained modulus,  $M (=1/mv)$
- Shear wave velocity,  $V_s$



## APPLICATIONS

- Accurate settlement estimations
- Bearing capacity
- Ground improvement
- Detecting slip surfaces in landslides
- Liquefaction potential
- Laterally loaded piles
- Axially loaded piles

