

Independent Soil and Rock Geotechnical Laboratory Testing

In addition to our vast scope of routine soil and rock testing, Geolabs also offers an impressive range of advanced soil testing capabilities. These make Geolabs a one-stop solution for all your geotechnical testing needs, irrespective of the size or complexity of your project.

We are always willing to discuss how we can adapt and customise our methods to suit your particular needs.

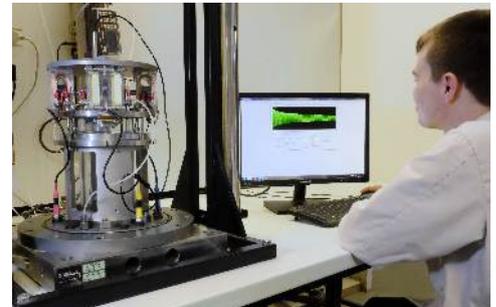
Advanced Triaxial Testing



- Stress path control
- Anisotropic capability
- Small strain stiffness
- Shear Modulus (G)
- Stiffness decay curve
- K_0
- Custom modelling
- Slow cyclic behaviour

8 advanced triaxial cells with computer controlled stress path capability allow the fitting of **Piezo Bender Elements** for measuring shear wave velocities in 3 orientations for deriving G_{max} . **Local Strain** using submersible LVDTs enables axial and radial strains to be measured to assess parameters such as small strain stiffness decay curves and Poisson's Ratio. **Mid-Height Flushable Probes** ensure accurate pore pressure determination.

Resonant Column



- Shear Modulus (G) and Damping (D)
- Very small strains (typically 10^{-5} to 10^{-2} %)
- Defines the early stiffness decay curve

The **Resonant Column** test provides shear moduli over a range of **very small strains** which can link with local strain data from advanced triaxial tests to give a broad picture of the material's **stiffness characteristics**. Induced vibrations can be either **torsional** or **flexural**

CRS Consolidation



- Pre-consolidation pressure based on continuous curve
- Continuous e v $\log(p')$
- Continuous c_v
- Continuous m_v
- Continuous k (calculated)

3 Closed-loop controlled **Constant Rate of Strain (CRS)** oedometers measure permeability and allow consolidation parameters and permeability to be calculated **seamlessly** over the **whole stress range** tested.

Cyclic Direct Simple Shear

- Shear Modulus (G)
- Shear Stress (τ)
- Shear Strain (γ)
- Up to 5 Hz (cycles/second)
- Specimens can be pre-prepared by consolidating from $1.5 \times w_L$ material



Our **Direct Simple Shear (DSS)** apparatus can perform both **static** and **cyclic** tests with sinusoidal or custom loading profile. Tests can be carried out controlling either the **shear load** or the **shear strain**. Platens are available with **pins** or **ridges** to best prevent slippage

