

# Site Investigation

## Advanced triaxial testing with small strain measurement

In order for designers to correctly model important construction processes such as deep retained excavations or settlements during tunnelling, it is necessary to measure the stiffness of the soil at appropriate levels from very small to large strains.

### Dynamic Measurements

As well as undertaking routine triaxial tests for design where ground movement is in the order of 0.1%, Soil Mechanics' advanced techniques enable dynamic measurement of strains as low as 0.001% which is outside the capability of standard triaxial equipment.

### Accurate Results

In order to determine accurate strains, volume change and effective stress the fully computer controlled, advanced triaxial testing system incorporates:

- Mid-height pore pressure and suction probes
- Axial and horizontal bender element arrays
- On sample low mass Hall effect strain transducers
- Automated pressure control with integrated high accuracy volume change measurement.

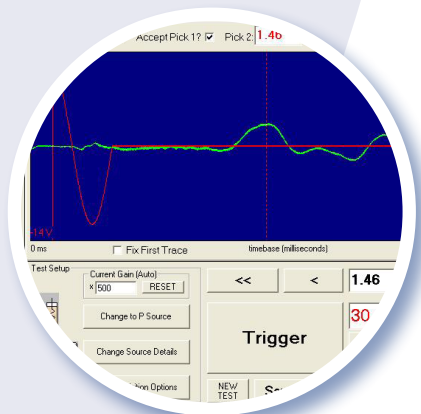
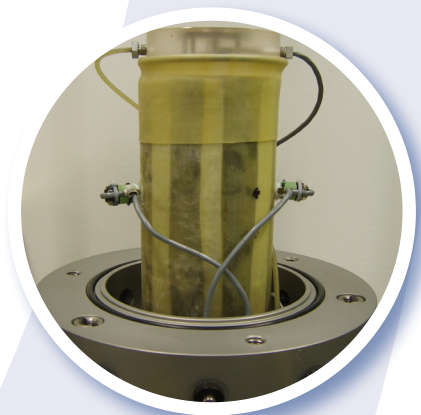
### Minimal Disturbance

Using the latest generation of robust titanium Hall effect transducers means that even soft samples can easily be instrumented with minimal disturbance.

### Capabilities

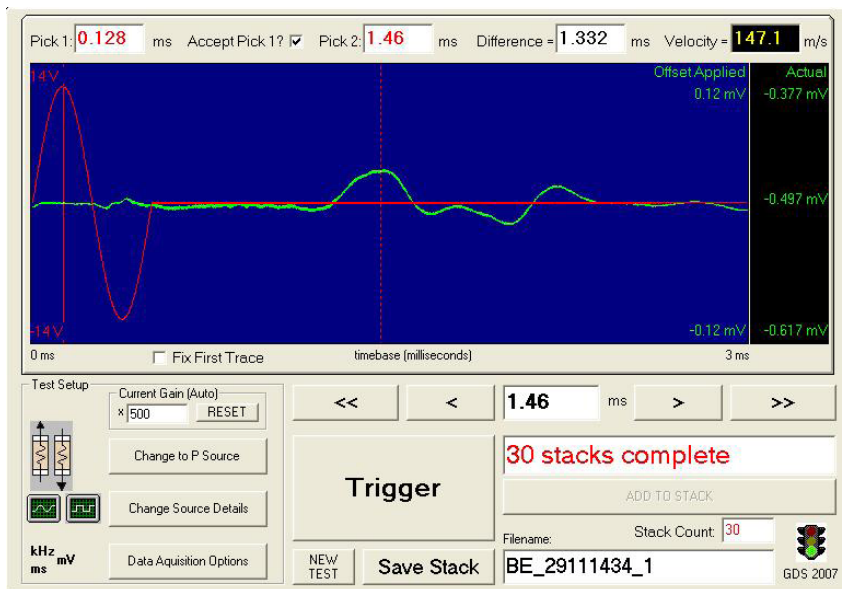
The advanced triaxial test has expanded the types of testing that can be routinely undertaken on both 70mm and 100mm diameter samples:

- UU, CIU, CID
- $K_0$  determination
- Anisotropic consolidation
- Stress path
- Tensile testing
- Low frequency cyclic
- Shear modulus derived from local axial strain measurement
- Axial and horizontal shear modulus derived from dynamic measurements.



**Rapid, Clear Results**

The advanced testing and data capture technique ensures that shear modulus can be determined dynamically in minutes with minimal averaging which leads to greater accuracy, reliability and quality.



An example of the clarity of the measurements made by the bender element system.