Pro Series

Automatic Unsaturated Triaxial (Double Wall) Testing System

Double Wall Cell Unsaturated Triaxial Testing

Double Wall Cell Unsaturated Triaxial System

The double wall cell allows the inner and outer cell pressures to be kept at the same value by the Cell Pressure Controller thus eliminating the volume change due to cell expansion.

The Pore Water Pressure controller provides an accurate measurement of water entering or leaving the sample whilst the Automatic Volume Change device (which is connected to the inner cell pressure line) provides the total volume changes of the specimen.

The new Double Wall Cell design separates the acrylic Inner Cell completely from the acrylic Outer Cell and there is an air bleed screw on both cells for efficient de-airing. It has 6 valves for air/water flow (inner cell pressure, outer cell pressure, 2 base water pressure & 2 top cap water/air pressure) and is capable of withstanding confining pressures up to 2000 kPa. It is designed with specially coated material to minimise corrosion and is suitable for Load Frames with a 158 mm diameter platen.

The double wall cell can be fitted with interchangeable Base Pedestals and Top Caps to accomodate sample sizes from 38 mm up to 100 mm diameter. The Base Pedestals come fitted with an HAED (1, 3, 5 or 10 Bar as requested).

The Cell base has 7 exit ports, allowing On-Sample Transducers 2 Bender Elements or a Mid-Pore Pressure Transducer to be fitted.

Data captured during the Unsaturated Triaxial Test can be logged using the additional Input sockets on the TriSCAN Pro Advanced and the Pro Dual APC.

Ordering Information

Main System Components	
VJT5000-P	TriSCAN Pro 50 kN Advanced Load Frame
VJT0450-DW	Double Wall Unsaturated Triaxial Cell
VJT2267D-P	Pro Dual Automatic Pressure Controller (3500 kPa per Channel)
VJT2250-P	Pro Single Pneumatic APC (1000 kPa)
Transducers	
VJT0271	LSCT Displacement Transducer (25 mm)
VJTS0353	Internal Load Cell with 25 mm dia. Ram (25 kN)
VJT0250-G	10 bar Pressure transducer with cable & plug
VJT0300A	Automatic Volume Change Device with LSCT Displacement Transducer
Accessories	
VJT0280	De-airing block with valve for pressure transducer
VJT0280-SOL	Automatic Solenoid Valve
VJT0450-DW100	100 mm Top Cap & Base Pedestal with HAED
Software	
VJT-csUNSAT	Clisp Studio Unsaturated Triaxial Software

Pro Series

Twin Cell Unsaturated Triaxial Testing System

Twin Cell Unsaturated Triaxial Testing

The Twin Cell Unsaturated Triaxial System uses a Bishop & Wesley type cell which utilises the 'Cell within a Cell' concept in order to eliminate the volume change due to cell expansion.

The inner cell can be removed for underwater sample assembly facilitating the removal of any air trapped in the inner cell.

Unsaturated soil contains air and water in the soil voids which leads to soil suction, so the test must be capable of providing variable suctions whilst providing accurate measurement of soil volume change.

Suction is provided by the Pro Pneumatic APC whilst accurate Volume Change is measured using the Automatic Volume Change Device.

Axial Force is exerted on the sample by a piston fixed to the Base Pedetal, which moves up and down. The piston is driven by pressure from the Single APC Pro and the Dual APC Pro supplies Back and Cell Pressure.

Data from the transducers is logged using the spare analogue sockets on the rear panels of the 3 APCs.

A combination of internal transducers (On-Sample, Mid Pore Pressure or Bender Elements) can be fitted dependent on your requirements.

Ordering Information	
Main System Components	
VJT0492	101 mm Bishop & Wesley type Unsaturated Twin Cell
VJT2267D-P	Pro Dual Automatic Pressure Controller (3500 kPa per Channel)
VJT2250-P	Pro Single Pneumatic APC (1000 kPa)
VJT2260-P	Single Hydraulic APC Pro (3500 kPa)
Transducers	
VJT0271	LSCT Displacement Transducer (25 mm)
VJT0250-G	10 bar Pressure transducer with cable & plug
VJT0300A	Automatic Volume Change Device with LSCT Displacement Transducer
Accessories	
VJT0280	De-airing block with valve for pressure transducer
VJT0280-SOL	Automatic Solenoid Valve
VJT0492-101	Unsat. Top & Base Ped 100 mm (also available in 38, 50 & 70 mm sizes)
Software	
VJT-csUNSAT	Clisp Studio Unsaturated Triaxial Software

csUNSAT Software

The csUNSAT software provides test configuration and control of four main elements; Vertical Load, Pore Air Pressure, Pore Water Pressure and Axial Load Control. The csUNSAT module comes with a predefined test plan to conduct an UNSAT test, offering a default plan with three stages; Equalisation, Consolidation and Stress Path. The user can configure these stages as required.

Stress equalisation allows the specimen mean net stress and the matric suction to be set to predetermined values over a defined period; this is accomplished by increasing the pore air pressure, pore water pressure and the radial stress.

Consolidation is defined as the mean net stress ramp at a specific rate constant matric suction. If you choose the cell pressure, then Pore air pressure will maintained at the current value and Pore water pressure will be adjusted to keep the suction constant. If you choose the Pore pressure then the cell pressure is maintained constant and the Pore water is again adjusted to keep the suction constant.

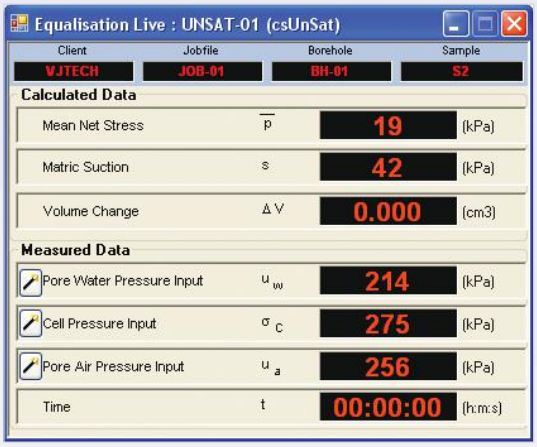
You may define a test with number of Deviator stress and mean net stress points which can then be automated. Again the cell pressure is used to adjust the Mean Net Stress to the required value whilst the ram provides the Deviator Stress control. The suction is maintained at the required value by adjusting the Pore water pressure.

Features

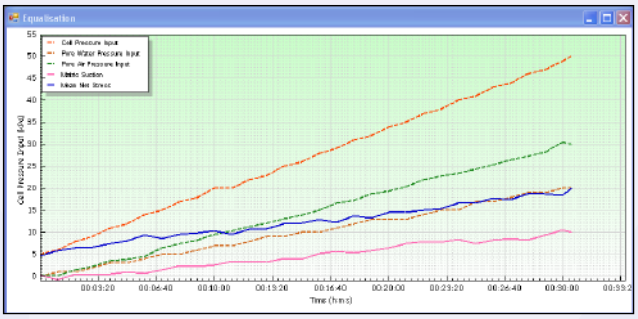
- Test configuration is made easy using the built-in wizard
- Transducer configuration and calibration
- Live view of sensor readings and calculated parameters
- Live Graphs & Tabulated Data
- Live Test status
- Data export to Excel & test script export and import
- Data storage in SQL data base
- User configurable Views, Tables and graphs
- Configurable test automation
- Email test status
- Optional customised reports available on request
- Isotropic Consolidation
- Anisotropic Consolidation
- Full stress path capability

Ordering Information

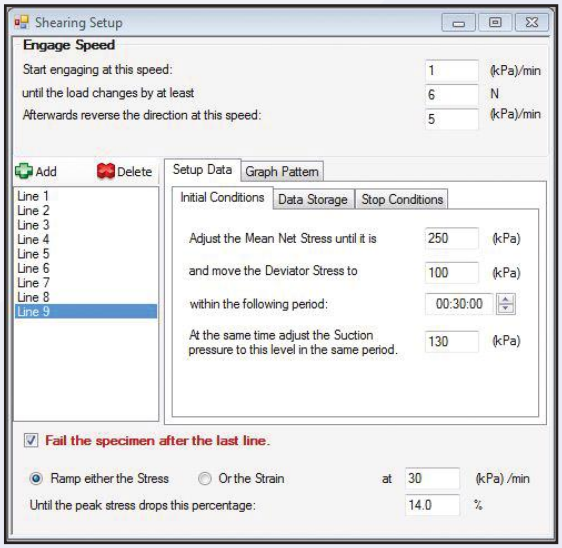
VJT-csUNSAT	Clisp Studio Unsaturated Triaxial & Stress Path Software



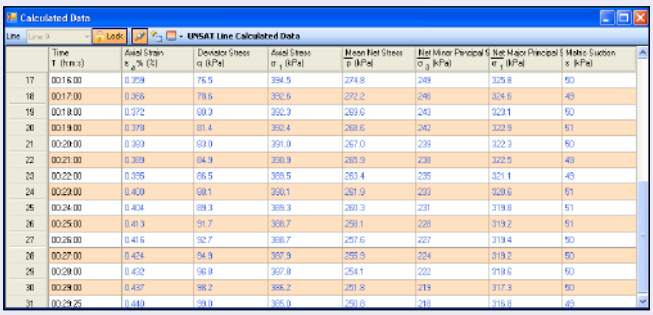
Equalisation View



Equalisation Graph



Shearing Set-up Screen



Shear Table