Automatic Unsaturated Triaxial Testing System

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Double Wall Cell Unsaturated Triaxial System

The Unsaturated Soil Testing requires special consideration given to the measurement of sample volume change. The 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.

Accurate Volume Change is measured using the VJT Automatic Volume Change Device which is used in both the Double Wall and Twin Cell Unsaturated Triaxial Systems that can be provided by VJ Tech for testing.

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, and the use of glass tube for the inner cell further reduces any diffusion between the inner and the outer cell. The Pore Water Pressure controller provides an accurate measurement of water entering or leaving the sample whilst the Automatic volume change which is connected to the inner cell pressure line device provides the total volume changes of the specimen.

The base pedestal is designed with a spiral groove for flushing diffused air and is also supplied with a removable high air entry disc. The top cap is supplied with a standard porous disc.

Ordering Information

VJT5000-P	TriSCAN 50kN Pro Advanced Frame
VJT0450-DW2	100mm Double Wall Unsaturated Triaxial Cell
VJT2260	Hydraulic APC (3500 kPa)
VJT2250	Pneumatic APC (1000 kPa)
VJT0300A	Automatic Volume Change Device with LSCT Displacement Transducer
VJT0520-DP	APC Water Distribution Panel (2-Way)
VJTS0363	S-Beam Load Cell (20 kN)
VJT0271	LSCT Displacement Transducer (25 mm)
VJT0280	De-airing Block with Valve
VJT0250	Pressure Transducer (1000 kPa)
VJT0450-DW2-50	50 mm Top Cap & Base Pedestal with HAED (also available in 38, 70 & 100 mm sizes)
VJT-csUNSAT	Clisp Studio Unsaturated Triaxial Software

Optional Items available on request

- Enhancement to allow Unsaturated Permeability Tests
- On-sample Transducers
- Access ring for additional transducers
- Bender elements

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 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.

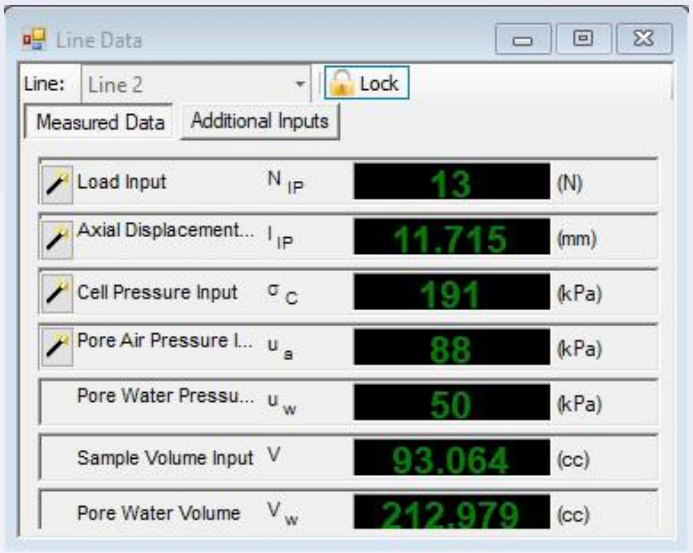
You may define a test with number of Deviator stress and mean net stress points which can then be automated. Again the cell pressure is used to adjust the Mean Net Stress to the required value whilst the ram provides the Deviator Stress control. The suction is maintained at the required value by adjusting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

Features

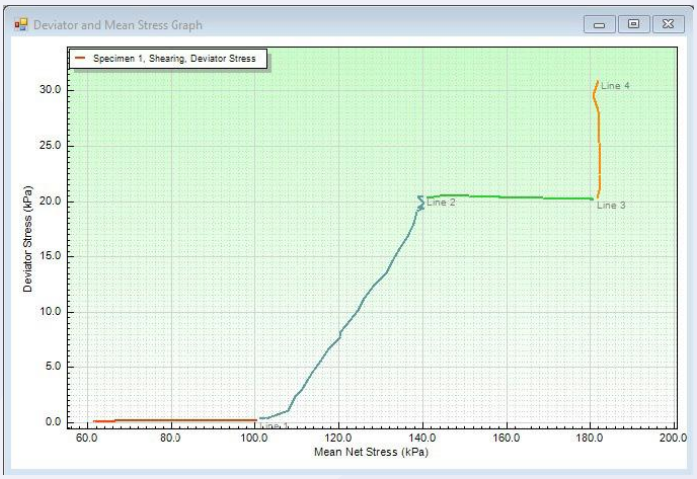
- Test configuration is made easy using the built-in wizard
- Transducer configuration and calibration
- Live view of sensor readings and calculated parameters
- Live Graphs & Tabulated Data
- Live Test status
- Data export to Excel & test script export and import
- Data storage in SQL data base
- User configurable Views, Tables and graphs
- Configurable test automation
- Email test status
- Optional customised reports available on request
- Isotropic Consolidation
- Anisotropic Consolidation including K0 consolidation
- Full stress path capability

Ordering Information

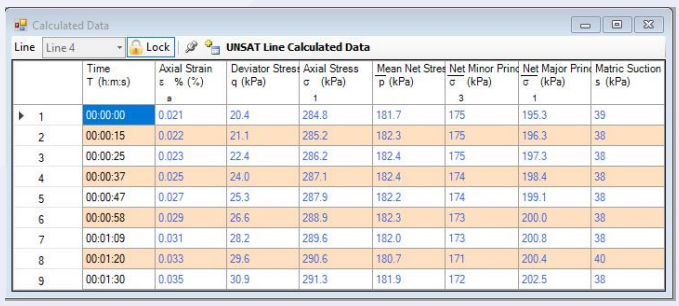
VJT-csUNSAT	Clisp Studio Unsaturated Triaxial & Stress Path Software



Measured Data



UNSAT Test Graph



Line Calculated Data Table

Failure Status