Dynamic Simple Shear with Confining Pressure Testing System

The VJ Tech Dynamic Simple Shear Apparatus with Confining Pressure (DSS-C) utilises 2 electro mechanical dynamic actuators for applying the vertical and horizontal loads to the sample which is held under Pressure in an adapted Triaxial type Cell or a sample contained within Confining Rings and no Confining Pressure

The 2 electro mechanical dynamic actuators are controlled by the Dual Axis Dynamic Servo Controller (DSC3000MM) which is connected via Ethernet or USB to a PC. The vertical and horizontal displacements can be measured with either LSCT Transducers or Encoders which are part of the servo motors. The maximum range of travel in each axis is protected by limit switches and strain rate is easily set from the PC.

Back Pressure is controlled and measured using a Pro Hydraulic APC and Cell Presssure using a Pro Air APC with an Air/Water interface. Vertical and Horizontal Loads are measure by internal Load Cells. The Loads and Pore Water Pressure are measured via the DSC3000MM.

The controlling software (Clisp Studio csDYNSS-C) enables all stages of the test (Saturation, Consolidation (Isotropic, Anisotropic or K0), Static Loading, Cyclic Shear (Stress or Strain) or Liquefaction) to easily be set up and run.

Ordering Information

Main System Components	
VJT2831-100	Dynamic Simple Shear with Confining Pressure Apparatus
VJT-DSC3000MM	Dynamic Servo Controller (Dual Axis - up to 8 Input Channels per Axis)
VJT2250-P	Pro Pneumatic APC (1000 kPa)
VJT2266-P	Pro Hydraulic APC (1000 kPa)
VJT0500	Air/Water Bladder 10 Bar
Transducers	
VJT0351B/DYN	2 Internal Load Cells (Dynamic 5 kN)
VJT0271/DYN	LSCT Transducer (Dynamic 25 mm)
VJT0272/DYN	LSCT Transducer (Dynamic 50 mm)
VJT0250/DYN	PWP Transducer (Dynamic 10 bar)
Accessories	
VJT2831-100-70S	70 mm Skirted Sample Kit
VJT2831-100-100S	100 mm Skirted Sample Kit
VJT2831-100-70R	70 mm Confining Ring Sample Kit
MIS0166B	Single Channel Signal Conditioning Card
VJT-PC-RACK	Rack Mounted PC (Optional)
Software Ordering Information	
VJT-csDYNSS-C	Clisp Studio Dynamic Simple Shear with Confining Pressure Software

Dynamic Simple Shear with Confining Pressure Testing System

Features

- Static or dynamic testing via servo controlled high speed motors
- Axial and shear stress-strain control
- Stainless Steel Simple shear apparatus/assembly
- Supplied with all transducer and load cell brackets
- Confining Cell on runners for ease of sample assembly
- Cell accomodates sample sizes of 70 or 100 mm
- Full control from a PC (running Clisp Studio) over an Ethernet or USB connection
- Dual Axis Digital Servo Controller (2 DSCs in a cabinet (with optional rack mounted PC))
- DSCs with cyclic waveform peak control
- Waveforms available: Sinusoidal, Triangular, Square, Haversine, Saw Tooth, User Defined
- Sample assembly kits available:
  - Skirted Base Pedestal and Top Cap 70 or 100 mm dia.
  - Confining Ring Base Pedestal and Top Cap 70 mm dia

Specifications

Frequency Range	0.0001 - 5.0000 Hz (upgradeable to 10.0000 Hz)
Max. Dynamic Load	+/- 5 kN (upgradeable to 10 kN)
Max. Horizontal Travel	+/- 20 mm
Max. Vertical Travel	+/- 15 mm
Max. Confining Pressure	Up to 2000 kPa
Max. Back Pressure	Up to 2000 kPa
Sample Diameter	70 mm (or 100 mm on request)
Nominal Sample Height	26 mm (or 38 mm for 100 mm)
PC Interface	USB or Ethernet

Clisp Studio (csDYNSS-C) Dynamic Simple Shear with Confining Pressure Testing System Software

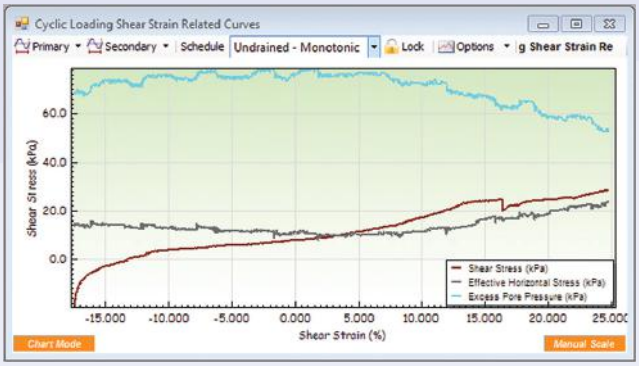
The VJ Tech Clisp Studio csDYNSS-C Software module enables you to perform dynamic simple shear tests on a sample contained within a Cell with a Confining Pressure.

Alternatively, dynamic simple shear tests can be carried out on a sample within Confining Rings but without Confining Pressure.

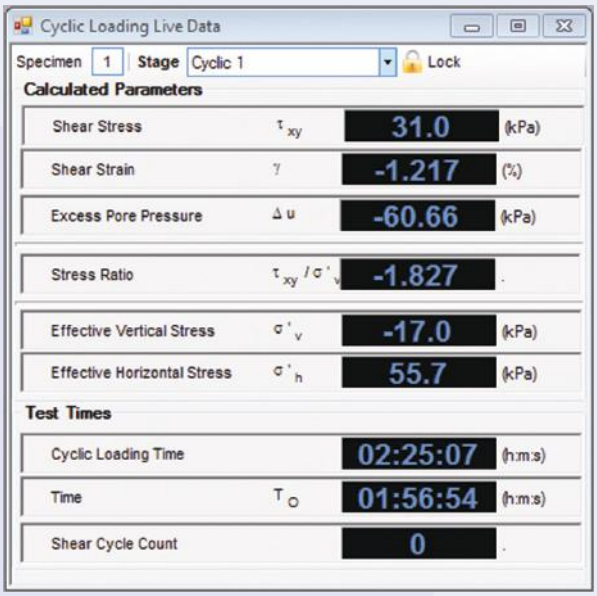
The software can be used with the VJ Tech Dynamic Simple Shear with Confining Pressure apparatus which enables the sample to be Saturated and Consolidated, and then Statically Loaded, Cyclically Sheared and tested for Liquefaction.

Features

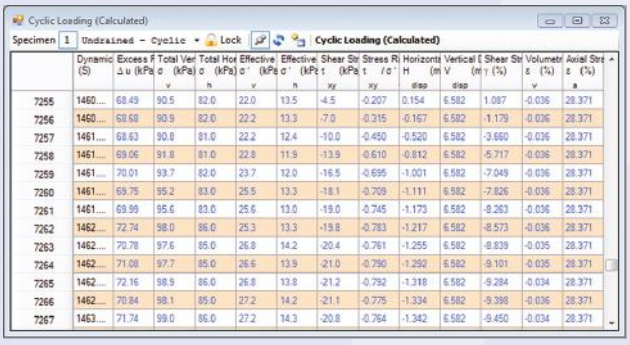
- Test automation available
- Easy instrument and equipment setup and calibration
- Easy test setup using wizard style Assistant
- User configurable high speed data logging
- Saturation stage (Ramp or Step)
- Isotropic, Anisotropic or K0 Consolidation Stage
- Static Loading stage
- Simple Cyclic Shear stage (Stress or Strain)
- Liquefaction cyclic shear stage
- Live view of sensor readings and status
- Live Data View (Measured and calculated data)
- Live graphical displays of logged and calculated data
- Live tabular displays of logged and calculated data
- User configurable views, graphs and tables
- Cycle Analysis of Cyclic and Liquefaction stages
- Optional customised presentation reports on request
- Data export to Excel for further manipulation
- Test script export and import



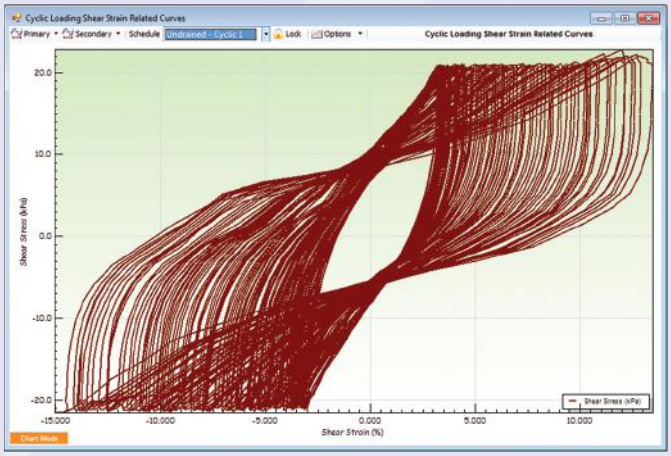
Cyclic Loading Monotonic Shearing Graph



Cyclic Loading Live Data



Cyclic Loading Calculated Results



Cyclic Loading Shear Strain Related Curves Graph