Dynamic Simple Shear System

Related Standards: ASTM D6528-07;

The VJ Tech Dynamic Simple Shear System (DSSS) has been designed to provide all the basic functions required to carry out tests on soil characteristics in dynamically changing conditions. It allows direct investigation of the shear vs. stress strain in drained and undrained situations.

The System incorporates the Dynamic Shear System apparatus (with appropriate transducers) controlled from a PC over a standard network connection using a Dynamic Servo Controller for high speed servo control. An Automatic Pressure Controller is used for confining Back Pressure and user friendly software provides the necessary Test configuration, control and data acquisition.

The DSSS can be used for either:

- a Simple Shear test with the height of the sample kept constant using Active height control
- a Cyclic Shear test with a cyclic horizontal force applied to the specimen whilst the Vertical stress on the specimen is maintained
- a Cyclic Shear test with a cyclic horizontal force applied to the specimen whilst the height of the specimen is maintained
- a Cyclic Shear test with a cyclic horizontal displacement applied to the specimen whilst the Vertical stress on the specimen is maintained
- a Cyclic Shear test with a cyclic horizontal displacement applied to the specimen whilst the height of the specimen is maintained

Features

- Static and Dynamic operation via servo controlled high speed motors
- Axial and Shear stress-strain control
- Load cells for feedback control of Axial and shear force
- Accurate encoder control of axial and shear displacement
- Additional vertical displacement transducer for feedback control of sample height (Active height control)
- 24-bit high speed control system
- Low friction retaining rings for specimen confinement (K0 conditions)
- Pore pressure measurement

VJT9410 - Dynamic Simple Shear Testing System

Clisp Studio – csDYNADSS Software

- Easy Test configuration using the built in wizard
- Transducer Configuration and Calibration
- Live views of transducer readings & calculated parameters
- Live graphs and tabulated data
- User configurable views tables and graphs
- Easy data export to commercial spreadsheets
- Data storage in an SQL database
- Configurable Test automation
- Live Test status and notification
- Entire test script export & import

Dynamic Servo Controller (DSC2000MM)

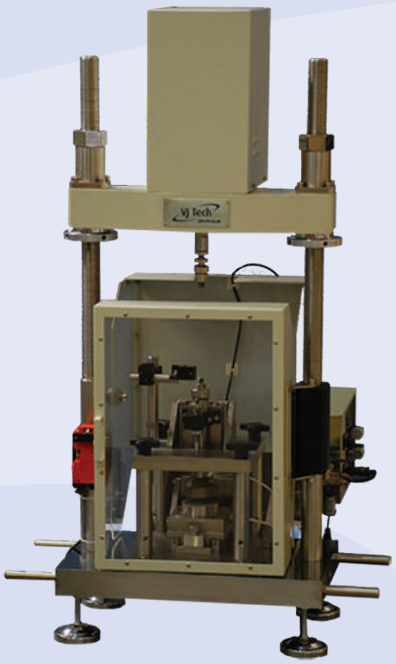
The DSC2000MM provides the interface between the PC and the DSS for control of the apparatus and processing of the received inputs.

Specification

- 8 Analogue Input channels
- Servo motor drive Outputs
- 2 Axial Limit Switch Inputs
- High speed data acquisition
- Fast Ethernet interface for PC connection

Dynamic Simple Shear Apparatus

The DSS utilises 2 electro mechanical dynamic actuators for applying the vertical and horizontal loads to the sample. The vertical and horizontal displacements are measured with Encoders within the servo motors. The maximum range of travel in each axis is protected by a limit switch and each strain rate is easily set from the PC.



VJT2830 - Dynamic Simple Shear Apparatus

Ordering Information

VJT9410	Dynamic Simple Shear Testing System
VJT2830	Dynamic Simple Shear Apparatus
VJT-DSC2	Dynamic Servo Controller (Dual Axis)
VJT2260	Hydraulic Automatic Pressure Controller (3000 kPa)
VJTS0361	S-Beam Load Cell (5 kN)
VJT0271	LSCT Displacement Transducer (25 mm)
VJT0250	Pressure Transducer (10 bar)
VJT0280	De-Airing Block with Valve for Pressure Transducer
VJT-csDYNSS	Clisp Studio Dynamic Simple Shear Software

Specifications

Sample Size	70 mm diameter x 20 mm height
Vertical Shear Force	+/- 5 kN (Optional 10 kN)
Horizontal Shear Force	+/- 5 kN (Optional 10 kN)
Vertical Frequency	0 - 5 Hz (Optional 10 Hz)
Horizontal Frequency	0 - 5 Hz (Optional 10 Hz)
Horizontal Travel	25 mm
Vertical Travel	15 mm
Horizontal Rate of Strain	0.001 to 10.000 mm/min
Vertical Rate of Strain	0.001 to 10.000 mm/min
Waveforms	Sinusoidal, Square, Triangular, Haversine, Saw Tooth, User Defined
Control Points per Cycle	1000
Dimensions (W x D x H)	700 x 850 x 1250 mm
Weight	245 kg
Electrical Requirement	90-240V, 50-60 Hz, 1ph
PC Interface	Ethernet