



VJT9406 - Dynamic Resilient Modulus Testing System

# Dynamic Resilient Modulus Testing System

## Related Standards: AASHTO T-307-99

The VJ Tech Dynamic (Cyclic) Resilient Modulus Testing System is capable of providing fully automatic dynamic Resilient Modulus testing to determine the Resilient Modulus of a sample.

A repeated axial cyclic stress of fixed magnitude, load duration and cycle duration is applied to a cylindrical test specimen. During testing, the specimen is subjected to a dynamic cyclic stress and a static-confining stress provided by means of a triaxial pressure chamber. The total resilient (recoverable) axial deformation response of the specimen is measured and used to calculate the resilient modulus.

The system comprises a VJ Tech BASIC frame together with a high speed Dynamic Servo Controller (DSC2000M) for servo motor control and also measurement of Load, Displacement and PWP. The 70 mm sample is assembled in a 100 mm Dynamic Triaxial Cell and a pneumatic APC is used for confining pressure.

## Specifications

Maximum Frequency	5 Hz
Maximum Dynamic Load	+/- 5 kN
Load Capacity	50 kN
Motor Displacement	70 mm
Waveform	Haversine
PC Interface	Ethernet

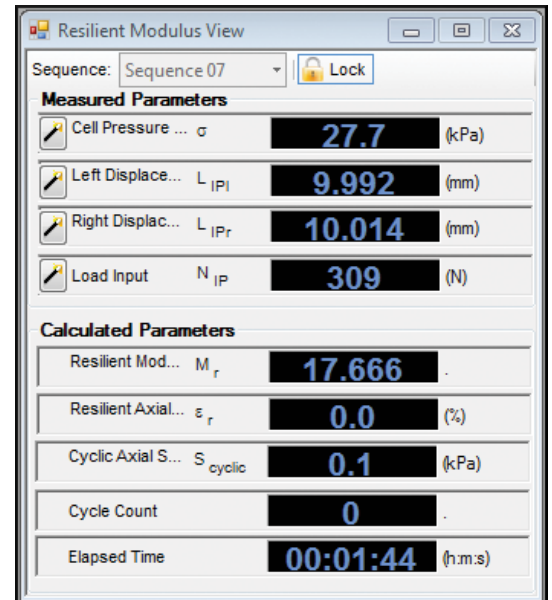
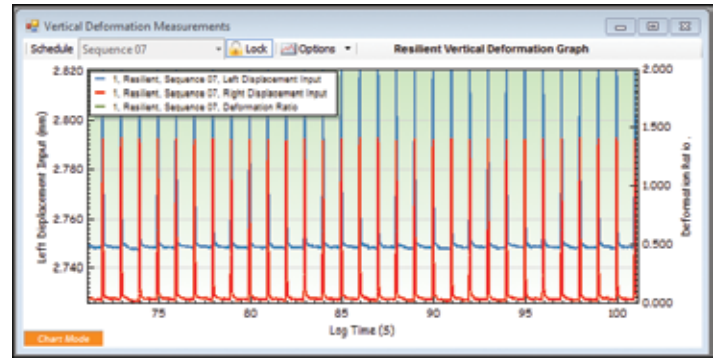
## Ordering Information

Dynamic Resilient Modulus Testing System	<b>VJT9406</b>
BASIC Load Frame with Mechanical Actuator	<b>VJT5010-EM-B</b>
Dynamic Servo Controller	<b>VJT-DSC1</b>
Pneumatic Automatic Pressure Controller (1000 kPa)	<b>VJT2250</b>
Dynamic Triaxial Cell (100mm)	<b>VJT0400-DYN</b>
Internal Load Cell (5 kN)	<b>VJT0351B</b>
LSCT Displacement Transducer	<b>VJT0271</b>
PWP Transducer (10 bar)	<b>VJT0250</b>
Software	<b>VJT-csRes</b>

# Clisp Studio (csRes) Dynamic Resilient Modulus Software

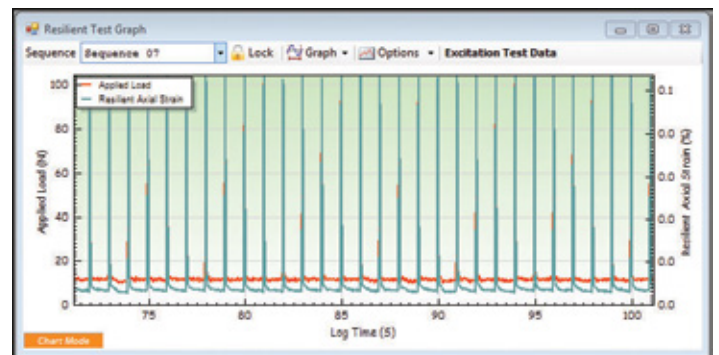
The VJ Tech Clisp Studio Dynamic Resilient Software module enables the User to perform dynamic resilient modulus tests on Subgrade or Base/SubBase samples in a laboratory. The test software simulates the physical conditions and stress states of materials beneath flexible surfaces subjected to dynamic loading (i.e. moving wheel loads). The sample may be sheared following the Resilient Modulus test if required.

- Supports the single axis electromechanical machine
- Test automation available
- Customisable System Units
- Easy instrument and equipment setup and calibration
- Easy test setup using wizard style Assistant
- Live view of sensor readings and status
- Live Data View (Measured Input Parameters, Calculated Parameters (Resilient Modulus, Resilient Axial Strain, Cyclic Axial Stress)
- Live Data View of Quick Shear if required
- Live graphical displays of logged and calculated data
  - Resilient Time Graph
  - Resilient Vertical Deformation Graph
  - Quick Shear Graph
- Live tabular displays of logged and calculated data
  - Resilient Data Table
  - Resilient Results Table
  - Quick Shear Table
- User configurable views, graphs and tables (customisable from Input, Measured and Result data)
- Optional customised presentation reports on request
- Data export to Excel and script export and import



Resilient Results Table

Cycle No.	Actual Applied Stn	Actual Applied Cycles	Actual Applied Contact Load	Actual Applied Stn	Actual Applied Cycle Stress	Actual Applied Contact	Resilient Def L	Resilient Def R	Average Resilient Def	Resilient Strain	Resilient Modulus
56	102.6	10.7	10.2	26.9	24.1	2.8	0.077	0.069	0.073	0.05	483.014
57	102.6	10.6	10.5	26.9	24.1	2.7	0.077	0.069	0.073	0.05	481.506
58	102.9	10.9	10.2	27.0	24.1	2.8	0.077	0.070	0.073	0.05	485.429
59	102.4	10.4	10.7	26.9	24.6	2.3	0.077	0.069	0.073	0.05	485.927



Cyclic (Resilient) Table

Sequence	Log Time (S)	Cycle Count	Load Input (N)	Left Displacement (mm)	Right Displacement (mm)	Cell Pressure (kPa)	Average Displacement (mm)	Permanent Strain (%)	Cyclic Axial Stress (kPa)	Resilient Modulus (kPa)
5091	25.480	24	11	2.748	2.727	27.6	2.738	0.5	0.1	0.005
5092	25.485	24	11	2.748	2.727	27.6	2.737	0.5	0.4	0.004
5093	25.490	24	11	2.749	2.727	27.6	2.739	0.5	0.3	0.005
5094	25.495	24	11	2.748	2.728	27.6	2.738	0.5	0.5	0.005
5095	25.470	24	12	2.748	2.727	27.6	2.738	0.5	0.6	0.005
5096	25.475	24	11	2.748	2.728	27.6	2.738	0.5	0.2	0.005
5097	25.480	24	11	2.748	2.728	27.6	2.738	0.5	0.3	0.005
5098	25.485	24	11	2.748	2.727	27.6	2.738	0.5	0.2	0.005
5099	25.490	24	11	2.748	2.727	27.6	2.738	0.5	0.1	0.005
5100	25.495	24	11	2.748	2.727	27.6	2.738	0.5	0.1	0.005
5101	25.500	24	12	2.748	2.727	27.6	2.738	0.5	0.8	0.005
5102	25.505	24	11	2.748	2.728	27.6	2.738	0.5	0.1	0.005