Geocomp

Technologies to manage risk for infrastructure

Resilient Modulus Testing System

Technologically versatile and easy-to-use

Geocomp's Resilient Modulus Testing System

Geocomp's Resilient Modulus (RM) unit fully automates Resilient Modulus tests on Base/Sub-base/Sub-Grade materials. The RM system meets or exceeds all specifications for Resilient Modulus Testing of Base/Sub-Base/Sub-Grade Materials by AASHTO T294 / T307, SHRP Protocol P46 and NCHRP Report 285. It minimizes man time during testing and offers a versatile platform for performing additional geotechnical tests. This system performs RM tests from beginning to end according to the latest AASHTO standards without human intervention.

Resilient modulus testing is a complicated test in which the stiffness of the sample changes with loading. Since the performance of cyclic loading systems depends on the stiffness of the sample, most systems fail to apply the correct load throughout the test. Geocomp's RM system uses a very sophisticated adaptive control that makes real-time adjustment of a PID controller to adjust the system control parameters as the stiffness of the specimen changes. This feature permits our system to apply an accurate load from the beginning to the end of the test.

Training time is short, because most people are familiar with the Microsoft Windows® operating environment. Users can configure a wide variety of graphical screens to display the test results including tabular and graphical display of channel values with time, graphical display of stresses, strains, displacements and resilient modulus values.

REFERENCE: Marr, W. A., Hankour, R., and Werden, S. K., "A Fully Automated Computer Controlled Resilient Modulus Testing System," Resilient Modulus Testing for Pavement Components, ASTM STP 1437, ASTM International, West Conshohocken, PA, 2003.

Unique Benefits and Features

- Ability to apply standard hoversine or any kind of user-defined stress/strain shapes with different frequencies (0.034 Hz to 10 Hz.)
- High performance custom linear actuator with 2.8 kW peak, low inertia servo drive system for fast response. Single phase 208 VAC/60 Hz (US) and 220 VAC/50 Hz. (International)
- Cyclic loading capacity 4.5 kN (1,000 lbf) or 9 kN (2,000 lbf) continuous load at speed in excess of 200 mm (8 in)/sec.
- Maintenance of prescribed confining pressure for each loading sequence using precipice pneumatic regulator and external pressure transducer.
- Self-calibration procedure built into the system.
- Axial deformation measured by two independent LVDTs and/or one linear encoder.
- Ending test when maximum number of cycles are achieved or maximum strain is accumulated.
- Graphical Reporting options for soil type I and II:
  - Deviator loads/displacement/confining pressure/ Peak to Peak Deviator Stress/Peak to Peak Axial Strain/Resilient Modulus vs. cycle for each and every sequence.
  - Summary report for Resilient Modulus vs. Bulk Stress/ Deviator Stress and Deviator Stress vs. Resilient Strain for the whole test with various fit equations.
- Tabular Report:
  - All the parameters of the last five cycles of each sequence including the average and standard deviation values.
  - Raw data can also be exported in a spreadsheet.

Additional Capabilities

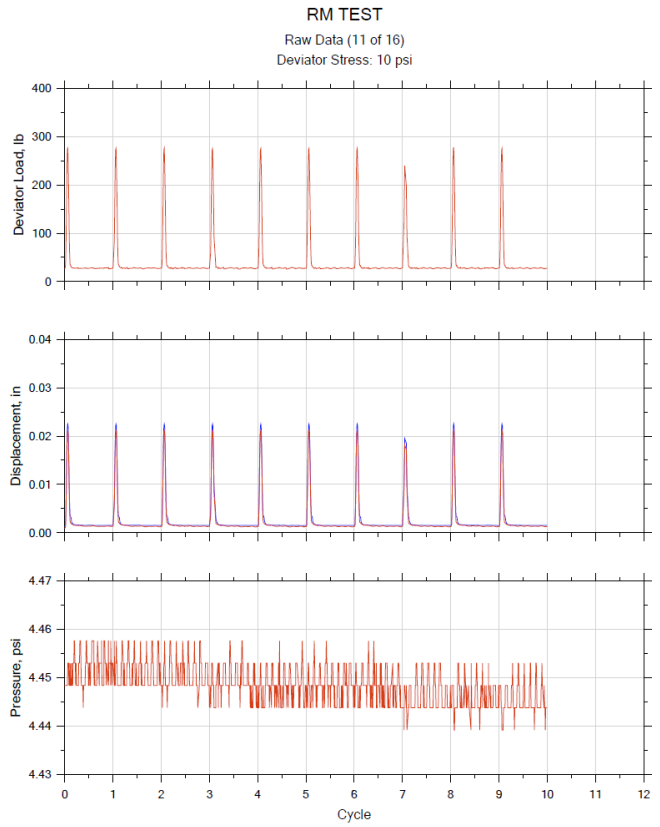
With software and accessories, the following tests can also be performed:

- California Bearing Ratio
- Constant Rate of Strain
- Cyclic Triaxial
- Incremental Consolidation
- Triaxial
- Unconfined Compression
- Compression testing of weak rocks and cement mixtures

Geocomp RM system generates data in a variety of formats, so users get the most use out of the data.

- A complete final test report with all appropriate calculations on the data and constitutive relationships based on Publication No. FHWA-RD-97-083
- A text file of raw data and a text file of data in engineering units. Either file can be easily loaded into a spreadsheet for further data analysis.

Typical Test Output



	Project Name: QA-Calibration	Location:	Project Number:
	Boring Number:	Tester: SG	Checker:
	Sample Number:	Test Date: 01/22/2019	Depth:
	Test Number:	Preparation:	Elevation:
	Description:		
	Remarks:		

Select Client List

- Caltrans
- GeoDesign Inc.
- Highways Department, Turkey
- HWA Geosciences
- Idaho Transportation Department
- Indiana Department of Transportation
- Iowa State University
- Kansas Department of Transportation
- MDH Engineered Solutions Corp.
- Pattrol Pavimentos Ltd, Brazil
- Universiti Tun Hussein Onn, Malaysia
- Oklahoma State University
- Pennsylvania Department of Transportation
- Anadulu University, Turkey
- TKS Technologies Ltd, Brazil
- Reservoir Technologies
- SNC-Lavalin Canada
- Southern Illinois University
- University of North Carolina Charlotte
- University of Texas at Arlington
- Virginia Department of Transportation

Specifications

Load Capacity

4.5 kN (1 klbf) or 9 kN (2 klbf)

Cyclic Rate

Up to 10 Hz (0.1 sec /pulse)

Cell Pressure

0-500 kPa (0-70 psi)

Included

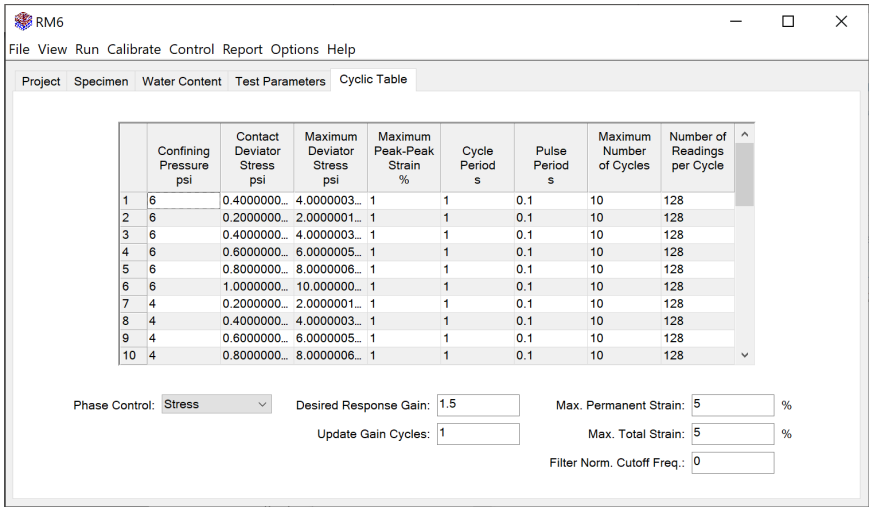
Geo-NET network card and cable to link to PC, RM software module to automatically run and report tests

Accessories

RM cells up to 152 mm (6 in) diameter, membranes, porous stones, and sample preparation accessories upon request

Warranty

12 month warrantly; extended warranties available



User-Friendly Interface

Geocomp Products

We design and manufacture automated laboratory testing systems and remote monitoring devices. We focus on creating products that help our clients accomplish their goals efficiently and quickly, whether it be in teaching, research, commercial, or other applications. We design our automated testing systems to help the user perform tests efficiently and quickly and produce high-quality results. Our remote monitoring systems are robust, versatile, and are easy to use in varying environmental settings. We serve numerous clients in over 50 countries. Join our many satisfied customers and make us your trusted source for remote monitoring equipment and automated laboratory testing systems.

Automated Laboratory Testing Product Line

Incremental Consolidation
Constant rate of consolidation including constant rate of strain, constant rate of loading, constant gradient, and constant excess pore pressure ratio
Triaxial: 1.4 to 6 inch diameter specimen
Stress Path Triaxial: 1.4 to 6 inch diameter specimen
Cyclic Triaxial: 1.4 to 6 inch diameter specimen
Direct and Residual Shear: 2.5, 6, and 12 inch specimen diameter
Direct Simple Shear and Cyclic Direct Simple Shear: 2.5, 4, and 12 inch diameter specimen
Resilient Modulus: 1.4 to 6 inch diameter specimen
Resonant Column-Torsional Shear: 2.8 inch diameter specimen

Field Systems Product Line for Wireless Data Logger

iSite™: 4, 8, and 16 channel wireless data loggers
iSite™-HS: 8 channel Ethernet data logger with up to 1000Hz synchronized logging on each channel
iSite™-Noise: wireless noise monitoring with event record on MP3 format
iSiteCentral™: cloud-based, web monitoring of sensors and documents in real-time including apps and alerts

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