DigiShear™ Automated Direct Shear System

The DigiShear™ Automated Direct Shear Testing System is a computer controlled direct shear device that automates testing. It is a complete system incorporating GeoJacs (automated load actuators) for both vertical and horizontal loading, four channels of 22 bit data acquisition, and all necessary sensors. Testing can be performed under closed loop control of deformation, load, or pressure. Specimens can be loaded and sheared in a variety of modes, including constant rate of deformation, constant rate of loading, or application of a series of step loads. The DigiShear™ system automates the consolidation as well as the shearing portion of the test. Also, horizontal loading can be cycled during shear to determine residual strength.

The easy to use DigiShear™ system software is a Windows based program with a user-friendly graphical interface. System status is easily determined by viewing a schematic of the apparatus on the computer monitor. Simulated LED’s are used to indicate motion, direction, and limit states. Display boxes contain senor readings. The operator interacts with the program through tab panels that guide an operator throughout testing with prompts and instruction boxes. However, the system is not restricted to standard testing. A manual option allows independent control of the apparatus for performing non-standard testing. The right side of the screen is also used for viewing plots of real-time data. These enable an operator to make critical decisions concerning the course of testing before it is too late.

When not in use, the GeoJacs can be removed and mounted on vertical stands and used for automated triaxial and consolidation tests.

Specifications:

- Load capacity  
  vertical: 2000 pounds  
  Horizontal: 2000 pounds
- Speed 0.000002 to 0.2 in/min
- Horizontal Travel ± 0.5 in
- Specimen Rings 2.5 in diameter (other sizes available)
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GEOTAC
A division of Troutwein Soil Testing Equipment Co

6909 Ashcroft, Suite 104
Houston, TX 77081
Tel: 713.596.9662
Fax: 713.596.9492
e-mail: sales@geotac.com