GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Cyclic & Dynamic Testing

Capabilities

GeoTesting Express, Inc. (GTX), provides state-of-the-art cyclic and dynamic soil testing services for many applications.

Our cyclic and dynamic soil testing laboratory is equipped with the best automated equipment in the industry. These devices work around the clock, seven days a week to provide fast turn around of high quality results.

GTX is one of only a few commercial labs in the world that is equipped to perform resonant column, torsional shear, cyclic triaxial and cyclic simple shear testing.

GTX's dedicated geotechnical testing staff and equipment can determine: shear strength, stress path, strain path, shear modulus reduction,damping, liquefaction characteristics and post-cyclic shear strength for a variety of geotechnical problems including foundation design, slope stability and deformations from cyclic loading. Our engineering staff can advise you on an appropriate test program and help you interpret and use test results.

Cyclic/Dynamic Testing Capabilities

P-S wave (10^{-5} % shear strain) GTX S1085
- Very small-strain shear modulus
- Shear wave velocity & proportional wave velocity
- Can be performed in conjunction with all testing below

Resonant column (10^{-5} % up to 1%) ASTM D4015
- Small-strain shear modulus, damping ratio

Torsional shear (10^{-3} % up to 10%) GTX S1082
- Shear modulus, damping ratio, cyclic strength
- Strain or stress controlled

Cyclic triaxial (10^{-3} % up to 10%) ASTM D3999/D5311
- Large-strain shear modulus, damping ratio
- Cyclic strength (liquefaction potential)
- Strain or stress controlled

Cyclic simple shear (10^{-2} % up to 10%) GTX S1062
- Cyclic strength (liquefaction potential)
- Strain or stress controlled

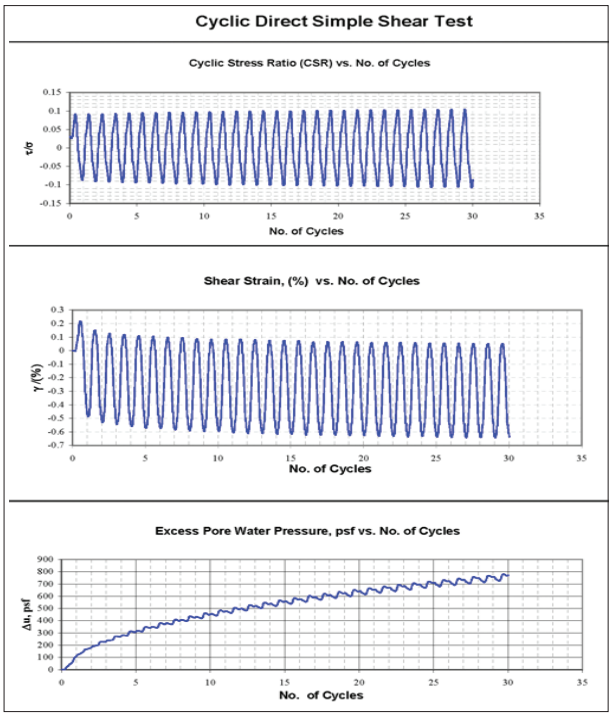
***Post-shaking drained or undrained strength can be performed on all above*

Cyclic & Dynamic Testing

Full Service Laboratory and Field Testing of Soil, Rock, and Geosynthetics

GTX provides full service lab and field testing of soil, rock, and geosynthetics. The modular design of our automated equipment allows us to reconfigure our test stations to meet the day-to-day scheduling demands of the most complicated projects. Our staff has world-wide project experience with advanced cyclic and dynamic testing.

GTX Cyclic Simple Shear Test Setup



GTX Typical Cyclic Simple Shear Test Output

Sample Shipping

We can provide shipping containers and procedures to safely transport sensitive, undisturbed samples from anywhere in the world to our testing facilities. We have developed a special container for shipping undisturbed thin-walled tube samples which minimizes disturbances in sensitive soils. This container conforms to ASTM D4220, is reusable, lightweight, and easy to use. The container's composition, shape, and size ensures it is kept upright throughout the shipping process.

For materials that are very sensitive to vibrations, GTX has developed special techniques to freeze specimens for air transport, and then thaw those specimens under controlled stress conditions. These procedures allowed our laboratory to obtain comparable results to tests performed in Japan on undisturbed samples of loose silty sands.

Shelby Tube Shipping Container