WYKEHAM FARRANCE
A Division of CONTROLS

SOIL MECHANICS TESTING

Product Overview

Understanding soils has never been so easy.

For almost 70 years, Wykeham Farrance has been at the forefront of geomechanics and we're continuing this pioneering tradition with a new market-leading range of affordable, easy-to-use, soil and rock testing equipment.

From entry-level to fully automatic PC-controlled systems, our range benefits from the latest technologies with various levels of automatization for commercial and research geotechnical laboratories.

CONSOLIDATION TESTING

Standard front loading oedometer

Robust dead-weight oedometer with either manual-analogue or automatic-electronic measurement of axial settlement using linear transducers and Geodatalog 8 for data acquisition and processing.

ACE EmS — Automatic computerized oedometer

Versatile and fully automatic Oedometer soil consolidation testing system with low maintenance, efficient and environmentally friendly EmS technology. Perform fully automatic consolidation test, reducing the risk of human error and connect up to 60 units using our ingenious software. ACE also performs UC and CHG tests.

ACE EmS — Constant Rate of Strain (CRS) consolidation

Perform quick consolidation tests at constant rate of strain (CRS) with continuous measurement of base excess pressure with the optional CRS cell and upgrade kit for the application of cell pressure.

The behavior of saturated soils during one-dimensional loading can be tested with the standard oedometer test. In oedometric conditions the soil specimen is restrained laterally and subjected to a number of successive increments of vertical loads.

Ordering Information

Please refer to the individual product brochures for comprehensive information about each of our geotechnical testing systems.

To enquire online, please visit www.controls-group.com.

Shear Strength of Consolidated Soils

In direct / residual shear testing, the soil specimen is placed in a rigid metal box composed of two halves that slide horizontally against each other and are subjected to a normal constant stress. For the determination of residual shear strength of cohesive soils under high deformations, due to landslides or subsidence problems, Ring Shear Apparatus has also been developed.

DIRECT RESIDUAL SHEAR TESTING

DIGISHEAR

DIGITAL DIRECT/RESIDUAL SHEAR MACHINE

Entry level machine with user-friendly interface and digital LCD display.

Flexible, DIGISHEAR is available in two versions:

Analogue featuring two dial gauges and one load ring.

Electronic with two displacement transducers and load cell connected to our easy-to-use automatic data acquisition system Geodatalog 8.

AUTOSHEAR

DIRECT/RESIDUAL SHEAR TESTING MACHINE WITH BUILT-IN DATA ACQUISITION

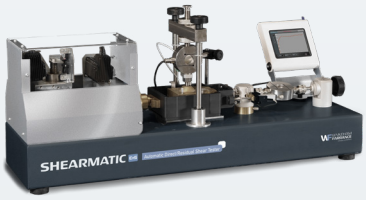
Standalone automatic machine incorporating a high-resolution stepper motor with a high precision load transfer mechanism.

The controller with large 6" touch screen color display provides easy control over all test parameters and in-built data acquisition.

Optional user-friendly software provides easy interface and the possibility to connect up to six machines to a single PC.

SHEARMATIC EmS

FULLY AUTOMATIC DIRECT/RESIDUAL SHEAR TESTING MACHINE



Fully automatic shear testing machine with closed-loop PID control that benefits from the low maintenance, efficient and environmentally-friendly EmS technology. The controller with 6" touch screen color display provides easy control over all test parameters and built-in data acquisition. User-friendly software provides the possibility to connect up to six machines to a single PC. Also performs oedometric tests with optional accessories.

SHEARMATIC300

FULLY AUTOMATIC LARGE SHEAR TESTING MACHINE

Automatic direct shear machine ideal for soil, geosynthetics and other materials that contain large particles up to 20 mm diameter. Test samples, up to 300 mm square, or test smaller sample sizes with special inserts.

Sample consolidation is performed with a programmable automatic closed-loop hydraulic system applying the vertical load and horizontal displacement is applied by high resolution stepper motor. A microprocessor unit manages the test steps whilst automatically recording force, axial pressure and displacements.

TORSHEAR EmS

AUTOMATIC TORSIONAL SHEAR TESTING MACHINE FOR RESIDUAL STRENGTH OF SOILS

Versatile and fully automatic ring shear testing machine equipped with EmS technology.

Fully electromechanical with two high-resolution stepper-motors, it is silent, compact and precise. Torshear EmS can be run stand-alone via the intuitive color touch-screen display or with our ingenious software that can connect up to six units with just one PC.

LABORATORY VANE APPARATUS

Easy laboratory apparatus to determine shear strength of undrained soils with soft to stiff consistency.

- Lightweight, compact and portable, ideal for use on-site or in main laboratory.
- Manual or motorized versions available
- Convenient providing a rapid method of determining shear strength of soft soils
- Easy to use with hundreds of machines in operation today throughout the world.

Shear Strength of Consolidated/Unconsolidated Soils

Triaxial tests are performed to determine the stress-strain relationship of a soils subjected to differing strain levels and drainage conditions, simulating as closely as possible the site conditions and the effects of constructions, excavations, embankments and landslides.

STATIC TRIAXIAL TESTING

Standard triaxial equipment

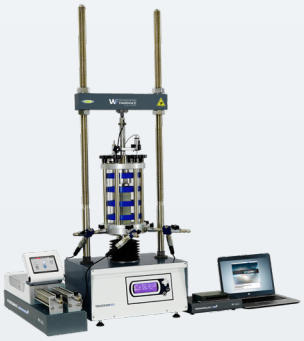
ANALOGUE MEASUREMENTS

This simple and efficient Triaxial System with analogue measurements is the ideal solution to perform basic standard triaxial tests, such as effective and total stress, and is best suited to laboratories not requiring digital or automatic measurement.

BUILT-IN DATA ACQUISITION

Our simplest compact solution for standard triaxial testing, can be equipped with standard air/water pressure interface or automatic pressure / volume controllers.

The integrated data acquisition removes the need for external data acquisition and PC.



EXTERNAL DATA ACQUISITION

Modular compact solution for standard triaxial testing, effective & total stress and for many other soil tests.

Flexible, it can be equipped with either a standard air/water pressure interface or automatic pressure / volume controllers.

The universal external data acquisition can be shared with others soil testing equipment such as consolidation, shear, triaxial and many other systems.

Fully automatic equipment

AUTOTRIAX EmS

FLEXIBLE FULLY AUTOMATIC TRIAXIAL TESTING SYSTEM

AUTOTRIAX EmS is a Flexible fully automatic PC controlled triaxial testing system that can automatically perform up to 6 entire and independent tests at the same time. It can be extend and expand in subsequent steps.

AUTOTRIAXQube

ALL-IN-ONE FULLY AUTOMATIC TRIAXIAL TESTING SYSTEM

AUTOTRIAXQube is the all-in-one fully automatic triaxial testing system that integrates the many components of triaxial testing into one, single compact system. Designed to make triaxial testing easier than ever before.

Dynamic Soil Testing

Stress-strain characteristics of soils under dynamic loading can be obtained with cyclic tests that simulate the stress conditions of soils covering a wide range of deformations due to many causes such as ocean wave loadings, maritime foundation constructions, earthquakes, blasting and more.

DYNAMIC TESTING

DYNATRIAX EmS

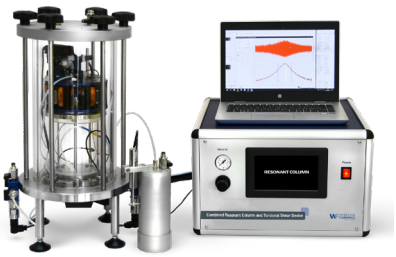
DYNAMIC ELECTROMECHANICAL TRIAXIAL SYSTEMS

The Dynatriax EmS allows to perform a complete range of triaxial tests, from static to cyclic, in saturated and unsaturated conditions.

- High performing electromechanical actuator applies dynamic vertical loading conditions with sophisticated PID closed-loop control, ensuring excellent waveform fidelity and precise data capture.
- Measure liquefaction potential, create complex loading patterns or payback real on-site loading profiles.
- Comes with a highly accurate submersible load cell.

The multi-tasking software provides automatic control of each test stage with additional software applications and accessories available for determining resilient modulus.

RESONANT COLUMN

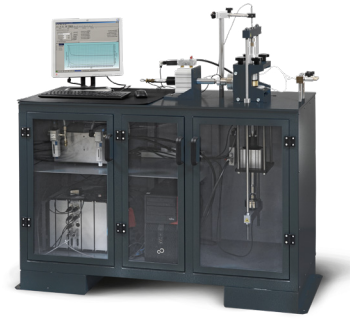


Combined resonant column / torsional shear device for the automatic determination of damping ratio from half power bandwidth and free vibration decay method.

A current-driven motor built with eight drive coils encircling four magnets attached to a drive plate applies torsional force to the specimen whilst simultaneously controlling confining and back pressures.

Material damping can be determined from the half-power bandwidth or from a free-vibration decay curve.

Torsional Shear tests are deformed cyclically at low frequencies whilst continuously monitoring torque and deformation.



CYCLIC SIMPLE SHEAR

Cyclic shear test apparatus for soil behavior prediction under dynamic conditions.

The closed-loop servo-pneumatic system applies dynamic vertical and horizontal load/displacement to a simple shear load frame. Designed to consolidate and then dynamically shear soil specimens under constant volume conditions to simulate undrained shear of a saturated specimen.

Shear strain is induced by lateral horizontal movement at the bottom of the sample relative to the top.

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