DESCRIPTION

The **Unconfined Compression Testing Machine** is a high-precision, microprocessor-controlled load frame specifically engineered for geotechnical and construction material testing. Designed in accordance with **ASTM D2166**, this unit provides reliable, repeatable results for determining the unconfined compressive strength of cohesive soils.

The equipment features a robust structure, precision-engineered components, and a user-centric control interface. The built-in **7-inch digital touchscreen** enhances operability while enabling real-time monitoring and graphing of test parameters. Its **infinitely variable speed range (0.09–63 mm/min)** ensures compatibility with a wide range of specimen types and material conditions.

Whether used in **quality control (QA/QC) labs, university soil mechanics courses, or R&D departments**, this machine enables technicians, students, and researchers to explore mechanical properties of soil under axial loading in a safe and standardized manner.

Additional benefits include comprehensive safety systems, software capabilities, and a wide array of compatible accessories—making this system a future-ready solution for modern soil testing labs.

FEATURES

Precision Control

- Infinitely variable speed: 0.09–63 mm/min
- 7” LCD TFT (800×480 pixels) with intuitive interface.
- Microprocessor-driven precision.

Safety & Usability

- Electric end-of-stroke switch
- Height-adjustable upper beam
- Stem Mechanical Brake Device (locks max load value)

Safety Mechanisms

- Electric end-of-stroke switch to prevent misuse.
- Brake device to lock peak load.
- Load ring with electric stop safety.

LEARNING OBJECTIVE

- Understanding the principles of unconfined compression testing
- Interpreting load-deformation and stress-strain behavior of cohesive soils
- Identifying failure patterns under axial compression
- Evaluating effects of strain rate on soil strength
- Training in ASTM-compliant test execution and report generation

SPECIFICATION

Parameter	Detail
Max Load	50 kN
Force Resolution	1/50,000.
Stroke Resolution	0.01 mm
Speed Range	0.09–63 mm/min (infinitely variable)
Compression Plates	Ø100 mm (standard), Ø165 mm (optional)
Display	7" Touchscreen TFT (800×480 pixels)
Power Supply	230V AC, 1-phase, 50Hz

SOFTWARE CAPABILITIES

Real-Time Data Acquisition

- Live graphing of load vs. displacement/strain.
- Export data to CSV/Excel for further analysis.

Test Automation

- Pre-programmed test methods (ASTM D2166).
- Customizable test protocols for research applications.

User Management

- User login with password protection.
- Audit trails for compliance with QA/QC standards.

Report Generation

- Auto-generated PDF reports with customizable templates.
- Includes graphs, peak load values, and compliance statements.

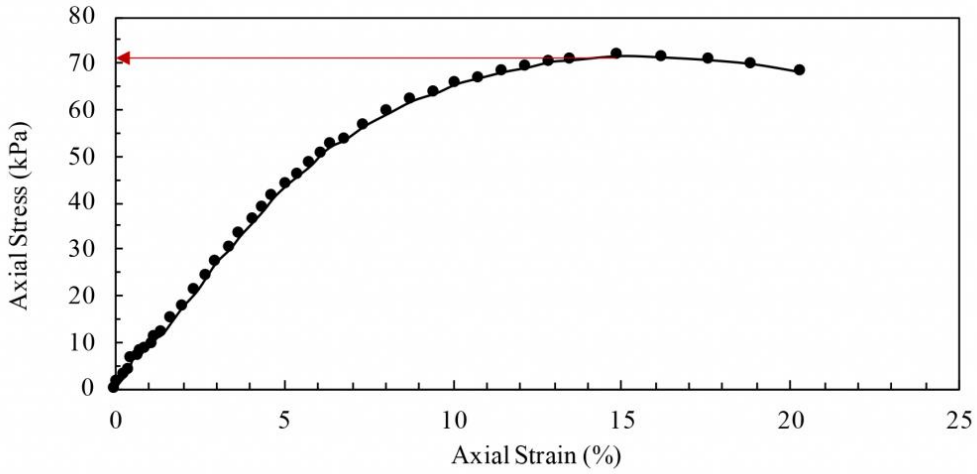
Connectivity

- USB/for peripheral integration.
- Optional LAN/Wi-Fi for remote monitoring.

GRAPH

- Axial Stress vs. Axial Strain graph plotted in real-time
- Graphs stored and exported with each test
- Comparative curve analysis for multiple specimens

Axial stress vs axial strain graph



CONSTRUCTION & MATERIAL QUALITY

- Rigid steel body with vibration-absorbing feet for enhanced stability
- Corrosion-resistant housing for long-term lab and field use
- Precision-machined loading column and guides for minimal deflection during testing

APPLICATION

- Geotechnical Engineering Labs
- Soil Strength Analysis
- Research & Development
- Construction Material Testing
- Civil Engineering Education

STANDARDS

- ASTM D2166 Compliant
- CE Approved Safety features

ACCESSORIES

- Load ring (2 kN) with safety device
- Upper/lower compression plates (Ø100 mm) and distance piece with rod
- Dial gauge (10 mm × 0.01 mm), and holder.
- Distance piece with threaded rod
- Instruction Manual and Calibration Certificate

DIMENSIONS

LxWxH: 1200 x 800 x 1800 mm approx.

Weight: approx.220 kg