ROCK MECHANICS · GEOMECHANICS

MECATEST

3,000 kN Rock Uniaxial & Triaxial Compression Testing System

Servo-controlled compression testing with uniaxial, triaxial, acoustic velocity and permeability capabilities — engineered for demanding geomechanics laboratories.

3,000 kN	70 MPa	0.01 – 1 darcy	1 MHz
MAX LOAD CAPACITY	CONFINING PRESSURE	PERMEABILITY	ACOUSTIC FREQUENCY

MADE IN FRANCE · ORIGIN: FRANCE

Floxlab.com

The mechanical core 02

Comprehensive rock testing — from unconfined compression to acoustic velocity — delivered in a single integrated servo-hydraulic platform with proprietary Floxlab control software.

Load Frame

Servo-hydraulic compression frame rated at 3,000 kN. Four-column design for extreme rigidity, front-door protection and fast-displacement actuator.

Test Capabilities

Uniaxial & triaxial compression, indirect tension (Brazilian), acoustic velocity (P/S waves), strain measurements and liquid permeability.

Digital Control

Proprietary Floxlab software. Pre-programmed stress/strain paths, real-time display, automated test execution and professional PDF reports.

Compression Frame & Hydraulic Power Pack

Servo-Controlled Compression Frame

Load capacity	**3,000 kN**
Piston stroke	**50 mm**
Loading speed	**0.0005 – 10 mm/min**
Dimensions	**1.8 × 1.8 × 1.0 m**
Frame weight	**1,500 kg**
Control modes	**Load / Displacement**
Servo valve	**High-frequency precision**
Height adjust	**6-shim platen set**

Hydraulic Power Pack

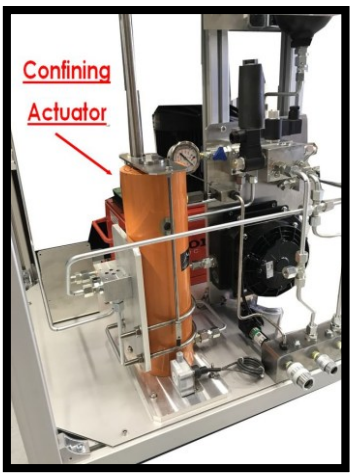
Pump flow	**0.65 LPM HP / 7 LPM LP**
Max pressure	**35 MPa (350 bar)**
Pump type	**Radial piston**
Oil tank	**10 liters**
Motor power	**2 HP (1.5 kW)**
Hydraulic hoses	**10 meters**
Pressure filter	**3 microns**
Power supply	**230 VAC, 1-Ph, 50/60 Hz**

Included: 25 L hydraulic oil & spare filter · Ethernet interface to data acquisition computer

Confining Pressure Intensifier

Working pressure	**70 MPa**
Pressure accuracy	**0.25% FS**
Actuator volume	**250 cc**
Volume accuracy	**0.25% FS**
Wetted parts	**Stainless steel**
Control modes	**Pressure / Displacement**
Fluid reservoir	**20 L · fill & drain**

Fills the triaxial cell with confining fluid automatically and pressurizes it with high precision. A linear transducer monitors confining oil volume in real time.



One frame, every test

03

All the measurements a modern geomechanics laboratory needs — uniaxial, triaxial, Brazilian, acoustic and permeability — in a single integrated servo-controlled system.

1 **Uniaxial Compressive Strength**
UCS, Young's modulus E, Poisson's ratio v, stress–strain curve

2 **Triaxial Compression**
Shear strength, cohesion, friction angle, failure envelope

3 **Indirect Tensile (Brazilian)**
Brazilian tensile strength per ASTM D3967

4 **Acoustic Velocity (P & S)**
Vp, Vs1, Vs2 and dynamic elastic moduli

5 **Liquid Permeability**
0.01 md – 1 Darcy via Darcy's Law

6 **Pore Volume Compressibility**
Drained conditions with pore pressure control

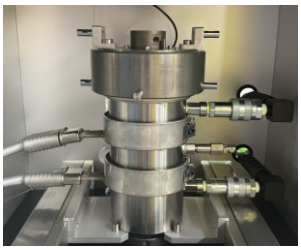
7 **Strain Gauge Measurements**
Axial & radial strain, Poisson's ratio in-situ

8 **Thermo-mechanical Testing**
Up to 150 °C with UTC cell & heating mantle

Triaxial & Acoustic Cells

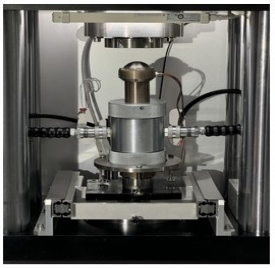
HOEK Cells — Type 2 & 3

Type 2: Ø 54.7 mm (NX) & 63.5 mm (HQ)
Type 3: Ø 76.2 / 85 / 100 mm
Length 2× Ø · hydraulic confining · integrated strain gauges · spherical hardened platens.



UTC Universal Triaxial Cells — Type 2 & 3

70 MPa (10,000 psi) · up to 150 °C ·
Type 2: Ø 54.7 – 63.5 mm
Type 3: Ø 76.2 – 100 mm ·
stainless wetted parts · 1/8" connections.
Accessories: diametral extensometer, axial LVDT, calibrator, trolley.



Acoustic Velocity Fixture (AVF)

ASTM D2845 · 1 MHz · P, S1 & S2 waves.
Yields Vp, Vs, dynamic E, v and bulk/shear moduli.
Platens: 54.7 / 63.5 / 76.2 / 85 / 100 mm.

Integration: The AVF fits seamlessly with both HOEK cells and the UTC Universal Triaxial Cells — enabling combined mechanical and acoustic characterization on the same specimen under confining pressure.

Complete Measurement Suite

Dedicated fixtures and modules for full mechanical and hydraulic characterization — all driven by the integrated Floxlab software.

UCP — Uniaxial

UCS, E, v determination. Axial LVDT + circumferential extensometer. Direct servo control. Platens 100 mm & 160 mm.

ITB — Brazilian

Indirect tensile strength via diametral compression. Precision jaws with spherical bearing. Jaw sizes 54.7 – 150 mm.

Strain Gauges (XY)

100 XY gauges (350 Ω) per pack. Axial + radial per ASTM D7012. 4-channel control box. Complete prep kit included.

Pore Pressure Pump

70 MPa · 2 × 15 cc dual cylinder · 0.0001 – 30 cc/min. Constant pressure / flow / volume modes. Drained triaxial ready.

LP-700 Permeameter

0.01 md – 1 Darcy · water or oil · 70 MPa. Upstream/downstream + differential sensors. Independent back-pressure regulation.

Software & Reporting

Floxlab proprietary software. Automated UCS, E, v, shear envelope. Professional PDF reports for every test.

Why Choose MECATEST

Versatile Platform

A single frame runs uniaxial, triaxial, Brazilian and acoustic tests — no retooling required.

Automated Paths

Pre-programmed stress and strain paths for reproducible, operator-independent results.

Unmatched Rigidity

Four-column stiff frame minimizes compliance errors — critical for accurate property determination.

Full Digital Control

High-frequency servo-valve with load and displacement modes for precise regulation at any rate.

Wide Specimen Range

From 54.7 mm to 160 mm diameter — NX, HQ and larger industry-standard sizes.

Integrated Reporting

UCS, E, v, shear envelope automatically calculated — professional PDF reports in one click.

STANDARDS

ASTM D7012 | ASTM D3148 | ASTM D2664 | ASTM D2845 | ASTM D3967 | ISRM

HEADQUARTERS

Floxlab
Nanterre, France

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