HIGH PRESSURE LABORATORY INSTRUMENTS

Load Frame Rock Compression Test Systems Portfolio

From educational benchtop testers
to research-grade dynamic triaxial systems

GEOLAB

300 kN · 70 Mpa . Ambient T

Educational Rock Compression Tester — entry-level benchtop for universities & training labs.

ROCKTEST

1,000 kN · 70 MPa · 150°C

Industrial workhorse — uniaxial, triaxial, permeability in one frame.

MECATEST 3000

3,000 kN · 70 MPa · 150°C

Premium system for high-strength rock up to Ø 160 mm cores.

GEOTEST

1,000–2,000 kN · 70/140/210 MPa

Research-grade static + dynamic triaxial with AE and hydraulic fracturing.

GEOTEST EXPRESS

1,000–2,000 kN · 70/140/210 MPa

Production-oriented box-frame with automated cell lifting for fast throughput.

LOAD FRAME FIXTURES

HOEK · QRC · UTC · Polyaxial

Shared accessories library — interchangeable fixtures across the entire range.

Versatile · Rigorous · Traceable — from Ø 1" cores to Ø 160 mm plugs, 300 kN to 3,000 kN

POSITIONING

Product Positioning Matrix

Axial load capacity vs. application profile

AXIAL LOAD CAPACITY →

3,000 kN *Industrial*	**MECATEST 3000**	*High-capacity · Ø up to 160 mm*
1-2,000 kN *Research*	**GEOTEST / EXPRESS**	*Dynamic regime · 70/140/210 MPa*
1,000 kN *Industrial*	**ROCKTEST**	*Industrial workhorse*
300 kN *Educational*	**GEOLAB**	*Benchtop · universities*

APPLICATION PROFILE: Education & Training → QA/Industrial → R&D Standard → R&D Advanced + AE/HF → Dynamic Research

Each platform is optimised for a specific application profile — from student training to dynamic geomechanics research. All systems share common fixtures (HOEK, QRC, UTC cells, Brazilian jaws, polyaxial) and run the same Floxlab GEOTEST control software.

CAPABILITIES

Test Capabilities Comparison

What each platform can measure — standard ✓, optional ○, not available —

Test / Capability	GEOLAB	ROCKTEST	MECATEST	GEOTEST	EXPRESS
Uniaxial Compression (UCS)	✓	✓	✓	✓	✓
Triaxial Compression	✓	✓	✓	✓	✓
Indirect Tension (Brazilian)	✓	✓	✓	○	○
Point Load Strength Index	✓	—	—	—	—
Acoustic Velocity (P, S1, S2)	✓	✓	✓	✓	✓
Strain gauges / Deformation sensors	✓	✓	✓	✓	✓
Liquid Permeability	—	✓	✓	✓	✓
Pore Pressure Control	—	✓	✓	✓	✓
High-Temperature (150 °C)	—	✓	✓	✓	✓
Dynamic / Cyclic Loading	—	—	—	✓	✓
Acoustic Emission (AE)	—	—	—	✓	✓
Hydraulic Fracturing	—	—	—	✓	✓
Electrical Resistivity	—	—	—	✓	✓
Polyaxial (σ1≠σ2≠σ3)	—	—	—	✓	—

✓ Standard ○ Optional module — Not available

EDUCATIONAL

GEOLAB

Servo-controlled 300 kN benchtop rock compression tester — ASTM compliant

KEY SPECIFICATIONS

300 kN
Max Axial Load

70 MPa
Confining Pressure

592 MPa
Stress on 1" sample

Ø 1"/1.5"
Sample Diameter

POSITIONING

Entry-level platform for universities, geotechnical schools and training labs. Compact, servo-controlled, ASTM-certified and fully modular — students perform five different rock tests on a single frame.

FIVE TESTS — ONE FRAME

Triaxial Compression

Failure envelope, cohesion, friction angle — ASTM D7012.

Compatible with HOEK cell

Uniaxial Compression (UCS)

UCS, Young's modulus, Poisson's ratio — ASTM D7012.

Acoustic Velocity

P-wave, S1 & S2 under triaxial conditions — ASTM D2845.

Brazilian Indirect Tension

Tensile strength — ASTM D3967.

Point Load Strength Index

Rapid field-applicable index — ASTM D5731.

Modular Fixtures

Configure progressively as your curriculum grows.

INDUSTRIAL

ROCKTEST

1,000 kN servo-controlled compression frame with automated confining pressure

KEY SPECIFICATIONS

1,000 kN
Axial Load

70 MPa
Confining Pressure

150 °C
Max Temperature

Ø up to 54.7mm
Sample diameter

POSITIONING

Rock compression system for both uniaxial and triaxial testing. Fixed crosshead on four stiff columns delivers extreme rigidity. High-frequency servo-valve provides precise flow regulation. Automated multi-stage triaxial tests eliminate operator variability.

FIVE MEASUREMENT FAMILIES

Triaxial Compression

UCS, triaxial strength, Mohr-Coulomb envelope, E and v.

Compatible with HOEK cell , Quick Release Cell and Universal cell

Uniaxial Compression (UCS)

UCS, Young's modulus, Poisson's ratio — ASTM D7012.

Acoustic velocity

P, S1 & S2 waves, dynamic moduli — 1 MHz, ASTM D2845.

Brazilian Indirect Tension

Tensile strength — ASTM D3967 / ISRM.

Fluid Flow

Liquid permeability 0.01 mD – 1 Darcy, pore pressure control.

High temperature

high-temperature capability with 150 °C heating mantle.

PREMIUM

MECATEST 3000

The 3,000 kN reference for high-strength rock and oversized cores

KEY SPECIFICATIONS

3,000 kN
Max Load

70 MPa
Confining Pressure

150 °C
Max Temperature

Ø 54.7 to 160 mm
Max Specimen

POSITIONING

Heavy-duty four-column frame minimises compliance errors — critical for accurate elastic modulus. Compatible with specimens from Ø 54.7 mm up to Ø 160 mm: NX, HQ and oversized industry-standard sizes.

FIVE MEASUREMENT FAMILIES

Triaxial Compression

UCS, triaxial strength, Mohr-Coulomb envelope, E and v.

Compatible with HOEK cell , Quick Release Cell and Universal cell

Uniaxial Compression (UCS)

UCS, Young's modulus, Poisson's ratio — ASTM D7012.

Acoustic velocity

P, S1 & S2 waves, dynamic moduli — 1 MHz, ASTM D2845.

Brazilian Indirect Tension

Tensile strength — ASTM D3967 / ISRM.

Fluid Flow

Liquid permeability 0.01 mD – 1 Darcy, pore pressure control.

High temperature

high-temperature capability with 150 °C heating mantle.

RESEARCH

GEOTEST

Research-grade dynamic triaxial system — static & dynamic regimes

KEY SPECIFICATIONS

1–2,000 kN
Axial Load

70-210 MPa
Confining (max)

Static
+ Dynamic regime

4-column
Open frame

POSITIONING

High stiffness 4-column load frame (1,000 or 2,000 kN) with balanced triaxial cell. Ultra-high-speed control for dynamic waveforms at cyclic frequencies. Programmable sinusoidal, triangular and rectangular signals for fatigue testing.

ADVANCED MEASUREMENT MODULES

Acoustic Emission (AE)

Real-time microcracking events — damage mapping, failure location.

Hydraulic Fracturing

Breakdown pressure, fracture propagation and closure.

Electrical Resistivity

Tracks saturation and fluid transport during loading.

Liquid Permeability

Steady-state & transient — 0.01 mD to 1 Darcy range.

Acoustic Velocity (P & S)

Vp, Vs1, Vs2 throughout loading — dynamic moduli.

Polyaxial (σ1≠σ2≠σ3)

Three independent principal stresses via polyaxial fixture.

PRODUCTION

GEOTEST EXPRESS

All GEOTEST capabilities in a box-frame design with automated cell lifting

KEY SPECIFICATIONS

1–2,000 kN
Axial Load

70-210 MPa
Confining (max)

Box-Frame
Enclosed design

Auto-Lift
Cell handling

POSITIONING

Box-type rigid frame offers enhanced safety shielding and greater stiffness than open 4-column designs. Automated push-button cell lifting accelerates turn-around and reduces operator fatigue. Optimised for high-volume labs running repetitive characterisation campaigns.

KEY DIFFERENTIATORS

Box-Type Rigid Frame

Enclosed structure with safety shielding and greater stiffness.

Push-Button Cell Lifting

Automated system — faster turn-around, reduced operator fatigue.

Same Test Capabilities

All GEOTEST modules: AE, HF, permeability, acoustic, resistivity.

Production Throughput

Optimised for high-volume core plug characterisation.

Cell Ratings

70 / 140 / 210 MPa · diameters 1"–55 mm or 55–100 mm.

Materials

Stainless steel or Inconel wetted parts.

SHARED LIBRARY

Triaxial Cells & Test Fixtures

Interchangeable across GEOLAB · ROCKTEST · MECATEST · GEOTEST

HOEK Cell

Ø 42 – 54.7 mm (Type 2) · Ø 63.5 – 100 mm (Type 3) · 70 MPa · ambient.
GEOLAB · ROCKTEST · MECATEST

QRC Triaxial Cell

Ø 38.1 – 54.7 mm · 70 MPa · 150 °C · 3× radial LVDTs + 1 axial · quick-release.
ROCKTEST · MECATEST

UTC Universal Cell

Ø 55 – 100 mm full-diameter plugs · 70 MPa · 150 °C · acoustic-velocity compatible.
ROCKTEST · MECATEST

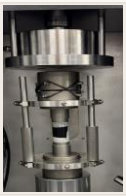
Balanced Triaxial

Ø 1"–55 mm or 55–100 mm · 70 / 140 / 210 MPa · stainless or Inconel · balanced piston.
GEOTEST · GEOTEST EXPRESS

TEST FIXTURES

UCP — Uniaxial Compression

LVDT + circumferential extensometer. 100 mm or 160 mm platens.
UCS, E, v.



ITB — Brazilian Tension

Diametral jaws with spherical bearing. Ø 54.7 / 63.5 / 76.2 / 85 / 100 / 150 mm.

Polyaxial Fixture

Three independent σ1 ≠ σ2 ≠ σ3 via flat jacks. AE + acoustics + HF option.

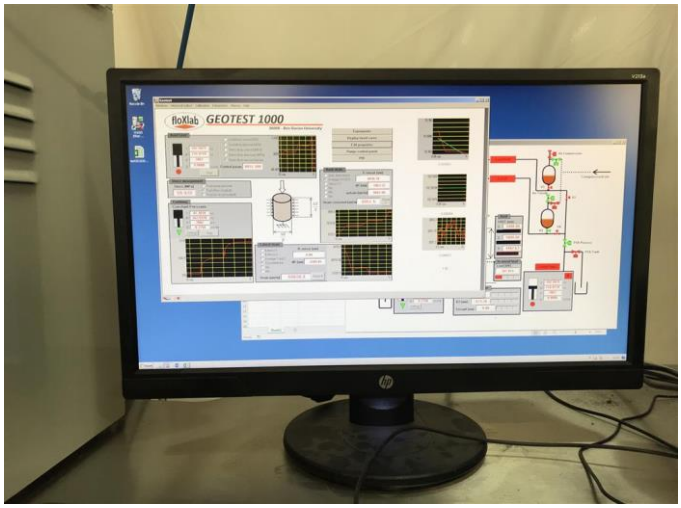
Triaxial Cell Trolley

Mobile lifting + ergonomic worktable for mount/dismount. Lockable casters.

CONTROL & SUPERVISION

Floxlab GEOTEST Software

One proprietary software — every system in the portfolio



KEY BENEFITS

- **Learn it once, deploy it everywhere**
- Eliminate operator variability via pre-programmed test sequences
- Repeatable multi-stage triaxial protocols
- Automated professional PDF report per test
- Reduced training burden — single interface for all frames
- Full traceability: raw data + set-points + computed parameters

01

Synoptic Overview

Live system status at a glance — every component color-coded.

02

Measurement Display

Real-time load, stress, strain and velocity readouts.

03

Trend Curves

Live graphical curves — stress-strain, volumetric, Mohr envelope.

04

Set-Point Control

Enter or adjust target values live during the test.

05

Macro Commands

Program automated stress & strain paths — multi-stage.

06

Excel Reports

Export professional test reports with one click.

COMPLIANCE & MARKETS

Standards & Target Sectors

Internationally recognised methods · served industries

INTERNATIONAL STANDARDS

ASTM D7012

Compressive strength and elastic moduli of rock

API RP 40

Rock permeabilities

ASTM D2845

Laboratory determination of acoustic wave velocities

ASTM D3967

Splitting tensile strength — Brazilian test

ASTM D5731

Point Load Strength Index of rock

ISRM SM

Full suite of ISRM Suggested Methods

TARGET SECTORS

Oil & Gas

Reservoir geomechanics, wellbore stability, hydraulic fracturing design, core analysis.

Mining

Ore body characterisation, pillar design, slope stability, underground excavation.

Geothermal

Thermo-hydro-mechanical characterisation, EGS reservoir design, caprock integrity.

Civil & Geotech

Tunnel design, dam foundations, slope stability, seismic response of rock masses.

CCS / Carbon

Caprock integrity, injectivity, fracture onset, long-term monitoring via AE.

Academic & Research

Fracture mechanics, fatigue, constitutive models, method development.

GET IN TOUCH

Your partner for rock mechanics *& geomechanics testing*

Made in France · Vinci Technologies Group

Versatile · Rigorous · Traceable

HEADQUARTERS

Floxlab SAS

23 rue du Port
92000 Nanterre, France

CONTACT

Email contact@floxlab.com

Phone +33 (0)1 81 93 12 85

Fax +33 (0)1 41 37 04 76

Web www.floxlab.com

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