Floxlab
NANTERRE, FRANCE

ROCK MECHANICS TESTING SYSTEM

# ROCKTEST

**1,000 kN Uniaxial & Triaxial Compression Testing System**
**for comprehensive geomechanical characterization of reservoir rocks**

| 1,000 kN | 70 MPa | 200°C | 54.7 mm |
|---|---|---|---|
| AXIAL LOAD | CONFINING PRESSURE | MAX TEMPERATURE | MAX SPECIMEN Ø |


Servo-controlled · Fully automated · Multi-stage capable
Suitable for all rock types — from soft sandstone to hard crystalline formations

Floxlab / Vinci Technologies
Nanterre, France

SYSTEM DESCRIPTION

# PRECISION ROCK COMPRESSION TESTING

The ROCKTEST is a servo-controlled compression system engineered for both uniaxial and triaxial rock testing. It simultaneously controls axial load, confining pressure, and deformation via pre-programmed stress and strain paths — eliminating operator variability and enabling fully repeatable multi-stage protocols.

| 1,000 | 70 | 200 |
|---|---|---|
| kN AXIAL LOAD | MPa CONFINING | °C MAX TEMP |

COMPRESSION FRAME

## Servo-Controlled Load Frame

- Fixed crosshead on four stiff columns — extreme rigidity
- Integrated servo-controlled actuator
- Load control or displacement control mode
- High-frequency servo-valve for precise flow regulation
- Front door safety shield against specimen ejection
- 6-shim set for adjustable lower platen height

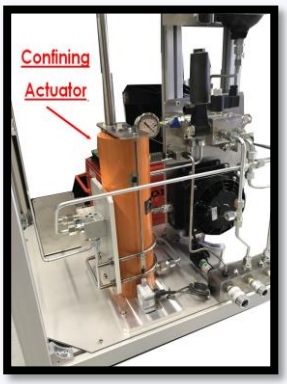
| | |
|---|---|
| Load Capacity | **500 kN or 1,000 kN** |
| Piston Stroke | **100 mm** |
| Loading Speed | **0.0005 – 10 mm/min** |
| Dimensions | **1.5 × 1.5 × 1 m** |
| Weight | **1,000 kg** |
| Control Modes | **Load / Displacement** |

CONFINING SYSTEM

## Automated Confining Pressure Intensifier

- Automatically fills triaxial cell with confining fluid
- Pressurizes & controls confining fluid precisely
- Linear transducer monitors confining oil volume
- Pressure mode or constant displacement mode
- 20-liter fluid reservoir for fill / drain operations
- Metal cabinet on casters — mobile & compact

| | |
|---|---|
| Working Pressure | **70 MPa** |
| Pressure Accuracy | **0.25% FS** |
| Actuator Volume | **250 cc** |
| Volume Accuracy | **0.25% FS** |
| Wetted Parts | **Stainless Steel** |
| Dry Air Required | **100 psi** |




LOAD FRAME SELECTION GUIDE

Achievable stress (MPa) per load level and specimen diameter — select the appropriate frame capacity for your target stress regime.

| Load ↓ / Dia → | 19 mm | 25.4 mm | 38.1 mm | 50.8 mm | 54.7 mm | 75 mm | 101.6 mm |
|---|---|---|---|---|---|---|---|
| 100 kN | 353 | 197 | 88 | 49 | 42 | 23 | 12 |
| 200 kN | 705 | 395 | 175 | 99 | 85 | 45 | 25 |
| 500 kN | 1,763 | 987 | 439 | 247 | 212 | 113 | 62 |
| 1,000 kN | 3,527 | 1,974 | 877 | 493 | 425 | 226 | 123 |

### UNIAXIAL TESTS

- Unconfined Compressive Strength (UCS)
- Axial & radial strain
- Modulus of elasticity (Young's modulus)
- Poisson's ratio

### TRIAXIAL TESTS

- Triaxial compression strength
- Stress-strain curves under confinement
- Shear strength envelope (Mohr-Coulomb)
- Cohesion & angle of internal friction

### SPECIALIZED TESTS

- Brazilian indirect tensile strength
- Acoustic P & S wave velocity
- Steady-state liquid permeability
- High-temperature testing up to 200°C

## INTEGRATED SOFTWARE & AUTOMATION

Real-time display — synoptic view of all measurements · component status monitoring · live trend charts

Automated control — macro-driven tests with pre-programmed stress & strain paths · set-point entry

Multi-stage protocols — complex stress paths with full repeatability · eliminates operator variability

Report generation — automated test reports generated at end of each test

## TRIAXIAL CELL OPTIONS

### 1 HOEK Cell

Standard triaxial cell for NX core testing. Determines shear strength parameters and elastic properties from soft sandstone to hard crystalline formations.

| | |
|---|---|
| Specimen Dia. | **42 – 54.7 mm** |
| Confining Pressure | **70 MPa** |
| Strain measurement | **Axial & radial gauges** |
| Acoustic velocity | **P & S waves** |
| Seal kits included | **5 kits** |

### 2 QRC High-Temp Triaxial Cell

Quick-release cell reproducing reservoir conditions up to 70 MPa and 150°C with 3 pressure-compensated LVDTs for direct radial strain measurement.

| | |
|---|---|
| Specimen Dia. | **38.1 – 54.7 mm** |
| Confining Pressure | **70 MPa** |
| Temperature | **Ambient – 200°C** |
| Radial strain | **3× pressure-comp. LVDTs** |
| Axial strain | **1× vertical LVDT** |

### 3 UTC Universal Triaxial Cell

Designed for full-diameter plugs up to 100 mm. Delivers strength, elastic moduli, velocities and thermal effects in a single test run.

| | |
|---|---|
| Specimen Dia. | **55 – 100 mm** |
| Confining Pressure | **70 MPa** |
| Temperature | **Ambient – 200°C** |
| Diametral sensor | **DE-55, 0.5% FS** |
| Axial sensor | **ASL-55, 0.25% FS** |

# FIXTURE OPTIONS

## 1 Uniaxial Compression Platen

For unconfined compression tests per ASTM D7012. Includes circumferential extensometer (55 mm) and LVDT for axial deformation.

| | |
|---|---|
| Specimen dia. | **Up to 55 mm** |
| Radial deformation | **Circumferential Ext.** |
| Axial deformation | **LVDT** |
| Standard | **ASTM D7012** |

## 2 Strain Gauges Package

XY biaxial gauges bonded directly on specimen — eliminates machine compliance errors. Monitors microcrack onset through strain curve non-linearity.

| | |
|---|---|
| Gauge type | **XY biaxial** |
| Resistance | **350 Ohm** |
| Quantity | **100 gauges** |
| Bridge circuit | **Wheatstone** |

## 3 Acoustic Velocity Platens

Compatible with HOEK cell. Measures P, S1 & S2 wave velocities at multiple stress levels — computes dynamic elastic moduli and detects microcrack initiation.

| | |
|---|---|
| Waves measured | **P, S1, S2** |
| Center frequency | **1 MHz** |
| Feedthroughs | **6 coaxial** |
| Operating temp. | **Room – 120°C** |

## 5 Brazilian Indirect Tensile Test

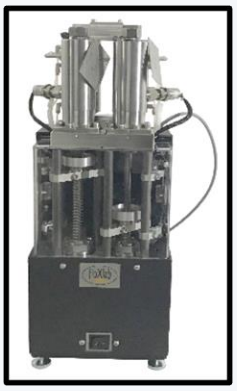
Diametrical loading between curved jaws — no special sample preparation. Critical for borehole stability and fracturing design.

| | |
|---|---|
| Available dia. | **42 – 76.2 mm** |
| Standards | **ASTM D3967 / ISRM** |
| Integration | **ROCKTEST load frame** |

## 6 Pore Pressure Syringe Pump

Regulates pore pressure precisely. Essential for computing effective stress, Biot's coefficient and pore compressibility.

| | |
|---|---|
| Working pressure | **70 MPa** |
| Pump volume | **2 × 15 cc** |
| Flow range | **0.0001 – 30 cc/min** |
| Control modes | **Const. P / Q / V** |



## 7 LP-700 Liquid Permeameter

Steady-state Darcy flow permeability from 0.01 mD to 1 Darcy with dual DP transducers. Quantifies stress-dependent permeability.

| | |
|---|---|
| Permeability range | **0.01 mD – 1 Darcy** |
| Fluid | **Water or oil** |
| Max pressure | **70 MPa** |
| Pressure accuracy | **0.2% FS** |


## COMPLETE GEOMECHANICAL SOLUTION

The ROCKTEST integrates seamlessly with FLOXLAB' full portfolio — Acoustic Velocity System, True Triaxial System,... — providing an end-to-end solution for reservoir characterization. All instruments share common software philosophy: real-time monitoring, pre-programmed test paths, and automated reporting.

**STANDARDS** ASTM D7012 · ASTM D3967 · ISRM · ISO

## CONTACT US

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Specifications subject to change without notice.
Custom configurations available on request.