



Your supplier of high-pressure laboratory instruments
and advanced geotechnical testing equipment



ROCLAB



Automated Pore Volume Compressibility System

A fully-automated triaxial system that determines hydrostatic, triaxial and uniaxial-strain pore volume compressibility of rock specimens — under independently-controlled axial, confining and pore pressures up to 100 MPa.

PORE COMPRESSIBILITY • RESERVOIR SIMULATION • AUTOMATED TESTING

Overview

Fully-automated pore volume compressibility under simulated reservoir conditions.

100 MPa

Axial / Confining / Pore pressure

150 °C

Operating temperature

1.5"

Specimen diameter (1" / 1.5")

4"

Maximum specimen length

WHAT ROCLAB DELIVERS

DETERMINES

- ◆ Hydrostatic pore volume compressibility
- ◆ Triaxial pore volume compressibility
- ◆ Uniaxial-strain pore volume compressibility

MEASURES

- ◆ Radial & axial strains
- ◆ Pore volume change
- ◆ Bulk compressibility

BUILT FOR

- ◆ Reservoir-depletion simulation
- ◆ Constant-pore-pressure tests
- ◆ Stainless steel / Hastelloy wetted parts

Test Methods

Three stress-state methodologies for pore & bulk compressibility under simulated reservoir conditions.

Hydrostatic

EQUAL STRESS IN ALL DIRECTIONS

- ◆ **Effective Stress Test**
Constant pore pressure, varying hydrostatic stress
- ◆ **Simulated Reservoir Stress**
Varying pore pressure, constant hydrostatic stress
- ◆ **Outputs: pore & bulk compressibility**
Reference baseline under isotropic loading

Triaxial

INDEPENDENT AXIAL AND RADIAL STRESSES

- ◆ **Effective Stress Test**
Varying radial or axial stress at constant pore pressure
- ◆ **Simulated Reservoir**
Varying pore pressure at constant axial & radial stress
- ◆ **Outputs: pore & bulk compressibility in 3D stress state**
Realistic anisotropic reservoir conditions

Uniaxial Strain

ZERO-RADIAL-STRAIN DEPLETION

- ◆ **Pore Pressure Depletion (PPD)**
Varying pore pressure at constant axial pressure
- ◆ **Constant Pore Pressure (CPP)**
Varying axial pressure at constant pore pressure
- ◆ **Condition: zero radial strain — confining pressure auto-adjusted**
Simulates in-situ reservoir compaction

System Architecture

Modular hydraulic architecture with independently-controlled pressure circuits and unified workstation.

01

Heated Pressure Vessel

Applies axial stress, confining and pore pressure to the rock specimen with precise temperature control. Quick-release endcap, electrical heating mantle, integrated platens.

02

In-Vessel Instrumentation

Radial and axial strain sensors, pore-volume and pressure transducers — direct measurement of the specimen response under simulated stress.

03

Axial Pressure Pump

Servo-controlled syringe pump generating axial stress with high accuracy and stable flow throughout all test phases.

04

Confining Pressure Pump

Independently regulates the confining pressure — automated adjustment for zero-radial-strain conditions in uniaxial-strain mode.

05

Pore Pressure Pump

Controls pore-fluid pressure and flow rate independently from confining and axial circuits — for fully decoupled stress states.

06

Control & Reporting Station

Synoptic display with live status, fully automated test sequences, real-time acquisition, automatic compressibility calculation and report generation.



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Get in Touch



Speak to our specialists about your application — every ROCLAB system is configured to your research.

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