floXlab

PRODUCT BROCHURE

RCP TESTER

Resin-Coated Proppant Testing System

High-pressure laboratory instruments
& advanced geotechnical testing equipment

250 kN AXIAL LOAD	**70 MPa** CONFINING
175 °C TEMP. MAX	**Ø 50 mm** SPECIMEN

OVERVIEW

RCP Tester at a glance

The Floxlab RCP Tester is an integrated bench for resin-coated proppant qualification. It cures specimens under realistic closure stress and temperature, then characterises their mechanical strength under unconfined and triaxial compression — all on the same load frame.

01
Curing under stress

Cures resin-coated proppant (RCP) samples under varying axial loads and temperatures, using a dedicated flow-through curing cell.

02
Strength assessment

Measures unconfined and triaxial compression strengths of cured RCP specimens using a purpose-built proppant triaxial cell.

KEY SPECIFICATIONS

SPECIMEN DIAMETER

up to 2" (50 mm)

L = 2 × diameter

AXIAL LOAD CAPACITY

250 kN compression

load or displacement control

CONFINING PRESSURE

70 MPa 10,000 psi

servo-valve regulated

TEMPERATURE RANGE

up to 175 °C

ambient to 175 °C

APPLICATIONS

- Hydraulic fracturing R&D
- Proppant qualification & batch control
- Resin coating performance studies
- UCS and triaxial strength characterisation

Resin-coated proppant specimen

ARCHITECTURE

System components

The RCP Tester is delivered as a complete, integrated system. The eight subsystems below work together to take a proppant specimen from curing to mechanical characterisation under controlled stress and temperature.

1. **Hydraulic Power Pack**
2. **Load Frame**
3. **Axial Actuator (servo-valve)**
4. **Load Cell (up to 250 kN)**
5. **Flow-Through Curing Cell**
6. **Proppant Triaxial Cell**
7. **Confining Pressure Intensifier**
8. **Computer / Data Acquisition Station**

Integrated RCP Tester unit

FULLY INTEGRATED

Single load frame, two test cells

Curing and triaxial testing share the same hydraulic supply and acquisition chain — for repeatable, traceable workflows from prep to report.

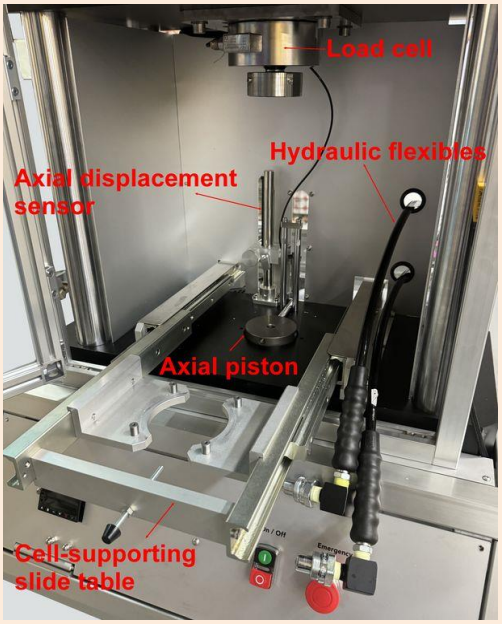
MECHANICS & POWER

Load frame & hydraulic supply

01 · LOAD FRAME

Function

- Applies accurate axial stress during compressive strength tests
- Operates in load-control or axial-displacement mode
- Compatible with both triaxial and curing cells
- Stationary crosshead fixed to the base plate by four columns
- Hydraulic actuator integrated in the lower section of the frame
- Rapid piston displacement with precise loading capacity



Load frame cell work area (annotated)

Cell Work Area

- Sliding table to support the test cell
- Load cell up to 250 kN
- Axial displacement sensor
- Two hydraulic hoses for confining pressure

02 · HYDRAULIC POWER PACK

Functions

- Supplies hydraulic fluid to the axial and confining actuators via servo-valves
- Built around a variable-speed, constant-pressure gear pump
- Low-noise, stable hydraulic operation
- Supports load-control and displacement-control modes

PUMP FLOW	MAX PRESSURE
0.1–1 LPM	20 MPa

PUMP TYPE	OIL TANK
Gear pump	10 L

STAGE 1 · CURING

Flow-through curing cell

Cures resin-coated proppant packs at high temperature and variable closure stress, before unconfined compressive strength testing. The cell allows fracturing-fluid leak-off monitoring during closure application.

KEY FEATURES

- Chamber with upper and lower hardened steel platens
- Applies axial compression to simulate closure pressure on the proppant pack
- Monitors fracturing-fluid leak-off during closure application
- Fluid ports in the platens enable fluids to flow from the specimen
- Heating mantle delivers a uniform temperature from ambient up to 177 °C
- Includes a specimen extractor for easy removal of the cured sample

Curing cell

Sample extractor

Curing cell with heater

WORKFLOW

From raw RCP to test specimen

1 Load RCP – 2 Apply closure stress – 3 Cure at temperature – 4 Extract specimen

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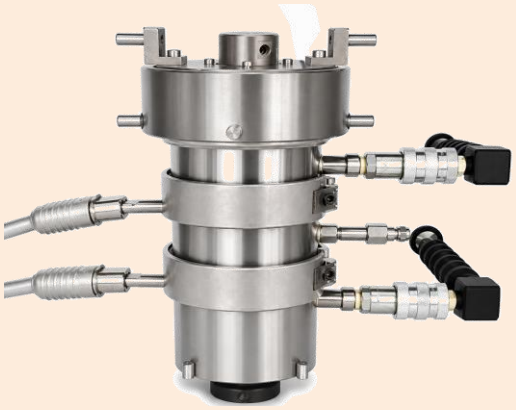
STAGE 2 · STRENGTH

Proppant triaxial cell

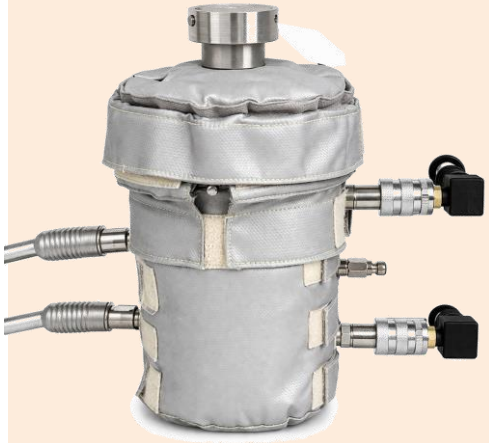
An enclosure for testing cylindrical resin-coated proppant specimens under combined axial and radial compression. The triaxial cell applies circumferential confining pressure simultaneously with axial load to reproduce realistic stress states.

DESIGN HIGHLIGHTS

- Specimen encased in a Viton sleeve between hardened steel endcaps
- Complete assembly submerged in oil under confining pressure
- Top pore-fluid port at the upper platen for fracturing-fluid expulsion during compression
- Low-friction loading piston designed specifically for triaxial testing
- Heating mantle for controlled temperature conditions during testing



Proppant triaxial cell



Proppant triaxial cell with heater

SPECIFICATIONS

AXIAL LOAD	CONFINING	TEMPERATURE	SPECIMEN
250 kN	70 MPa	175 °C	Ø50 mm

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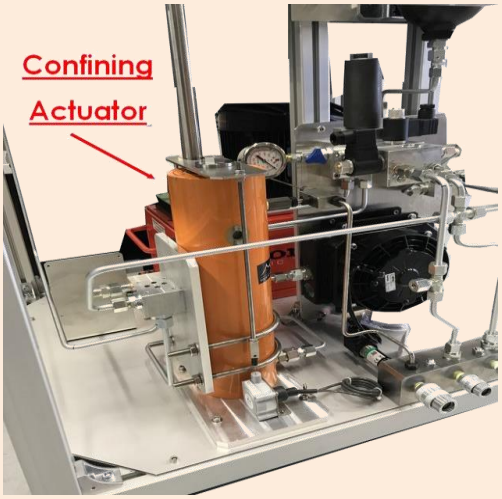
PRESSURE & CONTROL

Confining intensifier · software

01 · CONFINING INTENSIFIER

Function

- Provides pressurised fluid to the confining chamber of the triaxial cell
- Fills, pressurises, regulates and drains the confining fluid
- Servo-valve-controlled hydraulic actuator
- Linear transducer measures confining-oil volume in the actuator
- Housed in a metal cabinet on casters for easy mobility
- Operates in pressure-control or constant-displacement mode



Confining pressure intensifier

02 · COMPUTER STATION & SOFTWARE

Visualisation

Synoptic view, component status, real-time measurements & trend graphs.

Acquisition

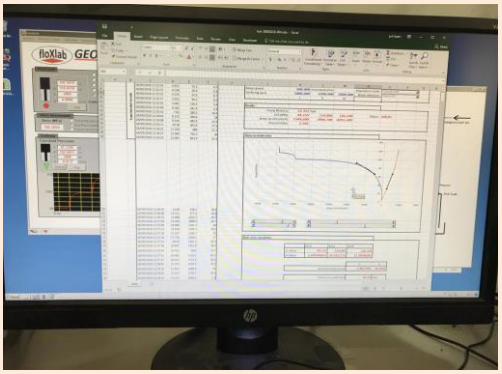
Continuous data logging with high temporal resolution for downstream analysis.

Test setup

Set-points entered manually or via macro commands for automated test runs.

Reporting

Automated report generation, ready to share with QC teams and customers.



Synoptic & trend monitoring

LET'S TALK

Contact us

Whether you have a project, a custom-build need, or a technical question — our team is happy to help.

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Thank you