PRODUCT CATALOG

2026

YOUR SUPPLIER OF ADVANCED GEOTECHNICAL TESTING EQUIPMENT

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of operations worldwide	product categories	test & measurement instruments

FLOXLAB

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ABOUT FLOXLAB

Floxlab is an engineering company specialized in advanced geotechnical testing equipment, high-precision syringe pumps, and compression frames. Whether your laboratory needs a unique unit or a complete turnkey system, our team brings unmatched technological expertise and customer support to every project.

With more than 90% of our business conducted outside France, Floxlab systems have become a standard in leading laboratories across the United States, Europe, the Middle East, China, and Russia. Our devices deliver precision pressure, volume, and flow-rate control for petroleum research, reactant delivery, supercritical fluids, geoscience, and beyond.

Continuous improvement is our guiding philosophy: we monitor market demands, conduct deep material research, and carefully gather customer feedback to keep driving innovation.

OUR ENGINEERING TEAMS

Our teams bring together experts in electrical, manufacturing, mechanical, and software engineering — the foundation of our innovation process. Precision and reliability have guided Floxlab since its inception.

Floxlab engineers shepherd products from concept to manufacturing — designing mechanisms, developing circuitry, building CAD models, selecting materials, and running rigorous validation tests. We invite our clients into every step, from design and simulation to fabrication, testing, and delivery.

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TABLE OF CONTENTS

PREPARATION TOOLS

AUTOMATED SPECIMEN CUTTING SAW

SC-450

Prepare test-ready specimens with lab-grade precision — fast, repeatable, ASTM-compliant.

OVERVIEW

This SC-450 is crafted for the purpose of precisely cutting rock specimens to a specific dimension. The mechanism involves moving the entire specimen toward the cutting blade at a preselected, customizable speed using a hydraulic power feed with variable rates. The tool incorporates several essential components, including a fixture to securely hold the specimen, a system for advancing the specimen, a diamond-impregnated cutting blade, an emergency stop switch for safety, a coolant delivery system and a collection pan to capture debris. The cutting area is enclosed by a metal covering that features a viewing window. This setup allows for the safe and controlled cutting of rock specimens, with the capability to achieve diameters ranging from 20 mm to 170 mm.

SPECIFICATIONS

Standard	ASTM D4543
Specimen diameter	From 20 mm to 170 mm
Specimen length	up to 400 mm
Saw blade diameter	450 mm (18 inches)
Motor power	2,200 watts, 3,000 RPM
Compatible coolants	water (usually), oil
Weight	250 Kg
Dimensions (WxLxH)	780x1600x1260 mm
Required power supply	220 VAC specify 50 or 60 Hz
Required water supply	50 psi

KEY BENEFITS

✓ Usable for all standard specimen sizes

AUTOMATED SPECIMEN CORING MACHINE

ACM-300

Prepare test-ready specimens with lab-grade precision — fast, repeatable, ASTM-compliant.

OVERVIEW

The ACM-300 is a robust drill press equipped with diamond coring bits, engineered to accommodate specimens up to 150 mm (6 inches) in diameter and 300 mm (12 inches) in length. The automatic constant-pressure feed mechanism lets the bit penetrate soft rock at high speeds while maintaining stable force. The standard configuration includes a drill press, rotary union (swivel), containment pan with specimen clamping vise, and coolant supply. Operators can use water or oil as coolant, or liquid nitrogen when coring unconsolidated samples.

SPECIFICATIONS

Standard	ASTM D4543
Coring bit internal diameter	From 21.5 mm (0.845 in) to 150 mm (6.0 in)
Maximum coring depth	up to 300 mm (12 inches)
Drip pan dimension	L x W x H: 1000 x 380 x 340 mm
Compatible coolant	Water, Oil, liquid N_2 (option)
Drill speed	550, 1120, 1680 RPM
Dimensions	L x W x H: 1400 x 680 x 2140 mm
Weight	100 Kg
Water supply	100 psi
Electrical	220 VAC, 50-60 Hz

KEY BENEFITS

- ✓ Cores specimens with diameter up to 150 mm
- ✓ Automatic feed with constant pressure
- ✓ Fast, easy drilling operation
- ✓ Compatible with water, oil, or liquid nitrogen coolants

AUTOMATED SPECIMEN GRINDER

SG-300

Prepare test-ready specimens with lab-grade precision — fast, repeatable, ASTM-compliant.

OVERVIEW

This tool is designed to achieve precise and flat end-faces when the geometry of the specimen is of utmost importance. It employs a variable-rate feed mechanism that allows the entire specimen to be processed in a single pass at an adjustable speed, resulting in end-faces that are both parallel and flat, meeting the specifications outlined by ASTM and ISRM. The equipment consists of a specimen clamping device, a hydraulically operated feed mechanism, a diamond grinding cup wheel, a coolant delivery system, and a collection pan for debris. The grinding process is enclosed within a metallic cover that includes a viewing window for observation. Specimens ranging in diameter from 20 mm to 170 mm can be accommodated. This unit is user-friendly and self-contained, surpassing industry standards. Furthermore, the use of a high-quality, genuine diamond-grinding wheel ensures a flawless and smooth finish.

SPECIFICATIONS

Standard	ASTM D4543
Specimen diameter	From 20 mm to 170 mm
Specimen length	up to 400 mm
Grinding wheel precision	+/- 0.001” (2.5 / 100 mm)
Grinding Wheel diameter	300 mm
Motor power	2,200 watts, 3,000 RPM
Compatible coolants	water (usually), oil
Weight	250 Kg
Dimensions (WxLxH)	780x1600x1260 mm
Required power supply	220 VAC specify 50 or 60 Hz
Required water supply	50 psi

KEY BENEFITS

✓ ASTM-compliant

✓ Easy to use

SPECIMEN FLATNESS GAGE

SF-300

Prepare test-ready specimens with lab-grade precision — fast, repeatable, ASTM-compliant.

OVERVIEW

The specimen flatness gauge ensures precise measurement of a specimen's flatness. A specimen with a maximum height of 300 mm (12 inches) is positioned on a high-quality Grade-A thick granite base, and an electronically adjustable digital dial gauge, mounted vertically, indicates the degree of flatness.

SPECIFICATIONS

Standard	ASTM D4543
Granite base	200 mm x 300 mm x 50 mm
Max specimen height	300 mm (12 inches)
Accuracy	+/- 0.0001 inch
Resolution	0.01 mm (0.0005 inch)
Weight	20 Kg

KEY BENEFITS

✓ ASTM-compliant

✓ Can be used for all standard specimen sizes

ROCK TESTERS

POINT LOAD TESTER

PLT-100

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The point load tester measures the uncorrected point load strength index (Is), which is then converted to a standardized value, Is(50), for a 50 mm diameter sample. This value is used to classify rock strength and estimate parameters such as uniaxial compressive strength (UCS) and rock anisotropy Ia(50). The device includes a hydraulic jack with a pressure gauge, a two-column crosshead frame, and a carrying case. Pressure from the hydraulic pump moves a piston with the lower conical platen, while the digital gauge records the applied pressure. The upper platen is fixed to the crosshead, and a graduated scale measures the sample diameter. The instrument follows ASTM D5731 testing procedures and can optionally include an indirect tension Brazilian fixture (ITB-250) to measure tensile strength.

SPECIFICATIONS

Standard	ASTM D 5731
Load capacity	100 kN
Maximum sample size	4 inches (101.6 mm)
Pump pressure	70 Mpa
Pressure accuracy	0.2% FS
Weight	25 Kg
Dimensions	50 x 30 x 25 cm

KEY BENEFITS

- ✓ Simple test
- ✓ Extreme rigidity
- ✓ Portable, easy to carry on-site
- ✓ Direct reading of specimen diameter
- ✓ Inexpensive instrument
- ✓ Attractive alternative to the UCS test because provides similar data at a lower cost

FRACTURE TOUGHNESS APPARATUS

FTA

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The fracture toughness apparatus is purpose-built for determining the fracture toughness of rock using chevron notched core specimens in a three-point bend configuration. This property plays a pivotal role in classifying and characterizing rocks based on their resistance to crack propagation. The apparatus comprises several key components, including a 10-KN load frame, a load cell, a 3-point bend fixture, and specialized fracture toughness software. In the testing process, a rock sample prepared with a chevron or V-shaped notch, oriented perpendicular to the core axis, is positioned on two support rollers. A compressive load is applied to separate the sides of the notch, which leads to transverse splitting of the specimen through crack propagation and coalescence in the unnotched part of the cross-section. Throughout the test, the load is accurately measured using a dedicated load cell, while the displacement of the load point and the crack mouth opening displacement (CMOD) are monitored using two LVDT transducers and a clip-on gage, respectively. These measurements are then utilized to determine the fracture toughness of the rock, including both level I and level II fracture toughness values.

SPECIFICATIONS

Standard	ISRM Suggested method
Specimen diameter	54 mm (2.125 inches) and 4-inches
Specimen length	16 inches
Load range	up to 10 kN
Wetted parts	Stainless steel

KEY BENEFITS

- ✓ Designed for easy and quick installation
- ✓ ISRM-compliant device
- ✓ Designed for testing a range of specimen diameters

SLAKE-DURABILITY INDEX METER

SDIM

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The SDIM (Slake Durability Index Measurement) instrument is employed to evaluate the ability of a rock sample to withstand abrasion after undergoing weakening and partial disintegration via two standard desiccation and imbibition cycles. During these cycles, samples are alternately rotated in mesh drums partially submerged in water and then subjected to oven drying, typically repeating the process for two or three cycles. The slake durability index is quantified as the percentage of mass loss observed at the conclusion of these cycles.

SPECIFICATIONS

Standard	ASTM D4644, ISRM Suggested Method
Rotation speed	20 rpm
Dimensions (W x H x L)	300 x 500 x 500 mm
Weight	30 kg
Power supply	220 VAC, 50/60 Hz

KEY BENEFITS

✓ Easy to operate

✓ ASTM-compliant

WEST CERCHAR ABRASIVITY INDEX TESTER

CAI-70

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The CAI-70 is a precision instrument designed for the accurate determination of the rock abrasivity index (CAI), which is a crucial parameter used to classify rock materials based on their abrasiveness. The CAI is a dimensionless measurement derived from assessing the wear on a HRC55 Rockwell Hardness steel stylus tip after it has been employed to abrade a specimen with a normal force of 70N.This apparatus comprises several key components, including a stationary stylus, a deadweight (70N) positioned atop the stylus, a sturdy load frame, a robust vice for securely clamping the rock sample, and a cross table with two adjustable axes to align the specimen precisely along both horizontal axes. Additionally, the device features a graduated knob that allows for precise control of the scratch distance with an accuracy of 0.01 mm. Optional accessories include an indenter visualization system, spare indenters, and a sharpening tool. The indenter visualization system consists of a digital camera with support for the indenter and inspection software, which reveals the amount of wear on the stylus and correlates it to the abrasiveness index (CAI). The sharpening tool is used to quickly restore a worn stylus for subsequent scratch tests.

SPECIFICATIONS

Standard	ASTM D7625-10.
Load	70 N
Maximum specimen height	150 mm (6 inches)
Maximum specimen diameter	76 mm (3.0 inches)
Scratch distance precision	0.01 mm
Steel Stylus	Rockwell Hardness HRC 54/56
Weight	25 kg
Dimensions (WxLxH)	330 x 500 x 500 mm

KEY BENEFITS

✓ ASTM-compliant, West model

✓ Features precision slide for smooth movement of the rock specimen over the required scratch distance

✓ Easy manual handling

✓ Easy adjustment of the daylight for different specimen heights

ORIGINAL CERCHAR ABRASIVITY INDEX TESTER

OCAI-70

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The OCAI-70 is a precise tool used to determine the rock abrasivity index (CAI), which plays a vital role in classifying rock materials based on their abrasiveness. This CAI is a dimensionless measurement derived from assessing the wear on a HRC55 Rockwell Hardness steel stylus tip after it has been used to abrade a specimen subjected to a 70N normal force. The instrument follows the ASTM D7625 method for assessing rock abrasiveness. The apparatus includes a mobile stylus and a deadweight (70N) positioned above the stylus. An articulated axis allows the user to place the stylus on the fixed specimen, and then, by moving the axis, creates a consistent 10mm-long stripe. The operator manually moves the stylus at a speed of 1mm/second during the test. Optional features encompass an indenter visualization system, spare indenters, and a sharpening tool. The indenter visualization system consists of a digital camera with support for the indenter and specialized inspection software. This system reveals the extent of wear on the stylus, which is then correlated to determine the abrasiveness index (CAI). The sharpening tool is utilized to quickly restore a worn stylus for subsequent scratch tests.

SPECIFICATIONS

Standard	ASTM D7625-10.
Load	70 N
Maximum specimen height	150 mm (6 inches)
Maximum specimen diameter	76 mm (3.0 inches)
Scratch distance precision	0.01 mm
Steel Stylus	Rockwell Hardness HRC 54/56
Weight	25 kg
Dimensions (WxLxH)	260 x 460 x 375 mm

KEY BENEFITS

✓ ASTM-compliant, original version

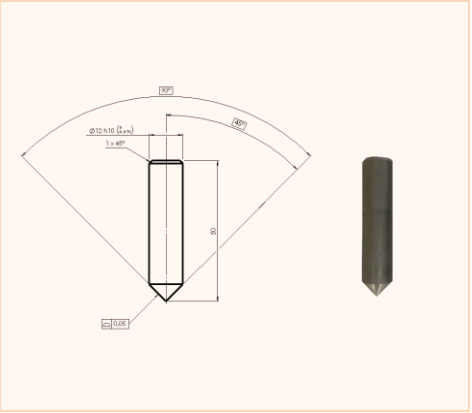
✓ Features precision slide for smooth movement of the rock specimen over the required scratch distance

✓ Easy manual handling

✓ Easy adjustment of the daylight for different specimen heights

ABRASIVITY INDENTER

AI-70



Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The indenter functions as the stylus pin in both the original and west Cerchar abrasivity index testers. It's designed in accordance with the ASTM D7625 method for assessing rock abrasiveness. The tip of the test pin features a conical angle of 90°, and typically, it lasts for approximately 10 tests per unit.

SPECIFICATIONS

Standard	ASTM D7625-10.
Diameter	12-mm
Length	50-mm
Cone	90°
Rockwell Hardness	HRC 54/56 (200 DaN/mm2)

KEY BENEFITS

✓ ASTM-compliant

✓ Fast delivery

ATMOSPHERIC ACOUSTIC VELOCITY SYSTEM

AVS-A

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The computer-controlled acoustic velocity measurement system facilitates the controlled propagation of both compressional (P) and shear waves (S or S1&S2) through geological rock specimens. Its integrated hardware and software employ state-of-the-art technology, enabling highly accurate determination of compression and shear wave velocities as well as dynamic elastic constants. This comprehensive system is equipped with essential components, including a swift-loading sample holder, a switch box, and a high-speed pulser-receiver that administers excitation to the ultrasonic sensors and visually presents the resultant waveform signals. The rapid-response pulser is employed to initiate excitation of the ultrasonic sensor, while an exceptionally high-speed analog-to-digital converter is utilized for the rapid capture and storage of the ensuing waveform signals. This setup ensures precise data acquisition and analysis for advanced research and geological investigations.

SPECIFICATIONS

Standard	ASTM D 2845
Specimen diameter	Up to 2 inches
Specimen length	Up to 6 inches
Frequency	1 MHz
Temperature	ambient
Waves	P and S1&S2

KEY BENEFITS

✓ designed to teach students the principles of acoustic velocity measurement

✓ short test duration

✓ Cost effective

OVERBURDEN ACOUSTIC VELOCITY SYSTEM

AVS-0

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The AVS-0 system allows for the propagation of compressional and shear waves through rock specimens under overburden pressures of up to 10,000 psi and at ambient temperature, with an option for elevated temperature testing. It computes the acoustic velocity and ascertains dynamic elastic constants. This computer-controlled setup comprises an acoustic triaxial cell, a compression testing frame, and a fast-acting pulser-receiver responsible for both exciting the ultrasonic sensors and displaying the resulting waveform signals. The rapid-response pulser is utilized to initiate the excitation of the ultrasonic sensor integrated into the platens of the triaxial cell, while an exceptionally high-speed analog-to-digital converter is employed for the swift capture and storage of the ensuing waveform signals.

SPECIFICATIONS

Standard	ASTM D 2845
Axial load	300 KN
Pressure	Up to 10,000 psi
Temperature range	Ambient to 120°C (option)
Specimen diameter	1-inch, 1.5 inches
Specimen length	Twice the diameter
Frequency	1 MHz
Temperature	ambient
Waves	P and S1&S2
Wetted parts	Stainless steel

KEY BENEFITS

- ✓ Representative overburden pressure conditions
- ✓ short test duration
- ✓ Cost effective

PULSE DECAY PERMEAMETER

PDP-200

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The PDP 200 is a specialized instrument engineered for the precise quantification of ultra-low permeability in very tight rock samples. Utilizing the pulse-decay permeability method, the device is calibrated to deliver reliable measurements in the range of approximately 0.01 microdarcies to 0.1 millidarcies. The system monitors the decay of pressure differentials across the rock specimen at predetermined time intervals. The instrument's architecture includes a thermostatically-controlled insulation cabinet for maintaining consistent test conditions. Within this cabinet are two stainless steel reservoirs tasked with fluid storage and management, complemented by dual high-precision pressure transducers for meticulous pressure gradient monitoring. The system also incorporates multiple zero-volume-change valves, as well as a dedicated needle valve to initiate the pulse-decay process. Data acquisition and analysis are facilitated by an integrated computer station, ensuring the accurate capture and interpretation of permeability metrics.

SPECIFICATIONS

Standard	ISRM Suggested method
Permeability range	0.01 microdarcy and 0.1 millidarcy
Specimen diameter	1-inch, 1.5 inches (other upon request)
Specimen length	Twice the diameter
Maximum pore pressure	20 Mpa
Fluid	Nitrogen gas

KEY BENEFITS

✓ Designed for measuring ultra-low permeability in tight rock samples with high precision across a specific range

✓ Provides reliable and repeatable results with its sophisticated pressure monitoring system

✓ Ensures consistent test conditions through a temperature-controlled environment

✓ Offers seamless data handling with its integrated computer station

LIQUID PERMEAMETER

LP-700

Characterize rocks with confidence — proven standards, actionable data.

OVERVIEW

The LP-700 determines rock sample permeability using the steady-state method in accordance with Darcy's Law. The unit includes all components necessary to carry out a permeability test. It is equipped with two pressure transducers to measure upstream and downstream pressures, two differential pressure transducers to measure the pressure drop across the sample: a low-range sensor for high-permeability specimens and a high-range sensor for low-permeability specimens. A controlled flow of pore fluid is injected through the core using a pore-pressure pump to determine permeability. The sample is enclosed in a jacket, placed inside an overburden cell, and subjected to the required confining pressure. Fluid is introduced at the inlet face, while a back-pressure regulator maintains a constant outlet pressure to ensure stable test conditions. The BPR features its own pressure-setting system, allowing the pore pressure to be adjusted to the desired value.

SPECIFICATIONS

Standard	ISRM Suggested method
Permeability range	0.01 millidarcy to 1 darcy
Specimen diameter	1-inch, 1.5 inches (other upon request)
Specimen length	Twice the diameter
Maximum pressure	70 Mpa
Fluid	Water, oil

KEY BENEFITS

✓ High accuracy: Dual pressure transducers ensure precise measurements over a wide permeability range.

✓ Automated control: Real-time data acquisition and automatic permeability calculation reduce operator error.

✓ Robust design: Enclosed cabinet provide durability and safe operation under high pressure.

LOAD-FRAME TRIAXIAL SYSTEMS

3000 KN ROCK UNIAXIAL AND TRIAXIAL COMPRESSION TESTER

MECATEST

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The servo-controlled MECATEST represents a conventional rock compression testing system with the capability to conduct both uniaxial and triaxial compression tests on large specimens. These tests enable users to derive valuable information such as strength and elastic properties, shear strength at varying confining pressures, angle of shearing resistance, cohesion, modulus of elasticity, Poisson's ratio, and tensile strength. The system's configuration options include uniaxial compression platens, axial and circumferential deformation sensors, a triaxial cell, acoustic velocity measurements, permeability assessments, polyaxial fixtures, and indirect tension Brazilian fixtures.

SPECIFICATIONS

Standard	ASTM D7012, D7070, D2664, D3967
Compression load capacity	3,000 kN
Maximum confining pressure	70 MPa
Temperature	Ambient
Specimen diameter	From 54.7-mm up to 160-mm
Specimen length	Twice the diameter
Wetted parts	Stainless steel
Power supply	110-220VAC, 50/60Hz

KEY BENEFITS

✓ Multi-purpose machine capable of a wide range of uniaxial, acoustic and triaxial compression tests

✓ Delivers unparalleled accuracy and reliability

✓ Standard

✓ Automated tests with pre-programed stress and strain path

✓ Heavy-duty, stiff, noise-free compression frame

✓ ASTM D7012, D7070, D2664, D3967

1000 KN ROCK UNIAXIAL AND TRIAXIAL COMPRESSION TESTER

ROCKTEST

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The servo-controlled ROCKTEST is a streamlined and traditional rock compression testing system designed for conducting both uniaxial and triaxial compression tests on specimens. The tests conducted provide users with the capability to ascertain strength and elastic properties, shear strength under varying confining pressures, the angle of shearing resistance, cohesion, modulus of elasticity, Poisson's ratio, and tensile strength. The system's adaptable configuration options encompass uniaxial compression platens, axial and circumferential deformation sensors, a triaxial cell, acoustic velocity measurement, permeability assessment, polyaxial fixtures, and indirect tension Brazilian fixtures.

SPECIFICATIONS

Standard	ASTM D7012, D7070, D2664, D3967
Compression load capacity	1,000 kN
Maximum confining pressure	70 MPa
Specimen diameter	Up to 54.7-mm
Specimen length	Twice the diameter
Power supply	110-220VAC, 50/60Hz

KEY BENEFITS

- ✓ Versatile design
- ✓ Designed for instructional purposes
- ✓ Rapid specimen loading operations
- ✓ Cost-effective Rock compression tester
- ✓ Perfectly suited for educational and research establishments
- ✓ Automated tests with pre-programed stress and strain path

300 KN EDUCATIONAL ROCK COMPRESSION TESTER

GEOLAB

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The GEOLAB is a compact compression testing apparatus with the capability to conduct both uniaxial and triaxial compression experiments on specimens. These experiments facilitate the determination of critical parameters such as material strength, elastic properties, shear strength under varying confining pressures, angle of shearing resistance, cohesion, modulus of elasticity, Poisson's ratio, point load, and splitting tensile strengths. Moreover, an acoustic velocity attachment can be integrated into the system for the purpose of propagating compressional (P) and shear waves (S1/S2) through rock specimens. Its principal purpose is to function as an educational instrument, designed to elucidate the fundamental tenets of rock mechanics to students in a lucid and expedient manner. An additional pedagogical advantage lies in the abbreviated duration of the experiments facilitated by this apparatus, underscoring its efficacy and appropriateness for instructional applications.

SPECIFICATIONS

Standard	D2664 & D7012 D3967 D5731
Compression load capacity	300 kN
Maximum confining pressure	70 MPa
Specimen diameter	1-inch or 1.5-inches
Specimen length	Twice the diameter
Power supply	110-220VAC, 50/60Hz

KEY BENEFITS

- ✓ Designed for instructional purposes
- ✓ Perfectly suited for educational and research establishments
- ✓ Versatile machine capable of a wide range of tests.
- ✓ Rapid specimen loading operations
- ✓ Standard
- ✓ ASTMcompliant

ADVANCED ROCK TRIAXIAL TEST SYSTEM

GEOTEST

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The GEOTEST is a servo-controlled rock triaxial testing system designed for high-precision triaxial compression, creep, and post-failure analysis. It determines key geomechanical properties such as rock deformation behavior, compressive strength, and static elastic constants under controlled triaxial conditions. Optional fixtures expand its capabilities to include unconfined compressive strength tests, indirect tensile tests, acoustic velocity measurement, rock permeability evaluation, and hydraulic fracturing experiments. The hydraulic compression frame, built with four high-stiffness columns, ensures rigidity and precise axial loading on specimens placed in a balanced triaxial cell. The system supports both static and cyclic tests. Each unit can be configured with different load and pressure capacities, temperature ratings, specimen sizes, and frame stiffness levels. An integrated hydraulic cell setup improves efficiency: the specimen is mounted on the pedestal, the cell body is lowered and locked by tightening a nut on the base, and the assembly is aligned under the loading piston.

SPECIFICATIONS

Standard	ASTM D7012, D7070, D5084, D3967
Compression load capacity	1,000 / 2,000 / 4,500 kN
Maximum confining pressure	70 / 140 / 210 MPa
Maximum pore pressure	70 / 140 / 210 MPa
Temperature	Ambient and high temperature (option)
Specimen diameter	Up to 100-mm
Specimen length	Twice the diameter
Wetted parts	Stainless steel
Power supply	230-400 VAC, 3-Phases, 50/60Hz

KEY BENEFITS

✓ Provides excellent rigidity and alignment.

✓ Performs multiple test types with one versatile system.

✓ Easily customized for different capacities and specimen sizes.

✓ Hydraulic lift and locking nut allow fast, safe setup.

✓ Delivers precise and reliable test results.

✓ EXPRESS ROCK TRIAXIAL TEST SYSTEM

EXPRESS ROCK TRIAXIAL TEST SYSTEM

GEOTEST EXPRESS

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The GEOTEST EXPRESS is an advanced rock compression testing system engineered for triaxial tests under both static and dynamic conditions. A state-of-the-art servo controller and automated testing software execute full test cycles — including multi-stage procedures — from initialization to completion. The high-stiffness box-type load frame withstands the significant forces exerted during testing, while a servo-controlled hydraulic actuator ensures rapid and precise piston movement in displacement, strain, stress, or load control. The triaxial cell assembly features an automatic locking mechanism and integrated hydraulic lift: the cell opens and closes at the push of a button, with no bolts or nuts to secure it. This innovation dramatically reduces setup time and effectively doubles the number of tests per day compared to conventional systems.

SPECIFICATIONS

Standard	ASTM D7012, D7070, D5084, D3967
Compression load capacity	1,000 / 2,000 / 4,500 kN
Maximum confining pressure	70 / 140 / 210 MPa
Maximum pore pressure	70 / 140 / 210 MPa
Temperature	Ambient and high temperature (option)
Specimen diameter	Up to 100 mm
Specimen length	Twice the diameter
Wetted parts	Stainless steel
Power supply	230-400 VAC, 3-Phases, 50/60 Hz

KEY BENEFITS

✓ Quick and effortless specimen setup and removal

✓ Significantly shortens preparation time between tests

✓ Increases overall laboratory productivity and efficiency

✓ Eliminates manual handling, reducing operator fatigue

✓ Doubles the number of tests achievable per day

AUTOMATED ROCK DIRECT SHEAR TESTER

SHEARTEST-SERIES

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The SHEARTEST is a versatile direct-shear system designed for conventional, incremental, and residual shear tests. This closed-loop, servo-controlled device applies simultaneous hydraulic normal and shear forces to a rock specimen housed in a shear box. It incorporates direct shear specimen rings capable of accommodating cylindrical cores, cubes, prisms, or rock fragments. A dedicated computing station records both force and displacement data in real time. The system operates under constant normal load (CNL), constant normal stiffness (CNS), or constant normal displacement (CND) modes while it can simultaneously apply constant incremental or ramped shear loads or displacements. Data collected during testing allows for the determination of key shear strength parameters, such as cohesion (c) and friction angle (Ø). Each unit can be custom-configured to specific needs, offering a wide range of shear and normal load capacities as well as specimen sizes—ensuring a tailored and precise solution for every user. The unit complies with ASTM D5607 and ISRM standards.

SPECIFICATIONS

Model	Shear load (kN)	Normal load (kN)	Shear stroke (mm)	Normal stroke (mm)	Specimen ring Diameter/side (mm)	Specimen ring Height (mm)
SHEARTEST 200-10	200	10	+/- 50	50	150	150
SHEARTEST 100-50	100	50	+/- 50	50	150	150
SHEARTEST 500-300	500	300	+/- 50	50	150	150
SHEARTEST 1000-500-L	1000	500	+/- 50	100	300x300	100

KEY BENEFITS

✓ High Precision – Servo control ensures accurate, reliable force application.

✓ Customizable – Adjustable load and size for different materials and needs.

✓ Versatile – Supports CNL, CNS, CND, and various shear test modes.

GAS HYDRATES TRIAXIAL COMPRESSION TEST SYSTEM

HYDRATEST

Push the limits of rock mechanics research with a turnkey, servo-controlled platform.

OVERVIEW

The servo-controlled HYDRATEST system performs triaxial tests on sediment samples containing methane hydrates under low temperatures and high pressures. It is used to study the mechanical properties of methane hydrate-bearing sediments (MHBS) at different hydrate saturation levels. Key properties measured include Young's modulus, cohesion, and internal friction angle, which depend on temperature, pore pressure, confining pressure, and hydrate saturation. The system uses a hydraulic compression frame applying up to 100 kN axial load, with in-vessel load cells and strain sensors for precise control. Confining pressure is applied simultaneously with axial loading. Two syringe pumps inject methane and water at controlled pressures, while a temperature-controlled jacket connected to an external bath maintains stable thermal conditions during testing.

SPECIFICATIONS

Compression load capacity	100 kN
Temperature	-10 to +60°C
Confining pressure	up 70 MPa
Gas pressure	up 70 MPa
Water pressure	up 70 MPa
Specimen diameter	50 mm (other upon request)
Specimen length	Twice the diameter
Wetted parts	Stainless steel
Power supply	110-220VAC, 50/60Hz
Standard	ASTM (D7012)
Maximum confining pressure	70 MPa
Temperature range	Ambient to 150°C (option)

KEY BENEFITS

✓ Designed for mimic hydrate behaviour in sediments under temperature and triaxial test conditions

✓ Delivers unparalleled accuracy and reliability

✓ Models available for different specimen sizes

✓ Automated tests with pre-programed stress and strain path

✓ Easy to operate

✓ High pressure capability

LOAD-FRAME TRIAXIAL CELLS

TRIAXIAL HOEK CELL

THC-SERIES

Pair with any load frame to unlock accurate triaxial data at high pressure and temperature.

OVERVIEW

The HOEK Cell is designed for triaxial compression tests that provide vital data on rock strength and elasticity — including shear strength at varying confining pressures, internal friction angle, cohesion intercept, and Young's modulus. It consists of a hollow steel cylinder with screw-on end caps, two high-strength spherically seated loading pistons, and a protective polyurethane sleeve. Two self-sealing couplings on the cylinder connect to the hydraulic pressure system and vent air from the chamber. During testing, the rock specimen is placed between the two movable loading pistons and subjected to axial compression via a load frame. A specialized sleeve isolates the sample from the hydraulic confining fluid.

SPECIFICATIONS

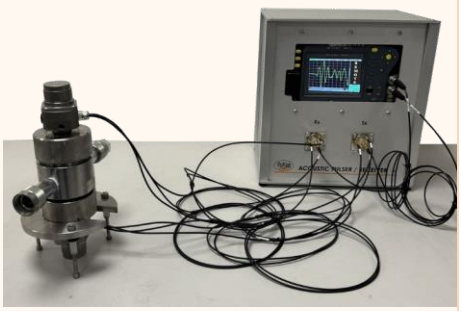
Standard	ASTM D7012
Maximum confining pressure	70 MPa
Temperature range	Ambient to 150°C (option)
Specimen diameter	21.5 mm to 4 inches
Specimen length	Twice the diameter
Wetted part material	Stainless steel
Pore port	1/8 inch
Confining port	3/8 inch

KEY BENEFITS

- ✓ Easy to operate
- ✓ High pressure capability
- ✓ Models available for different specimen sizes
- ✓ ASTM-compliant

ACOUSTIC HOEK CELL

AHC-SERIES



Pair with any load frame to unlock accurate triaxial data at high pressure and temperature.

OVERVIEW

The triaxial acoustic cell is designed to transmit compressional (P) and shear waves (S1/S2) through rock samples under conditions of overburden pressure. The sample is positioned between two adjustable loading pistons and compressed using a load frame. A specialized sleeve serves to isolate the sample from the hydraulic confining fluid. A distinct advantage of this setup is the ability for quick sample loading and unloading, eliminating the need to drain the confining fluid or remove the core sleeve. The cell consists of a hollow steel cylinder with screw-on, detachable ends, along with two high-resistance spherically seated acoustic loading platens, a pair of female spherical seats, and an isolating sleeve. To apply the axial force to the sample, an external compression testing frame is necessary. Additionally, a high-pressure pump is required to produce the confining pressure.

SPECIFICATIONS

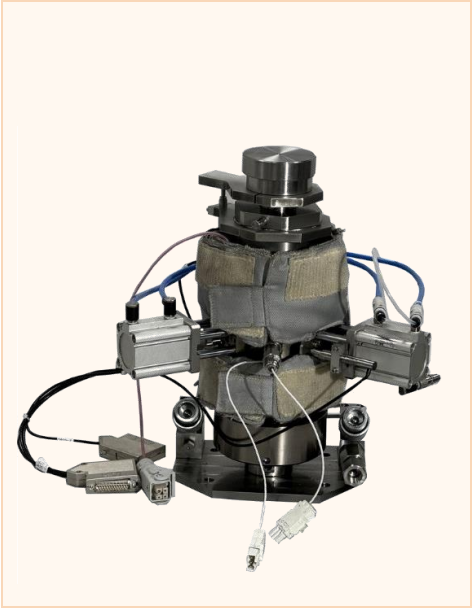
Standard	ASTM (D2845)
Maximum confining pressure	70 MPa
Temperature range	Ambient to 120°C (option)
Waves	P, 1 & S2
Frequency	1 Mhz
specimen diameter	1 to 4-inches
Specimen length	twice the diameter
Wetted part material	Stainless steel
Pore port	1/8 inch
Confining port	3/8 inch

KEY BENEFITS

- ✓ Easy to operate
- ✓ High pressure capability
- ✓ Models available for different specimen sizes
- ✓ ASTM-compliant

QUICK RELEASE TRIAXIAL CELL

QRC-SERIES



Pair with any load frame to unlock accurate triaxial data at high pressure and temperature.

OVERVIEW

The Quick Release Triaxial Cell enables streamlined testing for rock specimens with diameters that vary from 21.5 mm (EX) to 54 mm (NX). The rock sample, along with the top and bottom platens, is enclosed in a heat-shrinkable sleeve. This entire setup is then precisely positioned and centered in the cell using a guiding tool. After alignment, three instrumented lateral actuators equipped with pressure-compensated LVDTs make contact with the sleeve to accurately measure diametral strains. Axial strains are gauged using two averaging vertical LVDTs. For effective operation, the QRT series cell needs to be integrated into a system that includes an external axial load actuator, such as a load frame, and one or more high-pressure pumps for fluid injection and confining pressure application.

SPECIFICATIONS

Maximum confining pressure	70 / 140 MPa
Temperature range	Ambient to 150°C
Specimen diameter	Up to 54.7 mm (NX)
Specimen height	twice the diameter
Confining and pore ports	1/8 inch
Wetted part material	Stainless steel

KEY BENEFITS

✓ Quick specimen setup.

✓ Upper platen provided with a spherical seat to compensate for non-parallel specimen ends.

✓ Bottom pore pressure plumbing provided for effective stress measurements.

✓ Axial and radial strain measurements.

✓ Hardened stainless steel construction.

✓ Includes triaxial software and automatic data acquisition

UNIVERSAL TRIAXIAL CELL

UTC-SERIES

Pair with any load frame to unlock accurate triaxial data at high pressure and temperature.

OVERVIEW

The UTC-series triaxial cell functions as a specialized chamber designed to apply both axial and radial compressive forces on cylindrical rock samples. This dual-directional stress is achieved by exerting a surrounding confining pressure alongside an axial force. To operate, the cell needs to be situated within a specialized axial load frame. Within the cell, the rock sample is encased in a Teflon sleeve and sandwiched between hardened steel end platens. This setup is then submerged in pressurized oil for confinement. Electrical and coaxial feedthrough connectors at the top of the cell enable the addition of internal measurement instruments, such as devices for tracking axial and radial deformations, ultrasonic platens, and various specialized transducers. Additionally, a heating system can be included in the cell if needed.

SPECIFICATIONS

Maximum confining pressure	70 / 140 MPa
Temperature range	Ambient to 200°C
Specimen diameter	Up to 54.7 / 100 mm
Specimen height	twice the diameter
Confining and pore ports	1/8 inch-1/4 inch HP
Wetted part material	Stainless steel / Inconel

KEY BENEFITS

✓ Fast, reliable testing setup: Quick specimen installation, no strain-gage gluing thanks to LVDTs, and spherical seat platen compensates for non-parallel ends.

✓ Robust, automated performance: Hardened stainless steel construction with integrated triaxial software and automatic data acquisition for repeatable results.

✓ Accurate deformation & stress measurements: Direct axial and radial strain measurement with effective stress control.

TRUE TRIAXIAL CELL

TTC-SERIES

Pair with any load frame to unlock accurate triaxial data at high pressure and temperature.

OVERVIEW

The TTC true triaxial compression cell is designed for testing cubic rock specimens under fully independent X, Y, and Z stress control. It accurately reproduces complex anisotropic in-situ stress states. Samples may be tested in dry, partially saturated, or fully saturated conditions, without pore pressure control. Optional temperature regulation allows simulation of deep subsurface environments. The cell enables precise measurement of principal stresses, strain evolution, and failure conditions under true triaxial loading. An optional acoustic system measures compressional P-waves and orthogonal shear waves S1 and S2 along all three axes. Velocity variations provide insight into elastic moduli evolution, crack closure, stress-induced anisotropy, and progressive damage. The system can also be configured for hydraulic fracturing tests with controlled fluid injection under true triaxial stress. Fracture initiation and propagation are monitored in real time using acoustic emission sensors, enabling detailed characterization of breakdown pressure and damage mechanisms. The cell must be installed within a load frame capable of applying up to 1000 kN along the Z-axis, while two independent hydraulic pressure pumps are used to generate and control the X and Y stresses on the specimen.

SPECIFICATIONS

Sample dimensions	Type 1: 1.5 x 1.5 x 3 inches Type 2: 50 x 50 x 100 mm
Temperature range	Ambient to 120°C (optional)
Maximum Z stress	Type 1: 689 Mpa Type 2: 400 Mpa
Maximum Y stress	70 Mpa
Maximum X stress	70 Mpa
Connection ports	1/8 inch
Wetted part material	Stainless steel

KEY BENEFITS

✓ Realistic simulation of in-situ anisotropic stress conditions

✓ High stress capacity for testing strong rock materials

✓ Capability to perform hydraulic fracturing tests under controlled true triaxial stress conditions

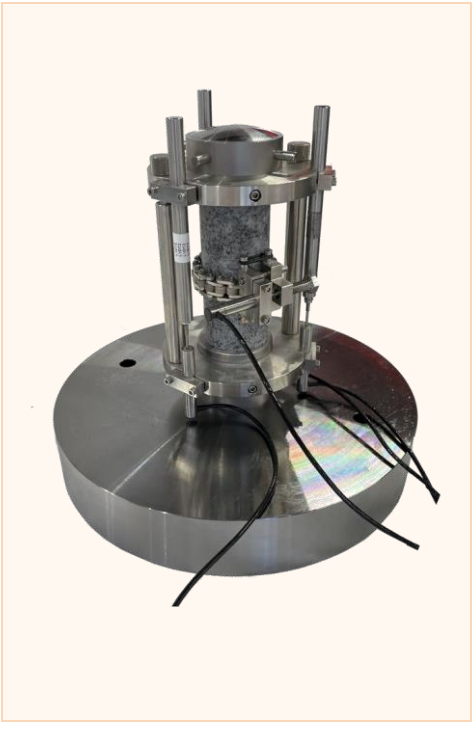
✓ Independent control of three principal stresses (X, Y, Z)

✓ Advanced monitoring capabilities (strain, ultrasonic waves, acoustic emission)

LOAD-FRAME FIXTURES

UNIAXIAL COMPRESSION PLATENS

UC-SERIES



Versatile accessories designed to make the most of your existing load frame.

OVERVIEW

The versatile uniaxial compression platens are designed for seamless integration into any load frame, facilitating the execution of unconfined rock compression tests to ascertain key static elastic parameters such as compressive strength, stress-strain curves, Young's modulus, and Poisson's ratio. Engineered for optimal stiffness, the platens minimize deflection events even when compressing high-strength rock samples. While the lower platen is stationary, the upper platen incorporates a spherical seating mechanism to ensure impeccable alignment with the specimen's surface. The rock sample is securely wedged between these parallel upper and lower platens and is subjected to load until the point of failure. Throughout this process, both the applied load and resultant displacement are continually monitored. The peak load value is subsequently used for calculating the specimen's unconfined compressive strength (UCS). The platens are offered in multiple dimensions, allowing accommodation of a wide range of specimen diameters.

SPECIFICATIONS

Standard:	ASTM D7012, ASTM D7070
Compression load capacity:	3,000 kN
Specimen diameter:	Model 1: up to 54 mm (NX) Model 2: up to 100 mm Model 3: up to 150 mm
Wetted parts:	Stainless steel

KEY BENEFITS

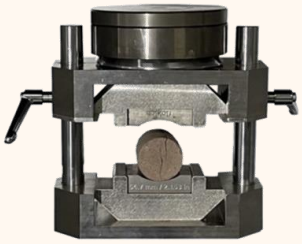
✓ High Stiffness: Minimizes deflection, even with high-strength rock samples.

✓ Versatile Design: Fits any load frame and accommodates multiple specimen sizes.

250 KN INDIRECT TENSION BRAZILIAN FIXTURE

ITB-250

Standard ITB 250
(Max diameter: 76 mm)



Extended ITB 250
(Max diameter: 150 mm)

Versatile accessories designed to make the most of your existing load frame.

OVERVIEW

The ITB-250 is specifically engineered to evaluate tensile strength through the application of uniform diametrical line compression on cylindrical test specimens. When subjected to vertical compression between two precision-machined cylindrical seating loading jaws, the specimen experiences induced indirect tensile stress along with a consequent orthogonal deformation. This testing assembly, also commonly referred to as the Brazilian test apparatus, is designed for seamless integration into standardized load frames. The system is comprised of three primary components: a specialized indirect tension fixture for specimen positioning, a calibrated load cell for force measurement, and a dedicated software module optimized for indirect tension test analytics. Collectively, these elements ensure high-precision and reliable data collection for the determination of tensile strength variables.

SPECIFICATIONS

Standard	ASTM D 3967 and ISRM suggested method
Specimen diameter	Standard version: up to 76.2 mm (3inches) Extended version: up to 150 mm (6.0 inches)
Specimen thickness	Between 0.2 to 0.75 x the specimen diameter
Material	High grade stainless steel

KEY BENEFITS

✓ Assuredexcellent alignment between the fixture and the specimen

✓ Easy installation of removal from the load frame

✓ Hardened specimen end caps for testing strong rock

✓ Versatile, allows multiple specimen diameter to be tested using the same fixture

POINT LOAD TESTER

PLF-100

Versatile accessories designed to make the most of your existing load frame.

OVERVIEW

The point load tester performs a precise determination of the uncorrected point load strength index, denoted as "Is," which is then converted into a point load index standardized to a diameter (De) of 50 mm. This converted value, known as "Is(50)," serves multiple purposes, including rock strength classification and the estimation of parameters such as uniaxial compressive strength (UCS) and rock anisotropy, represented as Ia(50). The device itself comprises several components, including a hydraulic jack equipped with a pressure gauge, a sturdy two-column crosshead frame, and a protective carrying case. When pressure is applied through the hydraulic pump, it displaces a piston carrying the lower conical platen. The pressure is directly measured using a digital pressure gauge. The upper platen is securely attached to the crosshead, and a fixed graduated scale is in place to measure the diameter of the rock sample accurately. This instrument adheres to the procedures outlined in ASTM D5731, ensuring standardized and reliable testing methodologies.

SPECIFICATIONS

Standard	ASTM D 5731
Load capacity	100 kN
Maximum sample size	4 inches (101.6 mm)
Pump pressure	70 Mpa
Pressure accuracy	0.2% FS
Weight	25 Kg
Dimensions	50 x 30 x 25 cm

KEY BENEFITS

- ✓ Simple test
- ✓ Extreme rigidity
- ✓ Portable, easy to carry on-site
- ✓ Direct reading of specimen diameter
- ✓ Inexpensive instrument
- ✓ Attractive alternative to the UCS test because provides similar data at a lower cost

PUMP-ACTUATED TRIAXIAL SYSTEMS

ROCK TRIAXIAL TEST SYSTEM

TRILAB

Replicate real subsurface conditions to extract reliable, reservoir-grade insights.

OVERVIEW

TRILAB reproduces underground stress conditions to study rock mechanical behaviour with high accuracy. By independently controlling axial stress, confining pressure, and pore pressure, it creates a realistic three-dimensional stress environment. This allows measurement of key properties such as triaxial compressive strength, elastic modulus, Poisson's ratio, deformation behaviour, and post-failure response, as well as the study of fracture initiation, microcrack evolution, and long-term processes like creep or compaction. Combined with hydraulic or acoustic measurements, the system reveals how stress affects fluid flow, pore structure, and seismic properties. With hydraulic fracturing capabilities, fracturing fluid can be injected into a borehole to study fracture initiation and propagation under reservoir-like stresses. Integrated Acoustic Emission (AE) monitoring detects microcrack activity during loading and fracturing, helping identify fracture precursors and damage development. Overall, TRILAB is a versatile tool for investigating rock mechanics and geomechanical processes under realistic subsurface conditions.

SPECIFICATIONS

Standard	ASTM D7012
Specimen diameter	up to 54.7 mm or 54.7 to 100 mm
Specimen length	twice the diameter
Temperature range	ambient to 150°C (300F)
Maximum axial load	1,000 or 2,500 kN
Maximum confining pressure	70 / 100 MPa
Maximum pore pressure	70 / 100 MPa
Wetted parts	Stainless steel
Power supply	110-220VAC, 50/60Hz

KEY BENEFITS

✓ Measures rock strength & deformation: Pre-failure behaviour, peak and residual strength, creep.

✓ Measures rock damage & fractures: Microcracking and fracture growth via Acoustic Emission.

✓ Measures rock properties: Stress-dependent porosity, permeability, compressibility, Vp/Vs, resistivity.

PREPEAK TRIAXIAL CELL

PREPEAK SERIES

Replicate real subsurface conditions to extract reliable, reservoir-grade insights.

OVERVIEW

PREPEAK is a pump-actuated triaxial rock compression test system designed to apply deviatoric stresses to the core sample, facilitating anisotropic stress states. It features a built-in hydraulic piston that applies an axial load on the specimen, allowing distinct radial and axial confining pressures to be applied. Unlike equipment designed for rock-failure testing, PREPEAK is optimized for pre-failure loading where the rock remains intact. This stability is essential for advanced acoustic, petrophysical, and mechanical measurements, which rely on precise, well-controlled stress states rather than inducing failure. Each unit can be custom-configured to meet specific requirements, offering a wide range of pressure capacities, temperature limits, specimen sizes, and test modules to provide a fully tailored solution. When corrosive fluids are used, the stainless-steel wetted parts can be substituted with Hastelloy components.

SPECIFICATIONS

Pore pressure range	0-70 MPa
Confining pressure range	0-70 MPa
Axial pressure range	0-70 MPa
Axial load range	0-445 kN
Max temperature	150°C
Sample diameter	Up to 54.7 mm
Sample length	Twice the diameter
Wetted part material	Stainless steel / Hastelloy
Loading	Hydrostatic or triaxial

KEY BENEFITS

✓ Measures rock deformation & storage: creep, compressibility, stress-dependent porosity

✓ Measures rock damage & fracturing: microcracking and fracture growth via acoustic emission

✓ Measures petrophysical & elastic properties: Stress-dependent permeability, Vp/Vs, resistivity

ACOUSTIC VELOCITY MEASUREMENT SYSTEM

AVS 700

Replicate real subsurface conditions to extract reliable, reservoir-grade insights.

OVERVIEW

The AVS 700 system is designed to conduct measurements of compressional and shear wave velocities in rock specimens. The system consists of an axial-piston triaxial cell engineered to provide the deviatoric stress required to replicate downhole conditions well before actual rock failure occurs and to encase the rock sample, flanked by two compression platens housing piezo-electric crystals for both compression and shear wave measurements, a fluid vessel containing pore fluid for injection into the specimen, an air-operated pump responsible for controlling both confining and pore pressure, a fast-acting pulser-receiver and a data acquisition computer station. The pulser-receiver is responsible for exciting the ultrasonic sensors and displaying the resulting waveform signals. The rapid-response pulser is employed to initiate the excitation of the ultrasonic sensor, while an exceptionally high-speed analog-to-digital converter is utilized for the rapid capture and storage of the ensuing waveform signals.

SPECIFICATIONS

Standard	ASTM D 2845
Specimen diameter	1 inch, 30mm and 1.5 inches
Specimen length	up to 4 inches
Maximum pore pressure	70 MPa
Maximum confining pressure	70 MPa
Maximum axial pressure	70 MPa
Temperature range	ambient to 120°C
Wetted parts	Stainless steel or Hastelloy
Power supply	110-220VAC, 50/60Hz
Air requirement	100 psi

KEY BENEFITS

✓ Accurate acoustic measurements of P- and S-wave velocities.

✓ High-speed waveform acquisition for clean, reliable signal capture.

✓ Realistic downhole stress simulation for representative rock-physics data.

ROCK COMPRESSIBILITY TEST SYSTEM

ROCLAB

Replicate real subsurface conditions to extract reliable, reservoir-grade insights.

OVERVIEW

The fully automated ROCLAB system performs pore and bulk volume compressibility measurements of rock specimens at in-situ temperatures under hydrostatic stress, triaxial stress, or uniaxial strain control. The apparatus includes an axial-piston triaxial cell engineered to provide the deviatoric stress required to replicate downhole conditions well before actual rock failure occurs, along with three servo-controlled syringe pumps that independently regulate pore, radial, and axial pressures. A diametral extensometer is used to measure radial strain during compressibility tests, while three LVDT sensors capture radial deformations. An in-vessel strain-gaged load cell provides a direct measurement of the axial force applied to the specimen.

SPECIFICATIONS

Standard	ISRM recommendations
Specimen diameter	1 inch, 30 mm and 1.5 inches
Specimen length	up to 4 inches
Temperature	Ambient to up 150°C (300 F)
Maximum confining pressure	100 MPa
Maximum axial stress	100 MPa
Maximum pore pressure	100 MPa
Wetted parts	Stainless steel or Hastelloy
Power supply	110-220 VAC – 50/60 Hz

KEY BENEFITS

- ✓ Include in-vessel strain sensors for uniaxial-strain compressibility tests
- ✓ Simulates actual reservoir production stress path
- ✓ Accounts for inelastic behavior of reservoir rock
- ✓ Measures compaction directly from axial strain
- ✓ Obtains compressibility as a function of pore pressure
- ✓ Multifunctional system

TRUE TRIAXIAL ROCK TESTING SYSTEM

TRUTEST

Replicate real subsurface conditions to extract reliable, reservoir-grade insights.

OVERVIEW

The TRUTEST system is designed for mechanical characterization of large cubic rock specimens under fully independent stress control along the three principal axes (σx, σy, σz). It reproduces complex anisotropic in-situ stress conditions and accurately simulates true triaxial loading paths. The system enables precise measurement of principal stresses, directional strain responses, and failure criteria. The specimen is confined between six servo-controlled hydraulic actuators arranged in opposing pairs along each axis, ensuring uniform stress distribution. These actuators are powered by three independent high-pressure syringe pumps that provide closed-loop pressure regulation and precise stress-path control. Axial deformation is measured using six high-precision LVDT displacement transducers, with two sensors per axis for accuracy and redundancy. Optional thermal control allows simulation of subsurface temperatures. Ultrasonic P- and S-wave monitoring provides real-time evaluation of elastic changes and damage, while the system also supports true triaxial hydraulic fracturing and wellbore stability tests with acoustic emission monitoring of fracture initiation and propagation.

SPECIFICATIONS

Specimen dimensions	Type 1: 100 x 100 x100 mm Type 2: 200 x 200 x 200 mm Type 3: 300 x 300 x 300 mm
Maximum X-stress	100 MPa
Maximum Y-stress	100 MPa
Maximum Z-stress	100 MPa
Temperature range	Ambient to up 150°C (optional)
Wetted parts	Stainless steel
Power supply	110-220 VAC – 50/60 Hz

KEY BENEFITS

✓ Realistic simulation of in-situ anisotropic stress conditions

✓ Thermo-mechanical testing up to 150°C : Simulates realistic reservoir temperature conditions

✓ Capability to perform hydraulic fracturing tests under controlled true triaxial stress conditions

✓ Independent control of three principal stresses (X, Y, Z)

✓ Advanced monitoring capabilities (strain, ultrasonic waves, acoustic emission)

SENSORS & CALIBRATORS

DIAMETRAL EXTENSOMETER

DE-SERIES

Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

Optimal for various rock formations, the diametral strain gauge extensometer is designed to monitor changes in the specimen's diameter during compression tests. The instrument captures two perpendicular diametral strains on cylindrical samples, offering the option to record each strain individually or as an average. This device is compatible with axial extensometers, enhancing its versatility. Frequently used in triaxial pressure cells for rock sample testing, the unit is engineered to fit inside these vessels. It is well-adapted for environments with high temperatures and high-pressure oil media. The extensometer comprises two pairs of cantilever strain-gauged beams, positioned orthogonally and integrated into Wheatstone bridge circuits for precise measurement. Designed for user convenience, the self-supporting extensometer is secured against the specimen using four long screws, enabling quick and straightforward adjustments for a wide range of sample diameters. Compatible with any electronics designed for strain-gauged transducers, the sensor can be customized to accommodate different specimen sizes.

SPECIFICATIONS

Specimen diameter	Model 1: 25 to 55 mm Model 2: 55 to 75 mm Model 3: 75 to 100 mm
Diametral deformation range	5 mm
Linearity	0.5% F.S
Operating Temperature	0°C to 200°C

KEY BENEFITS

- ✓ Easy set-up
- ✓ Repeatable and direct measurement of diametral deformation
- ✓ Can be used inside a triaxial cell or mounted on specimen for unconfined compression tests
- ✓ Accommodates a large range of specimens
- ✓ Sturdy construction to prevent device damage

CIRCUMFERENTIAL EXTENSOMETER

CE-SERIES

Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

The circumferential extensometer is designed to directly track average changes in a specimen's circumference as it undergoes compression. Utilizing a high-precision, custom-made roller chain with specialized rollers, the extensometer is securely mounted onto the specimen. Strain gauges are employed to continuously monitor alterations in circumference. As the specimen's diameter expands during the testing phase, the roller chain triggers the extensometer to expand correspondingly. Engineered for self-support, the unit remains in place on the specimen through built-in springs. Various chain lengths can be selected to accommodate specimens of different sizes. The device features a mechanical adjustment function that enables the output to be zeroed out as needed. For added safety, a breakaway mechanism is integrated to protect the extensometer in cases of specimen failure. This model is specifically crafted to fit within testing vessels and is well-suited for operation in high-pressure and high-temperature oil environments. Furthermore, the extensometer is universally compatible with any electronics that are engineered for strain-gauged transducers.

SPECIFICATIONS

Specimen diameter	25 to 100 mm
Circumferential deformation range	4 mm
Linearity	0.5% F.S
Operating Temperature	0°C to 200°C

KEY BENEFITS

✓ Easy set-up

✓ Repeatable and direct measurement of circumferential deformation

✓ Can be used inside a triaxial cell or mounted on specimen for unconfined compression tests

✓ Accommodates a large range of specimens by adding or removing assembly links

✓ Sturdy construction to prevent device damage

AXIAL LVDT SENSOR

AL-SERIES

Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

The axial strain LVDT sensor is engineered to monitor average axial deformation during both uniaxial and triaxial testing procedures. The device features three vertically adjustable, immersible LVDTs (Linear Variable Differential Transformers), which are directly affixed to the loading platens at both ends of the specimen. Positioned at 120-degree intervals from each other, these sensors effectively track any uneven axial shifts in the specimen. This model is specifically crafted to fit within testing vessels and is well-suited for operation in high-pressure and high-temperature oil environments. Designed for universal compatibility, the sensors can interface seamlessly with any electronic systems that are built for LVDT sensors. Additionally, they can be custom-manufactured to suit specimens of various sizes.

SPECIFICATIONS

Specimen length	Model 1: 25 to 55 mm Model 2: 55 to 100 mm
Axial deformation range	Model 1: -2.5 / +2.5 mm Model 2: -5 / +5 mm
Linearity	0.25% FS
Operating Temperature	0-200°C

KEY BENEFITS

✓ The strain sensors can be designed to be either used within our high-pressure triaxial cell or mounted on specimen for unconfined compression tests.

✓ Available for different specimen sizes

CIRCUMFERENTIAL EXTENSOMETER CALIBRATOR

CEC-SERIES

Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

The CEC-series is designed to calibrate circumferential extensometers, offering corrections for sensor non-linearity and repeatability. Comprising an expandable hub and a micrometer tailored for specific diameters, this calibration tool provides precise measurement of absolute displacements down to an exceptional 0.001 mm resolution. Equipped with a digital indicator, the device can display measurements in both SI and imperial units. Multiple models are available to accommodate a range of specimen diameters.

SPECIFICATIONS

Standard	ASTM E83 & F2537
Diameter range	25 mm to 100 mm
Resolution	0.001 mm (0.000050 inch)
Weight	1 kg
Dimensions	5 x 5 x 7 cm

KEY BENEFITS

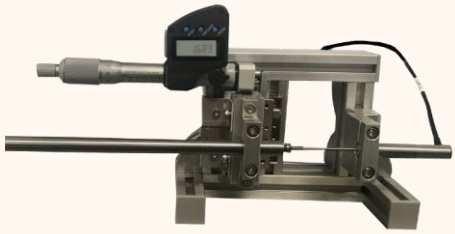
✓ Easy to use

✓ ASTM compliant

✓ Accommodate different circumferential extensometer diameter

AXIAL LVDT AND DIAMETRAL EXTENSOMETER CALIBRATOR

ALC-SERIES



Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

The LVDT calibration instrument is designed to calibrate both LVDT transducers and diametral extensometers, addressing issues related to sensor non-linearity and repeatability. This versatile tool can accommodate a broad spectrum of LVDT transducers and offers a high-precision 0.001-mm resolution for measuring either absolute or relative displacements. A digital display is featured on the device, capable of reporting measurements in both SI and imperial units. Additionally, the tool includes an adjustable mounting bracket, allowing for the calibration of transducers of varying sizes. The standard configuration is compatible with sensors having body diameters of 3/8”, 3/4", and 7/8”. Custom dimensions are also available upon request.

SPECIFICATIONS

Standard	ASTM E83 & F2537
Travel range	10 mm
Resolution	0.001 mm (0.000050 inch)
Weight	1 kg
Dimensions	10 x 10 x 25 cm

KEY BENEFITS

✓ Easy to use, no special tools required.

✓ ASTM compliant

IN-VESSEL LOAD CELL

ILC-SERIES

Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

The in-vessel strain-gauged load cell is engineered to provide precise, direct quantification of the axial force being applied to the test specimen. This eliminates errors commonly introduced by factors such as non-linear seal friction and localized pressure anomalies. Constructed for compatibility with approved classes of mineral and synthetic oils, the load cell features a robust and compact design. This makes it suitable for high-stress operational conditions, specifically those involving elevated pressures and temperatures. Multiple configurations are available, each calibrated for different axial load ranges, to cater to a variety of testing requirements.

SPECIFICATIONS

Accuracy	class 0.5
Operating temperature	0°C to +200°C
Sensitivity	approx. 2 mV/V
Diameter	approx. 60 mm
Height	approx. 75 mm

KEY BENEFITS

✓ Withstand high temperature temperature.

✓ Compact enough to be mounted within a triaxial cell

LOAD CELL CALIBRATOR

LCC-SERIES

Measure what matters — precision sensors and calibrators built for demanding environments.

OVERVIEW

The load cell calibrator is a precision laboratory instrument designed for the accurate calibration of load cells used in testing presses such as the GEOTEST and ROCKTEST series. It operates by comparing the readings of the load cell under test with a high-accuracy reference sensor, ensuring precise and reliable force measurements. The press generates loads through a hydraulic actuator powered by a hand pump. A digital display provides real-time readings of both reference and test sensors with ±0.02 % accuracy. Built with a sturdy frame, the system ensures stability and repeatability during calibration. The calibration process involves applying controlled pressure and recording data to produce regression and calibration curves, guaranteeing consistent performance and traceable results for a wide range of load cells.

SPECIFICATIONS

Max Force	1000, 1500, 2000 KN
Operating temperature	Ambient
Accuracy	±0.02% FS
Weight	170 kg
Dimensions	60x40x56 cm

KEY BENEFITS

✓ High accuracy: The instrument ensures precise calibration with real-time force measurement.

✓ Reliable results: Consistent force application improves repeatability and performance.

✓ Wide range: It can generate forces for various load cell capacities.

TRIAXIAL ANCILLARIES

ULTRASONIC VELOCITY FIXTURE

UV-700

Extend your triaxial platform with plug-and-play modules for advanced measurements.

OVERVIEW

The UV-700 serves as a supplementary module for Floxlab's triaxial cells, designed to measure the dynamic elastic properties of core samples under varying stress conditions. These properties include dynamic Young's modulus, shear modulus, and Poisson's ratio. The complete system features a rapid-response pulser to stimulate the ultrasonic sensor, an ultra-high-speed analog-to-digital converter for capturing and storing waveform signals, and specialized software for system control and data acquisition. In synchronization with uniaxial and triaxial loading, the system performs and logs acoustic measurements for both compression and shear waves. The piezo-electric crystals used for these measurements are integrated into the compression platens.

SPECIFICATIONS

Standard	ASTM D2845
Mode	compressional (P) and shear (S1 and S2)
Center frequency	500 kHz
Temperature	up to 120°C

KEY BENEFITS

- ✓ Designed for easy and quick installation
- ✓ ASTM-compliant device
- ✓ Designed for testing a range of specimen diameters

ACOUSTIC EMISSION MONITORING FIXTURE

AE

Extend your triaxial platform with plug-and-play modules for advanced measurements.

OVERVIEW

The Acoustic Emission (AE) Monitoring Fixture serves as an auxiliary module for Floxlab's triaxial cells. Designed to investigate fracture dynamics in geotechnical applications like hydraulic fracturing, this module offers non-intrusive and precise assessment of a sample's mechanical attributes under triaxial test conditions. Once specific in-situ conditions are established, fluctuations in variables like load, confining pressures, pore pressures, and temperatures can trigger ultrasonic events. These events, in turn, yield valuable AE metrics such as hit counts, energy, amplitude, event duration, and the localization of the AE hypocenter.The system features up to 8 AE transducers, strategically arranged in a radial pattern around the test specimen. Additionally, it includes an AE signal processing system and software for 2D and 3D event localization.

SPECIFICATIONS

Peak sensitivity, Ref V/(m/s)	62 dB
Peak sensitivity, Ref V/µbar	-72 dB
Operating frequency	125-750 KHz
Resonant frequency, Ref V/(m/s)	140 kHz
Resonant frequency, Ref V/µbar	300 kHz
Directionality	+/11.5 dB
Temperature range	-65 to 177°C
Dimensions	0.3” OD x 0.3” H (8 mm OD x 8mm H)

KEY BENEFITS

✓ State of the art AE monitoring system

✓ Allows fracture morphology to be reconstructed during hydraulic fracture tests.

✓ Compression and two orthogonal shear wave velocities

✓ Excellently detects core failure onset during compression tests

✓ Tests performed on a series of rock specimens under different pressures and temperatures

✓ Dynamic elastic constants

HYDROSTATIC COREHOLDERS

HYDROSTATIC ULTRASONIC COREHOLDER

HUC-SERIES

Test cores under realistic overburden with easy sample loading and multi-measurement capability.

OVERVIEW

The HUC Series consists of hydrostatic core holders integrated with acoustic sensors — ideal for ultrasonic studies involving fluid displacement in porous media. A key feature is the ability to apply equal radial and axial confining pressures. The cell assembly includes specialized acoustic platens designed to transmit compressional (P) and shear (S1/S2) waves through rock specimens under controlled overburden pressure and temperature. Measurements on rock samples at varying confining pressures enable determination of compressional and orthogonal shear wave velocities, dynamic elastic constants, and simultaneous rock permeability assessment. A cylindrical core sample is placed inside a Viton sleeve between a fixed acoustic platen at one end and a floating acoustic platen at the other. Confining pressure applied by an external pump ensures firm contact with the acoustic platens.

SPECIFICATIONS

Standard	ASTM D2845
Max confining pressure	10,000 psi
Max temperature	120°C
Acoustic waves	P, S1 & S2
Frequency	1 MHz
Sample diameter	1 and 1.5 inches
Sample length	Twice the diameter
Wetted part material	Stainless steel / Hastelloy
Port fittings	1/8-inch

KEY BENEFITS

✓ Tests performed under different pressures and temperatures

✓ Compression and two orthogonal shear wave velocities

✓ Dynamic elastic constants measurement

✓ Simultaneous rock permeability assessment

PROPPANT TEST SYSTEMS

PROPPANT CONDUCTIVITY METER

PCM-1000

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The PCM-1000 is a specialized system engineered for assessing the performance of proppants in hydraulic fracturing enhancement projects. Specifically, the device measures short-term proppant pack conductivity under a range of closure pressures and temperature conditions. The experimental procedure involves the controlled displacement of a thermally regulated reservoir fluid through a compressed proppant pack. This pack is sandwiched between two parallel, flat, and identical sandstone slabs. Both differential pressure and fluid flow rate across the proppant pack are meticulously recorded during this process. Utilizing the collected data in conjunction with Darcy's law allows for the precise calculation of proppant conductivity. The sandstone slabs, which are actuated by a hydraulic press, apply a closure stress to simulate the compressive stress conditions experienced within the reservoir rock.

SPECIFICATIONS

Standard	ISO 13503-5, API 61 & 19D
Load	1,000 kN (100 tons)
Maximum closure stress	20,000 psi
Maximum pore pressure	1,000 psi
Maximum working temperature	up to 177°C (350°C)
Pack width accuracy	+/- 0.001 inches (+/- 0.025 mm)
Sample length	7 inches
Sample width	1.5 inches
Sample height	2x 3/8 inch
Wetted parts	Stainless steel
Power supply	220VAC, 50 or 60 Hz

KEY BENEFITS

✓ Proppant pack conductivity with brine and gas

✓ Several API cell configuration available (single ,multi API cell)

API CONDUCTIVITY CELL

AC-SERIES

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The conductivity cell is constructed in accordance with ISO 13503-5, as well as API RP 61 & 19D guidelines. The cell primarily consists of width slats, platens, and slabs made from Ohio sandstone. It features three pressure taps for tracking longitudinal pressure variations throughout the proppant pack. Electric cartridges heat the steel platens to maintain isothermal conditions, with temperature regulation controlled through a dedicated port by an onboard thermocouple. Additionally, thermal insulation is provided. To gauge the proppant pack's width under varying closure stresses, four LVDTs (Linear Variable Differential Transformers) are positioned on each side of the API conductivity cell.

SPECIFICATIONS

Standard	ISO 13503-5, API 61 &19D
Load	1,000 kN (100 tons)
Fluid pressure	1,000 psi
Maximum closure stress	20,000 psi
Temperature	Ambient to 177°C (350°C)
Sample length	7 inches
Sample width	1.5 inches
Sample height	2 x 3/8 inch
Wetted part material	Stainless steel

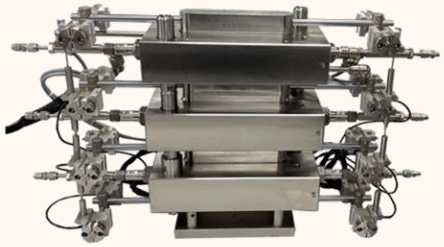
KEY BENEFITS

✓ Compliant with ISO 13503-5 and API RP 61 & 19D standards

TWO AND THREE STACK API CONDUCTIVITY CELL

SAC-SERIES

Two stack API cell



Three stack API cell

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The conductivity cell is fabricated in adherence to ISO 13503-5 and API RP 61 & 19D protocols. Designed for vertical stacking, these multi-stack API Conductivity Cells enable concurrent testing of multiple proppant conductivities. Engineered for shared piston operation, these cells ensure uniform distribution of compressive stresses. Pressure drop across the cell can be monitored through three side ports, each fitted with high-accuracy differential pressure transducers. Components include width slats, O-rings, stainless steel platens, and Ohio sandstone slabs. Isothermal conditions within the cells are maintained by electrical cartridge heaters embedded in the steel platens. Temperature regulation is achieved through a specialized port connected to an in-vessel thermocouple. Additionally, a thermal insulation mantle is incorporated. For real-time measurement of the proppant pack width under varying closure stresses, Linear Variable Differential Transformers (LVDTs) are affixed to each lateral face of the API conductivity cell.

SPECIFICATIONS

Standard	ISO 13503-5, API 61 &19D
Load	1,000 kN (100 tons)
Fluid pressure	1,000 psi
Maximum closure stress	20,000 psi
Temperature	Ambient to 177°C (350°C)
Sample length	7 inches
Sample width	1.5 inches
Sample height	2 x 3/8 inch
Wetted part material	Stainless steel (optional hastelloy)

KEY BENEFITS

✓ Reduced operation cost

✓ Compliant with ISO 13503-5 and API RP 61 & 19D standards

PROPPANT CRUSH TESTER

PCT

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The PCT apparatus is designed to execute proppant crush-resistance tests, adhering to the ISO 13503-2 standard methodologies for determining the extent of proppant crushing under specific closure stresses. Equipped with a 50 mm (2 in) diameter piston, the device can generate pressures reaching up to 20,000 psi. The apparatus operates at a controlled piston displacement rate, capable of attaining speeds up to 2,000 psi per minute. The primary components of the system include a servo-controlled load frame and a cylindrical proppant cell. Continuous monitoring of the applied load is conducted, and this data is fed back into the controller. This real-time feedback adjusts the crosshead motion to sustain the targeted loading rate.

SPECIFICATIONS

Standard	ISO 13503-2, API56 &58 & 60
Maximum crush pressure	20,000 psi
Temperature	ambient
Cell inside diameter	2.0 inches (50.8 mm)
Cell outside diameter	3.5 inches (89mm)
Piston height	3.5 inches (89mm)
Part material	stainless steel
Power supply	110-220 VAC– 50/60 Hz

KEY BENEFITS

- ✓ Fully automated apparatus
- ✓ Precision control
- ✓ Rapid, accurate and reproducible data
- ✓ Improved test consistency and accuracy

PROPPANT CRUSH CELL

CC-SERIES

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The CC-series crush cell is engineered to evaluate the crushing resistance and degradation properties of proppants employed in hydraulic fracturing processes. According to API definitions, crush resistance is quantified as the weight percentage of proppant that passes through the smallest mesh size in the pre-specified original size distributions. The piston utilized in the apparatus has dimensions of 2.0x3.5 inches (50.8x89 mm). Testing is executed in alignment with API RP 19C and ISO 13503-2 standards, carried out at ambient temperatures and under various closure stresses, with a maximum limit of 15,000 psi.

SPECIFICATIONS

Standard	API RP 19C and ISO 13503-2
Cell inside diameter	2.0 inches (50.8 mm)
Cell outside diameter	3.5 inches (89mm)
Piston height	3.5 inches (89mm)
Part material	stainless steel

KEY BENEFITS

✓ Compliant with the API RP 19C and ISO 13503-2 standard

FLUID LOSS CURING CELL

FLC-SERIES

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The FLC-series fluid loss curing cell is engineered to precondition resin-coated proppant packs under elevated temperatures and variable closure stresses before conducting a uniaxial compressive strength (UCS) test. The apparatus features a floating piston accumulator that can be nitrogen-charged to produce the requisite closure pressure. The proppant slurry is confined between this piston and a removable cap on the opposite side, which is equipped with a leak-off port and sand screen. As axial closure is applied, fracturing fluid is permitted to leak off. Typically, a set of 3 to 6 cells, each containing one plug, are run concurrently. These cells are then placed in an oven to facilitate curing of the samples (oven not included). After curing, the plugs are extracted and the samples undergo compressive strength testing using a press. The cells are offered in a broad spectrum of diameters.

SPECIFICATIONS

Standard	API RP 60
Maximum closure pressure	3,000 psi
Temperature	Ambient to 177°C (350°C)
Proppant pack diameter	1 inch, 1.5 inches, 2 inches, 4 inches
Proppant pack length	Twice the diameter
Wetted part material	Stainless steel

KEY BENEFITS

✓ Available in different diameters

✓ Does not need of external press

FLOW-THROUGH CURING CELL

FTC-SERIES

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The FTC-series flow-through curing cell is engineered for the purpose of curing resin-coated proppant packs in the presence of fracturing fluid, under elevated temperatures and varying closure stresses, prior to undergoing a uniaxial compressive strength (UCS) test. The apparatus features a chamber that houses two sets of hardened steel platens, both at the upper and lower positions. Axial compressive loading is applied to the proppant pack to mimic closure pressure conditions. Ports for pore fluid are embedded in both sets of platens, facilitating the execution of pore pressure assessments. The system also allows for the monitoring of fracturing fluid leak-off as axial closure is implemented. Additionally, when fitted with a back-pressure regulator, the cell enables fluid flow through the specimen while maintaining specified temperatures. A thermal heating mantle surrounds the cell, ensuring a consistent and uniform temperature range for the proppant pack from ambient levels up to 177°C. The cells are offered in a diverse array of diameters. The application of axial load to the specimen necessitates the use of a dedicated laboratory press.

SPECIFICATIONS

Standard	API RP 60
Maximum closure pressure	10,000 psi
Temperature	Ambient to 177°C (350°C)
Proppant pack diameter	1 inch, 1.5 inches, 2 inches, 4 inches
Proppant pack length	Twice the diameter
Wetted part material	Stainless steel (optional hastelloy)
Power supply	220 VAC, 50/60 Hz

KEY BENEFITS

✓ Can cure resin-coated proppant packs with fracturing fluid at high temperatures and variable closure stress

PROPPANT TRIAXIAL CELL

PTC-SERIES

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The cell functions as an enclosure where cylindrical specimens of resin-coated proppants are exposed to both axial and radial compression forces. To simulate triaxial stresses, a circumferential confining pressure is applied concurrently with an axial load. The specimen is encased in a Viton sleeve and positioned between hardened steel endcaps; this entire assembly is then submerged in oil under confining pressure. A top pore fluid port, located at the upper platen, facilitates the expulsion of fracturing fluids during compression tests. The cell is equipped with a low-friction loading piston specifically for triaxial applications. Additionally, a heating mantle is supplied with the cell to maintain temperature control.

SPECIFICATIONS

Standard	API RP 60
Maximum closure pressure	10,000 psi
Temperature	Ambient to 177°C (350°C)
Proppant pack diameter	1 inch, 1.5 inches, 2 inches
Proppant pack length	Twice the diameter
Wetted part material	Stainless steel
Power supply	220 VAC, 50/60 Hz

KEY BENEFITS

✓ Available in different diameters

RCP CURING AND COMPRESSIVE STRENGTH TESTER

RCP TESTER

Qualify proppants against API and ISO standards — fully automated, fully traceable.

OVERVIEW

The RCP tester, under computer control, assesses both unconfined and triaxial compressive strengths of curable resin-coated proppants, either with or without fracturing fluid, under downhole stress and temperature conditions. Additionally, the system allows for the curing of resin-coated proppant packs at elevated temperatures and varying closure stresses before undertaking a uniaxial compressive strength test. The setup includes a comprehensive range of components: a curing cell, a triaxial cell, a load frame and a confining pressure intensifier. Compressive strength data serves as an indicator of the bonding capability of curable resin-coated proppants, as well as their resilience against flowback. The system also enables studies on the impact of temperature and curing kinetics on the consolidation strength and stability of resin-coated proppants.

SPECIFICATIONS

Standard	API RP 60
Maximum closure pressure	10,000 psi
Temperature	Ambient to 177°C (350°C)
Proppant pack diameter	1 inch, 1.5 inches, 2 inches
Proppant pack length	Twice the diameter
Wetted part material	Stainless steel
Power supply	220 VAC, 50/60 Hz

KEY BENEFITS

✓ Available in different diameters

✓ Can be used for both proppant curing and compressive strength testing

FRACTURE TEST SYSTEMS

HYDRAULIC FRACTURE TEST SYSTEM

FRACLAB

Investigate fracture initiation, propagation and conductivity under true downhole conditions.

OVERVIEW

The FRACLAB Hydraulic Fracture Test System is designed to conduct hydraulic fracturing experiments while enabling micro-seismic activity monitoring under various triaxial stress conditions and elevated temperatures. The apparatus features a deviatoric triaxial cell integrated with an acoustic emission (AE) monitoring system. It employs four servo-controlled syringe pumps to regulate the pressures of the confining fluid, axial load, pore fluid, and fracturing fluid. A built-in lifting mechanism aids in specimen positioning. The system is capable of determining the breakdown pressure of a specimen under specified confining and pore pressures; subsequent to this, tensile strength and frac-coefficient values are calculated. The AE monitoring system offers insights into fracture growth for geotechnical investigations like hydraulic fracturing. It provides a range of characteristic AE parameters, including hit counts, energy levels, amplitude, event durations, and AE hypocenter localizations. Additionally, the apparatus is equipped with high-precision in-vessel deformation sensors that measure both axial and diametral strains throughout the test.

SPECIFICATIONS

Maximum force stress	424 Mpa
Maximum confining pressure	70 MPa
Maximum pore pressure	70 MPa
Temperature range	ambient to 150°C (300F)
Specimen diameter	54.7 mm (other upon request)
Specimen length	twice the diameter
Injection flow rate range	0.0001 to 60 cc/min
Wetted parts	Stainless steel
Power supply	110-220VAC, 50/60Hz

KEY BENEFITS

✓ Versatile machine with an ample range of triaxial and hydraulic fracture testing capabilities.

✓ Automated tests

✓ Delivers unparalleled accuracy and reliability

✓ Achieve any desired stress path

✓ State of the art Acoustic Emission monitoring system

PROPPANT AND FRACTURE CONDUCTIVITY METER

FCM-1000

Investigate fracture initiation, propagation and conductivity under true downhole conditions.

OVERVIEW

The FCM-1000 is adept at accurately determining both short-term and long-term fracture conductivities under realistic down-hole conditions, including stress, temperature, and fluid flow. This enables a comprehensive understanding of how variables such as temperature, fracture closure stress, proppant type and concentration, proppant embedment, and fracturing fluid composition interact to influence fracture conductivity. Conductivity assessments can be conducted using either brine or nitrogen as the testing fluid. The standard configuration of the system includes an injection pump, dual brine accumulators, an inline heater, a heated fracture conductivity cell, a hydraulic press, pressure and differential pressure transducers, a nitrogen gas flow line, a pair of back-pressure regulators, dual electronic balances, an array of valves and plumbing fixtures, as well as a dedicated data acquisition computer station.

SPECIFICATIONS

Standard	ISO 13503-5, API 56 & 58
Maximum closure stress	20,000 psi
Maximum pore pressure	1,000 psi
Maximum working temperature	up to 177°C (350F)
Sample length	7 inches
Sample width	1.5 inches
Sample height	2 x 1 inch
Wetted parts	Stainless steel
Power supply	220VAC, 50 or 60 Hz
N2 Pressure requirements	2,000 psi

KEY BENEFITS

✓ Fully automated apparatus

✓ Achieved any desired closure stress

✓ Perform both short term and long term conductivity tests

✓ Simulates leak off, and therefore accounts for damaging effects of fracturing fluids.

ACID FRACTURE CONDUCTIVITY SYSTEM

ACM-3000

Investigate fracture initiation, propagation and conductivity under true downhole conditions.

OVERVIEW

The ACM-3000 simulates the acid fracturing process in carbonate formations by performing acid etching on carbonate core samples confined within a fracture conductivity cell. It replicates realistic conditions of temperature, acid pressure, and fluid flow while monitoring fluid loss during the leak-off phase. The system uses specimens with large exposed surface areas, producing more realistic etching patterns and deeper leak-off penetration. It evaluates both short- and long-term conductivity of acid fractures, whether unpropped or propped, under downhole stress and temperature conditions. Fluids such as brine or nitrogen gas can be used during testing. Short-term tests analyze the effects of formation type, acid-rock contact time, acid type and concentration, temperature, flow conditions, and high closure stress on fracture conductivity. Long-term tests examine creep deformation of acid-etched fractures, proppant embedment, and the influence of proppant size and concentration under high closure stress.

SPECIFICATIONS

Maximum closure stress	20,000 psi
Maximum working temperature	Ambient to 177°C (350 F)
Fracture pressure	up to 3,000 psi
Sample length	7 inches
Sample width	1.5 inches
Sample height	2 x 3 inches
Wetted parts	Hastelloy
Power supply	220VAC, 50 or 60 Hz
N2 Pressure requirements	2,000 psi

KEY BENEFITS

✓ Fully automated apparatus

✓ The use of thick core samples allows the leakoff and wormhole phenomenon to be monitored during acid injection

✓ Achieved any desired closure stress

✓ Uses specimen with large exposed surface area to acid

✓ Perform both short term and long term conductivity tests

✓ Simulates fluid leak off, and therefore accounts for damaging effects of fracturing fluids.

FRACTURE CONDUCTIVITY CELL

FFC SERIES

Investigate fracture initiation, propagation and conductivity under true downhole conditions.

OVERVIEW

The fracture conductivity cell primarily consists of a main chamber, top and bottom pistons, and a pair of flow inserts situated on the right and left sides. Pressure is monitored through three taps that measure the pressure drop along the fracture. The upper and lower pistons feature three interconnected leak-off ports, which facilitate leak-off tests by creating a flow route through the cores at a right angle to the primary flow. The cell's heated steel structure maintains a constant, optimal temperature throughout the test, monitored by a thermocouple situated in a specialized port. Additionally, unique detachable end inserts allow for the simultaneous performance of conductivity and flow-back tests within the same chamber.

SPECIFICATIONS

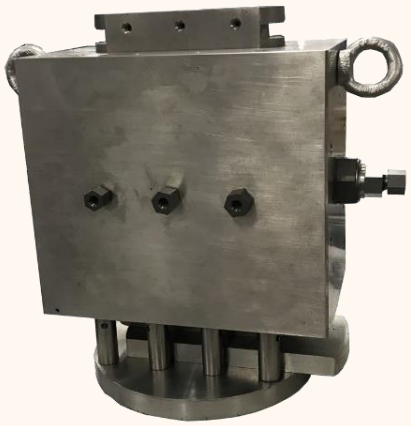
Maximum closure stress	20,000 psi
Fluid pressure	3,000 psi
Temperature	Ambient to 177°C (350°C)
Sample length	7 inches
Sample width	1.5 inches
Sample height	2 x 1 inch
Wetted part material	Stainless steel or hastelloy

KEY BENEFITS

✓ Simulates leak off, and therefore accounts for damaging effects of fracturing fluids.

ACID FRACTURE CONDUCTIVITY CELL

AFC SERIES



Investigate fracture initiation, propagation and conductivity under true downhole conditions.

OVERVIEW

The acid fracture conductivity cell, mounted horizontally, is designed for etching core samples with acid and subsequently assessing both short-term and long-term fracture conductivities under in-situ conditions of pressure, closure stress, and temperature. The core components of the cell include a main chamber, top and bottom pistons, and a duo of flow inserts located on the right and left sides. Pressure variations along the fracture are tracked by three built-in pressure taps. Additionally, the upper and lower pistons are equipped with three interconnected leak-off ports, which enable leak-off tests to be conducted during both acid etching and conductivity evaluations. The cell's steel structure, which is heated, ensures a stable and appropriate temperature throughout the testing process. This temperature is monitored by a thermocouple situated in a designated port. The cell also features unique detachable end inserts that allow for a combination of acid etching, conductivity measurements, and flow-back tests to be executed within the same testing chamber.

SPECIFICATIONS

Maximum closure stress	20,000 psi
Fluid pressure	3,000 psi
Temperature	Ambient to 177°C (350°C)
Sample length	7 inches
Sample width	1.5 inches
Sample height	2 x 3 inches
Wetted part material	hastelloy

KEY BENEFITS

✓ Multi-purpose cell (acid etching, leak-off test, fracture conductivity tests)

✓ Uses specimen with large exposed surface area to acid

✓ The use of thick core samples allows the leak off and wormhole phenomenon to be monitored during acid injection

✓ Simulates fluid leak off, and therefore accounts for damaging effects of fracturing fluids.

ROTATING DISK REACTOR

RDR-350

Investigate fracture initiation, propagation and conductivity under true downhole conditions.

OVERVIEW

The RDR-350 is designed to facilitate studies on the reaction rates between various fluids and solid surfaces. The device features a rock disk that spins at a fixed speed within a sealed chamber filled with reactive fluid. The degree of mass transfer and chemical reactions can be modulated by adjusting the rotational velocity and the temperature of the experiment. Fluid samples, which include products of the chemical interaction between the rock and fluid, are collected at predetermined intervals. Concentrations of calcium or magnesium in these samples are then quantified using atomic absorption spectrophotometry. The overall reaction rate at a specific angular speed is calculated based on the change in reactant concentration over a set period. To gather data on the reaction rate relative to angular velocity, the experiment is replicated at varying speeds. Further tests can be conducted at different temperatures or with altered fluid concentrations to fully establish the rate law governing the reaction system.

SPECIFICATIONS

Maximum pressure	5,000 psi
Maximum temperature	up to 250°C
Reservoir vessel volume	500 cc
Reaction vessel volume	500 cc
Sample disk diameter	1.5 inches (3.81 cm)
Sample disk thickness	1 inch (2.54 cm)
Disk rotational speed	100 to 2,000 RPM
Wetted parts	Hastelloy
Power supply	110-220VAC, 50/60 Hz
N2 Pressure requirements	2,000 psi
Air Pressure requirements	150 psi, dry

KEY BENEFITS

- ✓ Semi-automated system
- ✓ Acid resistant material
- ✓ Rapid, accurate and reproducible data
- ✓ Small test fluid volume required

SYRINGE PUMPS

BENCHTOP SINGLE SYRINGE PUMP

BTSP-SERIES

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The BTSP series provides ultra-precise, pulse-free fluid flow control for both inorganic fluids (e.g., brine, solvents) and organic fluids (e.g., hydrocarbons, microbial solutions). It delivers controlled pressure, flow rate, and volume with capacities up to 40,000 psi, and supports both constant-pressure and constant-flow modes. A high-precision pressure transducer enables real-time monitoring, while two manual isolation valves regulate inlet and outlet flow. The system includes data acquisition and control software for monitoring and analysis. Optional features include a standalone digital control panel, a heating mantle for temperatures up to 150 °C, and a cooling jacket for sub-ambient operation. Additional options include magnetic stirring for in-situ mixing and customizable cylinder volumes. Wetted parts are made of stainless steel, with Hastelloy available for corrosive fluids.

SPECIFICATIONS

Configuration	Single cylinder, extended benchtop
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Control interface	Ethernet • Touch-screen panel (optional)

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
BTSP 20-40	20	40,000	7.5	0.0001
BTSP 50-30	50	30,000	20	0.0001
BTSP 100-10	100	10,000	45	0.0003
BTSP 125-20	125	20,000	30	0.0003
BTSP 175-15	175	15,000	30	0.0003
BTSP 250-10	250	10,000	60	0.0003
BTSP 500-5	500	5,000	130	0.001
BTSP 1000	1000	1,875	250	0.002

KEY BENEFITS

✓ Pulse-free flow at all rates and pressures

✓ Control pump based on time, pressure, flow rate, fluid volume or events

EXTENDED BENCHTOP SINGLE SYRINGE PUMP

BTSP-SERIES EXT

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The extended BTSP-series of benchtop single syringe pumps are engineered to accommodate applications that demand elevated volumetric capacities, flow rates, and pressures, exceeding the specifications of the standard BTSP series. Despite these advanced capabilities, both the hardware and software functionalities remain congruent across the series.

SPECIFICATIONS

Configuration	Single cylinder, extended benchtop
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Control interface	Ethernet • Touch-screen panel (optional)

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
BTSP 150-30	150	30,000	20	0.0001
BTSP 250-20	250	20,000	35	0.0002
BTSP 300-15	300	15,000	40	0.0002
BTSP 500-10	500	10,000	70	0.0004
BTSP 1000-5	1000	5,000	130	0.001

KEY BENEFITS

- ✓ Pulse-free flow at all rates and pressures
- ✓ Stainless steel or Hastelloy® wetted parts
- ✓ High temperature operation (optional)
- ✓ Control pump based on time, pressure, flow rate, fluid volume or events
- ✓ Touch screen front panel (optional)
- ✓ Mixer pump (optional)

BENCHTOP DUAL SYRINGE PUMP

BTDP-SERIES

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The BTDP series combines two BTSP pump modules, enhancing system capabilities. Equipped with a pair of pneumatic powered three-way valves for both tank inlet and outlet delivery, the dual pump provides uninterrupted, continuous fluid flow across a comprehensive range of both pressure and temperature conditions. All functionalities and optional features inherent to the BTSP series pumps remain accessible as both individual pump modules can still operate autonomously.

SPECIFICATIONS

Configuration	Dual cylinder, benchtop — continuous flow capable
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Pressure accuracy	0.2% FS
Power supply	110–220 VAC, 50/60 Hz
Control interface	Ethernet • Touch-screen panel (optional)

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
BTDP 50-30	50	30,000	20	0.0001
BTDP 100-10	100	10,000	45	0.0001
BTDP 125-20	125	20,000	30	0.0003
BTDP 175-15	175	15,000	30	0.0003
BTDP 250-10	250	10,000	60	0.0003
BTDP 500-5	500	5,000	130	0.001
BTDP 1000	1000	1,875	250	0.002

KEY BENEFITS

- ✓ Pulse-free flow at all rates and pressures
- ✓ Stainless steel or Hastelloy® wetted parts
- ✓ Unlimited continuous flow (optional)
- ✓ Control pump based on time, pressure, flow rate, fluid volume or events
- ✓ Touch screen front panel (optional)
- ✓ High temperature operation (optional)

EXTENDED BENCHTOP DUAL SYRINGE PUMP

BTDP-SERIES EXT

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The extended BTDP-series of benchtop single syringe pumps are engineered to accommodate applications that demand elevated volumetric capacities, flow rates, and pressures, exceeding the specifications of the standard BTDP series. Despite these advanced capabilities, both the hardware and software functionalities remain congruent across the series.

SPECIFICATIONS

Configuration	Dual cylinder, extended benchtop
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Control interface	Ethernet • Touch-screen panel (optional)

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
BTDP 150-30	150	30,000	20	0.0001
BTDP 250-20	250	20,000	35	0.0002
BTDP 300-15	300	15,000	40	0.0002
BTDP 500-10	500	10,000	70	0.0004
BTDP 1000-5	1000	5,000	130	0.001

KEY BENEFITS

- ✓ Pulse-free flow at all rates and pressures
- ✓ Stainless steel or Hastelloy® wetted parts
- ✓ Unlimited continuous flow (optional)
- ✓ Control pump based on time, pressure, flow rate, fluid volume or events
- ✓ Touch screen front panel (optional)
- ✓ High temperature operation (optional)

PUMP MIXER

PUMP MIXER

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The BTSP and BTDP-series pumps offer an optional magnetically-driven stirrer for comprehensive, in-situ fluid mixing across a wide range of operating pressures and temperatures. The stirring mechanism consists of a permanent magnet actuated by a variable-speed DC motor, affixed through the pump cylinder's end cap. A dedicated controller unit provides functionalities for starting, halting, and modulating the stirrer's rotational speed — up to 1,500 RPM.

SPECIFICATIONS

Pressure range	10,000 / 15,000 / 20,000 psi
Volume	250 / 175 / 125 ml
Wetted materials	Stainless Steel
Temperature	ambient to 150°C (300°F)
Type of fluids	hydraulic fluid
Maximum speed	Up to 1,500 RPM
Power supply requirement	110-220 VAC, 50/60 Hz
Pressure control interface	Ethernet

KEY BENEFITS

✓ Very efficient mixing

✓ Can be used with viscous fluid and slurries

CONTINUOUS FLOW PUMP

CF-SERIES

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The Floxlab CF Series pumps deliver unparalleled accuracy and repeatability, ensuring the critical pulse-free, high-pressure flow metering needed in diverse industrial and research environments. The CF Series pumps feature dual motor-driven pistons, each independently controlled, and employ a unique pre-pressurization step in every piston cycle, moving away from the traditional use of reciprocating pistons. As one cylinder dispenses fluid, its counterpart rapidly refills and then initiates pre-pressurization to equalize the pressure with the first cylinder. The system utilizes individual pressure transducers for each cylinder, a bespoke microcontroller, and advanced software algorithms to guarantee exact pressure measurement and synchronization. This ensures a seamless transition between cylinders without any noticeable pulse. The smooth, pulse-free fluid flow is further refined by an automatic valve with zero dead volume. Additionally, the pistons can be operated independently .

SPECIFICATIONS

Configuration	Dual independently-controlled pistons with pre-pressurization
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Flow characteristic	Pulse-free, continuous, bi-directional
Control interface	Ethernet • Automatic zero-dead-volume valve

MODEL COMPARISON

Model	Pressure (psi)	Volume (ml)	Max flow (ml/min)	Min flow (ml/min)
CF 3	3,000	2 × 40	80	0.0001
CF 6	6,000	2 × 32	55	0.0001
CF 12	12,000	2 × 15	30	0.0001
CF 15	15,000	2 × 12	25	0.0001
CF 20	20,000	2 × 10	15	0.0001
CF 30	30,000	2 × 5	5	0.0001

KEY BENEFITS

- ✓ Unlimited continuous flow
- ✓ Deliver or receive fluid
- ✓ Stainless steel or Hastelloy® wetted parts
- ✓ Pulse-free flow at all rates and pressures
- ✓ Control pump based on time, pressure, flow rate, fluid volume or events
- ✓ Ambient and high temperature versions

BENCHFLOOR SINGLE SYRINGE PUMP

BFSP-SERIES

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The BFSP-series bench floor single-cylinder pumps offer precise control over pressure, flow rate, and volume under both ambient and reservoir conditions. These versatile pumps can function in either a constant pressure or constant flow rate mode. Each pump is outfitted with a precision pressure sensor, dual manual valves for reservoir filling and fluid dispensing, a control panel, and an integrated storage tank. The entire setup is mounted on a sturdy chassis that rides on four robust casters for easy mobility. Optional features include a computerized data acquisition and monitoring system, as well as a variable-temperature heating mantle capable of elevating fluid temperatures up to 150°C. The BFSP series also offers customizable volumetric capacities. Standard construction materials for parts in contact with fluids are of high-grade stainless steel, but hastelloy is available for corrosive fluid applications.

SPECIFICATIONS

Configuration	Single cylinder, benchfloor on casters
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Control interface	Ethernet • Touch-screen front panel

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
BFSP 500-15	500	15,000	40	0.0005
BFSP 1000-15	1000	15,000	80	0.0005
BFSP 500-25	500	25,000	50	0.0005

KEY BENEFITS

- ✓ Ready to use pump
- ✓ Pulse-free flow at all rates and pressures
- ✓ Control pump based on time, pressure, flow rate, fluid volume or events
- ✓ Touch screen front panel
- ✓ Deliver or receive fluid
- ✓ Stainless steel or Hastelloy® wetted parts

BENCHFLOOR DUAL SYRINGE PUMP

BFDP-SERIES

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The BFDP-series bench floor dual-syringe pumps deliver precise control over pressure, flow rate, and volume under both ambient and reservoir settings. These pumps can operate in either constant pressure or constant flow rate modes. Each unit comes equipped with dual high-precision pressure sensors, four manual valves for reservoir filling and fluid output, a user-friendly control panel, and a built-in storage reservoir. The entire assembly is securely mounted on a rugged chassis, featuring four heavy-duty casters for effortless mobility. Optional enhancements include a computerized data collection and management system, as well as a variable-temperature heating mantle capable of heating the fluid up to 150°C. The BFDP series offers adaptable volumetric capacities to meet your specific needs. While the wetted parts are constructed from high-grade stainless steel as standard, Hastelloy can be opted for in corrosive fluid applications. Additionally, the system can be upgraded with two automatic three-way, air-powered valves for both reservoir feeding and fluid output, facilitating uninterrupted continuous flow.

SPECIFICATIONS

Configuration	Dual cylinder, benchfloor — continuous flow capable
Temperature	Sub-Ambient (optional water jacket) to 150°C (optional heating mantle)
Wetted materials	Stainless steel (Hastelloy optional)
Control interface	Ethernet • Touch-screen front panel

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
BFDP 500-15	500	15,000	40	0.0005
BFDP 1000-15	1000	15,000	80	0.0005
BFDP 500-25	500	25,000	50	0.0005

KEY BENEFITS

- ✓ Ready to use pump
- ✓ Pulse-free flow at all rates and pressures
- ✓ Control pump based on time, pressure, flow rate, fluid volume or events
- ✓ Touch screen front panel
- ✓ Deliver or receive fluid
- ✓ Stainless steel or Hastelloy® wetted parts

LOW PRESSURE SYRINGE PUMP

PV-SERIES

fig.1: Pump in vertical position

fig.2: Pump in horizontal position

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The PV-series pumps are engineered for applications that demand meticulous volume adjustments and low-pressure control of fluids. Capable of providing specific pressure, flow rates, and volumes at room temperature, these pumps can function in either constant-pressure or constant-flow mode. Pressurization is achieved through a motor-driven piston. The unit comes standard with a high-precision pressure sensor and proprietary remote control software. Optional manual valves can be added for both reservoir filling and fluid dispensing. Operational control is via supervision software, which offers a range of operating modes and enhances pump adaptability.

SPECIFICATIONS

Configuration	Motor-driven piston, low-pressure applications
Temperature	Ambient
Wetted materials	Stainless steel
Position	Horizontal or vertical
Fluid compatibility	Hydraulic fluid, gas
Pressure accuracy	0.2%
Power supply	110–220 VAC, 50/60 Hz
Control interface	Ethernet

MODEL COMPARISON

Model	Volume (ml)	Pressure (psi)	Max flow (ml/min)	Min flow (ml/min)
PV-200	200	600	70	0.0001
PV-500	500	225	150	0.0002

KEY BENEFITS

✓ Suitable for low-pressure applications such as soil studies

✓ Easy to set up, use and maintain

✓ Cost effective

✓ Extreme pressure and volume accuracy

PHARMACIA METERING PUMP

PHARMACIA

Pulse-free fluid delivery with unmatched precision — across pressures, volumes and flow rates.

OVERVIEW

The Pharmacia metering pump is designed for high-accuracy liquid metering under continuous flow and pressure conditions, making it suitable for processes requiring highly stable and reproducible dosing, such as controlled reagent addition and continuous feed applications in medical, pharmaceutical, chemical, and biological systems. The pump incorporates a dual-piston architecture operating in antiphase, whereby one piston delivers fluid while the second piston simultaneously refills. This configuration, combined with an automatic switchover valve, minimizes pulsation and ensures a quasi-continuous flow profile. System operation is optimized for precision and repeatability through Floxlab's dedicated data acquisition and control software, which enables fine, real-time adjustment of flow rate or pressure to meet specific process setpoints. The pump can be controlled either via a computer interface or an integrated touchscreen panel. The control software, compatible with both platforms, provides direct access to all operational functions, including pump start/stop commands, selection of constant flow or constant pressure control modes, input of operating parameters such as flow rate, pressure limits, and target volume, and continuous real-time monitoring of key process variables, including pressure, flow rate, and cumulative injected volume.

SPECIFICATIONS

Volume	2 x 14 ml
Pressure	600 psi
Flow rate	0.01 to 20 ml/min
Temperature	ambient
Wetted materials	Stainless Steel
Type of fluids	Liquid
Pressure accuracy	0.2%
Power supply requirement	110-220 VAC, 50/60 Hz
Pressure control interface	Ethernet

KEY BENEFITS

✓ Precise, near-continuous flow for stable and repeatable dosing

✓ Easy control with intuitive software and real-time monitoring

✓ Wide compatibility for medical, pharma, chemical, and bio uses

✓ Compact and low-maintenance design for easy integration

PRESSURE CONTROLLERS

AUTOMATED BACK PRESSURE REGULATOR

ABPR-SERIES

Automated, Ethernet-controlled pressure regulation for stable and repeatable test conditions.

OVERVIEW

The ABPR-series is an automated back pressure regulator designed for single- and multi-phase fluids, maintaining stable pressure control up to 20,000 psi. The system integrates a motor-driven piston pump, a high-precision pressure transducer, and a dome-loaded valve. The valve uses a dual-chamber design separated by a piston with a stainless steel needle and reinforced PEEK seat. The lower chamber controls process fluid flow, while the upper chamber pressure is regulated by a motor-driven piston pump filled with nitrogen gas. The regulator acts as a comparator: when dome pressure exceeds process pressure, the needle seals the outlet and pressure builds; when process pressure exceeds dome pressure, the needle retracts to release fluid and reduce pressure. These oscillating actions ensure stable pressure regulation. Using an Ethernet interface and dedicated software, the ABPR can be programmed to perform complex pressure cycles.

SPECIFICATIONS

Maximum pressure range	10,000 / 20,000 psi
Wetted materials	Stainless Steel/ Hastelloy
Temperature	ambient to 150°C (300F)
Flow rate	from 0.001 to 30 cc/min
Type of fluids	gas, liquid, supercritical fluid
Nitrogen gas pressure requirement	1,000/ 5000 psi
Power supply requirement	110-220 VAC, 50/60 Hz
Pressure control interface	Ethernet

KEY BENEFITS

✓ Extremely fast response to system pressure fluctuations

✓ Stable pressure control over the entire flow range

✓ Accurate control even during multiphase flow

✓ Corrosion and chemical resistant

✓ Pressure control via Ethernet communication port

AUTOMATED CONFINING PRESSURE REGULATOR

ACP-SERIES

Automated, Ethernet-controlled pressure regulation for stable and repeatable test conditions.

OVERVIEW

The ACP-series is engineered to produce and sustain a constant confining pressure, as required in rock testing experiments. Additionally, it can maintain a stable differential pressure between pore and confining pressures. The system features a positive displacement pump, an automated dual valve, a fluid reservoir, and dual pressure transducers specifically for monitoring and controlling both pore and confining pressures.

SPECIFICATIONS

Maximum pressure range	10,000 / 15,000 / 20,000 psi
Volume	250 / 175 / 125 ml
Wetted materials	Stainless Steel
Temperature	ambient to 150°C (300F)
Type of fluids	hydraulic fluid
Nitrogen gas pressure requirement	100 psi
Power supply requirement	110-220 VAC, 50/60 Hz
Pressure control interface	Ethernet

KEY BENEFITS

✓ Extremely fast response to system pressure fluctuations

✓ Pressure control via Ethernet communication port

✓ Can work at constant pressure or at constant net pressure

AUTOMATED CONFINING PRESSURE AND TEMPERATURE CONTROLLER

ACP-150 SERIES

Automated, Ethernet-controlled pressure regulation for stable and repeatable test conditions.

OVERVIEW

The ACP-150 series is designed to generate and maintain precise confining pressures and temperatures during porous media studies. It is particularly suitable for experiments such as NMR, CT scan, and linear X-ray tests using composite core holders where air baths cannot be used. The system includes a high-pressure syringe pump, recirculation pump, pneumatic dual valve, fluid reservoir, and two pressure transducers for real-time monitoring of pore and confining pressures. The syringe pump maintains constant pressure, while the recirculation pump ensures steady flow in the high-temperature confining circuit, keeping the core sample under stable temperature and pressure conditions. The system can also maintain a constant differential pressure between pore and confining pressures. Through an Ethernet interface and dedicated software, the ACP-150 can be programmed to run complex pressure and temperature control schedules.

SPECIFICATIONS

Maximum pressure range	ACP-350-150 model: 5,000 psi ACP-700-150 model: 10,000 psi
Temperature	up to 150°C
Volume	250 ml
Fluid circulation flow	up to 1 liter/min
Wetted materials	Stainless Steel
Temperature	ambient to 150°C (300F)
Type of fluids	hydraulic fluid
Nitrogen gas pressure requirement	100 psi
Power supply requirement	110-220 VAC, 50/60 Hz

KEY BENEFITS

✓ Well-suited for porous media research using NMR, CT-scan, and linear X-ray scanners

✓ Quick response to changes in system pressure

✓ Rapid and precise heating of core samples

✓ Ability to operate at either a constant pressure or a constant net pressure

✓ Pressure regulation enabled through an Ethernet communication port

CONSTANT VOLUME AUTOMATED VALVES

CONSTANT VOLUME AUTOMATED VALVES

AUTOVALVE SERIES

2-Way On/Off valve

3-Way, 4-Position valve

Precision-engineered valves for demanding fluid-handling applications.

OVERVIEW

The Floxlab AutoValve series are precision-engineered, air-actuated constant-volume valves designed for high-performance fluid control in demanding environments. They deliver rapid switching response, exceptional pressure stability, and chemical compatibility with corrosive fluids. Built for laboratory, industrial, and energy applications, these valves ensure reliable operation under extreme conditions — providing precise flow regulation, consistent pressure performance, and simplified maintenance for advanced process control systems.

SPECIFICATIONS

Maximum pressure range	5,000 / 10,000 / 20,000 / 30,000 psi
Wetted materials	Stainless Steel / Hastelloy
Temperature	ambient to 160°C (320°F)
Configuration	2-way ON/OFF • 3-way 4-position
Air requirement	100 psi

KEY BENEFITS

✓ Constant-volume switching — the valve closes without changing internal volume under pressure

✓ Corrosion-resistant materials for aggressive chemical environments

✓ Compact and rugged — fits tight installations and mobile high-pressure setups

✓ Rapid actuation (<0.5 s) enables precise, automated flow control

✓ Flexible 2-way or 3-way configurations adaptable to diverse process designs

✓ Integrates easily with computer or PLC-based control