VINCI TECHNOLOGIES

ADVANCED ROCK ANALYSIS

PRODUCT CATALOG

2026

VINCI TECHNOLOGIES

ADVANCED ROCK ANALYSIS

SCAL

Reservoir stimulation

Unconventional Reservoirs

EOR

Components

Coreholder

ADVANCED ROCK ANALYSIS

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ADVANCED ROCK ANALYSIS

LIST OF INSTRUMENTS

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SPECIAL CORE ANALYSIS

Unsteady state relative permeability

Steady state relative permeability

Capillary pressure

In-situ saturation monitoring

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ADVANCED ROCK ANALYSIS

UNSTEADY STATE RELATIVE PERMEAMETER (AUTOFLOOD 700)

The AUTOFLOOD 700 accurately determines by virtue of the unsteady state method, absolute permeability and relative permeabilities for liquid/liquid and liquid/gas systems at reservoir-representative pressure and temperature conditions. A nitrogen flow line enables the end user to inject nitrogen at constant pressure through the sample in order to determine gas/liquid relative permeability. The computer controlled system is delivered with a unique software that allows both manual and automatic operation modes, whereby all key components including pumps, valves, video capturing and data acquisition systems can be remotely controlled and automated. A test sequencer also allows fully automated experiments to be carried out. An integrated automatic back-pressure regulator located at the outlet yields a constant pressure with an immediate response to pressure fluctuations and phase transitions. The confining pump generates and automatically maintains a net overburden pressure thus preventing temperature related pressure variations. A visual produced-fluid monitoring system delivers flawless fluid production (water, oil, gas) for the entirety of the study. The core holder, air operated valves, produced fluid separator and necessary plumbing are enclosed in an isothermal air bath whose design allows easy access to all components.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000 psi)
Maximum nitrogen gas pressure	200 bar (3,000 psi)
Maximum working temperature	150°C
Core diameter	1"1/2 other upon request
Core length	1” to 3” other upon request
Material	Stainless steel
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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STEADY STATE AND UNSTEADY STATE RELATIVE PERMEAMETER SYSTEM (RPS 700)

The versatile RPS 700 flawlessly performs both unsteady-state and steady-state relative permeability determination studies for liquid/liquid and liquid/gas at reservoir-representative pressure and temperature conditions. A core plug is fitted into a Viton sleeve and inserted into a hydrostatic core holder located in an isothermal convection air-bath. Liquid phases are injected and recirculated through the core sample at different constant flow rates while the gas phase is injected either at constant flow rate or at constant pressure. In the S.S. mode, absolute or relative permeability is determined via the Darcy method, whereas the U.S. method makes use of the standard Jones and Rozelle equations. The system is provided with a dedicated Vinci proprietary software allowing both manual and automatic operation and monitoring of the key components, i.e. pumps, valves, camera and sensors. Furthermore, the test sequencing grants the operator the possibility of scheduling automated elaborate testing schemes. To ensure isothermal conditions throughout the circuit, the core holder, pneumatic valves, produced-fluid visual separator and necessary plumbing are all located in the air-bath; which consequently gives an easy access to the entire system. The elegant and efficient high pressure triple pumps (HTP) present an unprecedented solution to generate continuous, pulse-free flow of one or more fluids while maintaining a constant core holder outlet pressure. An automated confining pump ensures a precise, constant net overburden pressure thereby preventing temperature-related pressure fluctuations and an automated pressure regulation system guarantees a constant pore pressure at the core holder outlet.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000 psi)
Maximum working temperature	150°C
Fluid flow	Recirculated fluid phases
Core diameter	1"1/2 other upon request
Core length	1” to 3” other upon request
Flow rate	0.005 to 50 cc/min
Material	Stainless steel
Power supply	220VAC, 50/60 Hz
Live oil requirements	300 ml
Air Pressure requirements	7 bar (100 psi)

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X-RAY RELATIVE PERMEAMETER SYSTEM (XRP 700)

The automated XRPS 700 flawlessly performs both unsteady-state and steady-state relative permeability determination studies for liquid/liquid and liquid/gas at reservoir-representative pressure and temperature conditions. The system delivers high-quality in-situ saturation profiles of single phase and multiphase core samples. The apparatus mainly comprises two fluid injection and recirculation pumps , a thick stainless steel, radiation-isolating enclosure, an X-ray generator, an X-ray transparent core holder, and below it, a linear detector to measure beam absorption. The generator and detector are mounted onto parallel, robust uniaxial racks and can remotely be positioned along the core's longitudinal axis by virtue of the proprietary Vinci X-ray scanner software. The latter also permits X-ray intensity regulation. A core sample is fitted into a Viton sleeve and loaded into the core holder. The specimen is then subjected to reservoir representative conditions of pressure and temperature, achieved via a closed hydraulic confining pressure system and a heating mantle embedded in the core holder body. The latter can be mounted both horizontally and vertically, enabling for example the study of heterogeneity, anisotropy and gravitational effects. Liquid phases are injected through the core sample at constant flow rate and the gas phases at either constant flow rate or constant pressure. In the S.S. mode, absolute and relative permeability are determined via the Darcy method, whereas the U.S. method makes use of the standard Jones and Rozelle equations.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000psi)
Maximum working temperature	150°C
Fluid flow	Recirculated fluid phases
Core diameter	1" & 1"5 other upon request
Core length	4" to 12" other upon request
X-ray source	90 kV, 4 mA
Wetted parts	Stainless steel
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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X-RAY SCANNER FOR IN-SITU SATURATION MONITORING

The automated linear X-ray scanning system delivers high-quality in-situ saturation profiles of single phase and multiphase core samples. The apparatus mainly comprises a thick stainless steel, radiation-isolating enclosure, a computer controlled X-ray generator allowing the user adjust the X-ray intensity, an X-ray transparent titanium alloy core holder, and below it, a linear X-ray detector to measure X-ray beam absorption. The generator and detector are mounted onto parallel, robust uniaxial racks and can remotely be positioned along the core's longitudinal axis by virtue of the proprietary Vinci X-ray scanner software. The unit can be coupled with any of our flow recirculation systems.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000psi)
Maximum working temperature	150°C
Core diameter	1" & 1"5 other upon request
Core length	4" to 12" other upon request
X-ray source	90 kV, 4 mA
Wetted parts	Stainless steel
Core holder body	Titanium
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

BENEFITS

- Vertical or horizontal orientation of the core sample
- X-ray transparent core holder provided with homogeneous temperature control system
- Single and dual energy x-ray scanning mode
- Can be integrated into existing systems
- X-ray proof cabinet

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X-RAY COMPUTED TOMOGRAPHY (CT) SCANNER

The X-Ray computed tomography (CT) scanner delivers high-quality, in-situ saturation profiles of single and multiphase core samples as well as their properties. The apparatus can directly perform scans on exposed, whole core samples retrieved from the well or it can be coupled to a Vinci core flooding system, thereby enabling live visual monitoring of core flooding and Enhanced Oil Recovery (EOR) studies. In other words, the device has the ability to construct 3D and multiplan representations of single and multiphase flow in porous media at reservoir-representative pressure and temperature conditions. Specifically, the determined rock properties are porosity and saturation profiles. In core flooding experiments, a core sample, fitted into a Viton sleeve is loaded in an X-Ray transparent core holder. The specimen is then subjected to the desired temperature and overburden pressure conditions, achieved by virtue of a heating mantle embedded in the core holder walls and a closed confining pressure system. The core holder is fastened to the scanner table and a flexible tubing configuration allows its necessary horizontal displacement towards the emitter. Once the setup and preliminary safety measures have been performed, the experiments can be executed from a dedicated PC work station, located outside of the radiation-isolating testing room. The system comprises an X-Ray transparent core holder and a multi-slice, helical X-Ray CT scanner that rapidly acquires a tomographic image of the rock. The device is supplied with the ImageJ software that animates the results and displays the chronological sequence of images.

FEATURES

Number of detector arrays:	64
Slices per rotation:	128
Peak kilo-voltage:	80, 100, 120, 140 kVp
Maximum power consumption:	54 kVA
Spatial isotropic resolution:	0.31 mm^3
Smaller pixel:	0.187 mm
Slice thickness:	0.625 mm
Speed & coverage:	30 cm in less than 4 seconds, Pitch 1.53
Dual energy:	provided
Number of elements:	54,272
Rotation time:	.5-.6-.7-.8-.9-1 sec
Maximum confining pressure:	700 bar (10,000 psi)
Maximum pore pressure:	700 bar (10,000psi)
Maximum working temperature:	150°C
Core diameter:	1.5 inches (other upon request)
Core length:	4 to 12 inches (other upon request)
Power supply:	380 VAC, 3 Phases, 100 kwatts

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NMR CORE FLOODING SYSTEM (NMRFLOOD)

The Vinci NMRFLOOD allows various NMR (Nuclear Magnetic Resonance) experiments on core samples at reservoir-representative conditions up to 5,000 psi and 150°C. A pressurized and heated core sample, located in a special composite core holder is placed in a NMR scanner. The latter generates a magnetic field and excites the sample with a RF (Radio Frequency) pulse; hereafter, the in-situ fluids' (oil, brine…) response is recorded. Essentially, the pulse is immediately followed by a NMR signal peak that decays with a characteristic relaxation time or decay rate, known as T2. The signal's initial amplitude is an indicator of the total fluid content while the T2 yields valuable insight about the fluid's surrounding environment (porosity, pore size distribution, wettability, capillary pressure…) at reservoir-representative conditions.

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Confining pressure	5,000 psi
Pore pressure	5,000 psi
Maximum working temperature	150°C
Core diameter	1" and 1.5"
Core length	1" to 2"
Wetted parts	Stainless steel
Power supply	220VAC, 50/60 Hz
Air Pressure requirements	7 bar (100 psi)

BENEFITS

- NMR measurements on core samples at reservoir-representative conditions

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CO2/BRINE RELATIVE PERMEAMETER FOR CARBON STORAGE TESTS (STORFLOOD)

The STORFLOOD is designed for research laboratories that study carbon dioxide storage in deep saline aquifers as a solution to greenhouse gases emission reduction. Core-scale CO2/brine multiphase migration process is of great significance for precisely estimating storage efficiency, ensuring storage security, and predicting the long-term effects of the sequestered CO2 in subsurface saline aquifers. The system allows to simulate CO2 injection in a brine saturated sample. Both unsteady and steady state relative permeabilities between CO2 and brine are measured at reservoir-representative pressure and temperature conditions.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000psi)
Maximum working temperature	150°C
Core diameter	1”5 (other upon request)
Core length	1” to 6” (other upon request)
Wetted parts	Hastelloy
Position	Horizontal
Test flow type:	Unsteady state & steady state
Fluids:	Brine, CO2
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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CAPILLARY PRESSURE AND RESISTIVITY INDEX SYSTEM (CAPRI)

The CAPRI system performs at reservoir-representative conditions, both drainage and imbibition experiments on core samples while simultaneously determining the rock electrical properties. From these results, the relationships between core saturation profile, capillary pressure and electrical properties can be deduced. Specifically, saturation exponent "n", formation factor and cementation exponent "m" are calculated. The instrument consists of a core holder furnished with hydrophobic and hydrophilic ceramics, a four electrode configuration for resistivity measurements, a precise, automated flow control system and a resistivity cell dedicated to brine resistivity measurements. Isothermal testing conditions are assured by a temperature-controlled convective heat transfer air bath.

FEATURES

Maximum confining pressure	700 bar (10, 000 psi)
Max pore pressure	700 bar (10,000 psi)
Working temperature	up to 150°C
Capillary pressure range	10 to +10 bar (145 psi)
Core length	2" up to 3"
Core diameter	1 ½" other upon request
Power supply	220VAC, 50Hz
Brine wetted material	Hastelloy

BENEFITS

Measurements are made at reservoir conditions of pressure and temperature
Direct capillary pressure measurements
High-temperature pumps located in the isothermal air bath are used to prevent temperature related volume measurement errors

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SEMI-PERMEABLE POROUS DISC (PD SERIES)

The semi-permeable porous disc is commonly used in capillary pressure cells to allow the wetting phase to flow through but not the non-wetting phase. It is made from alpha alumina material whose pore size prevents the displacing fluid from penetrating the disc when a specific pressure, lower than the desired threshold pressure, is applied to it. Two types of discs are available depending on the value of the differential pressure gradient; 200 psi for standard capillary pressure tests or 1,000 psi for high capillary pressure measurements. Different disc sizes can also be provided. Lastly, they can be chemically treated to be water-wet or oil-wet.

FEATURES

Wettability	water wet or oil wet
Pressure gradient	200 psi or 1,000 psi
Diameter	20 mm, 1", 30 mm, 1.5"
Thickness	5 mm (other upon request from 2 to 6.5 mm)
Material	alpha alumina
Temperature	up to 200°C (water-wet), 175°C (oil-wet)
Fluid used	gas, oil, water

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REFRIGERATED OVERBURDEN CENTRIFUGE (RC4500)

The refrigerated overburden centrifuge enables fast, simultaneous measurement of capillary pressure properties and relative permeability curves on up to six core samples, operating at both atmospheric and reservoir conditions with temperatures reaching up to 90°C. The device can also be utilized for sample reservoir condition restoration. Custom designed sample chambers can house core plug samples up to 1.5 inches in diameter and rotate them to a maximum velocity of 4,500 rpm. The apparatus consists of a rotor and cells (core holders) which can accommodate either 1", 30 mm or 1.5" diameter cores. A digital camera continuously captures high resolution images of the cells, thereby enabling a visual surveillance of the displaced fluid volumes in each cell. An electronic speed control module with sequential speed variation capabilities, and a precision temperature control system are integrated into the device. If the maximum specified temperature is exceeded, the temperature is automatically adjusted accordingly. Furthermore, a rotor imbalance sensor ensures a safe, viable operation.

FEATURES

Oil-water drainage: ..... 0.0 to 14.9 bar (216 psi)
Oil-water imbibition: ..... – 0.0 to – 18.6 bar (– 269 psi)
Air-water drainage: ..... 0.0 to 44.6 bar (647 psi)
Air-water imbibition: ..... – 0.0 to – 55.6 bar (– 806 psi)
Speed regulation: ..... ± 1 rpm
Speed step overshoot: ..... limited to 5 rpm
Acceleration: ..... 1 to 1,000 rpm/min
Speed ramp: ..... available
Temperature: ..... 5°C (@speed = 0 rpm) to +90°C
Speed: ..... from 200 up to 4,500 RPM
Large radius: ..... 23 cm
Power supply: ..... 400 V 3 ~ + N (50-60Hz) - 208 V 3 ~ + N (60Hz) Upon request

BENEFITS

* Simultaneous testing of up to six core samples, enabling fast determination of capillary pressure and relative permeability curves.
* Operation at both atmospheric and overburden conditions, suitable for drainage and imbibition tests on consolidated and unconsolidated cores.
* High-precision digital camera system, providing continuous, high-resolution monitoring of displaced fluid volumes.
* Advanced temperature control up to 90°C, ensuring accurate measurements under reservoir-temperature conditions.
* Automated data acquisition and robust simulation software, enabling automatic calculation of saturation, capillary pressure, and Kr/Pc curves through history matching.
* Capability to perform centrifuge tests under pore pressure up to 1,450 psi, enabling studies of brine/gas systems (including CO_2 and H_2) at realistic reservoir conditions.

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ULTRA-SPEED CENTRIFUGE (UC20)

The Ultra-speed centrifuge enables rapid determination of capillary pressure characteristics and relative permeability curves on six 1" or 30-mm core samples or three 1.5" core sample simultaneously. It can also be utilized for rapid sample preparation to restore state conditions for subsequent testing in various test equipment. Custom designed sample chambers offer the ability to spin core plug samples at rotational speeds up to 20,000 rpm. It includes a rotor and cells (core holders) which can accommodate either 1", 30-mm or 1.5" diameter cores. A digital speed control with the ability to ramp speeds at specified intervals and a precision temperature control system is included. An over-temperature setpoint stops the centrifuge if the temperature exceeds the setpoint by a specified value. The system is also equipped with a sensor for rotor imbalance. It is equipped with a digital camera system that allows to user to measure the displaced fluid volumes in each of the cells sequentially.

FEATURES

Speed:	from 1000 up to 20,000 RPM
Speed control:	± 20 rpm
Speed ramp:	available
Temperature:	ambient
Pressure:	atmospheric
Radius length:	91.3 mm (drainage 1.5" diameter samples)
	166.3 mm (imbibition 1.5" diameter samples)
Power supply:	200 to 240 VAC, 50/60 Hz, 20 A

BENEFITS

* Simultaneous testing of up to six 1" or 30-mm cores or three 1.5" cores, boosting productivity.
* With speeds up to 20,000 rpm, the UC20 enables rapid capillary pressure and relative permeability measurements while achieving deeper desaturation—ideal for tight, low-permeability rocks.
* Digital camera system enabling automatic and precise measurement of displaced fluid volumes during operation.
* Advanced data acquisition and analysis software that automatically processes curves and calculates saturation and capillary pressure.
* Flexible configuration with multiple rotor and bucket options to test various core sizes and conditions.

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OVERBURDEN SPONTANEOUS IMBIBITION AND DRAINAGE MEASUREMENT SYSTEM (OSID)

The OSID is specially designed to determine the end points of spontaneous drainage and imbibition curves. They can then be used in conjunction with those of the forced drainage and imbibition curves (e.g. obtained by centrifugation or core flooding) to calculate the wettability indices via the Amott formula. The device is mainly comprised of a flow controlled loop to displace water or oil over a core at overburden pressure to recreate spontaneous drainage and imbibition phenomena. The wetting and non-wetting phase volumes are continuously measured in a graduated glass separator. Multiple core sample configurations are also available upon request.

FEATURES

Number of core holders: 1 (up to 6 upon request)
Core diameter: 1" or 1.5" (other upon request)
Core length: Up to 3"
Overburden pressure: up to 10,000 psi
Temperature: ambient
Burette volume: 20 cc
Core saturation accuracy: 0.1 cc
Power supply: 110-220 VAC, 50/60 Hz

BENEFITS

Overburden pressure testing conditions reflect reservoir conditions.

Faster than standard Amott test. The fluid brushing mechanism accelerates the expulsion process, purely from molecular attraction forces.

Simultaneous core sample processing available upon request.

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AGING CELL APPARATUS (ACA 700)

The apparatus is solely designed for the purpose of core wettability restoration prior to intensive SCAL studies. A single core chamber is supplied in the standard version but additional units can be provided upon request. The aging method firstly consists of fully saturating with brine a cleaned (and thus water-wet) core plug. Once this has been achieved, crude oil is injected into the sample and displaces the brine until initial water saturation has been obtained. During this process, it is generally assumed that the smaller pores remain water-filled, whereas the oil invades the remainder of the pore space, leaving thin water films on the pore walls and in crevices. Wettability changes are obtained by subjecting the core to reservoir conditions of temperature and pressure for many weeks. At this stage, a wettability transition may occur in the oil-invaded pores depending on the stability of the thin water films, located between the pore walls and the oil. An oil-wet status is obtained upon oil-rock contact due to the rupture of these films. After a certain period of time, the core will have achieved a mixed wettability state.

FEATURES

Operating pressure	up to 700 bar (10,000 psi)
Operating temperature	up to 150°C
Core sample diameter	1” and 1.5”
Core sample length	1 to 6”
Fluid flow rate	up to 10 cc/min
Wetted part	Stainless steel
Air requirement	2,000 psi
Power supply	220VAC, 50Hz

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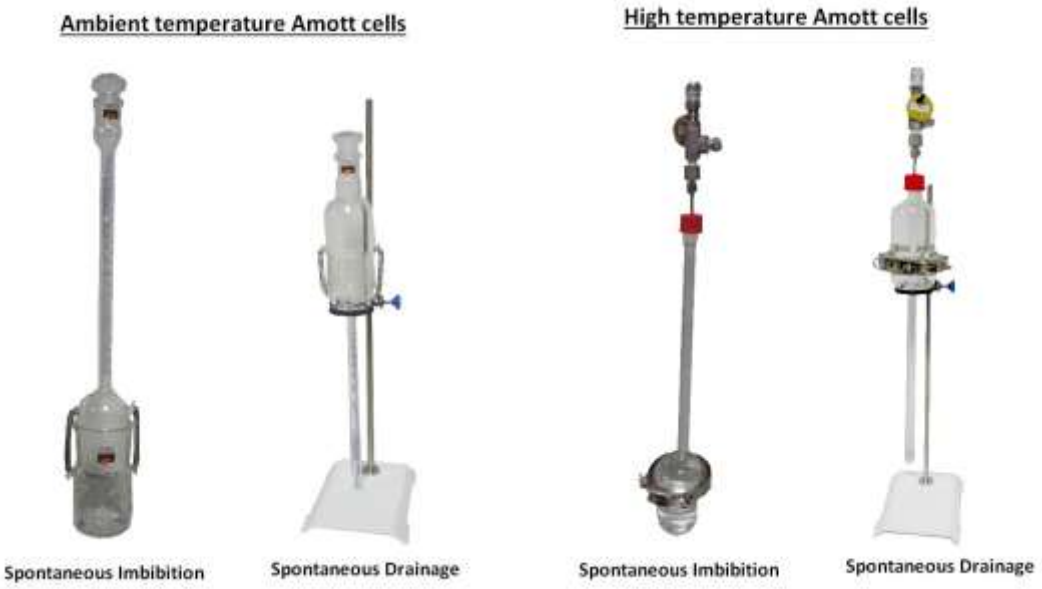
IMBIBITION AND DRAINAGE AMOTT CELLS

The spontaneous imbibition Amott test consists of placing an oil-saturated core sample in a brine filled Amott cell. An adequate time between brine filling and sample immersion is necessary to ensure a constant, homogeneous temperature profile in the brine. The volume of oil expelled can accurately be measured by reading the graduation on the cell. The apparatus is comprised of a sealed glass container and a graduation tube located above it. Conversely, the spontaneous drainage Amott test consists of placing a water saturated core sample in an oil-filled Amott cell. An adequate time between oil filling and sample immersion is necessary to ensure a constant, homogeneous temperature profile in the oil. The volume of water expelled can accurately be measured by reading the graduation on the cell. The apparatus is comprised of a sealed glass container, a graduation tube located below it, and a stand to support the assembly. Optional high temperature Amott cells are also available.



FEATURES

MODEL: 1 (AMBIENT TEMPERATURE)

Temperature: ..... Ambient
Pressure: ..... Atmospheric
Core diameter: ..... up to 2”
Core length: ..... up to 4”
Graduated tube: 20cc

MODEL: 2 (HIGH TEMPERATURE)

Temperature: ..... Ambient to 120°C
Pressure: ..... up to 30 psi
Core diameter: ..... up to 2”
Core length: ..... up to 4”
Graduated tube: 20cc

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HP HT AMOTT CELLS

The HP HT Amott cell is designed to perform imbibition and spontaneous Amott test under reservoir conditions of pressure and temperature. The cell can be configured for both imbibition and drainage tests. The apparatus is comprised of a HP HT visual cell and a graduation tube that can be monitored by a camera. The imbibition Amott test consists of placing an oil-saturated core sample in a brine filled Amott cell, an adequate time between brine filling and sample immersion is necessary to ensure a constant, homogeneous temperature profile in the brine. The volume of oil expelled can accurately be measured by reading the digital graduation on the cell.

The spontaneous drainage Amott test consists of placing a water saturated core sample in an oil-filled Amott cell, an adequate time between oil filling and sample immersion is necessary to ensure a constant, homogeneous temperature profile in the oil. The volume of water expelled can accurately be measured by reading the digital graduation on the cell.

FEATURES

Max pressure: 5,000 psi
Max temperature: 150 °C
Sample diameter: 1.5 inches
Sample length: 3 inches
Receiving tube volume: 20 ml
Volume accuracy: 0.01 ml
Wetted part material: Inconel, Sapphire

BENEFITS

Easy to operate

Allows for imbibition and spontaneous Amott test under reservoir conditions of pressure and temperature.

Improve accuracy of the reading thanks to a high accuracy camera

Save operator's time which does no longer need to manually record the readings.

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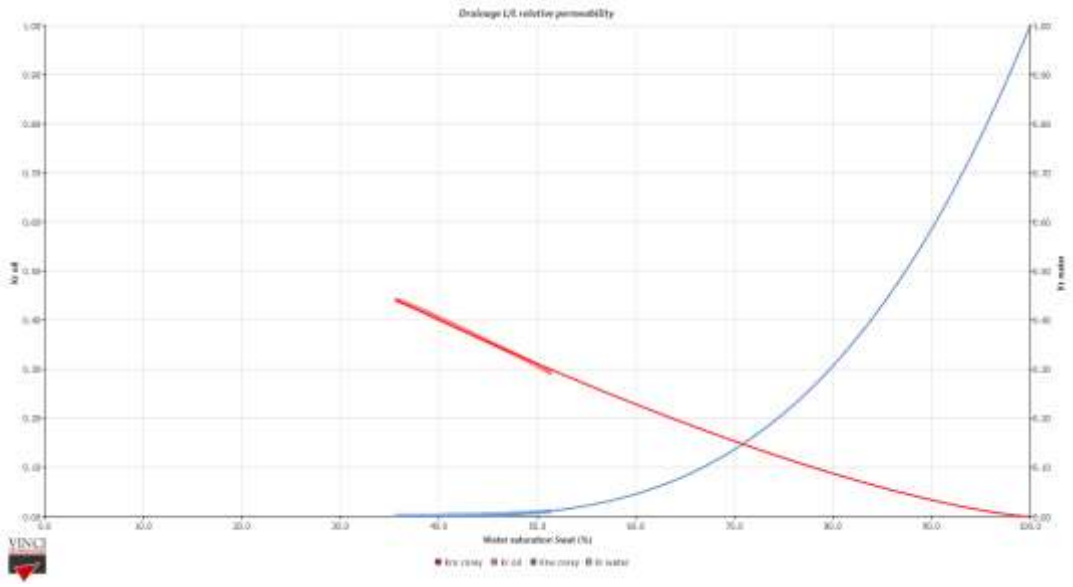
PETROPHYSICAL CALCULATION SOFTWARE (PETROWORKS)

With years of special core analysis and software engineering experience, Vinci Technologies has developed the most efficient and ergonomic program to analyze SCAL experimental data: Petroworks®. Laboratory experimental data are inputted into the powerful software which will derive the critical SCAL parameters such as relative permeability and generate a fully comprehensive report for petroleum engineers. Advanced users are granted the freedom to dictate the data processing protocol (model selection, fit selection etc.). Multiple modules are available; each being dedicated to a specific type of experiment, e.g. unsteady state liquid/liquid and liquid/gas, relative permeabilities tests. Petroworks® has been designed for experimental core analysts, to replace the cumbersome and error-prone calculations on platforms such as Microsoft Excel having limited statistical flexibility. It is a Windows based program built to compute the relevant parameters of core flooding studies based on user input and Special Core Analysis Laboratory (SCAL) experimental data.



Benefits:

Petroworks® covers an ample range of core flooding experiments such as:

- ✓ Drainage and imbibition
- ✓ Constant pressure drop and constant flow rate injections
- ✓ Liquid / liquid and liquid / gas displacements
- ✓ Atmospheric pressure tests and high pressure tests

Petroworks® comprises a core module which can be combined with a variety of interpretation and analysis modules dedicated to the treatment of real experimental data. Special attention has been given to raw data corrections (inlet dead volume, outlet dead volume, gas expansion, etc.).

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RESERVOIR STIMULATION

Formation damage

Matrix acidizing

Hydraulic fracturing

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FORMATION DAMAGE AND WELL TREATMENT EVALUATION SYSTEM (FDS 350)

The elegant and robust FDS350 quantifies the effects of drilling fluids on the formation by tangentially circulating drilling mud on one of the flat faces of a cylindrical core sample at reservoir- representative conditions. Specifically, the versatile device can perform static filtration tests, mud invasion evaluation, and stimulation tests. Furthermore, liquid can be injected through the core to determine the mud's effects on absolute permeability. An ample range of fluids can be studied with this apparatus: water and oil-based muds, cement effluents, chemical wash treatment fluids and acid, corrosive treatment fluids. Initial permeability, return permeability, brine sensitivity, critical flow velocity, acid stimulation, mud filtrate invasion make up some of the key parameters monitored by this this system. Realistic drilling mud flow is achieved by virtue of a unique, heated mud recirculation pump warranting dynamic filtration tests and the quantification of erosion effects induced by the abrasive fluids flowing across the core face. The automated system is controlled by a provided Vinci proprietary software that allows both manual and automatic operation; all key components can be controlled, i.e. pumps, valves and data acquisition components. A sequencer also permits automatic, pre-programmed operating schedules. The core holder, air operated valves, mud pump and necessary plumbing are mounted in an isothermal air bath whose design allows easy access to all components.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	350 bar (5,000 psi)
Maximum mud pressure	350 bar (5,000 psi)
Maximum working temperature	150°C
Core diameter	1.5" other upon request
Core length	2 to 4" other upon request
Mud flow rate	up to 3 liter/min
Material	Stainless steel, Titanium, hastelloy
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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FORMATION EVALUATION SYSTEM (FES 350)

The FES350 warrants permeability variation studies on cylindrical core samples by exposing them to an ample range of test fluids. Fluids can be axially injected through the core in either direction or tangentially circulated across one of the flat end faces. This chemically impervious device handles at temperatures up to 300 F (150 °C) all types of cleaning treatments as well as corrosive fluid injections. System operation is entirely computer controlled by an automation package that allows precise monitoring and flow path control. A Windows based Vinci software allows the user to run automated test sequences for optimum versatility. Test data is graphically displayed and logged to the hard disk at specified time intervals.

FEATURES

Maximum confining pressure	6,000 psi
Maximum pore pressure	5,000 psi
Maximum working temperature	150°C
Core diameter	1” and 1.5” other upon request
Core length	1 to 12” other upon request
Flow rate	up to 36 cc/min
Pumped fluids	4
Displaced fluid	1
N° of pressure taps	up to 5 spaced 2 inches apart along the core (option)
Wetted parts	Hastelloy, peek
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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MATRIX ACIDIZING TESTER (MAT 700)

The MAT 700 evaluates the effectiveness of an acid treatment in dissolving the mineral matrix of a reservoir rock, at reservoir-representative conditions. The effectiveness can be quantified by the difference in permeability before and after acid injection. The parameters measured during testing enable a graphical representation of the acid response in terms of pressure gradient variation/permeability versus time/cumulative acid injection volume. The efficiencies of different acids, e.g. hydrochloric, hydrofluoric… as well as other variables such as flow rate and temperature on permeability can also be studied.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000 psi)
Maximum working temperature	150°C
Core diameter	1"1/2 other upon request
Core length	2” to 6” other upon request
Position	Horizontal
Wetted parts	Hastelloy
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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PROPPANT CONDUCTIVITY SYSTEM (PCM1000)

The PCM 1000 evaluates proppant and fracture conductivity at reservoir representative pressures and temperatures over a wide range of fracturing fluid pressure and flow rates. The experiment consists of displacing a temperature regulated fracturing fluid through a proppant pack compressed by two identical, flat, parallel sandstone slabs while measuring the differential pressure and fluid flow rate across the proppant pack. By inputting this data into Darcy's law, proppant conductivity can be deduced. The sandstone slabs, driven by a hydraulic press, impose a closure stress, mimicking the rock compressive stress in the reservoir. By controlling this quantity, the influence of certain parameters on minimum fracturing fluid pressure and fracture height can be quantified, e.g. fluid viscosity, proppant concentration, geometry, uniformity, transportability and strength.

FEATURES

Standard	ISO 13503-5, API 56 & 58
Load	100 tons
Maximum closure stress	20,000 psi
Maximum pore pressure	1,000 psi
Maximum working temperature	up to 177°C (350°C)
Pack thickness accuracy	+/- 0.001 inches (+/- 0.025 mm)
Wetted parts	Stainless steel, Hastelloy (optional)
Power supply	110-220VAC, 50/60 Hz
N2 Pressure requirements	2,000 psi
Air Pressure requirements	100 psi

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PRESSURIZED BRINE CRYSTALLIZATION TESTER (PCT1300)

The automated PCT 1300 instrument reveals the brine crystallization temperature in a high-pressure, low-temperature environment. The apparatus encompasses highly sensitive fiber optic transmission probes that enable crystal detection in the brine sample. These eliminate the arduous and erroneous manual surveillance of crystallization events, e.g. FCTA, TCT and LCTD. The apparatus comprises a high-pressure test cell, in which a magnetically driven stirrer ensures a thorough sample agitation and homogenization. Moreover, an internal sensor continuously reports the sample temperature. A double jacket with an integrated refrigerant circulation system is wrapped around the cell to provide and maintain sub-ambient temperatures. Fluid pressurization is attained by virtue of a high-pressure syringe pump.

FEATURES

Pressure: up to 20,000 psi
Temperature: -20 to 60°C
Sample volume: 10 ml
Stirring mechanism: magnetic type
Temperature accuracy: 0.1°C
Wetted part: Hastelloy
Power supply: 110-220 VAC 50/60 Hz

BENEFITS

- Provides highly accurate and reproducible crystallization temperature measurements
- Automated set up

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UNCONVENTIONAL RESERVOIRS

Gas adsorption isotherm

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GAS ADSORPTION ISOTHERM SYSTEM (GADIS)

The GADIS determines the adsorption isotherm for a combination of adsorbate (e.g. methane, CO_2,) and adsorbent (coal, shale etc.). In other words, the system evaluates at equilibrium, the maximum volume of gas adsorbed onto an adsorbent, at a specific temperature and pressure. The latter is achieved by means of the isothermal volumetric method in which the pressures and volumes of a reference and test cell held at constant temperature, are continuously monitored. The apparatus is fully automated, allowing computer-controlled gas injection, pressure monitoring and data acquisition. Up to four testing chambers can be integrated into the system to allow simultaneous and independent testing.

FEATURES

Operating pressure	up to 700 bar (10,000 psi)
Operating temperature	up to 175°C
Sample cell volume	100 cm^3
Reference cell volume	300 cm^3
Wetted part	Stainless steel
Test gas supply	3,000 psi, ¼" Swagelok
Helium gas supply	3,000 psi, ¼" Swagelok
Air requirement	100 psi
Power supply	110-220VAC, 50/60Hz

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LOW PRESSURE GAS ADSORPTION ISOTHERM SYSTEM (LP- GADIS)

The LP-GADIS determines the adsorption isotherm for a combination of adsorbate (e.g. methane, CO_2) and adsorbent (coal, shale etc.). In other words, the system evaluates at equilibrium, the maximum volume of gas adsorbed onto an adsorbent, at a specific temperature and pressure. The latter is achieved by means of the isothermal volumetric method in which the pressures and volumes of a reference and test cells held at constant temperature, are continuously monitored. The apparatus comprises two sample cells, one reference cell, three pressure transducers and a thermostatic bath. An Excel spreadsheet is provided to input the pressure and temperature readings and generate the adsorption isotherm report.

FEATURES

Operating pressure	up to 1,800 psi
Operating temperature	up to 120°C
Sample cell volume	100 cm^3
Reference cell volume	300 cm^3
Wetted part	Stainless steel
Test gas supply	2,000 psi, ¼" Swagelok
Helium gas supply	2,000 psi, ¼" Swagelok
Power supply	110-220VAC, 50/60Hz

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DESORPTION CANISTER SYSTEM (DECAN)

The DECAN system determines the amount of gas contained in a coal or shale core sample by means of a desorption process. The apparatus follows the guidelines described in the standard practice ASTM D7569/D7569M; a direct desorption in which the released gas volume is monitored over time. Immediately after coring coal or shale rock, a sample is inserted into a hermetic canister to measure gas evolution over time equivalent to the amount of contained gas. The DECAN system allows desorption at reservoir temperature by placing the canister in an electric thermostatic bath. Whole core desorption canisters can also be utilized with cuttings.

FEATURES

Canister diameter	5 inches (other upon request)
Canister length	12 inches (other upon request)
Specimen diameter	up to 4.5 inches
Specimen length	12 inches
Max temperature	100 °C (212° F)
Wetted parts	Stainless steel
Max pressure	20 psi
Power supply	110 V / 60 Hz or 220 VAC / 50 Hz

BENEFITS

- Desorption at reservoir temperature
- Easy to use

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DRILLING FLUID TESTING

Pressure transmission tester

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PRESSURE TRANSMISSION TESTER (PTT 700)

The PTT700 is used to evaluate how a drilling fluid's filtrate penetrates shale formations over time under overbalanced pressure conditions. A cylindrical shale sample is placed in a core holder and exposed to a drilling fluid (test fluid) applied at an overbalanced pressure, meaning the pressure is intentionally set higher than the native pore pressure within the shale. As the test progresses, the downstream pressure is continuously measured to track how quickly the fluid filtrate penetrates through the shale matrix. The observed pressure build-up on the downstream side simulates the increase in pore pressure that occurs in the near-wellbore region during actual drilling operations. This dynamic is crucial, as it reflects the shale's response to fluid invasion over time. A mathematical model is used to analyze the pressure data and compute the shale's hydraulic conductivity. From this, a delay factor is derived, indicating how much more slowly the test fluid infiltrates the shale compared to the native pore fluid, thus providing key insights into the fluid's ability to maintain borehole stability.

FEATURES

Max confining pressure: 10,000 psi
Max pore pressure: 10,000 psi
Max temperature: 150 °C
Specimen diameter: 1" (other upon request)
Specimen length: 0.3" to 0.7"
Wetted parts: Stainless steel
Air pressure: 100 psi
Power supply: 110 V / 60 Hz or 220 VAC / 50 Hz

BENEFITS

*Assess the risk of shale destabilization caused by filtrate invasion and pore pressure increase.
*Quantify the delay factor, which reflects how well a fluid delays pressure transmission — key to maintaining wellbore stability over time.
*Evaluate and compare fluid formulations (e.g., OBM, HP-WBM, nanoparticle muds) for their ability to minimize pressure invasion.
* Support the design of drilling fluids that are more compatible with shales, especially in water-based systems, where instability risks are higher.

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ENHANCED OIL RECOVERY

Core flood

Steam flood

Slim tube

IFT 700

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CORE FLOOD SYSTEM (CFS SERIES)

The CFS series flawlessly performs single and multiphase core flood studies at reservoir-representative conditions of temperature and pressure. Notably the device allows the evaluation of critical parameters such as brine sensitivity, return permeability, critical flow velocity and various secondary and tertiary EOR methods, including water flooding, polymer injection, ASP injection, miscible and immiscible gas flooding, acid treatments and microbial flooding. Relative permeabilities at irreducible water saturation, residual oil saturation, displacement efficiency and incremental oil recovery after implementation of the EOR process, can be determined. The computer-controlled system is provided with a unique software that allows both manual and automated operation where all key components can be controlled including pumps, valves, video capturing and data acquisition. A test sequencer also permits automated elaborate test sequences. The core holder, air operated valves, produced fluid separator if selected and necessary plumbing are mounted in an isothermal convective air bath that has been designed to provide easy access to all main components.

FEATURES REQUIRED FOR CONFIGURING A COREFLOOD:

- Type of EOR test to be performed
- Type of coreflood test (unsteady or/and steady test)
- Confining pressure
- Pore pressure
- Maximum working temperature
- Core diameter
- Core length
- Fluid flow rate
- position of the coreholder
- number of pressure taps
- Wetted parts material
- Number of coreholder
- Method of measuring the produced fluid
- Number of injection pumps
- Number of accumulator
- Number of mixer for accumulator

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BENCHTOP CORE FLOOD SYSTEM (BCF 700)

The BCF 700 is a cost-effective and versatile solution to carry out core flooding and fluid flow studies at reservoir-representative conditions of temperature and pressure. Notably the device allows the evaluation of various secondary and tertiary EOR methods, including water flooding, polymer injection, ASP injection, miscible and immiscible gas flooding and microbial flooding. Relative permeabilities at irreducible water saturation, residual oil saturation, displacement efficiency and incremental oil recovery after implementation of the EOR process, can be determined. The standard configuration can be upgraded with modules such as dual monitoring taps, a gas injection line, automatic fraction collector and air bath.

FEATURES

Maximum pore pressure	700 bar (10,000 psi)
Maximum confining pressure	700 bar (10,000 psi)
Maximum working temperature	150°C
Core diameter	1” and 1”5 (other upon request)
Core length	2 to 6” (other upon request)
Pressure taps	Optional
Position	Horizontal
Wetted parts	Hastelloy
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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SAND PACK SYSTEM (SAP SERIES)

The sand pack system provides an alternative porous medium to perform EOR studies at reservoir conditions of temperature and pressure. The sand pack is a HP-HT tube which is filled with calibrated sand having a known grain geometry. Optionally, several pressure taps can be integrated along the tube to monitor the pressure gradient as a function of injection distance. The versatile apparatus warrants various EOR tests including water flooding, polymer injection, ASP injection, miscible and immiscible gas flooding, microbial flooding and steam injection. Critical parameters such as displacement efficiency and improved oil recovery can be determined from the results. The system can be upgraded with a number of modules such as the capillary sight glass and foam generator. The Sand Pack System is an essential device for a Petroleum Engineering laboratory as it does not require reservoir rock sample procurement & preparation.

FEATURES

Maximum pore pressure	700 bar (10,000 psi)
Maximum working temperature	150°C
Tube diameter	1”5 (other upon request)
Tube length	100 cm (other upon request)
Pressure taps	6 (other upon request)
Position	Horizontal
Wetted parts	Stainless steel
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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CORE FLOOD SYSTEM FOR CHEMICAL INJECTION (CHEMFLOOD)

The Vinci CHEMFLOOD warrants various chemical flooding experiments including polymer flooding, Alkaline-Surfactant flooding and foam injection. These tertiary EOR methods aim at increasing hydrocarbon recovery via modifications of the fluid and/or rock properties. For instance, polymers increase the injected fluid's viscosity thereby reducing the oil/water mobility ratio and limiting the viscous fingering phenomenon. Surfactant and alkali have the effect of reducing the interfacial tension between oil and the injected aqueous solution which facilitates recovery because of the decrease in capillary pressure; the process can also alter the rock's wettability. Moreover, foam can be utilized as a mobility control agent to augment a process's sweep efficiency. The CHEMFLOOD is the ideal apparatus to perform such EOR processes at reservoir-representative conditions; the results will help developing a thorough understanding of the effects of chemical injection compatibility as well as assessing the efficiency of different processes. Moreover, change in permeability, displacement efficiency and incremental oil recovery due to chemical injection can be studied with the CHEMFLOOD.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000 psi)
Maximum working temperature	150°C
Core diameter	1"5 (other upon request)
Core length	2 to 6" (other upon request)
Pressure taps	3 (other upon request)
Position	Horizontal
Wetted part	Hastelloy
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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HP – HT FOAM ANALYSER (FOAM EVAL)

Foam injection is an attractive EOR scheme in terms of cost, effectiveness, and environmental-friendliness. Foams mainly serve as mobility control or gas blocking agents. To optimize their effectiveness, the critical foam parameters should be studied at reservoir-representative conditions. The FOAMEVAL permits this; foams are produced in a high pressure visual cell continuously monitored by a high-resolution image capturing system. A dedicated Vinci software then interprets the images and reports the following:

Physical quantities measured in Real Time

gas flowrate,
volume of the foam,
volume of liquid in the foam

Physical quantities calculated in Real Time

volume of the foam
density of the foam
Bikerman index
foam stability
foam expansion coefficient
foaming capability

FEATURES

Maximum working pressure	10,000 psi for Stainless steel model 5,000 psi for Hastelloy model
Maximum working temperature	150°C
Visual foam cell	100 cc
Sight glass view	230 mm x 8 mm
Wetted parts	Stainless steel
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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CORE FLOOD SYSTEM FOR MISCIBLE AND IMMISCIBLE GAS FLOODING (GASFLOOD)

The GASFLOOD is a fully automated, modular core flooding system built specifically to evaluate the efficiency of enhanced oil recovery by means of miscible or immiscible gas injection. The versatile system performs water flooding, gas flooding and WAG (water-alternating-gas) flooding. By virtue of the unsteady state method, the apparatus determines not only gas and liquid relative permeabilities but also residual oil saturation, post-water flood displacement efficiency, incremental oil recovery and water production as a function of gas injection. The device is also compatible with carbon dioxide (CO_2). Optionally, the core holder can be positioned vertically to study the gravity segregation effect. The results from such studies are useful in optimizing gas injection and WAG schemes.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000psi)
Maximum working temperature	150°C
Core diameter	1”5 (other upon request)
Core length	4” to 6” (other upon request)
Pressure taps	3 (other upon request)
Wetted parts	Hastelloy
Position	Horizontal and vertical
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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CORE FLOOD SYSTEM FOR STEAM INJECTION STUDIES (STEAMFLOOD)

Steam flooding has become an increasingly common EOR method for heavy crude reservoirs. A greater recovery is achieved via modifications of quantities such as viscosity, specific gravity, relative permeability and interfacial properties. The Steam Flood performs steam injections into reservoir core samples at reservoir conditions, therefore replicating the steam flooding process. Change in permeability, displacement efficiency, expected oil recovery with various steam flood criteria, are determined from the experiment. The apparatus can be utilized to investigate the effects of temperature rise on viscosity reduction in heavy oil and consequently, the production rate. The core flooding system is equipped with a steam generator to generate superheated steam at temperatures up to 325 °C and pressures up to 2,500 psi. The steam and hot water are injected into a confined core sample whose saturation profile has been restored to that of its reservoir.

FEATURES

Confining pressure	10,000 psi
Steam pressure	up to 2,500 psi
Pore pressure	10,000 psi
Maximum working temperature	150°C
Maximum steam temperature	325°C
Core diameter	1.5” (other upon request)
Core length	1”to 6” (other upon request)
Wetted parts	Hastelloy
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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STEAM GENERATOR

The steam generator produces super-heated steam at temperatures and pressures up to 325°C and 2,500 psi, respectively. This stand-alone device can be integrated into a core flooding system to study thermal EOR processes. A typical test consist of injecting steam or hot water into a core sample at residual oil saturation and monitoring the incremental oil recovery. The device comprises a heated aluminum barrel, around which is coiled a 1/8" tube. A thermoelectric heating cartridge is fitted inside the aluminum barrel to heat the water circulating inside the coil tube. Transferred by a micro pump (not included) into the coiled tube, the water vaporizes to yield steam. The whole barrel/tubing assembly is insulated within a surrounding jacket to improve thermodynamic control and temperature stability. The generator's temperature is continuously monitored by a PT 100 probe while temperature control is achieved via a dedicated regulator that adjusts the amount of electrical power delivered to the heating element.

FEATURES

Maximum working pressure	2,500 psi
Maximum working temperature	325°C
Heater	Electrically operated
Wetted parts	stainless steel
Water supply	Distilled water

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CORE FLOOD SYSTEM FOR MICROBIAL FLOODING (MICROB-FLOOD)

Microbial flooding has the potential of becoming a standard enhanced oil recovery method; due to their environmentally friendly aspect, microbes could eventually replace synthetic surfactants. The Microb-flood is specifically designed for the study of microbial EOR processes in which microbial bio-surfactants are injected into the reservoir. These have the property of reducing the surface tension on the reservoir rock and the interfacial tension between the injected aqueous phase and the reservoir hydrocarbons. The Microb-flood system is ideally suited for the evaluation of various mixtures at reservoir conditions including bio-surfactants, co-surfactants and polymers. Change in permeability, optimal microbial concentration, displacement efficiency and incremental oil recovery are some of the key parameters which can be deduced from these studies.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000 psi)
Maximum working temperature	150°C
Core diameter	1”5 (other upon request)
Core length	1 to 3” (other upon request)
Position	Horizontal
Wetted parts	Hastelloy
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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CORE FLOOD SYSTEM FOR WATER FLOODING (WATERFLOOD)

The WATERFLOOD is a fully automated core flooding system designed to evaluate and optimize secondary recovery methods such as water flooding and dry gas injection. The apparatus performs unsteady-state, core flooding experiments with both liquids and gases, on natural and composite core samples at reservoir conditions of temperature and pressure. Critical parameters such as displacement and sweep efficiencies can be derived from the results. The system includes three fluid transfer vessels, an injection pump, nitrogen injection line, hydrostatic core holder, confining pump, back-pressure regulator, air bath, pressure measurement system, ambient fluid video separator, wet gasmeter and data acquisition system.

FEATURES

Maximum confining pressure	700 bar (10,000 psi)
Maximum pore pressure	700 bar (10,000psi)
Maximum working temperature	150°C
Core diameter	1”5 (other upon request)
Core length	4” to 12” (other upon request)
Wetted parts	Hastelloy
Position	Horizontal
Power supply	220VAC, 50Hz
Air Pressure requirements	7 bar (100 psi)

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SLIM TUBE SYSTEM (STS 700)

The STS 700 system excellently performs dynamic miscibility tests studies at reservoir conditions of temperature and pressure. Specifically, the miscibility tests allow for the evaluation of the minimum miscibility pressure (MMP), the minimum miscibility composition (MMC), the optimization of injection parameters and composition of lean and enriched gas, the determination of oil in place recovery and the assessment of experimental condition sensitivity on recovery. The gas to be tested is injected at a desired pressure through the slim tube previously cleaned and saturated with oil by means of a high pressure pump. The effluents flowing from the slim tube can be observed through a capillary sight glass tube. They are then expanded to atmospheric pressure and temperature through a back pressure regulator which maintains a constant system outlet pressure. The effluent liquid volumes are continuously monitored using a digital volume measuring detector whereas the produced gas is measured by a wet gas meter. The recovery curve is then plotted using the raw data obtained during the different miscible displacement experiments. Additional components such as a density meter or gas chromatograph may be added to the STS 700 to extend its capabilities.

FEATURES

Tube length:	24 m (80 feet), other length upon request
Tube external diameter:	1/4”
Material:	Stainless steel
Porous media:	Calibrated 50 – 310 µm silica
Approx porosity:	35 %
Approx pore volume:	100 cc
Working pressure:	700 bar (10,000 psi)
Working temperature:	Up to 150°C
Fluids:	Live oil, HC gas, CO_2, solvent
Power supply:	220 VAC 50 Hz

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RISING BUBBLE APPARATUS (RBA 700)

The RBA700 offers a quick and reliable method of determining the minimum miscibility pressure (MMP) of a gaseous phase in a surrounding liquid medium. The experimental results can be utilized to evaluate the efficiency of certain EOR processes such as vaporizing gas drive injections. The apparatus warrants a visual observation of miscibility; a needle, located at the bottom of a visual reservoir oil-filled column, liberates a gas bubble which travels towards the top of the column. Whereas the bubble's volume will remain constant under immiscible conditions, the bubble will, under immiscible conditions, gradually shrink as it travels upwards. The experiment is continuously monitored by four high resolution cameras and the images are interpreted by a Vinci software to determine the miscibility onset. A small gas bubble having the desired composition is released into the column via the needle. Buoyancy causes the bubble to rise through the water column, then the water/oil interface and finally through the oil column. Throughout the experiment, the bubble's shape and motion are continuously surveilled with four high-precision cameras. It takes between 3 and 30 seconds for the bubble to traverse the entire column. After two or three trials, the oil must be replaced. For a gas/oil pair, rising bubble experiments are performed at different pressures. The results allow the discernment of the pressure/bubble behavior relationship and minimum miscibility pressure.

FEATURES

Working pressure:	10,000 psi (700 bar)
Working Temperature:	175°C (350 F)
Sightglass viewing area:	230 mm x 8 mm
Internal section:	5 mm x 1 mm
Needle tip diameter:	0.91 mm
Material:	Stainless steel, sapphire
Fluids:	Water, oil, HC gas, CO_2, solvent
Electrical requirements:	220 VAC- 50/60 Hz - 1 phase

BENEFITS

- Fast results
- Visual observation
- Less expensive that slim tube method
- Minimal fluid sample required

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INTERFACIAL TENSION METER (IFT 700)

The robust yet precise IFT700 apparatus can determine at reservoir-representative conditions of pressure and temperature, both the interfacial tension of two immiscible fluids using the pendant/rising drop methods and the contact angle of a liquid droplet on a solid surface using the sessile method. By means of a capillary needle, a droplet (drop fluid) is formed in a chamber containing the other fluid (bulk fluid), subjected to the desired pressure and temperature conditions. A state-of-the-art image capture and processing system computes the relevant geometric parameters to derive the interfacial tension using the Laplace equation. The process is similar to the interfacial tension with the additional step of depositing the droplet on a planar solid surface. Upon reaching equilibrium, the contact angle can directly be measured with the Vinci interpretation software.

FEATURES

IFT standard measurement:	0.1 to 72 mN/m
Temperature:	Ambient to 180°C
Temperature accuracy:	0.1°C
Pressure:	700 bar (10,000psi)
Wetted parts:	Stainless steel, option: Hastelloy
Power supply:	220 VAC 50 Hz

BENEFITS

- Easy to use
- Provided with an advanced drop analysis software
- Excellent drop stability

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CRITICAL PROPERTY TESTER (CPT 200)

The CPT-200 evaluates the critical point of pure compounds as well as binary mixtures. Critical temperature and critical pressure (T_c, P_c) are detected by critical opalescence in a transparent cell. The system encompasses two syringe pumps which store the pure compounds (liquid or liquefied gas) and synchronously operate to inject a constant composition mixture throughout the duration of the experiment. To prevent temperature and pressure fluctuations, pump cylinder temperature is regulated with an isothermal jacket and a refrigerant circulating bath. The mixture is fed into a sapphire visualization cell located in a thermostatic air bath. An external image capturing system records the test fluid while high-resolution sensors continuously monitor temperature and pressure. Far above the critical point, only a supercritical transparent phase is observed while far below, two distinct phases can be distinguished. However in its nearby region, an opalescence phenomenon is observed as a result of density fluctuations and light scattering. The procedure is repeated several times to maximize the accuracy of the results.

FEATURES

Pressure:	3,000psi
Temperature:	Ambient to 200°C
Pressure accuracy:	0.1° % FS
Temperature accuracy:	0.1°C
Sample volume:	10 cc
Wetted parts:	Hastelloy
Power supply:	220 VAC 50 Hz

BENEFITS

- Repeatable measurements
- Automated tests

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CORE HOLDERS

Hassler CH

Triaxial CH

Leakoff CH

Stands

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HASSLER CORE HOLDER (HAS SERIES)

The HAC Series are standard Hassler type core holders employed in studies involving fluid displacement in porous media. A cylindrical core sample is fitted in a Viton sleeve and inserted into the core holder via the loading end. A platen is then pushed against the core end face and maintained by a threaded cap allowing up to 30 mm length adjustments. Further adjustments are possible by means of interchangeable spacers pressed against the loose platen. An inlet and outlet distribution plug allows fluids and gases to be injected through the core sample. A convenient characteristic of the HAC series core holder is that the sleeve remains inside the core holder; the core is loaded from one end without the need of filling/draining the confining fluid. By releasing the confining pressure and unscrewing the end plug, the core sample can easily be removed without hydraulic fluid exposure.

FEATURES

Performance specifications	**HAC series**
Operating pressure rating:	5,000 psi (Max)
Operating temperature:	Ambient or 150°C
Fitting:	NPT, Autoclave or HIP
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel, Hastelloy, titanium
Sleeve material	Viton
Inlet port:	As request
Outlet port:	As request
Pressure tap :	As requested

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PRESSURE TAPPED HASSLER CORE HOLDER (PT-HAS SERIES)

The PT-HAC Series are standard Hassler type core holders employed in studies involving fluid displacement in porous media. These core holders incorporate pressure taps moulded in the Viton sleeve at specified locations along the longitudinal axis. This great feature permits pressure drop monitoring along the core's length. A cylindrical core sample is fitted in a Viton sleeve and inserted into the core holder via the loading end. A platen is then pushed against the core end face and maintained by a threaded cap allowing up to 30 mm length adjustments. Further adjustments are possible by means of interchangeable spacers pressed against the loose platen. An inlet and outlet distribution plug allows fluids and gases to be injected through the core sample. A convenient characteristic of the PT-HAC series core holder is that the sleeve remains inside the core holder; the core is loaded from one end without the need of filling/draining the confining fluid. By releasing the confining radial pressure and unscrewing the end plug, the core sample can easily be removed without exposure to the hydraulic fluid.

FEATURES

Performance specifications	**PT-HAC series**
Operating pressure rating:	5,000 psi (Max)
Operating temperature:	Ambient or 150°C
Fitting:	NPT, Autoclave or HIP
Core diameter:	Customer specified
Core length:	Customer specified
Pressure tap :	Customer specified
Wetted parts:	Stainless steel, Hastelloy
Sleeve material	Viton
Inlet port:	As request
Outlet port:	As request

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HYDROSTATIC CORE HOLDER (HYC SERIES)

The HYC Series are standard Hydrostatic type core holders employed in studies involving fluid displacement in porous media. One great advantage of these core holders is the application of both radial and axial (equal) confining pressures. A cylindrical core sample is fitted in a Viton sleeve and mounted onto a fixed platen at one end while at the other end, there is a floating platen through which the fluid passes via a ¼" diameter tubing. This design enables firm contact between the platen and core sample for a wide range of core lengths. To change a core sample, the confining fluid must be drained and the end plug unscrewed by manually rotating it counter-clockwise. This will withdraw the entire assembly: fixed platen, sleeve, core and floating platen. Subsequently the core can be removed from the sleeve. Loading a new core sample is carried out by performing this procedure backwards.

FEATURES

Performance specifications	**HYC series**
Operating pressure rating:	5,000, 10,000 psi, 15,000 psi
Operating temperature:	Up to 150°C
Fitting:	NPT, Autoclave or HIP
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel, Hastelloy, titanium
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	one
Pressure tap :	As request

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PRESSURE TAPPED HYDROSTATIC CORE HOLDER (PT-HYC SERIES)

The PT-HYC Series are standard Hydrostatic type core holders employed in studies involving fluid displacement in porous media. These core holders incorporate pressure taps moulded in the Viton sleeve at specified locations along the longitudinal axis. This great feature permits pressure drop monitoring along the core's length. Another great advantage is the application of both radial and axial (equal) confining pressures. A cylindrical core sample is fitted into a Viton sleeve and mounted onto a fixed platen at one end while at the other end, there is a floating platen through which the fluid passes via a ¼" diameter tubing. This design enables firm contact between the platen and core sample for a wide range of core lengths. To change a core sample, the confining fluid must be drained, pressure taps removed and the end plug unscrewed by manually rotating it counter-clockwise. This will withdraw the entire assembly: fixed platen, sleeve, core and floating platen. Subsequently the core can be removed from the sleeve. Loading a new core sample is carried out by performing this procedure backwards.

FEATURES

Performance specifications	**PT-HYC series**
Operating pressure rating:	5,000, 10,000 psi, 15,000 psi
Operating temperature:	Up to 150°C
Fitting:	NPT, Autoclave or HIP
Core diameter:	Customer specified
Core length:	Customer specified
Pressure tap :	Customer specified
Wetted parts:	Stainless steel, Hastelloy
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	one

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TRIAXIAL CORE HOLDER (TRC SERIES)

The TRC Series are standard triaxial type core holders employed in studies involving fluid displacement in porous media. One great advantage of these core holders is the application of independent radial and axial confining pressures; independent axial pressure is applied via a floating distribution plug. An inlet and outlet distribution plug enable fluid injection through the core sample. A convenient characteristic of the TRC series core holder is that the sleeve remains inside the core holder; the core is loaded from one end without the need of filling/draining the confining fluid. By releasing the confining radial and axial pressures and unscrewing the end plug, the core sample can easily be removed without exposure to the hydraulic fluid. The core holder can be configured for Hassler, Hydrostatic or Triaxial loading.

FEATURES

Performance specifications	**TRC series**
Operating pressure rating:	5,000, 10,000 psi, 15,000 psi
Operating temperature:	Up to 150°C
Fitting:	NPT, Autoclave or HIP
Core diameter:	Customer specified
Core length:	Customer specified
Pressure taps:	Customer specified
Wetted parts:	Stainless steel, Hastelloy, titanium
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	As request

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PRESSURE TAPPED TRIAXIAL CORE HOLDER (PT-TRC SERIES)

The PT-TRC Series are standard triaxial type core holders employed in studies involving fluid displacement in porous media. These core holders incorporate pressure taps molded in the Viton sleeve at specified locations along the longitudinal axis. This great feature permits pressure drop monitoring along the core's length. Another great advantage of these core holders is the application of independent radial and axial confining pressures; independent axial pressure is applied via a floating distribution plug. An inlet and outlet distribution plug enable fluid injection through the core sample. A convenient characteristic of the PT-TRC series core holder is that the sleeve remains inside the core holder; the core is loaded from one end without the need of filling/draining the confining fluid. By releasing the confining radial and axial pressures and unscrewing the end plug, the core sample can easily be removed without exposure to the hydraulic fluid. The core holder can be configured for Hassler, Hydrostatic or triaxial loading.

FEATURES

Performance specifications	**PT-TRC series**
Operating pressure rating:	5,000, 10,000 psi, 15,000 psi
Operating temperature:	Up to 150°C
Fitting:	NPT, Autoclave or HIP
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel, Hastelloy, titanium
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	As request

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LEAKOFF CORE HOLDER (LEC SERIES)

The LEC Series core holders are specifically designed for fluid invasion studies, e.g. drilling fluid in the surrounding formation. The invasion phenomenon is accurately replicated by tangentially circulating fluid across one of the core end faces; achieved by virtue of a special leakoff end. Moreover, fluids can be injected into the sample via either end of the core holder. Specific examples of the possible applications include static and dynamic filtration tests to evaluate erosion effects and permeability alteration studies.

FEATURES

Performance specifications	**LEC series**
Confining pressure:	Up to 10,000 psi
Pore pressure:	Up to 5,000 psi
Mud pressure:	Up to 5,000 psi
Operating temperature:	Up to 150°C
Fitting:	NPT
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Hastelloy
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	As request

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PRESSURE TAPPED LEAKOFF CORE HOLDER (PT-LEC SERIES)

The PT-LEC Series core holders are specifically designed for fluid invasion studies, e.g. drilling fluid in the surrounding formation. The invasion phenomenon is accurately replicated by tangentially circulating fluid across one of the core end faces; achieved by virtue of a special leakoff end. Moreover, fluids can be injected into the sample via either end of the core holder. These vessels incorporate pressure taps molded in the Viton sleeve at specified locations along the longitudinal axis. This great feature permits pressure drop monitoring along the core's length. Specific examples of the possible applications include static and dynamic filtration tests to evaluate erosion effects and permeability alteration studies.

FEATURES

Performance specifications	**PT-LEC series**
Confining pressure:	Up to 10,000 psi
Pore pressure:	Up to 5,000 psi
Mud pressure:	Up to 5,000 psi
Operating temperature:	Up to 150°C
Fitting:	NPT
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Hastelloy
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	As request
Pressure taps :	As request

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QUICK RELEASE CORE HOLDER (QRC SERIES)

The QRC Series are Hassler type core holders which permit loading without complete core holder disassembly; achieved via an innovative ¼ turn, fast-release bayonet mechanism. Another convenient characteristic of the QRC series core holder is that the sleeve remains inside the core holder; the core is loaded from one end without the need of filling/draining the confining fluid. By releasing the confining pressure and unscrewing the end plug, the core sample can easily be removed without exposure to the hydraulic fluid, i.e. nitrogen or hydraulic oil. This avoids assembly/disassembly-related sleeve damage. Furthermore, experimental preparation is much faster and easier; therefore these vessels are particularly suited for low pressure, short duration experiments.

FEATURES

Performance specifications	**QRC series**
Operating pressure rating:	400 psi, 1000 psi or 5000 psi
Operating temperature:	Ambient or up to 80°C
Fitting:	NPT
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel
Sleeve material	Nitrile
Inlet port:	1
Outlet port:	1

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XRAY TRANSPARENT TITANIUM CORE HOLDER (TXC SERIES)

The TXC Series titanium core holders are standard hydrostatic type core holders employed in core flooding studies involving in-situ saturation monitoring. The core holder is made from a high grade titanium alloy to prevent strong x-ray attenuation. Spiral fluid distribution grooves at the core inlet are incorporated to minimise capillary end effects. The vessel can be provided with an external heating system to assure isothermal testing conditions up to 150°C.

FEATURES

Performance specifications	**TXC series**
Operating pressure rating:	10,000 psi, 15,000 psi
Operating temperature:	Up to 150°C
Fitting:	1/8”LP
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel, Hastelloy, titanium
Body material:	Titanium
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	one

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XRAY TRANSPARENT CARBON FIBER CORE HOLDER (CXC SERIES)

The CXC Series carbon fiber core holders are standard hydrostatic type core holders employed in core flooding studies involving in-situ saturation monitoring. The core holder consists of an inner high grade titanium liner and carbon fiber wound to prevent strong x-ray attenuation. Spiral fluid distribution grooves at the core inlet are incorporated to minimise capillary end effects. The vessel can be provided with an external heating system to assure isothermal testing conditions up to 150°C.

FEATURES

Performance specifications	**CXC series**
Operating pressure rating:	10,000 psi, 15,000 psi
Operating temperature:	Up to 150°C
Fitting:	1/8”LP
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel, Hastelloy, titanium
Body material:	Titanium liner and carbon fiber wound
Sleeve material :	Viton
Inlet port:	As request
Outlet port:	one

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NMR CORE HOLDER (NMR SERIES)

The NMR Series core holders are standard hydrostatic type core holders employed in MRI imaging studies. One great advantage of these core holders is the application of both radial and axial (equal) confining pressures. These vessels comprise a composite body in which a PEEK liner has been inserted. A cylindrical core sample is fitted in a Teflon sleeve and mounted onto two floating platens through which the fluid passes via a ¼" diameter tubing. This design enables firm contact between the platens and core sample for a wide range of core lengths. To change a core sample, the confining fluid must be drained and the two end-plug removed. Subsequently the core can be removed from the sleeve. Loading a new core sample is carried out by performing this procedure backwards.

FEATURES

Performance specifications	**NMR series**
Max outer tube diameter :	type 1: 75 mm
	type 2: 51 mm
Operating pressure rating:	5,000 psi (type 1) and 3,000 psi (type 2)
Operating temperature:	Up to 150°C
Max tube length :	480 mm
Fitting:	1/4"
Core diameter:	type 1: 1" and 1.5''
	type 2: 1"
Core length:	up to 4"
Wetted parts:	PEEK and titanium
Body material:	Glass Fiber
Liner:	PEEK
Sleeve material :	Teflon
Loading	Hydrostatic
Inlet port:	one
Outlet port:	one

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ELECTRICAL CORE HOLDER (ECP SERIES)

The ECP Series are standard hydrostatic type core holders equipped with electrical facilities rendering them ideal for reservoir-representative resistivity studies. Capillary pressure is generated by means of semi-permeable, pressure calibrated water-wet ceramic placed between the flow distribution and the core sample. Special Viton sleeves with two embedded circumferential electrodes are employed for high-accuracy sample resistivity measurements. Two other electrodes are in contact with the electrically isolated distribution plugs, thus allowing both two and four point resistivity measurements.

FEATURES

Performance specifications	**ECP series**
Operating pressure rating:	10,000 psi,
Operating temperature:	Ambient and up to 150°C
Resistivity measurement	2 and 4 points
Connection	NPT
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel
Sleeve material	Viton
Inlet port:	2
Outlet port:	1

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2-TERMINAL PC-RI CORE HOLDER (PCRI-C SERIES)

The PCRI-C Series are standard hydrostatic type core holders equipped with insulated end pieces for 2-pole electrical measurement. Capillary pressure is generated by means of semi-permeable water-wet ceramic placed between the flow distribution and the core sample. Two electrodes are in contact with the electrically isolated distribution plugs, thus allowing two point resistivity measurements. An optional heating jacket ensures homogeneous, isothermal testing conditions.

FEATURES

Performance specifications	**PCRI-C series**
Operating pressure rating:	10,000 psi,
Operating temperature:	Ambient and up to 90°C
Resistivity measurement	2 points
Connection	1/8 inch LP
Core diameter:	1 inch and 1.5 inches
Core length:	Up to 3 inches
Wetted parts:	Stainless steel
Sleeve material	Viton
Inlet port:	1
Outlet port:	1

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CAPRI CORE HOLDER (CAPRI SERIES)

The Capri Series are standard hydrostatic type core holders equipped with electrical and capillary pressure facilities rendering them ideal for reservoir-representative capillary pressure/ resistivity studies. Capillary pressure is generated by means of semi-permeable, pressure calibrated water-wet or oil-wet ceramics placed between the flow distribution plugs and the core sample. Special Viton sleeves with two embedded circumferential electrodes are employed for high-accuracy sample resistivity measurements. Two other electrodes are in contact with the electrically isolated distribution plugs, thus allowing both two and four point resistivity measurements.

FEATURES

Performance specifications	**ECP series**
Operating pressure rating:	10,000 psi,
Operating temperature:	Ambient and up to 150°C
Resistivity measurement	2 and 4 points
Capillary pressure	Positive and negative
Connection	NPT
Core diameter:	Customer specified
Core length:	Customer specified
Wetted parts:	Stainless steel
Sleeve material	Viton
Inlet port:	2
Outlet port:	1

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HEATING SYSTEM (HES SERIES)

The temperature controlled heating mantle is provided to heat and maintain a constant, homogeneous temperature in the core sample from ambient to 150°C. A digital temperature controller is used to enter, display and regulate the temperature (reading: 0.1°C). A thermocouple probe accurately measures the core holder body temperature.

FEATURES

Performance specifications	**HES series**
Operating temperature:	Ambient to 150°C
Temperature accuracy:	0.1 °C
Power:	220 VAC, 50 Hz,

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STAND (STA SERIES)

A swiveling stand to support the core holder. Temperature resistant, it can be mounted inside the air bath.

FEATURES

Performance specifications	**STA series**
Coreholder position:	Fixed Horizontal, Fixed horizontal and vertical, Swivelling
Operating temperature:	Ambient and up to 150°C

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CORE ANALYSIS COMPONENTS

Video tracker

BPR

Vacuum Pump

Pressure Generator

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VIDEO TRACKER (VT SERIES)

Designed to measure at ambient conditions, the liquid volume in a glass collector, produced during a liquid displacement process. The device consists of a precision bore calibrated glass collector, an image capturing unit encompassing a video camera with backlighting and a data acquisition station with video software to log and display the pictures of produced liquid volumes versus time. 100 ml and 300 ml glass collectors are supplied with the instrument. Measurement of produced liquid is performed with a video camera which monitor the interface level in the collector. The position of the interface is directly proportional to the liquid volume. The high resolution camera is equipped with an integrated zoom and a back lighting installed in the rear side of the collector. The camera is connected to the computer station allowing continuous image display and logging. The video software incorporates facilities which enable automatic liquid/ liquid and gas/ liquid interface detection.

FEATURES

Temperature	ambient
Collector capacity	100 ml or 300 ml
Volume accuracy	0.1 ml
Wetted parts	glass
Power	110-220 VAC, 50 or 60 Hz

BENEFITS

- Allows multi-interface detection.
- Visual detection is independent of fluid type.
- High accuracy volume measurement. The device includes volume calibration facilities

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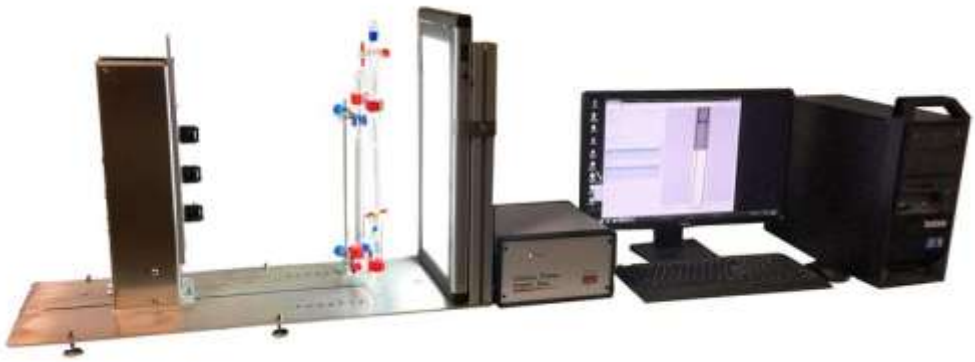
AMBIENT CONDITIONS TWO PHASE VIDEO SEPARATOR
(2 PHASE VSE –A)

The video separator is a high precision visualization device enabling the separation and volumetric determination of the produced liquid and gas phases during multiphase experiments at ambient conditions. A two-phase mixture first enters a vertical glass tube section, deemed the "separation tube". The latter communicates at the top and bottom, with the "visualization tube" via two horizontal glass tube sections. By virtue of gravity, the lighter fluid comes to rest above the heavier fluid; in the separation tube, an emulsion of both fluids prevents an accurate volume determination, whereas in the other tube, a neat interface can be observed. This interface is constantly monitored by video camera with integrated zoom. Placing a light behind the tube further facilitates discernment of the liquid/ liquid or gas/ liquid interface. A proprietary software interprets the streaming images and calculates produced fluid volumes and core saturation levels.



FEATURES

Max pressure ……	Atmospheric pressure
Max temperature……	up to 40 °C
Max volume change……..	50 ml
Volume accuracy……...…	0.01 ml
Material…….	Glassware
Measurement resolution……..	0.02 mm
Minimum field of view…….	50 mm
CDD colour camera……..….	5 megapixels (2592 X 1944)
Lighting ……...	20 watts
Power……...	110-220 VAC, 50 or 60 Hz

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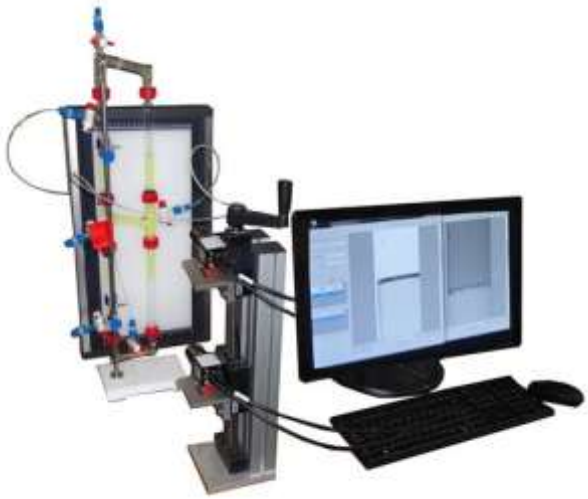
AMBIENT CONDITIONS THREE PHASE VIDEO SEPARATOR (3 PHASE VSE –A)

A three-phase mixture first enters a vertical glass tube section, deemed the “separation tube”. The latter communicates at the top, middle and bottom, with the “visualization tube” via three glass tube sections. There are three dedicated inlet and outlet ports for each of the three phases. The injection fluid will be ejected from the separator via its outlet; Gas being compressible, a wet gas meter will be required to measure the quantities produced. By virtue of their incompressibility, produced water or oil can be determined from a mass balance on the system. Under the action of gravity, the lightest fluid will come to rest above the heavier fluid and the heaviest fluid will rest at the bottom; in the separation tube, an emulsion of all three fluids prevents an accurate volume determination, whereas in the other tube, two neat interfaces can be observed. These are constantly monitored by two Degree-of-Freedom video cameras with integrated zoom. Placing a light behind the tube further facilitates discernment of the liquid/ liquid and gas/ liquid interface. A proprietary software interprets the streaming images and calculates produced fluid volumes and core saturation levels. The system is also perfectly suited for two-phase flow studies.



FEATURES

Max pressure ……	Atmospheric pressure
Max temperature……	up to 40 °C
Max volume change……..	50ml for liquid/liquid and 50ml for liquid/gas
Volume accuracy……..….	0.01 ml
Material…….	Glassware
Measurement resolution……..	0.02 mm
Minimum field of view…….	50 mm
CDD colour camera…….….	5 megapixels (2592 X 1944)
Lighting ……...	20 watts
Power……...	110-220 VAC, 50 or 60 Hz

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HIGH PRESSURE – HIGH TEMPERATURE TWO PHASE VIDEO SEPARATOR (2 PHASE VSE 700)

The apparatus separates the two expelled fluids from the core at reservoir conditions. Upon entering the separator, the mixture flows into a vertical bore, deemed the "separation bore". The latter communicates at the top and bottom, with the "visualization bore" via two horizontal bore sections. By virtue of gravity, the lighter fluid comes to rest above the heavier fluid; in the separation bore, an emulsion of both fluids prevents an accurate volume determination, whereas in the other bore, a neat interface can be observed. The fluid interface in the separator is constantly monitored by video camera with integrated zoom. Placing a light behind the tube further facilitates discernment of the liquid/ liquid or gas/ liquid interface. A proprietary software continuously displays the streaming images, interprets them and calculates the produced fluid volumes and core saturation levels.

FEATURES

Max pressure ……	10,000 psi
Max temperature……	150 °C
Max volume change……..	100 ml, option: 300 ml
Volume accuracy……..…	0.01 ml
Material…….	Sapphire, Stainless steel, option: Titanium
Measurement resolution……..	0.01 mm
Field of view…….…….	100 mm
CDD colour camera……..….	25 megapixels
Lighting ……...	25 watts
Power……...	110-220 VAC, 50 or, 60 Hz

BENEFITS

* Self calibrated
* Dual bore design which improves the accuracy by reducing effects of emulsions
* Possibility to retrieve the experiments versus to eliminate uncertainties of the measurements

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HIGH PRESSURE – HIGH TEMPERATURE THREE PHASE VIDEO SEPARATOR (3 PHASE VSE 700)

The apparatus segregates at reservoir-representative conditions, the components of a three-phase mixture expelled from a core sample. The separator's wetted parts comprise a vertical bore communicating with a narrow slot whose height equals that of the bore. The narrow slot enhances the phase segregation process. Upon entering the separator, the mixture flows into the bore, deemed the "separation bore". By virtue of gravity, the lightest fluid comes to rest at the top, the heaviest fluid, at the bottom, and the intermediate fluid, in the middle; in the separation bore, an emulsion of all fluids prevents an accurate volume determination, whereas in the slot, two neat interfaces can be observed. Embedded in the separator wall, on the visualization side is a see-through window cell made of two windows mounted opposite each other. Placing a light behind the tube further facilitates discernment of the interfaces. Uninterrupted produced fluid measurements are achieved by means of a proprietary video software. The latter continuously displays the streaming images, automatically detects, measures and records the altitude of one or two interfaces between immiscible fluids such as liquid/liquid and liquid/gas. It finally interprets them and calculates the produced fluid volumes and core saturation levels.

FEATURES

Max pressure ……	10,000 psi
Max temperature……	150 °C
Phase volume change…….	100 ml
Phase volume accuracy……	0.01 ml
Material…….	Sapphire, Stainless steel, option: Inconel
Field of view…….	100 mm
CDD colour camera……..….	25 megapixels
Lighting ……...	25 watts
Power……...	110-220 VAC, 50 or 60 Hz

BENEFITS

*The separator is a compact tool which can be easily installed into core flooding air baths.

*The full visibility of the produced phases enables the end user to simultaneously get phase volume changes and real time images of the water/oil and oil/gas interface heights. Cross checking between the actual images and calculated data is then possible.

*The use of 4K high resolution cameras to monitor a 10 cm column of produced fluids allows very accurate meniscus detection and thus volume changes.

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FRACTION COLLECTOR

The fraction collector is used for automatic collection of individual effluent liquid samples on a time or volume basis. The container encompasses 80 graduated tubes. The instrument includes a front panel to program the collection sequences and can be remotely controlled from a computing station.

FEATURES

Model	2110 fraction collector
Collection basis	1- 999 drops in 1 drop increments, 0.05–9.99 min in 0.01 min increments, 10.0–99.9 min in 0.1 min increments
Capacity	80 glass, polypropylene, or polystyrene test tubes
Tube dimensions	13 mm x 100 mm (ID x H)
Drop former	Silicone rubber
Construction	Case and carousel, polypropylene; Front panel, hard-coated polycarbonate
Waste outlet tube	Polyurethane
Operating temperature	to 40°C
Dimensions	24 x 33 x 25 cm (W x D x H)
Weight	5 Kg
Safety	Meets IEC 61010 and CSA 22.2 certification
Electrical	110-220 VAC, 50/ 60 Hz

BENEFITS

- Time or drop collection modes
- Collection of 1 drop (~50 µl) to 9 ml fractions in 80 test tubes
- Manual-advance tube changes
- Small footprint of 24 x 33 cm

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GAS / LIQUID FRACTION COLLECTOR (GLFC-12)

The GLFC-12 device is an in-line effluent fraction collector that automatically collects individual sample fractions on a time or volume basis. The instrument includes a 12-tubes caroussel equipped with an automated selection valve and a computer control software. An automated 12-ways valve selects one of the 12 tubes to collect the gas-liquid sample. The gas is separated inside each collection tube and escapes the tube from the top. Tubes can be isolated from the rest in order to be easily removed.

FEATURES

Model	GLFC-12 fraction collector
Collection basis	1 second to 24 hours
Capacity	12 glass tubes
Tube dimensions	10 ml (±0.05 ml), 20 ml (±0.1 ml), 50 ml (±0.25 ml),
Tube cap	Teflon
Construction	Aluminum
Operating temperature	to 100°C
Dimensions	30 x 50 x 75 cm (W x D x H)
Weight	10 Kg
Electrical	110-220 VAC, 50/ 60 Hz

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WET GAS METER (WG SERIES)

The gas meter allows precise measurements of produced gas at ambient conditions. The meter comes with a thermometer, spirit level, levelling feet and gas connections.

FEATURES

Temperature	Ambient
Pressure	Atmospheric
Capacity	25 dm3 (i.e. 0.25 litres) per revolution
Scale	0.001 dm3
Maximum pressure	65 mbar
Flow range	30 to 90 litres per hour +/- 0.5%
Maximum capacity	99,999 litres

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GAS FLOW CONTROL SYSTEM (GFC SERIES)

The GFC-series enables the end user to inject pressurized nitrogen at constant flow rate through a core sample. The unit is connected to the core holder and controls the gas pressure via a pressure regulator. Three in-line mass flow controllers allow constant flow rate injection. The system is composed of three mass flow controllers, a supply isolation valve, 3 pressure control regulators, a pressure transducer situated at the core inlet and a humidifier vessel mounted on the right side of the control panel. The latter's purpose is to protect unaltered cores by saturating the gas with water vapour to prevent connate water vaporization. For a prepared sample (cleaned, desaturated and dried) humidified gas is unnecessary. A supervisory control data acquisition software warrants continuous data logging at specified time, graphical display and parameter modification. An optional single stage gas booster connected to a 2-liter stainless steel cylinder can be provided to prepare the specific quantity of gas required to perform a high pressure gas injection test.

FEATURES

Temperature	Ambient
Pressure	GFC 3000: 3,000 psi GFC 4350: 4,350 psi
Flow range	0-10, 0-100 and 0-1,000 sccm
Wetted parts	Stainless steel

Note: Other flow rate are available if required.

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CAPILLARY SIGHT GLASS TUBE (CSGT SERIES)

The capillary sight glass is a standard component employed in high pressure, high temperature multiphase (oil, gas, water, solvent…) fluid experiments. Fluids circulate in either direction through a see-through sapphire tube constrained by two flanges held together by four heavy duty bolts. These counteract the axial force applied by the fluid upon entering and exiting the sapphire tube. The sealing assembly consists of one O-Ring (Viton™ rubber) sandwiched between two backup rings (Teflon™). The flow line and internal volumes are minimized to grant highly accurate results. The optional video recording package includes a proprietary Vinci image analysis software, a high resolution camera equipped with an integrated zoom and a back lighting installed in the rear side of the capillary sight glass cell. The camera is connected to the computer via an Ethernet port and the captured images are displayed and recorded on the PC. The video software incorporates facilities which allow the operator to start or stop the recording and set the image sampling frequency.

FEATURES

Max pressure	10,000 psi
Temperature	up to 150°C
Wetted parts	Stainless steel, sapphire, optional hastelloy

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BACK PRESSURE REGULATOR (BPR SERIES)

Vinci offers back pressure regulators designed to regulate the pressure in fluid flow studies. The BPR consists of two chambers separated by a piston with a needle connected to it on the lower side. The upper chamber receives the gas dome pressure and the lower chamber the process pressure. The BPR acts a comparator. When the dome pressure is higher than the process pressure the needle seals off the pressure and maintains the pressure. Inversely when the process pressure exceeds the dome pressure the needle opens up and the excess process fluid flows out. That way, on continuous flow these 2 stages are looped continuously and the process pressure is balanced to the dome controlled constant value.

FEATURES

Maximum pressure	10,000 psi or 15,000 psi or 20,000 psi
Flow rate	0.01 to 50 cc/min
Max Temperature	150°C
Wetted part material	stainless steel or Hastelloy

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ADVANCED ROCK ANALYSIS

AUTOMATED BACK PRESSURE REGULATOR (ABPR SERIES)

The ABPR- series is a state–of–the–art automated back pressure regulator for single and multi-phase fluids. It allows stable pressure control up to 20,000 psi. The ABPR consists of a motor driven piston pump, a high accuracy pressure transducer and a dome loaded valve mounted beside the pump cylinder. The valve consists of two chambers separated by a piston with a high-strength stainless steel needle and a reinforced PEEK seat on the lower side. The lower chamber pressure is the same as the process fluid's, while the upper chamber pressure is regulated by a high accuracy motor driven piston pump, containing nitrogen gas. The BPR acts a comparator. When the dome pressure is higher than the process pressure, the needle shuts the BPR outlet allowing the pressure to build up. Conversely, when the process pressure exceeds the dome pressure, the needle retracts so that the excess process fluid can flow outwards, therefore reducing the system pressure. Consequently, from these oscillations, a highly reliable pressure regulation is attained. By means of an Ethernet connection and a dedicated software, the ABPR can easily be programmed to perform elaborated pressure maintenance schedules.

FEATURES

Pressure ranges:	10,000 psi or 15,000 psi or 20,000 psi
Wetted part material:	stainless steel or Hastelloy
Max Temperature:	150°C
Flow rate:	0.0001 to 50 cc/min
Nitrogen gas pressure requirement:	1,000 psi
Type of fluids:	gas, liquid, supercritical fluid
Power supply requirement:	110-220 VAC, 50/60 Hz

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

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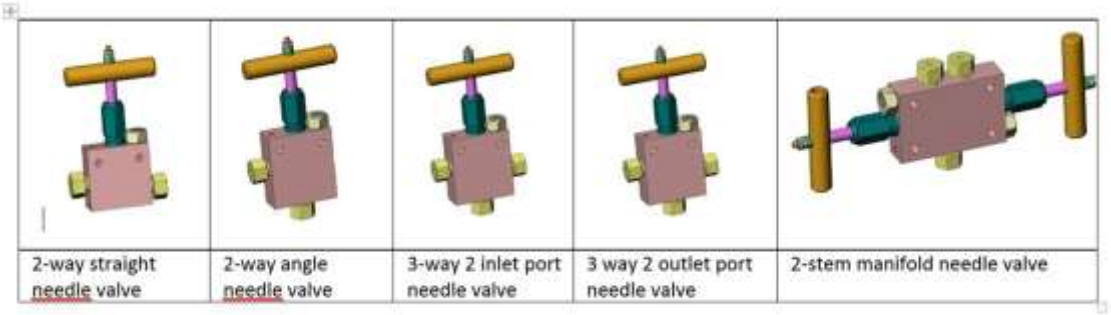
NEEDLE VALVE (NV SERIES)

The NV series needle valves are designed for liquid and gas flow control. They are available in a variety of body styles, stems and seal materials. The models proposed are those, which are commonly used with Vinci's instruments.



2-way straight needle valve	2-way angle needle valve	3-way 2 inlet port needle valve	3 way 2 outlet port needle valve	2-stem manifold needle valve

FEATURES

Wetted part material	SS: Stainless steel
	HC: Hastelloy
Flow path	A: 2-ways straight needle valve
	B: 2-ways angle needle valve
	C: 3-ways two-inlet port needle valve
	D: 3-ways two-outlet port needle valve
	E: 2-stem manifold needle valve
Maximum pressure	15,000 psi at 30°C (1)
Maximum temperature	200°C
Orifice	2 mm (0.78")
Port connection	1/8" FLP
Stem type	V:Vee
	R:Regulating
Seal material	T: Teflon
	P: Peek

(1): Max pressure at 200°C is 90% of max.pressure at 30°C

BENEFITS

- ✓ Available in up to five flow path patterns.
- ✓ Non-rotating stem prevents stem/seat galling.
- ✓ Engineered and designed packing for reliable sealing.
- ✓ Metal-to-metal seating for longer seat life and excellent corrosion resistance.

VEE OR REGULATING TIP STEM.ERREUR ! LIAISON INCORRECTE.

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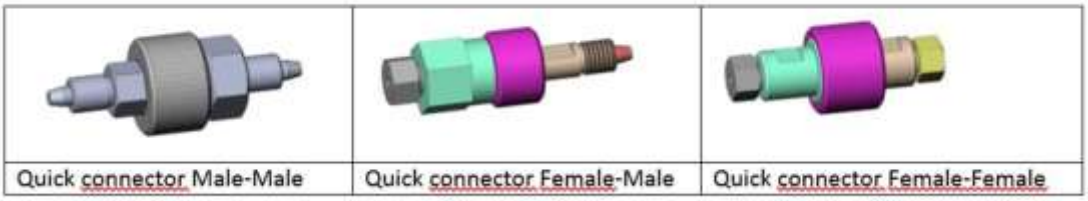
QUICK CONNECTOR (QC SERIES)

The QC series are specially designed to quickly and efficiently connect different piping components in high-pressure systems, without any special tools. We offer various combinations of female and male couplers reinforced with Viton sealing.



Quick connector Male-Male	Quick connector Female-Male	Quick connector Female-Female

FEATURES

Wetted part material	SS: Stainless steel HC: Hastelloy
Connector type	A: Male-Male B: Female-Male C: Female-Female
Maximum pressure	10,000 psi
Maximum temperature	200°C
Orifice	1 mm (0.39”)
Port connection	1/8” FLP 8 mm
Seal Material	V: Viton

BENEFITS

- ✓ Available in three types
- ✓ Engineered and designed sealing for reliable sealing.

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ELECTRICAL ISOLATOR (EI 700)

The EI 700 electrically isolates one side of a core holder from the other when placed in a non-conductive fluid stream. This component is particularly suited for electrical property measurements during relative permeability or capillary pressure displacement studies at reservoir-representative conditions.

FEATURES

Maximum pressure: 10,000 psi
Max Temperature: 150°C
Internal volume: less than 1 cc
Wetted part material: stainless steel, peek
Port connection: 1/8”

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AUTOMATED CONFINING PRESSURE CONTROLLER (ACP SERIES)

The ACP generates and maintains the desired confining pressure during core studies. It can also be used to maintain a constant differential pressure between the pore pressure and confining pressure. The system consists of a pressure positive-displacement single cylinder pump, an automated pneumatic dual valve, a fluid reservoir and two pressure transducers for pore and confining pressure control.

FEATURES

Confining pressure	10,000 psi, 15,000 psi and 20,000 psi
Pore pressure	10,000 psi, 15,000 psi and 20,000 psi
Pump cylinder capacity	250 cc, 175cc and 125 cc
Air requirement	100 psi
Power	110-220 VAC, 50 or 60 Hz
Wetted parts	Stainless steel

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ADVANCED ROCK ANALYSIS

AUTOMATED CONFINING PRESSURE AND TEMPERATURE CONTROLLER (ACP 700-150)

The ACP-700-150 series generates and maintains the desired confining pressure and temperature during porous media studies. It is particularly useful for NMR, CT scan and linear X-RAY experimental set-ups with composite core holders, when air baths cannot be utilized. The device consists of a high pressure-high temperature syringe pump, a recirculation pump, a pneumatic dual valve, a fluid reservoir and two pressure transducers for pore and confining pressure monitoring. The syringe pump generates and maintains a constant pressure and temperature up to 10 kpsi and 150C, respectively. Meanwhile, the recirculation pump assures continuous flow in the confining circuit. Consequently, the core sample mounted in the core holder is maintained under the same conditions of temperature and pressure. It can also be used to maintain a constant differential pressure between the pore pressure and confining pressure. By means of an Ethernet connection and a dedicated software, the ACP-700-150 series can easily be programmed to perform elaborated pressure and temperature maintenance schedules.

FEATURES

Confining pressure	up to 10,000 psi
Temperature	up to 150°C
Recirculation flow	up to 1 liter/min
Pump cylinder capacity	250 cc
Wetted parts	Stainless steel
Fluid types	Hydraulic oil
Connections	¼-inch SLP
Air requirement	100 psi
Power	110-220 VAC, 50 or 60 Hz
Control interface	Ethernet

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FLOATING PISTON ACCUMULATOR (FPA SERIES)

The floating piston accumulator's purpose is to store and transfer high pressure fluids via hydraulic displacement. The process fluid is isolated from the driving fluid via a floating piston that by virtue of its design minimizes friction and reduces pressure load. A robust handle facilitates handling.

FEATURES

Pressure	10,000 psi or 15,000 psi
Temperature	Ambient to 150°C (300 °F)
Cell volume	500 cc, 1,000cc, 2,000 cc, 5000 cc
Material	stainless steel or hastelloy

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ACCUMULATOR STAND (SAS SERIES)

The Vinci accumulator stands are designed to hold accumulators. They are available in benchtop or bench floor configurations, depending on the size of the accumulator. They include isolation valves, manometers and connection ports made from stainless steel or hastelloy.

FEATURES:

Model	Accu. Volume (cc)	Configuration	Wetted Parts
SAS-1-SS	100 to 1,000	Benchtop	Stainless steel
SAS-1-HC	100 to 1,000	Benchtop	Hastelloy
SAS-2-SS	2,000	Benchtop	Stainless steel
SAS-2-HC	2,000	Benchtop	Hastelloy
SAS-5-SS	5,000	Benchfloor	Stainless steel
SAS-5-HC	5,000	Benchfloor	Hastelloy

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ACCUMULATOR HEATING MANTLE

The heating mantles offer a convenient, cost-effective way to heat and maintain temperatures of sample accumulator. They provide clean heat, eliminate hot or cold spots and are easy to install and remove. They require low maintenance and labour cost, are energy efficient, clean room compatible, consist of durable material, provide multiple heating zones, remain chemical and moisture resistant and are easily adaptable to multiple diameters of cylinders. The mantle is provided with a temperature regulator and it is a plug and play tool. Several sizes are available depending on the type of accumulator.

FEATURES

Size:	available for 500, 1000, 2000 and 5000 ml accumulators
Temperature accuracy:	± 5°C
Construction:	Kevlar, Silicon, glass fiber
Power:	220 VAC, 50 Hz
Working temperature:	up to 200 °C

BENEFITS

- Convenient
- Efficient
- Robust and reliable
- Attractive
- Low maintenance

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RODDED FLOATING PISTON ACCUMULATOR (RFPA SERIES)

The line of rodded floating piston accumulators is available in a range of different volumes up to 1 liter and pressure ratings. These models can be constructed in different material such as stainless steel or hastelloy. The fluid seals use standard Viton 'O' rings and back up rings. A rod is attached to the piston for relative volume monitoring.

FEATURES

Pressure	10,000 psi or 15,000 psi
Temperature	Ambient to 150°C (300 °F)
Cell volume	500 cc or 1,000cc
Material	stainless steel, titanium or hastelloy

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DIGITAL VOLUME PISTON ACCUMULATOR (DVPA SERIES)

The DVPA series is a floating piston accumulator equipped with an integrated LVDT (linear variable differential transformer) to monitor piston position. The LVDT is mounted inside the driving fluid chamber between the cylinder's cap end and the piston. As the piston extends or retracts, its motion causes displacement of the LVDT and produces an analogue signal directly proportional to the piston displacement. The piston location, and hence the total sample volume in the accumulator can be accurately measured and displayed. The digital volume display can also be connected to a computer to enable continuous communication and logging. This accumulator module is particularly suited for core flooding experiments as it grants continuous awareness of fluid sample reserves.

FEATURES

Displaced volume capacity	500 ml and 1000 ml
Volume accuracy	+/- 2 ml
Wetted part	Stainless steel or hastelloy
Pressure	up to 10,000 psi
Temperature	Ambient to 150°C (300 °F)
Power supply	110-220 VAC, 50/60 Hz

BENEFITS

- Provided with a digital volume display which can be hooked up to a computer for sample recording versus time.

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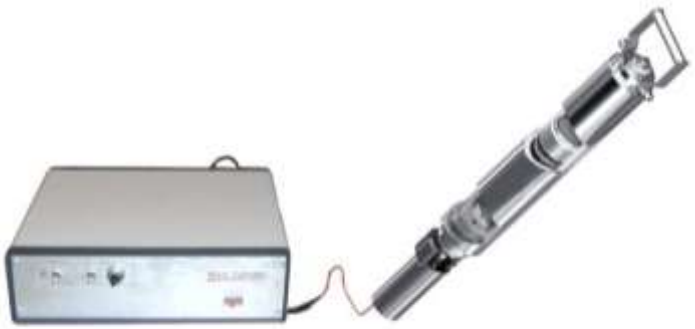
MIXER CYLINDER (MC SERIES)

The MC series are dual end piston type cylinders capable of storing and mixing a great variety of fluids over a vast range of pressures and temperatures. The sample fluid is isolated from the hydraulic driving fluid via a floating piston while a magnetically driven mixer located in the sample fluid chamber assures proper agitation. The mixer is magnetically coupled through the accumulator end cap, to a drive system which incorporates a permanent magnet driven by a variable speed DC motor. An electronic controller allows mixer activation and speed regulation. The cylinder can be operated in either the upright or inverted position. Both end caps are fitted with an inlet/outlet port for fluid introduction or fluid sampling. A robust handle facilitates handling.



FEATURES

Model	Volume ml	Pressure psi	Temp. °C	Weight Kg	Length mm	Diameter mm	Material (1)	Thread connection
MC 500-10	500	10,000	150	19	460	120	Stainless steel	1/8" FLP
MC 1000-10	1,000	10,000	150	21	610	120	Stainless steel	1/8" FLP
MC 2000-10	2,000	10,000	150	35	620	150	Stainless steel	1/8" FLP
MC 500-15	500	15,000	150	24	460	135	Stainless steel	1/8" FLP
MC 1000-15	1,000	15,000	150	26	610	135	Stainless steel	1/8" FLP
MC 2000-15	2,000	15,000	150	41	620	165	Stainless steel	1/8" FLP

(1) Hastelloy material available.

Mixer controller

Power requirement…… 110-220 VAC, 50 or 60 Hz

BENEFITS

- H_2S resistant
- The impeller provides a minimum dead volume
- Provide rigorous agitation of entire fluid sample
- Capable of mixing high viscosity samples up to 1,000 cp
- High speed, allows equilibrium to be reached in minimum time
- Reduces operating time for establishing phase equilibrium on sample.

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GLASS FLUID TRANSFER VESSEL (FTV-G SERIES)

The transparent fluid transfer vessel facilitates fluid transfer (mud, brine, oil, acid mixture) into the high-pressure high-temperature accumulators located in the air bath. The fluid in the container is displaced by pressurized air injected from the top of the vessel. The fluid transfer vessel comprises a glass tube braced by two end plugs fastened together with two aluminium tie bars. The glass tube is protected by an external polycarbonate tube in case of glass failure. The top end plug can be easily removed to pour liquid into the vessel.

FEATURES

Pressure	100 psi
Volume	1,500 cc
Material	Glass
Fluids	brine, oil, mud, drilling fluid, etc

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STAINLESS STEEL FLUID TRANSFER VESSEL (FTV-SS SERIES)

The stainless steel fluid transfer vessel facilitates fluid transfer (mud, brine, oil, acid mixture) into the high-pressure high -temperature accumulators located in the air bath. The fluid in the container is displaced by pressurized air injected from the top of the vessel. It comprises a dual end cylinder with two isolation valves and a see through transparent tube on the cylindrical face which allows fluid level visualization.

FEATURES

Pressure	200 psi
Volume	2,000 cc
Material	Stainless steel
Fluids	brine, oil, mud, drilling fluid, etc

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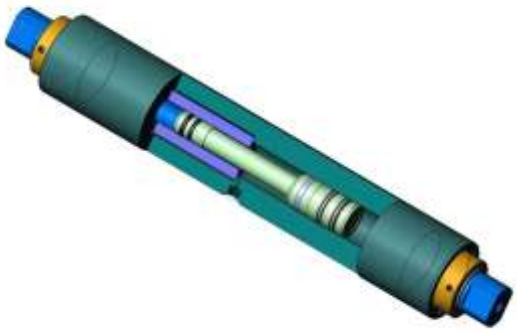
HYDRAULIC INTENSIFIER (HI SERIES)

The HI series are utilized to pressurize fluid samples. They are dual chamber cylinders comprising a low pressure (LP) chamber and a high pressure (HP) chamber. The chambers are separated by a dual piston rod. The LP chamber has a greater cross sectional area than that of the HP, therefore a pressurized fluid injection in the LP chamber will result in the multiplication of the fluid pressure inside the HP chamber by a factor equal to the ratio of the two piston cross sectional areas. Consequently, pressures up to 150Kpsi can be achieved by using a commercially available lower pressure (15 Kpsi) pump. The apparatus can be manufactured from Stainless Steel or hastelloy.



FEATURES

Model	Ratio	HP end				LP end	
		Volume ml	Pressure psi	ID mm	Stroke mm	Pressure psi	ID mm
HI 2	2 :1	50	20,000	25.46	98.24	10,000	36
HI 4	4 :1	25	40,000	18.00	98.24	10,000	36
HI 6	6 :1	20	60,000	14.70	117.89	10,000	36
HI 8	8 :1	15	80,000	12.73	117.89	10,000	36
HI 10	10 :1	10	100,000	11.38	98.24	10,000	36
HI 15	15 :1	5	150,000	9.30	73.68	10,000	36

Additional features:

Temperature ..... ambient
Thread connection ..... ¼" FNPT (Low pressure side) and ¼" FHP (High pressure side)
Wetted parts ..... Stainless steel or hastelloy
Weight ..... Approx. 22 Kg
Length ..... 600 mm
Diameter ..... 90 mm to 120 mm depending on the model.

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CONTROLLED TEMPERATURE AIRBATH

The Vinci air bath series are precision convection cells that provide uniform constant temperature for a wide range of applications. Access to the enclosure is through a hinged door on the front. A fan integrated into the air bath creates convective heat transfer and the sensitive components are cooled by strategically placed heat exchangers. A digital temperature regulator grants an accuracy of 0.5°C and the maximum achievable value is 175°C.

FEATURES

Temperature ..... ambient to 175°C
Temperature increment ..... +/- 0.5°C
Operating environment ..... 18°C to 30°C, 20 to 70% humidity

Model 700 :

Internal dimensions ..... 500mm (D) x 700mm (W) x 900mm (H)
Overall dimensions ..... 670mm (D) x 860mm (W) x 1210mm (H)
Power requirement ..... 220 VAC, 50 Hz, 2.2 kVA

Model 1000 :

Internal dimensions ..... 500mm (D) x 1000mm (W) x 900mm (H)
Overall dimensions ..... 670mm (D) x 1160mm (W) x 1210mm (H)
Power requirement ..... 220 VAC, 50 Hz, 3.2 kVA

Model 1300 :

Internal dimensions ..... 500mm (D) x 1300mm (W) x 900mm (H)
Overall dimensions ..... 670mm (D) x 1460mm (W) x 1260mm (H)
Power requirement ..... 220 VAC, 50 Hz, 4.2 kVA

Model 1900 :

Internal dimensions ..... 500mm (D) x 1900mm (W) x 1420mm (H)
Overall dimensions ..... 700mm (D) x 2340mm (W) x 1710mm (H)
Power requirement ..... 220 VAC, 50 Hz, 6.8 kVA

BENEFITS

- ✓ Excellent temperature stability
- ✓ Temperature range ambient to 175°C
- ✓ Forced air circulation ensures uniform temperature
- ✓ Large volume enclosure
- ✓ Convenient front access door. Side access hole for cables and probes
- ✓ Fully Programmable

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PRESSURE GENERATOR SYSTEM (PGS)

Designed to provide hydraulic pressure for Hg free fluid transfer at pressure condition. Maximum output is 10,000 psi. The system comes complete with air driven liquid pump, pressure gauge, air regulator, relief valve and frame.

FEATURES

Max outlet pressure	10,000 psi
Air inlet	30 to 145 psi (10 bar).
Wetted parts	Stainless steel,

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ADVANCED ROCK ANALYSIS

DIGITAL PRESSURE GAUGE (DPG SERIES)

The Digital Pressure Gauge series provides pressure measurements with extreme accuracy to meet the strictest requirements for precision laboratory or field measurement instrumentation. The instrument includes a high precision analog pressure transducer, a rupture disc to protect against over-pressurization, a five digit digital display and a data logging software for automatic data acquisition.

FEATURES

Model	DPG series
Pressure range	up to 10,000 psi (other upon request)
Accuracy	0.1% FS
Port connection	1/8” autoclave type
Wetted part	stainless steel
Power supply	110-220 VAC, 50 or 60 Hz

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DEADWEIGHT GAUGE

Primary pressure standard designed for high pressure calibration applications. The device consists of a vertically mounted precision lapped piston and cylinder assembly. Accurately calibrated masses are loaded onto the piston, which rises freely within its cylinder. These weights balance the upward force created by the application of pressure within the system. Delivered with a carrying case.

FEATURES

Model	Dual piston
Operation	Oil operated
Pressure range	1 bar (15 psi) to 1,100 bar (16,000 psi)
Accuracy	0.015% RDG

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UNINTERRUPTABLE POWER SUPPLY (UPS 16)

Back-up power protection used in most laboratories against electrical noise, sags, surges and brownouts which affect the sensitivity of the electrical components of the laboratory equipment.

FEATURES

Output power capacity	12,800 Watts / 16,000 VA
Max configurable power	12,800 Watts / 16,000 VA
Input voltage	240 V +-1 %, single phase
Output voltage	240 V +-1 %, single phase
Efficiency at full load	90%
Back up time	6 minutes at full load (12,800 watts) 17 minutes at half load (6,400 Watts)

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OTHER COMPONENTS

Vacuum pump: Based on double stage rotary vane pump and featuring a max pumping speed of 2.5 m^3/h and a vacuum rate of 10^{-3} mbar.

Air compressor: Designed to generate compressed air of 7 to 10 bar when compressed air is not available.

Controlled temperature air bath: Designed to provide homogeneous temperature with extreme accuracy. A large range of air bath is available depending on temperature ranges, dimension and temperature homogeneity accuracy. The air bath can be provided with one or two front and rear doors and with or without windows.

Thermostatic bath: Designed to provide heating and cooling source with an accurate regulation.

Fraction collector: Inline effluent fraction collector for collecting up to 70 individual liquid sample fractions automatically on a time or volume basis

PH meter: Inline pH probe and meter for monitoring effluent pH as a function of time.

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