VINCI TECHNOLOGIES
Laboratory and field instruments for Petroleum Industry

RC4500 - REFRIGERATED OVERBURDEN CENTRIFUGE

Determination of capillary pressure and relative permeability curves at reservoir conditions of pressure and temperature

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Centrifuge

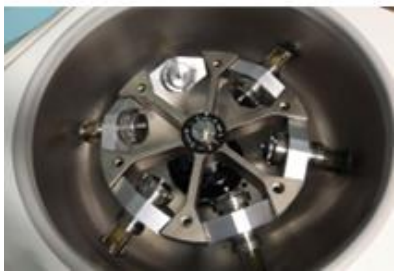
The RC4500 is designed for fast, accurate, and simultaneous determination of capillary pressure (Pc) and relative permeability (Kr) curves on up to six core samples.

- Fast capillary pressure runs (1–2 days)
- Multi-speed centrifuge experiments up to 4,500 RPM
- Digital camera for real-time fluid interface measurement
- Rotor imbalance sensor for enhanced safety
- Temperature control from 5°C to +90°C

Features:

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 50 up to 4,500 RPM
Large radius : 23 cm
Power supply:400 V3~+N(50-60Hz) / 208 V 3 ~ + N (60Hz)

Rotor



The rotor holds six core holders and spins them to generate the centrifugal force needed for capillary pressure testing. Its balanced design ensures stable, accurate, and safe operation while enabling simultaneous multi-sample analysis.

Atmospheric core holders

Up to 6 custom-designed core holders secure the core samples during rotation and ensure precise fluid displacement measurements. They allow testing under atmospheric pressure conditions while maintaining sample integrity.

Features:

Core diameters: 1”, 30 mm, or 1.5”
Receiving tubes: 13 cc and 28 cc options

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Overburden core holders

Up to 6 overburden core holders allow testing under reservoir conditions up to 5,000 psi while maintaining stable confining pressure. They can be switched from drainage to imbibition mode without releasing the confining pressure. This makes Vinci's centrifuge the first and only system capable of measuring the full capillary pressure curve under pressure.

Features:

Pressure: up to 5,000 psi
Core diameters: 1", 30 mm, or 1.5"
Receiving tubes: 13 cc and 28 cc options

Pore pressure test module

The pore pressure test module enables capillary pressure measurements under controlled pore and confining pressures at reservoir temperature. It is essential for CO_2 and H_2 storage studies, where maintaining precise pressure conditions is critical.

Features:

Overburden pressure: up to 5,000 psi
Pore pressure: up to 5,000 psi

Video camera system

The video camera system captures fluid production in each core holder while spinning at high speed. It is synchronized with tachometer to take precise images of all six core holders at every rotation, ensuring accurate and continuous volume measurement.

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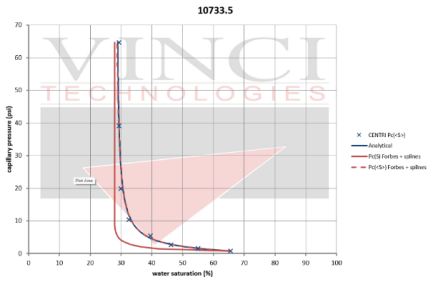
Real time data acquisition software

The system provides real-time acquisition of fluid production for each core sample. The screen displays six live images representing the fluid production of the six core holders. Integrated functions automatically convert the images into core saturation data.

Interpretation software



The interpretation software enables derivation of Pc and Kr using methods such as Hassler-Brunner, Forbes, and Hagoort. It offers multiple curve-fitting options (linear, splines, bi-exponential, etc.) and applies the latest research-based methodologies. Pc determination is performed by numerical history matching, ensuring accurate and reliable simulations.

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