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Core Lab

Automated Centrifuge, ACES-300 Datasheet

**Special Core Analysis Laboratory (SCAL)/
Capillary Pressure**



Automated Centrifuge, ACES-300

Designed to apply increasing centrifugal force or the displacement of liquid from water-saturated rock core samples. Centrifugal force is used to develop pressure differences at the interface of two immiscible fluids - air and water or oil and water. Maximum speed is set by rotor selection for example the PIR20 for one (1) inch samples has a maximum speed of 20,000 RPM whilst the 1.5 inch PIR16.5 rotor's maximum speed limit is 16,500 RPM. The complete system can perform drainage capillary pressure tests on 1" or 1-1/2" diameter samples with appropriate rotors installed. This updated system includes full automation and data calculation. The produced liquid interface position in the fluid measurement holder is determined and recorded using a computer controlled CCD line camera and strobe unit. Minimum resolution of the liquid interface position is 0.002 inches. The maximum data rate is 10/second or 1 revolution below 600 RPM.

The position of the first fluid interface is measured and reported as the number of camera pixels from the bottom of the vial view slot to the interface. If a second fluid interface is present (Water/Oil) the number of pixels from the top of the first interface to the bottom of the second is reported. If a second interface is not present (Water/Gas), the number of pixels from the first fluid interface to the top of the vial view slot is reported. Production during the rotor speed ramp can be measured and this transient data used to calculate drainage relative permeability. Rotor speed can be increased in a single step or in multiple steps over any time period. The camera data is recorded at intervals spaced in a logarithmic order during motor ramp speed up. 50 data values require 20 seconds, 200 data values require about 500 seconds, and 300 data values require about 5000 seconds. The operator may select single or multi sample holder data recording. PC based software is used to control the camera and operation/data acquisition software.

The following data sets are available from this experiment as programmed by the operator:

- Drainage Capillary Pressure
- Imbibition Capillary Pressure
- USBM/AMOTT Wettability Index
- Relative Permeability

Scope of Supply and Specifications:

- Digital Video Camera (CCD)
- Computer
- Operating Software
- View port door
- Scale expansion speed control
- Strobe light assembly