



CHANDLER
ENGINEERING

Model 9000

Drilling Fluids Simulator

A Critical Tool for Oil Well Drilling Fluids

The Model 9000 Drilling Fluids Simulator is designed to study permeability changes in a core as a result of fluid invasion, chemical reactions and filter cake deposition. The system maintains the core at elevated temperature and confining pressures to simulate well bore conditions. Temperature is maintained with band heaters on each pressure vessel in addition to the system being enclosed in a temperature controlled oven.

The core can be exposed to fluids in several different ways. Fluids can be injected through the core holder in either direction. They can also flow across the face of the core to simulate slot flow during drilling or fracturing. Particle-laden fluids may be used with continuous unidirectional flow past the core face. This system is designed to enable experimentation over a broad range of treating scenarios and measure the resulting permeability changes while maintaining temperature and pressure even during dynamic sand or gravel deposition operations.

This instrument allows numerous fluids to be sequenced through a core sample. The system is designed to handle acids and other corrosive fluids at temperatures up to 350°F (177°C) and 5,000 PSI (34.4 MPa). The core must be either 1 inch (2.54 cm) or 1.5 inches (3.81 cm) in diameter and up to 6 inches (15.24 cm) long. The direction of flow is extremely flexible – top to bottom, across the core face, system flush, etc. The drilling fluid circulation system is designed to flow drilling fluids past the face of a core at velocities representative of typical well bore treatments.

The Model 9000 Drilling Fluids Simulator is equipped with a software platform that provides both manual and automatic operation of the instrument. The software allows a user to perform tests, log data and generate reports using a comma separated ASCII file format. Automatic scheduling allows the user to sequence fluids through or across the face of the core at various flow rates as desired.



FEATURES

- ✓ High velocity circulation of drilling and clean-up fluids past core face for dynamic placement of filter cake and fluid loss studies
- ✓ Max temperatures up to 350°F (177°C) and 5,000 psi (34.4 MPa)
- ✓ Flow velocity is 0-6 ft/min @ 400 ml/min
- ✓ Up to 16 independent control channels
- ✓ Valves, pumps, controllers and temperatures controlled from highly integrated control software

Model 9000

Specifications

Maximum Temperature:
350°F (177°C)

Maximum Pressure:
5,000 psi (34.4 MPa)

Flow Velocity:
0-6 ft/min @ 400 ml/min

Mud Recirculation Loop:
3 Viscous, High Solids Fluids
0-400 ml/min
350°F, 5000 psi
Stainless Steel Flow Path

Formation Permeameter:
350°F, 0-50 ml/min
4 Low Viscosity, 2 High Viscosity Clean Fluids
Nitrogen Injection (0-3000 sccm)
Hastelloy Flow Path

Utilities Required

Power:
200-240 VAC, 90A maximum, 50/60 Hz

Dimensions (w x d x h):
10 ft 5 in x 4 ft 5 in x 7ft 7 in

Inside Oven (w x d x h):
91 in x 20 in x 52 in

Manufacturer's specifications subject to change without notice



Reverse side of Model 9000



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