Model 7200

CEMENT HYDRATION ANALYZER

A Critical Tool for Oil Well Cementing

Gas migration through hydrating cement slurry is a major reason for well completion failures which require costly remedial well treatments. Chandler Engineering developed the Model 7200 Cement Hydration Analyzer (CHA) to realistically simulate gas migration scenarios of varying severity.

The Model 7200 Cement Hydration Analyzer is a precision instrument that measures four key aspects of oil-well cement: (a) its susceptibility to gas migration, (b) its degree of hydration, (c) its shrinkage during curing and (d) the gas permeability of the cement.

Description of the Instrument

The Model 7200 is a closed system in which nitrogen gas is injected into the bottom of a cement slurry at any time during its hydration (setting). The cement's susceptibility to gas migration is determined by whether or not the nitrogen gas injection pressure is transmitted up through the column of cement to the opposite (top) side of the cement sample where the pore pressure is measured.

Gas migration will result in the pore pressure of the sample rising and possibly becoming and/or remaining equal to the gas injection pressure. If no gas migration occurs, the pore pressure will continue to drop (due to the shrinkage and loss of fluid communication through the sample) during hydration, possibly continuing to reach a vacuum.

Operational Simplicity

The Model 7200 is designed to be as easy to use as possible. The instrument's software controls, records and displays all test measurements in real time.

FEATURES

- ✓ Can Test Multiple Scenarios of Gas Migration (Severe and Less Severe)
- ✓ Simple to Operate
- ✓ Graphical User Interface Software for Control of Experiment, Data Acquisition and Logging Results
- ✓ Unattended Operation of Test
- ✓ Designed to Ensure No Line Plugging and Easy Clean Up After Tests

AMETEK® OIL & GAS

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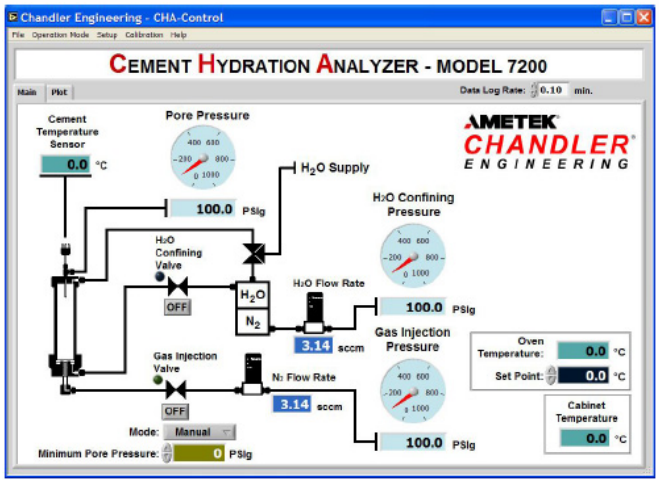
Test conditions, including the static gel strength profile of the cement, are easily programmed and controlled through this system. As the system is designed to avoid line plugging, clean-up after testing is both quick and easy.



Specifications

Temperature Range	Ambient to 400ºF / 204ºC
Pressures Maximum	1000 psi / 6.9 MPa
Pressure Measurement Accuracy	0.2 % of Full Scale
Pressure Measurement Resolution	0.25 psi / 1.7 kPa
Pressure Control Accuracy	±10 - 20 psi / 70 - 140 kPa
Cement Temperature and Cabinet Temperature	
Measurement Accuracy	±0.5°C
Measurement Resolution	0.1°C
Oven Temperature	
Measurement Accuracy	±1°C
Measurement Resolution	0.1°C
Temperature Control Stability	±0.5°
Gas Injection Flow Rate	0 - 5 sccm of nitrogen
Confining Flow Rate	0 - 5 sccm of nitrogen
Flow Rate Measurement Accuracy	1.2 % of Full Scale (±0.06 sccm)
Flow Rate Measurement Resolution	0.01 sccm
Cell Volumes	Cement sample 417 cm^3
	Accumulator 100 cm^3

Utilities

Water	20-80 psi / 140 – 550 kPa
Air	20-160 psi / 140—1100 kPa
Nitrogen	1000-3000 psi / 7-21 MPa
Power Supply	220 VAC ±15%, 50/60 Hz, 10A 1-phase

Physical Dimensions

Dimensions (h x w x d)	36 in. x 44 in. x 28 in / 92 x 112 x 74 cm
Weight	1000 lb / 450 kg

Manufacturer's specifications subject to change without notice

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