Cement test equipment | Well cement laboratory instruments

CTE MODEL 2000-5 UCA
ULTRASONIC CEMENT ANALYZER

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The UCA (Ultrasonic Cement Analyzer) is used to provide an indication of the relative strength development of a slurry sample while it is being cured under downhole temperature and pressure conditions. Relative strength is determined by measuring the change in velocity of an ultrasonic signal transmitted through the cement slurry specimen as it cures. As the strength of the cement specimen increases, the transit time of the ultrasonic signal through the specimen decreases, allowing the relative strength to be calculated.

OPERATION

CTE Model 2000-5 UCA is able to test cement slurries at temperatures up to 400°F/204°C and pressures as high as 5,000 psig/34.5 MPa. The slurry sample to be tested is prepared in accordance with API recommended practices and then placed in a temperature and pressure-controlled autoclave unit (cell). Pump pressure is applied via solenoid valve. Pressure control is achieved manually using the air and pressure regulators. The desired temperature profile is easily programmed using the touch screen features of the monitor. Step by step instructions are displayed on the monitor so no training is required, even for the beginner. After the desired temperature profile is entered, a preview of the ramp is displayed graphically for pre-test inspections to prevent programming errors. The desired and actual temperature profiles are displayed along with numerous other data during the test.

WARRANTY

All CTE products are covered by a full one-year warranty against defect in materials and workmanship. A sales terms, conditions, and warranty statement is included with each quotation or confirmation of order.

New lightweight pressure vessel design makes testing easier and faster for the technician. The cell is half the weight of previous versions and is also the lightest in the industry for its pressure class. Reduces user fatigue during clean-up, test set-up and test removal.

The UCA is equipped with CTE’s state-of-the-art temperature control and data acquisition software that provides unparalleled ease of use. A separate PC and keyboard/mouse are not required. Calibration and diagnostic capability are easily accessed using the touch screen features of the monitor. A color graph showing compressive strength, temperature, pressure and transit time may be plotted on any printer, downloaded to a USB flash drive or exported as a .pdf file. Numerical test data can be exported as a .txt file.
FEATURES

- Meets API Spec 10, RP 10B, and ISO 10426 requirements.
- Industry's only fully digital ultrasonic pulse board eliminates signal drift.
- Maximum operating pressures to 5,000 psi (34.5 MPa) and temperatures to 400°F (204°C)
- Digital, real-time display of current strength, transit time, pressure and temperature measurements
- Industry proven, proprietary algorithms
- 12 inch, color touch-screen for display of testing parameters and access to programmable features
- Ability to network instrument data and view test in real time remotely
- Windows® XP, Windows® 7 soon to be available.
- USB flash drive for data export
- Rugged and compact electronics withstands lab environment and improves space saving
- Pressure control maintained with high quality pressure relief valve and air-operated, high pressure pump
- Improved, user friendly data acquisition software provides end user detailed test information
- Automatic shutdown based on compressive strength or test time
- Universal Power Supply (optional) easily installed via service connection on the rear of instrument
- Adjustable automatic cooling upon test finish
- Environmentally friendly, reduces user fatigue and reduces cleanup time.
- High quality design. Our instrument utilizes the latest state of the art components. The useful life of this unit can easily exceed ten years with normal routine maintenance.
- Non-destructive method determining relative compressive strength and WOC time.
- Step by step instructions for programming options displayed on touch screen minimizing or eliminating need for time consuming training and increases operator confidence.
- Integral cooling jacket permits the circulation of a cooling fluid to cool the pressure vessel quickly (Optional chiller available).
- 180GB Hard drive, Intel® Atom™ Processor N270 1.6 GHz
- Rugged and compact electronics withstands lab environment and improves space saving.
- Super-slim design enables side-by-side configurations.
- New, light-weight pressure vessel reduces user fatigue and reduces cleanup time.

ENVIRONMENTAL & UTILITY CONNECTIONS

**ELECTRICAL**
- Input Voltage: 230 VAC (±10%)
- Input Power: 2000W
- Current: 15 A
- Input Frequency: 50-60 Hz

**ENVIRONMENTAL**
- Operating Temperature: 32 - 105°F (0 - 40°C)
- Operating Humidity: 0 - 95% non-condensing

**MECHANICAL**
- Height: 25 in. (63.5 cm)
- Width (single): 14 in. (36 cm)
- Depth: 19 in. (48 cm)
- Weight (single): 83 lbs. (38 kg)

**HEATER**
- Heater Power: 1500 W
- Input Power: Cast Heater with Cooling Coils

**SERVICE CONNECTIONS**
- Compressed Air (Intermittent flow): 50-100 psi (700 kPa)
- Cooling Water: 5-80 psi (600 kPa) Nominal flow 2L/min