

Measures gas flow and volume to help operators predict and overcome severe gas migration after cementing operations

The Grace Instrument M7600 Comprehensive Cement Analyzer helps determine methods for decreasing gas migration of cement samples during cementing operations. When nitrogen gas is injected into the cement slurry during setting, gas migration is recorded and compared to the gas injection pressure during cement sample hydration. This allows operators to evaluate potential gas migration during downhole conditions. The unit is also able to determine specific properties of the cement sample such as gas permeability, compressive, and static gel strength (SGS).

Cement slurry is mixed according to API-recommended practices and poured into a vessel. The vessel is seated inside a heating jacket where the software automatically controls the temperature and pressure to simulate downhole cementing conditions. A pulse travels through the cement sample as it strengthens and hardens, allowing the user to measure and record the pulse transit time. As the sample hardens, gas permeability is calculated and nitrogen pressure forces gas out of the permeable sample into the back pressure regulator where filtrate is collected.

The M7600 Comprehensive Cement Analyzer is extremely useful for evaluating ways to reduce gas migration after well completion operations to minimize costs. Additionally, the unit is able to measure the change of velocity in a pulse signal and interpret this data into compressive strength values. Using the **FREE Grace M7600PC Software** included with each unit, test data can be saved, viewed, and exported as a .csv file.

Operational Features

- Simulates downhole cementing conditions to study gas flow across a cement sample and measures cement volume.
- Unit offers Static Gel Strength (SGS) testing.
- Capable of Ultrasonic Cement Analysis (UCA) to measure transit time and compressive strength of cement samples.
- Pressurized using N₂ and includes pressure safety control.
- Data acquisition system included—**FREE Grace M7600 PC Software**.
- Temperature control can be user programmed.
- Real-time test data can be saved and exported as a .csv file.



Specifications:

Standard:	API RP 10B-2
Max Temperature:	400°F
Max Pressure:	5,000 psi
Measurement Resolution:	0.25 psi
Measurement Accuracy:	0.2% of Full Scale (±2 psi)
Pressure Control Accuracy:	± 10 – 20 psi (Approx.)
Water Inlet:	20 – 160 psig
Air Supply Inlet:	20 – 100 psig
Nitrogen Gas Inlet:	3,000 psig (Maximum)
Accumulator Cell Volume:	100 ml
Sample Cell Volume:	417 ml
Power Supply:	120/240V at 50/60 Hz
Crated Weight:	350 lb