

The Grace Instrument Company M7600 revolutionizes oil field cement testing by completing consistency testing, SGS (Static Gel Strength) testing, filtration, UCA (cement compressive strength), and gas migration testing on one single load of a sample. It reduces the cement testing workload and the testing time tremendously while substantially improving testing accuracy and consistency because the user does not need to prepare multiple batches of the same sample for different tests.

First, cement slurry is prepared according to API-recommended practices and poured into the pressure vessel. Afterwards, a PC is used to select a test sequence that conducts all tests with one single loaded sample; alternatively, you can conduct one or a combination of tests.

After a test starts, a paddle rotating at programmable speeds (up to 250 RPM) measures slurry consistency and thickening time. At a desired time or consistency value, the paddle speed can be changed to 0.2 deg/min to start an SGS test. Filtration and gas migration tests can be started at a desired time during or after an SGS test. Afterwards, an Ultrasonic Cement Analyzer (cement compressive strength) test is completed. Gas permeability could also be calculated after cement hardens.

All of the above tests are subjected to simulated downhole conditions using automatic pressure and temperature controls. The M7600 can run one test or any combination of tests in a sequence. Results obtained from the M7600 are consistent with current API-compliant testing equipment.

Features

- Thickening time, SGS, filtration, gas migration, and UCA tests are completed with one single load of a sample.
- Each test can be run individually, or you can run any combination of tests, including all tests in one sequence.
- Automatic pressure and temperature controls.
- Substantially reduces the testing workload.
- Realistically simulates oil well cement under in-situ conditions from pumping to setting.
- Individual test results are consistent with API standard equipment results.

Patents

- U.S. Patent No. 10,845,285
- U.S. Patent No. 11,300,557
- U.S. Patent No. 11,378,568



Specifications

Standard: API RP 10A and 10B
 Max Temperature: 400°F (204°C)
 Max Pressure: 5,000 psi
 Pressure Medium: Water
 Accumulator Volume: 100 ml
 Sample Cell Volume: 400 ml
 Max Rated Torque: 0.637 N•m = 5.63 lb/in
 Torque Resolution: 9.72e-6 N•m = 8.6e-5 lb/in
 SGS Measurement Range: 10 lb/100ft² to 1800 lb/100ft²
 Slurry Cup Rotation: 0-250 rpm
 Static Gel Speed: 0.2 deg/min.
 Thickening Time Range: 0-100 Bearden Units (Bc)
 Crated Weight: 350 lb

Required utilities

Water Inlet: 20 – 100 psig
 Air Supply Inlet: 20 – 160 psig
 Nitrogen Gas Inlet: 3,000 psig (Maximum)
 Power Supply: 120/240V at 50/60 Hz