



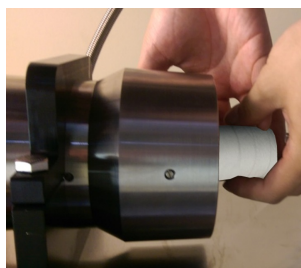
M9170 High Pressure Porosity and Permeability System

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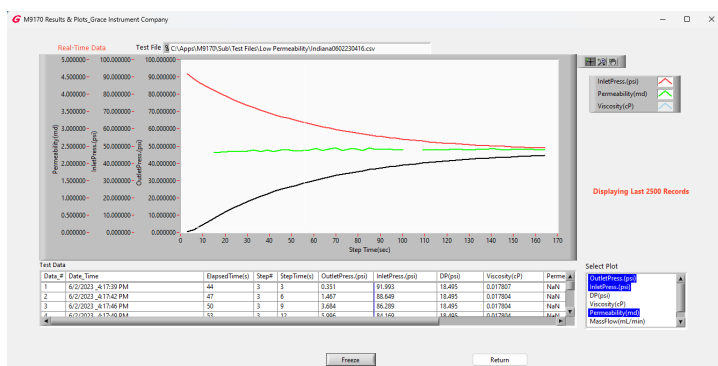
The Grace Instrument M9170 High Pressure Porosity and Permeability System is an advanced instrument that performs porosity and permeability tests on both high permeability and low permeability plug-sized core samples under confining pressures of up to 10,000 psi. Standard unit is compatible with nitrogen testing media (helium optional).* It has a quick and easy tri-lock feature on core holder end caps

Features

- Porosity range of up to 60%.
- Permeability measurement range from 0.0005 mD to 10 D.
- Measures both high permeability and low permeability cores using unsteady pulse decay method and steady flow method.
- Calculates Klinkenberg-corrected permeability based on multiple tests.
- Calculates grain density, inertial coefficients, and rock compressibility.
- FREE advanced, user-friendly software, compatible with all versions of Windows, included with each unit.
- Software handles all control, measurement, data collection, calculation, and report generation. Automates almost entire testing process, maximizing workflow efficiency.
- Easy-to-clean stainless-steel construction.
- Minimal maintenance required.
- Compatible with nitrogen testing media (helium optional).
- Quick confining pressure build up and release.
- Easy loading and removal of core samples.
- Hassler-type core holder.
- It has a quick and easy tri-lock feature on core holder end caps.



Loading core samples is easy!



M9170 software

Specifications

Maximum Confining Pressure: 10,000 psi (690 bar)
Maximum Pore Pressure: 500 psi (34 bar)
Porosity Range: Up to 60%
Permeability Range: 0.0005 mD to 10 D
Core Diameter: 1.5 in. (1 in. Optional)
Core Length: Up to 3 in.
Wetted Material: SS-316 Stainless Steel
Wattage: 200 W
Voltage: Varies per unit. Either a 110-120V AC configuration OR 220-240V AC configuration (not both), depending on user's power supply requirements.
Frequency: 50/60 Hz
Dimensions: 28" W x 29" D x 13" H
Weight: 150 lbs.
What's Included:

- M9170 Unit
- Core Holder
- Mass Flow Meter (0-1 SLPM)
- High Precision Transducer
- DP Transducer
- Computer with Grace Instrument M9170 Software

Warranty: 1-Year Warranty (Optional extended warranty available.)

M9170 Software

This M9170 software automates testing and accurately records results from the unit to any standard Windows PC, simplifying the testing workflow. Valves are automatically opened and closed, and almost all other testing procedures are fully automated step-by-step from start to finish. The user only needs to make minimal regulator adjustments during testing, maximizing workflow efficiency. The software handles all control, measurement, data collection, and calculation of grain density, inertial coefficients, and rock compressibility based on the results of the porosity and permeability tests.

The software also generates charts and reports. In particular, Klinkenberg and low permeability data have special chart views for easy comparison. Data is saved in .csv file format and can be conveniently exported to Excel or any other spreadsheet software for further manipulation and analysis.

Supports porosity, low permeability, high permeability, and Klinkenberg-corrected permeability

The Grace Instrument M9170 High Pressure Porosity and Permeability System is an advanced instrument that performs porosity and permeability tests on both high permeability and low permeability plug-sized core samples under confining pressures of up to 10,000 psi. Standard unit is compatible with nitrogen testing media (helium optional).^{*} It has a quick and easy tri-lock feature on core holder end caps. The M9170 measures both low and high core gas permeability by using the unsteady state pulse decay method and steady state flow method.

When the M9170 uses the unsteady state pulse decay method, the gas permeability of low permeability cores is measured. A known volume of gas is pressurized and trapped in the first section and the exit valve is kept shut. When the valve is opened, the gas will flow through the core holder due to the pressure difference. The permeability of the core can then be determined as a function of the gas pressure decay.

When the M9170 uses the steady state flow method, the gas permeability of high permeability cores is measured. The gas at the entrance valve is initially pressurized. All valves are then opened, allowing the gas to flow through the core. At steady-state flow conditions ($dP/dt=0$ and $dQ/dt=0$), the gas pressure and flow rate are measured and used to calculate the permeability using the integrated form of Darcy's Law for compressible fluids. Permeability has been demonstrated to be a function of reciprocal pressure.

The M9170 is also able to calculate the Klinkenberg-corrected permeability using gas permeability measurements at different pressures.

The M9170 utilizes Boyle's Law to calculate the volume through pressure change during the expansion of helium or nitrogen.

Easy to clean tabletop machine

This device fits easily on a standard tabletop or lab workbench. The chassis of this device is made of stainless-steel and is easy to wipe down. It uses water instead of oil as the medium that provides confining pressure.