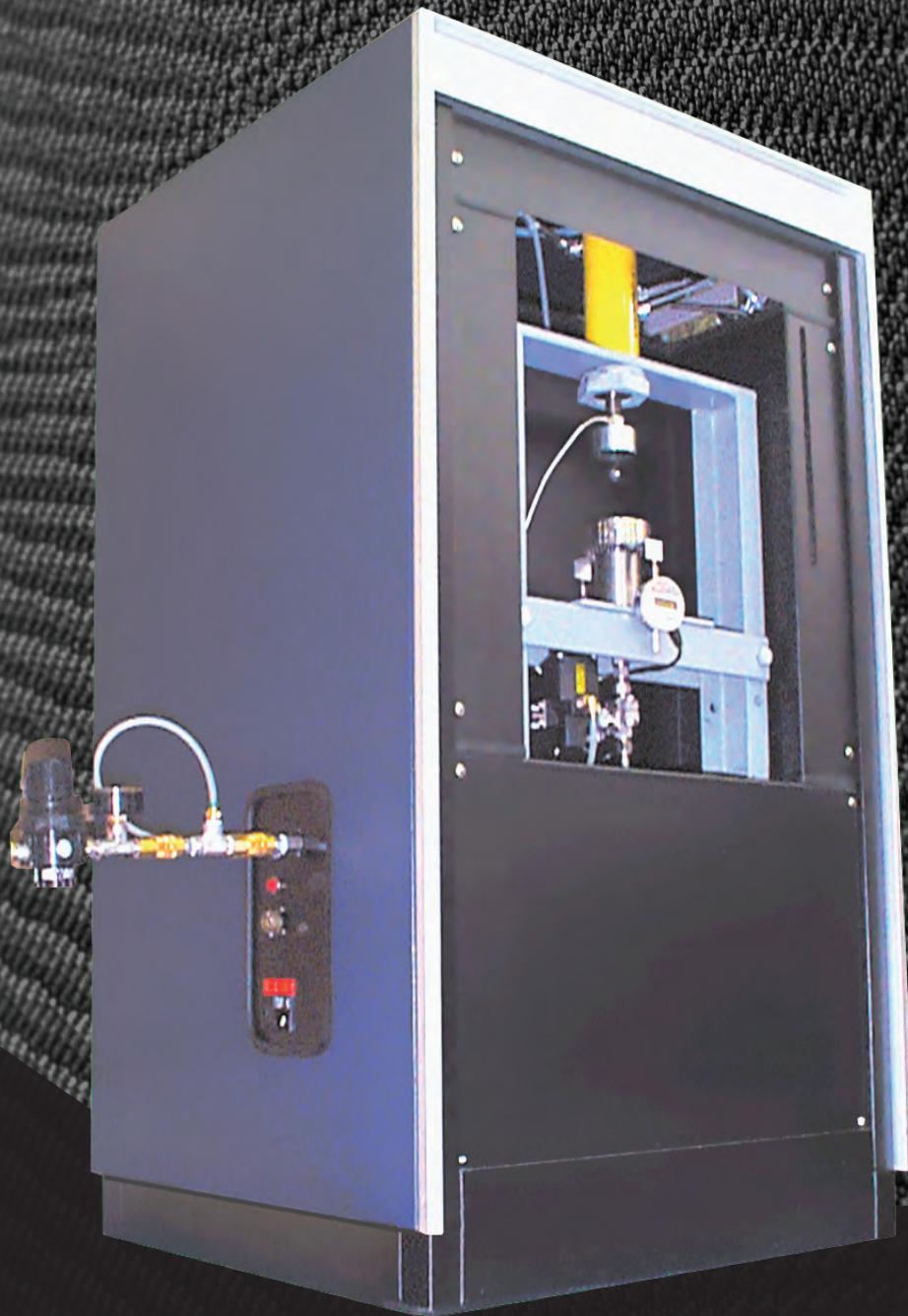


# THE PMI CYCLIC COMPRESSION POROMETER



Not just products...*solutions!*

# Principles of Operation

The instrument applies cyclic stress on a sample and measures the pore structure characteristics after a desired number of cycles. The sample is loaded in the sample chamber and is subjected to stress cycles in the specified stress limits. At the end of the desired number of stress cycles, the pressure of a non-reacting gas on one side of the sample is increased to initiate gas flow through pores. The gas pressure and flow rates are measured. The pores in the sample are spontaneously filled by a wetting liquid. The gas pressure and flow rates are measured through the wet sample. After acquisition of data, the sample is re-wetted and again subjected to cyclic compression. Pressure and flow rates are measured after the desired number of cycles. The test is continued to acquire data as a function of number of stress cycle.

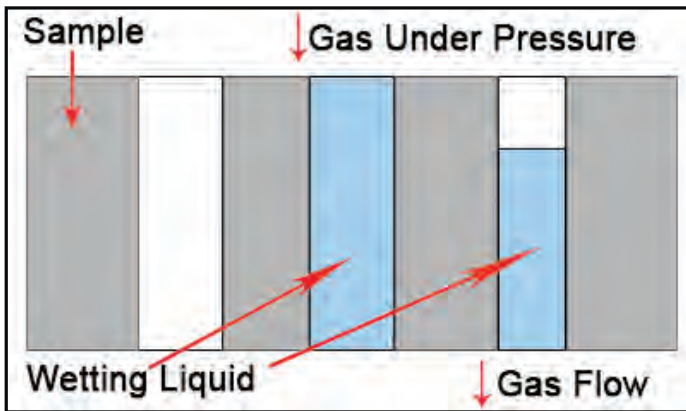


Figure 1  
Principle of Cyclic Compression Porometer

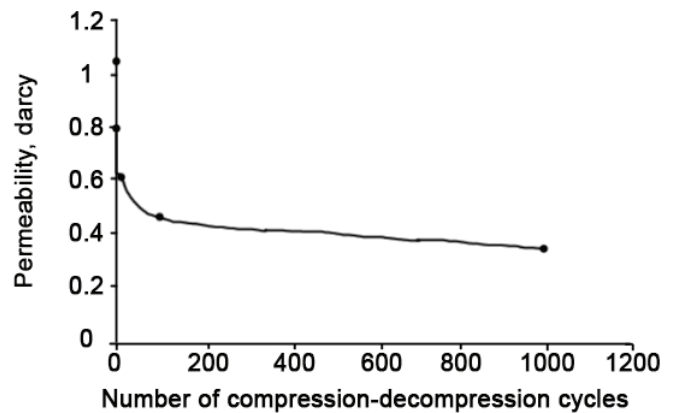


Figure 2  
Compression/Decompression Cycle Graph

## Effects of Cyclic Compression on Pore Diameter of Felts

Material	Maximum Compressive Stress, psi	# of Cycles	% Change in Bubble Point	% Change in Mean Flow Pore Diameter
Felt #1	500	15	-71.1	-30.3
Felt #2	750	2000	-68.4	-15.8

Figure 3  
Effects of Cyclic Compression Table

# Features

- After desired number of stress cycles
  - automatically interrupts analysis
  - performs tests
  - acquires data
  - continues to cyclically stress the sample
- Very little operator involvement
- Operator adjustable
  - stress limits in a cycle
  - number of cycles after which data is to be acquired
  - stress free duration for data acquisition
  - total number of cycles
- Concurrent measurement of compressive strain in the sample as a function of stress cycle
- Windows based simple operation

# Specifications\*

**Pore Size Range:**

0.013 - 500 microns

**Permeability Range:**

$1 \times 10^{-3}$  - 50 darcies

**Sample Size:**

1.75" - 2.5" diameter

**Pressure Range:**

0 - 500 psi

**Pressurizing Gas:**

Clean, dry, and compressed air or nonflammable and noncorrosive gas

**Pressure Transducer Range:**

0 - 500 psi

**Resolution:**

1 in 60,000

**Accuracy:**

0.15% of reading

**Mass Flow Transducer Range:**

$10^3$ /min - 500,000  $\text{cm}^3$ /min

**Power Requirements:**

110/120 VAC, 50/60 Hz  
(Others Available)

**Dimensions:**

30" H x 19" W x 18.5" D

**Weight:**

100lbs

\* Other specifications for this machine are available. Specifications are subject to change without notice.



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and reproducible porometers in the world.



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