

# THE PMI MICROFLOW POROMETER



Not just products...*solutions!*

# Description

The PMI Microflow Porometer is a Capillary Flow Porometer with the ability to measure pore structure and permeability in nearly impermeable materials. This instrument is user-friendly and fully automated. The Microflow Porometer is an asset in quality control and R&D environments.

# Principle of Operation

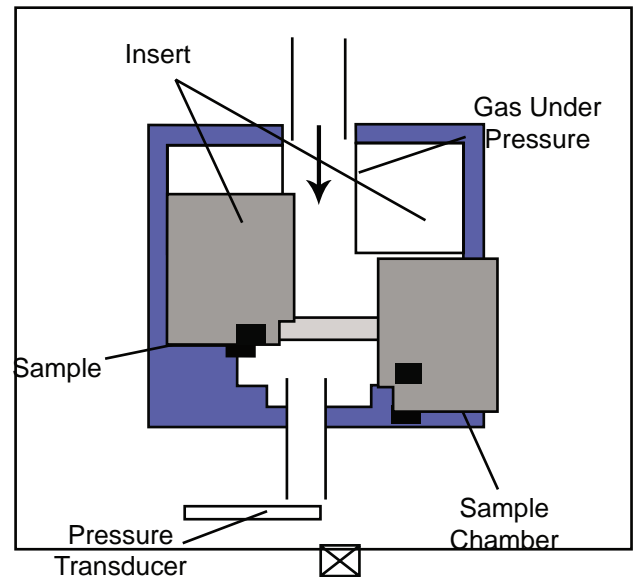
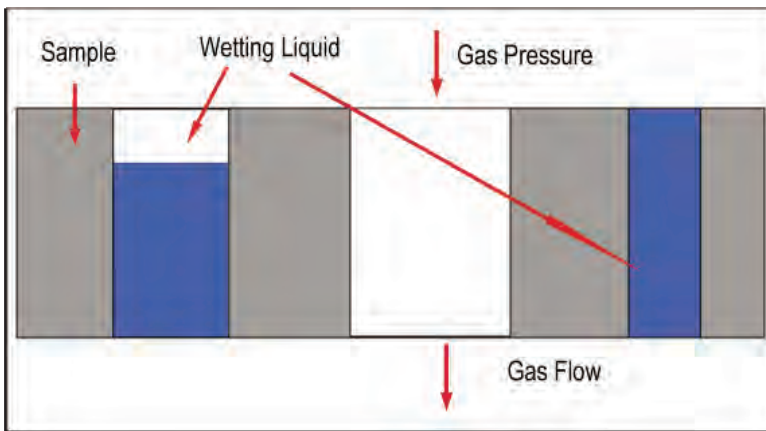
In this instrument a pressure transducer is located on the downstream side of the sample and the time rate of pressure change in the known volume of the down stream side of the sample chamber is used to compute very small flow rates.

$$F = ( V T / T P ) (dP / dt)$$

Where F is flow rate at standard temperature, T , and standard pressure, P , V is the volume of the down stream side of the sample chamber, T is test temperature, t is time, and P is test pressure. Flow rate through dry sample is measured with increasing differential pressure. The sample is wetted and flow rate is measured as a function of differential pressure, p, which is related to pore diameter, D, contact angle,  $\theta$ , and surface tension,

$$p = 4 \cos \theta / D$$

where  $\gamma$  and  $\theta$  are surface tension and contact angle of wetting liquid respectively.

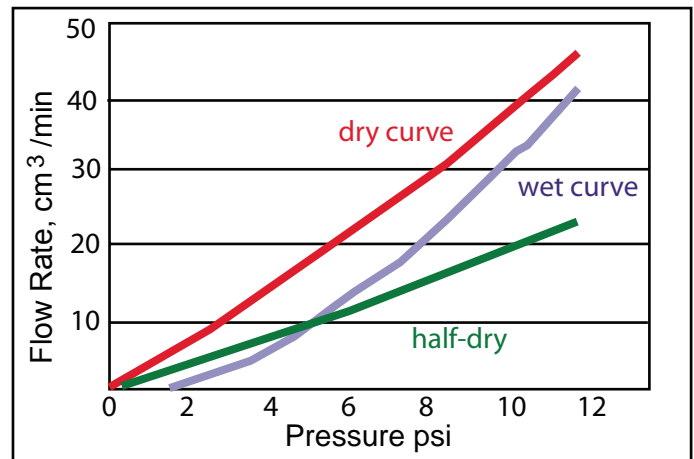
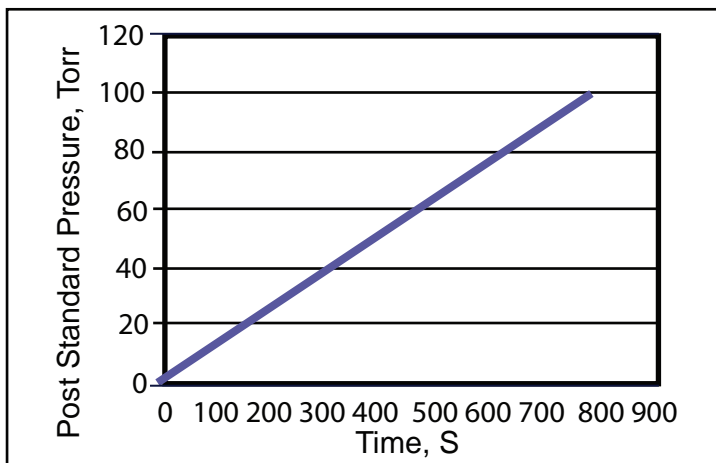


# Features

- Samples permitting very low flow rate can be tested
- Very low permeability can be measured
- Fully Automated
- Windows based simple operation

# Optional Features

- Sample under compressive stress
- Elevated temperature test
- Determination of In-Plane Structure



# Specifications\*

- **Pore Size Range:** 0.013 - 500 microns
- **Permeability Range:**  $1 \times 10^{-10}$  -  $1 \times 10^{-1}$  (microflow in cc/sec/m/torr)
- **Sample Size:** 0.5" - 2.5" diameter
- **Pressure Transducer Range:** 0 - 500 psi
- **Resolution:** 1 in 20,000
- **Accuracy:** 0.15% of reading
- **Pressurizing Gas:** Clean, dry, and compressed air or nonflammable and non-corrosive gas
- **Mass Flow Transducer Range:** 10 cm<sup>3</sup>/min - 500,000 cm<sup>3</sup>/min
- **Power Requirements:** 110/120 VAC, 50/60 Hz (Others Available)
- **Dimensions:** 30" H x 19" W x 18.5" D
- **Weight:** 100 lbs

\* 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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