



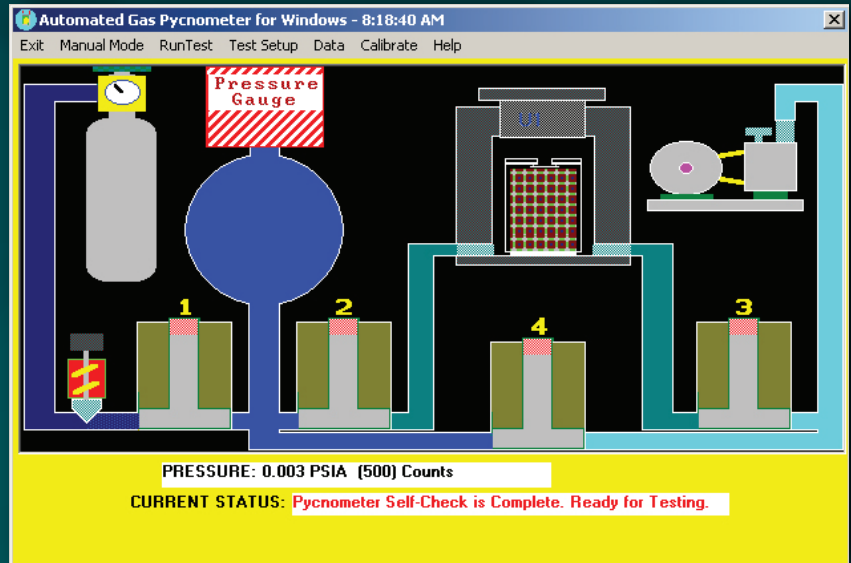
THE PMI
AUTOMATED
GAS PYCNOMETER
& Accessories

G PYC-100AT

Not just products...solutions!

Operating Procedure

PMI's Automated Gas/Helium Pycnometer is used to determine the true volume and true density of powders and bulk solids using high-precision volume measurements and density calculations. The true volume of a solid is calculated from the measured drop in pressure when a known amount of gas is allowed to expand into a chamber containing the sample. Thus, the true volume obtained by pycnometry includes any pore volume accessible to the gas. Helium is the preferred gas, because it exhibits ideal gas behavior. The Gas/helium pycnometer measures the true volume and density of solid powders such as calcinated petroleum coke.



Applications

Gas Pycnometer is used to determine the density of powders/solids instantaneously and accurately at particular temperature and pressure.

- Automated Industry
- Battery/Fuel Cells Industry
- Ceramic Industry
- Chemical Industry
- Nonwovens Industry
- Pharmaceutical/Medical Industry

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GAS PYCNOMETRY ANALYSIS

Test Type: VACUUM
 Test Date: 06-22-2001

Sample ID: Polypropylene resin
 Mass: 10.481 gm

Reference Volume: 11.31 cc
 Sample Chamber Volume: 24.96 cc

PFO PSIA	PIO PSIA	PI PSIA	PF PSIA	VOLUME (cc)	DENSITY (gm/cc)
00.003	00.003	09.798	04.399	11.073	00.947
-00.003	-00.002	09.802	04.394	11.051	00.948
-00.003	-00.002	09.796	04.392	11.055	00.948
-00.003	-00.003	09.792	04.394	11.076	00.946
-00.003	-00.003	09.796	04.393	11.060	00.948
				Average Volume : 11.063 cc	
				Average Density : 0.947 +/- 0.001	

Features

- Confirms to EN 15150 Standards
- Automated Control
- Non-destructive measurement
- Stainless steel embodiment
- Fully automated and simple to use
- Highly reproducible & accurate results
- Low required pressures; works with compressed air
- No need for liquid nitrogen
- Mercury-free, non-toxic wetting liquids reduces disposal related costs
- Compatible PC & software to be supplied along with the machine
- Samples are conditioned to remove any trapped air and contaminants
- Option to purge by a suitable method
- Standard samples of known volume (small as well as large volume samples)
- For determination of Density of the Powder, Granular Materials
- Pore Structure Characteristics: Absolute Density
- The instrument has Direct Display of results for True Volume of the powder as well as Granular materials

Operating Mode

PMI Automated Gas/Helium Pycnometer can be operated via personal computer (PC) in either automatic or manual modes.

Operating Conditions:

- Temperature : 5 to 47 °C
- Humidity : 20 to 80% RH

Software Features

- Windows 98, XP, 2007 and 2008 compatible software enables convenient use of the instrument
- User define pressure can be used to test the samples
- The user can specify the number of times the test is to be repeated within the specified standard deviation.
- Automatic pressure and volume calibration routines for different kind of test methods
- Software allows the user to perform a test in the manual mode.
- Software allows the user to store different test settings so that the settings can be recalled and used for future testing.
- Test results can be stored to disk and printed directly.

Hardware

- Three different test methods provide the most accurate results: vacuum, high pressure and ambient pressure.
- Pressure relief valve prevents over pressurization of pressure gauge.
- Any non-corrosive and non-absorbing gas can be used.
- Use of metering valve provides excellent control on the amount of gas (pressure) that can be used for the test.
- Slow evacuation for powder samples prevents powder from being dragged into the vacuum pump.
- Minimal operator involvement.

Data Acquisition

Gas/Helium pycnometer provides data display acquisition analysis

Analysis Specification

- Sample Volume : 4, 10, 50, and 100 cc (Nominal Sizes)
- Accuracy: Equal to $\pm 0.1\%$
- Reproducibility: Equal to $\pm 0.1\%$
- PURGES Modes: By Continuous flow, gas pulses and vacuum
- Calibration Method: By stainless steel spheres with integrated calibration procedures.

Product Specification

- Automatic temperature control : Peltier device / Fluid circulation system
- Temperature control range : 18 to 37 °C
- Temperature resolution : 0.1 °C
- Temperature control stability : ± 0.1 °C
- Pressure transducer range : From vacuum up to 300kPa absolute reading
- Pressure display resolution : 0.001kPa
- Pressure transducer stability : ± 0.002 kPa
- Power requirements : 220 VAC, 60 Hz
- Size: 12" x 28" x 22" (25 x 70 x 55 cm) (approximately).
- Weight: 60 lbs (27kg) (approximately).
- Software: Windows 98, XP, 2007 or 2008 compatible.

ESSENTIAL ACCESSORIES

Calibration Kit	Calibration spheres for all the sample volume chambers (4, 10, 50 and 100 CC (Nominal Sizes)) with certificate of calibration, with wooden box case and tool for sphere extraction.
Helium Gas Cylinder	Four nos. of Helium gas filled brand new high pressure seamless steel flat bottom type Helium Gas Cylinders of 46.7 ltr water capacity (with duly fitted valve, with neck ring and cap, properly painted including manufacturer test certificate, ISI inspection certificate, Hydraulic test certificate and approval certificate from chief controller of explosives, Govt. Of India for Helium Gas Cylinder) with One Dual Stage SS Regulator.
COMPUTER	Compatible latest high performance computer dedicated to the equipment for faster data acquisition and processing <ul style="list-style-type: none">• Intel Core i5 3770 3rd generation processor, 8MB Cache• Seagate HDD 7200.14, 500GB Transcend DDR3 RAM 2 x 4GB• Intel Original Z77 Motherboard (PC Make: Dell/Lenovo)
Kit for degassing in vacuum	Suitable vacuum pump, vacuum tubing and necessary fittings
Circulator (If temperature control is done using Fluid Circulation System)	Temperature Controlled Circulator (Make: Julabo/Lauda/Cole-Parmer), 20m tube for circulation, 5L circulating fluid.

Sales & Services



Our sales team is dedicated to helping our customers find which machine is right for their situation. We also offer custom machines for customers with unique needs. To find out what we can do for you, contact us. We are committed to customer support including specific service products, short response times & customer specific solutions. To quickly & flexibly meet our customer's requirement, we offer a comprehensive range of services.

Customize your machine today!

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and reproducible Pycnometers in the world.

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