



InstruQuest, Inc.

## PV-Pyc 200™ – Pressure -Vacuum Pycnometer, 200 cc, Lab & Field Description, features, and specifications

The **PV-Pyc 200™** is a fast and fully automated **gas (helium) and air (vacuum) pycnometer** in one instrument for very accurate measurements of true volume (density) of solids using the **gas expansion method**. The volume of measuring chamber is about 250 cc and allows for usage of a more representative amount of sample. Thanks to the embedded miniature vacuum pump, the instrument can be operated as a classical **air pycnometer** but without the need of using mercury. Using the **vacuum technique**, no specific gas source is needed (other than ambient air) for implementation of the gas expansion technique. This unique feature and 12 VDC operation make the pycnometer a preferred choice for field (geology, agriculture) and lab applications (R&D and QC). The novel approach to operational software design allows the user for easy design of experiments and repeating them using previously saved templates. The user can change parameters at any time and any important quantities can be displayed on PC screen and printed on the report. All data are saved in text format for easy transfer to other programs. The Manual mode of operation is also implemented (via software) for learning, teaching, or troubleshooting purposes.



### Main Features and Specifications:

- **Dual technique: Usage of pressurized gas source - typical gas expansion pycnometer, or integral vacuum pump - air (vacuum) pycnometer**
- **Measurements of more representative sample size - about 250 cc sample chamber volume (65mm diameter x 76mm height), (less for sample, about 200 cc)**
- **Lab and field applications (powered by any regulated 12 VDC source)**
- **Special design of sample holders with installed filters**, suitable for finest powders
- **24-bit data acquisition system, High accuracy -  $\pm 0.05\%$ , and resolution 0.0001 cc**
- **Dual Gas Selector** (optional) – one of two gas sources can be selected by front panel switch
- **Built-in precision low-pressure regulator** - allows for exact setting of required gas pressure.
- **Built in miniature vacuum pump with 7-10 kPa capability** – allows for the fastest and most effective outgassing of samples, especially when used in combination with pressure cycles.
- **Full control over experiment** - basic procedures are prepared as functions with parameters and their sequence is user defined in the experiment definition. Parameters can be modified during experiment run and results viewed on screen. The procedures can be saved and reused with a few mouse clicks. Data are saved in text format for future references and any further processing using spreadsheets.

P.O. Box 970366 · Coconut Creek, FL 33097 · Ph: (561) 271-1958 · Fax: (561) 477-8021  
Website: [www.instruquest.com](http://www.instruquest.com) · E-mail: [info@instruquest.com](mailto:info@instruquest.com)

## PV-Pyc 200™ – gas/vacuum pycnometer - Ordering information

The scalable design allows for providing the user with the needed capabilities, from the basic pycnometer version to fully equipped by addition of optional equipment or custom features. Some of the options need to be ordered at the production time while others can be added later. As we advance the technologies, additional equipment and software capabilities can be listed in updated brochures.

The complete part number for ordering consists of the core instrument name (PVPyc200) and capital letters indicating options. Any digit(s) following the letter indicate a special version of the option.

**PVPyc200** - Complete system with single gas supply port. All standard accessories are included: One sample holder w/ cover, 2.5" calibration ball and handling tool, 12 VDC regulated table-top power supply (universal power input), USB adapter, extension communication cable; about 5 m of copper line 1/8"OD for gas connection, spare hardware, manuals, and software. The approximate instrument dimensions are: Length – 30 cm (12"), Width - 28 cm (11"), Height - 10 cm (4.0") plus protrusion from the sample chamber.

**Option A** - Laptop/Notebook with Microsoft Windows OS is offered almost at purchase price to make the easy installation even simpler as the software is already installed (highly recommended).

**Option B** - Dual gas supply ports option allow for connecting two (neutral) gases to the instrument and easy selection of one of them for a given experiment using the front panel switch. This option needs to be installed at production time.

**Option C** – Extended calibration kit. This comprehensive calibration kit includes additional balls for verification in addition to the one used for calibration.

**Option D** – Porosity kit – It contains special sample holder w/ cover, bed forming tool, and vibrator adapter. A suitable high quality caliper (e.g. Mitutoyo brand) can added to form D1 option.

**Option E** – Liner kit. It contains a special tool which facilitates forming round shapes and inserting of disposable plastic bags into sample holder as liners when handling difficult to clean samples.

**Option F** – High-pressure regulator, dual-stage, analytical grade, with CGA580 adapter for neutral gases.

Other options may include specific applications hardware for other analytical capabilities.

**Ordering example:** PVPyc200-A – this part number is for the PV-Pyc 200™ pycnometer with laptop computer (A).

For any inquiries, please use our e-mail: [info@instruquest.com](mailto:info@instruquest.com), and replies to quote requests with complete business address of destination are provided in writing only.

April 2018, InstruQuest Inc.

P.O. Box 970366 · Coconut Creek, FL 33097 · Ph: (561) 271-1958 · Fax: (561) 477-8021  
Website: [www.instruquest.com](http://www.instruquest.com) · E-mail: [info@instruquest.com](mailto:info@instruquest.com)