# G-DenPyc 3900

## Gas Pycnometer Analyzer

**Gold APP Instruments China**

**Lead You to Particle World Better**


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# Gas Displacement Density Pycnometer

# G-DenPyc 3900

***Measurement for Foams, Powders, Solids, Films, Slurries, Coatings, Polymers, Calcination etc.***

## Working Principle

A gas pycnometer is a laboratory device used for measuring the density—or more accurately the volume—of solids, be they regularly shaped, porous or non-porous, monolithic, powdered, gr anular or in some way comminuted, employing some method of gas displacement and the volume. A gas pycnometer is also sometimes referred to as a helium pycnometer.

Gas expansion pycnometer is also known as constant volume gas pycnometer. The simplest type of gas pycnometer (due to its relative lack of moving parts) consists of two chambers, one (with a removable gas-tight lid) to hold the sample and a second chamber of fixed, known (via calibration) internal volume – referred to as the reference volume or added volume. The device additionally comprises a valve to admit a gas under pressure to one of the chambers, a pressure measuring device – usually a transducer – connected to the first chamber, a valved pathway connecting the two chambers, and a valved vent from the second of the chambers. In practice the sample may occupy either chamber that is gas pycnometers can be constructed such that the sample chamber is pressurized first, or such that it is the reference chamber that starts at the higher pressure.

## Unmatchable Features

- Programmable logic controller (PLC) system obtains high integration and strong anti-interference, software operated fully automated analysis enables freely choose of multi experiment modes.
- Installed with a detachable filter in sample cell's bottom, can prevent samples be suctioned into manifolds; inputting gas from cavity bottom can avoid samples splash and software-controlled H-Sorb two-stage-stepping mode further ends splash happening.
- Provided standard 10ml sample cells, it is OK even have limited samples. Also can customize any volume sample cell from 5ml to 180ml. Exclusive G-DenPyc filling technology supports to choose different volumetric aluminum blocks to fill into cells instead changing other sizes cells according to samples' volume, this innovative method realizes minimal free space in cells and improve experiment accuracy.
- Patented V-Sorb monolithic manifolds system can improve sealing performance and reduce dead space largely, enhance system temperature's uniformity and anti-interference ability, all lead to a high accuracy and repeatability data.
- Programmable built-in Win10 system computer with a 13.3" display to real time monitor testing procedures, USB type external keyboard and mouse, RJ45 ethernet port is available for accessing to internet, also supports external display by RS232.
- The integrated design makes the whole machine compact and can be moved by one person. Meet any desktop environment.
- Hinged self-aligning lid, with easy and quick operation, can ensure high repeatable chamber volume in every testing.

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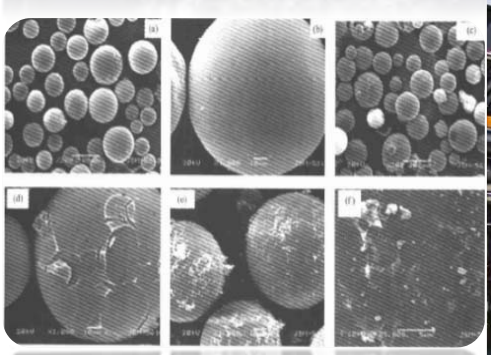
## A world of applications by G-DenPyc 3900

Gas pycnometer is used extensively for characterizing a wide variety of solids such as ceramic, catalysts, filter medium, nuclear fuel, oil & chemical industry, soil, fertilizer, carbon black, hard coke, fiber, minerals, pharmacy, cosmetics, cement, powdered foodstuff, desiccant (drying agent), powdered metal, ion exchange resin, silicon gel, alumina, titanium dioxide, solid foam etc.




- Analysis Method: gas displacement method (volume expansion method)
- Function: true density analysis
- Experimental Pressure: external vacuum pump is option, can adopt negative pressure (0-1Bar) or positive pressure (1-2Bar) two modes to analysis
- Accuracy: ±0.02% of reading, repeatability ±0.01%, resolution can reach 0.0001g/ml
- Sample Ports: three samples analysis stations with provided 10ml standard sample tubes.
- Pressure Accuracy: imported high-precision pressure transducer, range from 0-3 Bar, accuracy can reach 0.04% F.S., stability 0.025% F.S.
- Adsorbate Gas: high purity He or $N_2$ (99.999%)
- Programmable embedded system with touchable display, equips USB external keyboard and mouse operation; the computer can be connected through RS232 communication mode; software can be run on an external computer for testing at the same time.
- 


① 13.3'' display with built-in PC

② 3 analysis ports

### Net Dimensions

Length: 43cm
With: 35cm
Height: 37cm
Weight: 25kg

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# Software Advantages

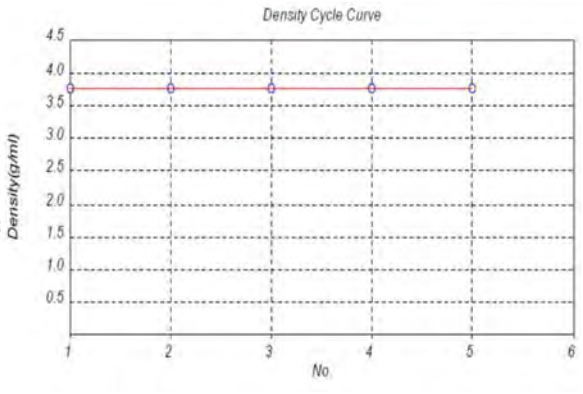
G-DenPyc 3900 can be controlled by a built-in keypad or an external computer system. The whole analysis status can be continuously displayed in the 13.3 inch display.

Monoblock aluminum and thermostatic system can produce a minimal temperature floating (±0.1℃), help a lot for big mass samples whose density change dramatically with temperature.

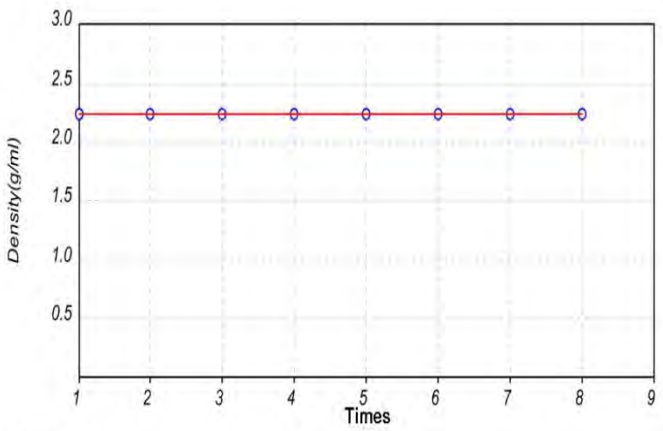
G-DenPyc 3900 system not only support multiple analyses in a fixed pressure but also provide target pressure analysis within a select range.

Offered user selected reports:

- ✓ True density
- ✓ Summary report
- ✓ Sample log
- ✓ User defined tabular reports
- ✓ Equilibration report etc.

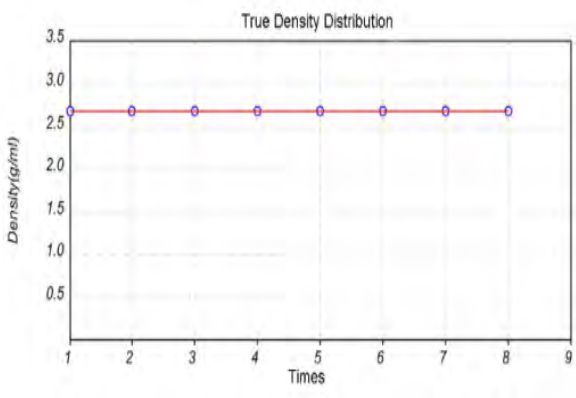



*density report for ceramic sample*




Data Reports

| Equilibrium Pressure | Empty Cell Volume (ml) | Free Volume (ml) | True Density (g/ml) |
|---|---|---|---|
| 51118.04 | 52.901100 | 37.744344 | 2.221099 |
| 47134.81 | 52.901100 | 37.800652 | 2.229382 |
| 45549.39 | 52.901100 | 37.802056 | 2.229589 |
| 46767.28 | 52.901100 | 37.791990 | 2.228103 |
| 50934.95 | 52.901100 | 37.791131 | 2.227977 |
| 47014.11 | 52.901100 | 37.798511 | 2.229065 |
| 51084.13 | 52.901100 | 37.786677 | 2.227320 |
| 47065.65 | 52.901100 | 37.793106 | 2.228268 |




*true density distribution report*

*data report tabular for battery material*

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