DensiPyc 1000S

Precision True Density

INTRODUCTION

"Accurate, Accessible, Advanced True Density"

The AMI DensiPyc 1000S Series delivers precise, repeatable true density and true volume measurement for small sample quantities. Designed for limited, valuable, or difficult-to-prepare materials, the system combines advanced gas pycnometry with intelligent automation and flexible small-volume sample cells.

With sample cups from 10 cm^3 down to 1 cm^3, the DensiPyc 1000S supports reliable density, volume, and porosity analysis when standard sample sizes are not practical. Automated sealing, intelligent reference volume selection, optional temperature control, and optional vacuum pretreatment help reduce operator dependence and improve confidence in every reported value.

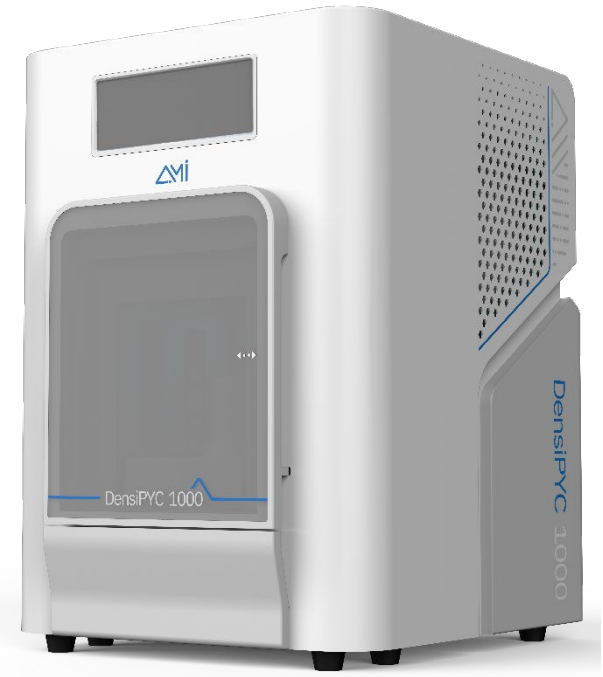

Figure 1. DensiPyc 1000S

KEY DIFFERENTIATORS

The AMI DensiPyc 1000S brings the automation and reliability of the DensiPyc platform to small-sample true density analysis.

- **Small Sample Cell Configuration**

Sample cups of 10 cm^3, 6 cm^3, 3.5 cm^3, and 1 cm^3 allow accurate testing when material availability is limited or sample cost is high.

- **Automated Sample Chamber Sealing**

An automated mechanical sealing system applies consistent sealing force and positioning for every measurement, reducing operator variability and improving repeatability.

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• **Intelligent Reference Volume Management**: The system automatically matches the optimal reference configuration to the selected sample cup, minimizing dead volume effects and improving volumetric accuracy across small sample sizes.

• **Optional Temperature Control**
Integrated temperature control from 3–60°C provides stable test conditions for materials sensitive to environmental temperature changes.

• **Optional Vacuum Pretreatment**
Integrated vacuum pretreatment supports removal of residual gases or moisture before analysis while maintaining a compact, single-instrument workflow.

MODEL COMPARISON

The DensiPyc 1000S Series is available in multiple configurations to match laboratory workflows and application requirements:

• **DensiPyc 1000S**
Designed for routine small-volume true density and true volume measurements using 10 cm^3, 6 cm^3, 3.5 cm^3, and 1 cm^3 sample cups.

• **DensiPyc 1000S TC**
Adds active temperature control for materials sensitive to laboratory temperature fluctuations.

• **DensiPyc 1000S V**
Includes integrated vacuum pretreatment for samples requiring removal of moisture or residual gases before analysis.

Combined Configurations — Temperature control and vacuum pretreatment may be specified individually or together, allowing the DensiPyc 1000S to be configured for routine QC, R&D, or advanced material characterization.

APPLICATIONS

The AMI DensiPyc 1000S is engineered for accurate and repeatable true density measurements where small sample volume is important.

• **Catalysts and catalyst supports**
Measure true or skeletal density of powders, pellets, and supports for porosity calculations, formulation control, and QC.

• **Pharmaceuticals and nutraceuticals**
Analyze active ingredients, excipients, powders, and granules when only small sample quantities are available.

• **Battery and advanced materials**
Support density measurement of specialty powders, electrode materials, additives, ceramics, and other R&D materials.

• **Additive manufacturing powders**
Evaluate metal and polymer powders for powder qualification, lot-to-lot comparison, and process control.

• **Polymers, ceramics, and specialty materials**
Analyze small prepared samples, powders, and granules for development, QA, and performance evaluation.

SOFTWARE & WORKFLOW

The DensiPyc 1000S software combines guided workflows with automated data handling to simplify small-sample density analysis while maintaining rigorous measurement control.

Fast Test Mode
Predefined test routines allow standardized measurements to be started with minimal parameter setup, simplifying routine QC and improving consistency across operators.

Intuitive Data Processing & Reporting
Automated data processing and one-click report generation streamline result evaluation and documentation. Data can be exported in common formats, while built-in tools support historical and batch-to-batch comparison.

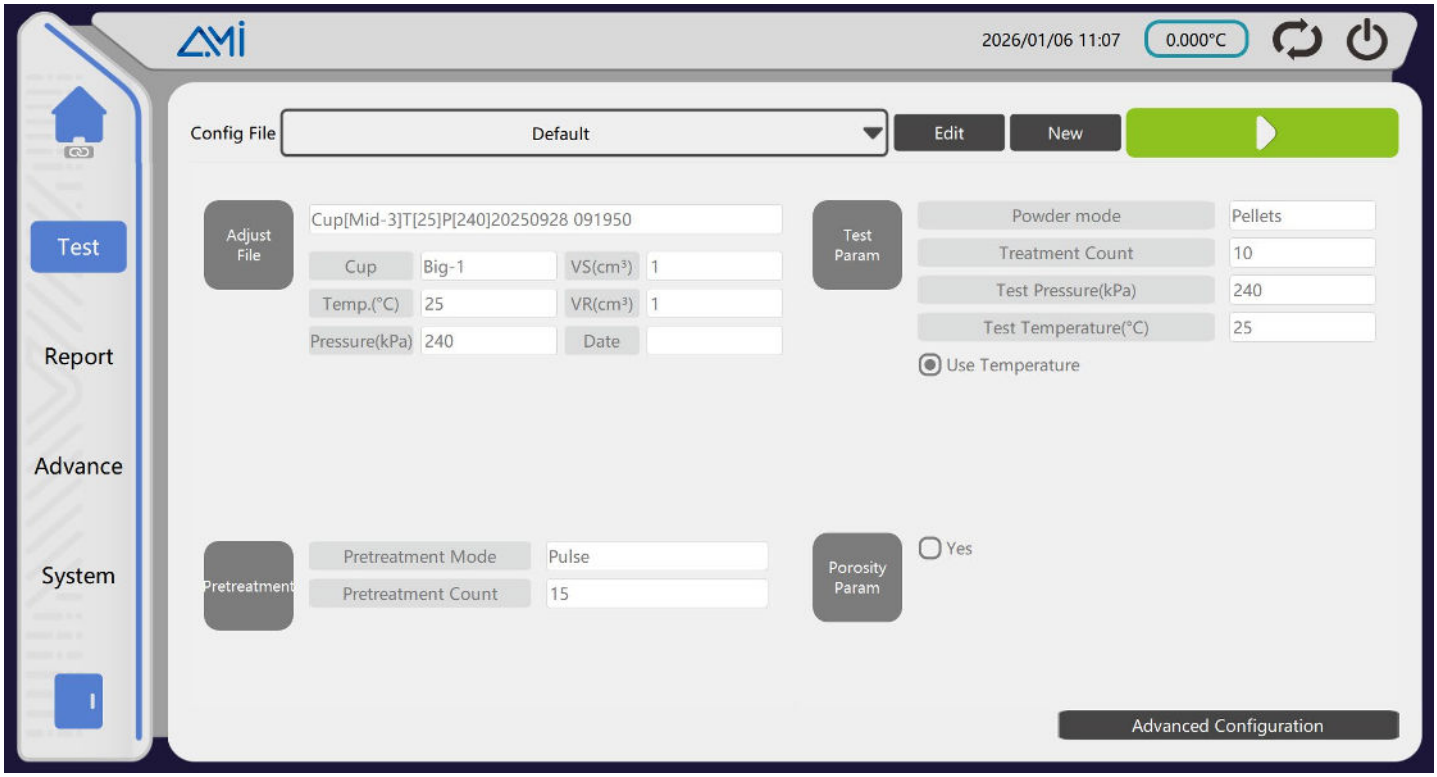

Figure 2: Graphic User Interface of the DensiPyc Series

The DensiPyc 1000S software simplifies small-sample density analysis with one-click standardized testing, intelligent data handling, and automated report generation. Built-in comparison tools allow users to review results across batches or time periods, helping identify trends in density and porosity. The integrated touchscreen displays instrument status, test progress, and key parameters in real time for clear, efficient operation.

SPECIFICATIONS

Parameter	Specification
Test Gas	Helium, Nitrogen, Inert Gases
Gas Delivery Method	Pulsed injection or Flow with pressure equilibration, vacuum as option, Fine powder handling methods (Powder Guard Mode)
Accuracy	10 cm^3: ±0.015% 6 cm^3 : ±0.04% 3.5 cm^3: ±0.03% 1.0 cm^3: ±0.07%
Repeatability	10 cm^3: ±0.007% 6 cm^3 : ±0.02% 3.5 cm^3: ±0.015% 1.0 cm^3: ±0.035%
Sample Cell Volumes	10 mL, 6 mL, 3.5 mL, and 1.0 mL
Pressure Parameters	Pressure range: 0 – 300 kPa (0 – 3 bar, 0 – 43.5 psi) Pressure resolution: 0.001 kPa (0.00001 bar, 0.000145 psi)
Data Output	PDF, TXT, Excel, connected via Ethernet
Temperature Range (model dependent)	3–60°C (TC models only; Peltier-controlled); Stability: +/- 0.01°C ; Accuracy: 0.001°C
Integrated Vacuum (model dependent)	Sample pretreatment via vacuum degassing (integrated pump) to 10kPa
Operating Environment	15–35°C, 10-90% RH, non-condensing
Power	100–240 VAC, 50/60 Hz, 120W (standard), 320W (temperature control)
Footprint (W × D × H)	465 × 350 × 370 mm / 18 x 14 x 15 in
Weight	Approx. 10 kg / 22lbs
Applicable Standards	Measurements are performed using gas displacement principles in accordance with: ISO 12154; ASTM D4892, B923, C604, C830; DIN 66137; USP <699>

ABOUT US

Advanced Measurement Instruments (AMI), consisting of Altamira Instruments, Rubolab, ISI, STOE and JWGB, offers a comprehensive portfolio of solutions for all your material characterization needs. As a global and diversified company, we have many years of professional experience, and our mission is to empower scientists and researchers around the world in the field of materials science by providing cutting-edge analytical instruments. We are committed to providing high-quality, user-friendly, cost-effective products and services to ensure that customers get the best solutions in research and industrial applications.

MISSION

At AMI, our mission is to advance the world of materials characterization by providing cutting-edge analytical instruments that empower customers in commercial and research fields.

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