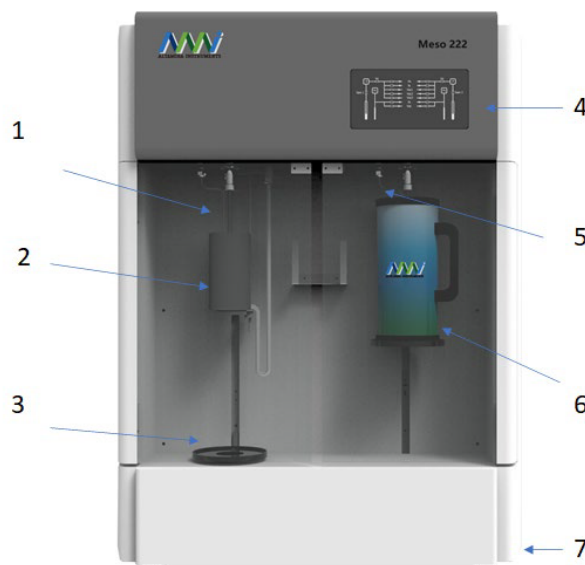


*Accurate, Accessible, Advanced Gas Sorption*

## AMI-meso Surface Area and Porosity Analyzer

### Product Introduction

AMI is proud to introduce the AMI-meso series of physisorption instruments. With over 30 years of expertise in fully automated chemisorption instrumentation, we have designed the AMI-meso series to utilize the static volumetric method for precise isotherm measurement. Tailored for the characterization of mesoporous materials, the AMI-meso series can also be adapted with multiple analysis ports for high-throughput testing, offering enhanced efficiency and flexibility.



### Hardware and Operations

The AMI-meso series offers flexibility with configurations of one, two, or four sorption analysis stations. Each station operates independently, featuring its own dosing manifold and a 1000 mmHg transducer for precise measurements. To ensure sample integrity, every station includes an in-situ degassing module capable of heating samples up to 400°C, eliminating the risk of contamination during transfer. When multiple stations are selected, each functions autonomously, allowing for simultaneous yet independent analyses.

1- sample tube, 2-heating mantle, 3- elevator for dewar, 4-realtime indicators, 5-pO, 6- dewar, gas inlet and power

Through software control, the AMI-sync can measure/perform various functions, including the following :

- Dose adsorbate
- Raise and lower the dewar
- Determine if equilibrium conditions are satisfied
- Plot the real-time physisorption isotherm
- Determine adsorption/desorption kinetics
- Isothermal adsorption and desorption curve
- BET specific surface area (single point, multipoint)
- Langmuir surface area
- External surface area (STSA)
- BJH pore size analysis
- tplot analysis
- DR, DA, MP method
- HK pore size analysis
- SF pore size analysis
- NLDFT pore size distribution
- Pore size mode, average pore size, total pore volume
- Calculation of heat of adsorption, etc.

## *Specification Table*

	meso 112	meso 222	meso 400
Sorption/Degas Stations	1	2	4
Transducers (per station w/p <sub>0</sub> )	2	2	2
Surface Area	≥ 0.0005 m <sup>2</sup> /g	≥ 0.0005 m <sup>2</sup> /g	≥ 0.0005 m <sup>2</sup> /g
Pore Size	2-500 nm	2-500 nm	2-500 nm
Pore Volume	≥ 0.0001 cm <sup>3</sup> /g	≥ 0.0001 cm <sup>3</sup> /g	≥ 0.0001 cm <sup>3</sup> /g
Pump	Mechanical pump (minimum: 5.0 x 10 <sup>-4</sup> mmHg)		
p/p <sub>0</sub>	10 <sup>-4</sup> - 0.998		
Accuracy-Pressure Transducer	1000 mmHg (+/- 0.20% F.S.)		
Degassing Temperature	400°C		
Adsorbates	N <sub>2</sub> , CO <sub>2</sub> , Ar, Kr, H <sub>2</sub> , O <sub>2</sub> , CO, NH <sub>3</sub> , CH <sub>4</sub>		

## Features and Benefits

- The AMI-meso series is available with one, two, or four independent measurement stations for high-resolution sorption measurements.
- Each measurement station operates independently with its own set of pressure transducers, including a dedicated 1000 Torr  $p_2$  transducer.
- Each station has its own gas input, allowing the system to run up to four different experiments simultaneously at distinct temperatures and with various gases.
- Fully programmable, software-driven in-situ degassing at each station, with optional additional degassers available.
- A three-step evacuation routine ensures safe sample handling, even for very fine particles and highly porous materials.
- Real-time kinetic data visualization (pressure vs. time) enables users to monitor equilibrium conditions throughout the experiment.
- Optional pycnometry function for density measurement.
- A two-step filter system protects the instrument from sample contamination.
- Users can adjust dose amounts and equilibration settings on the fly without restarting the analysis.

## Software

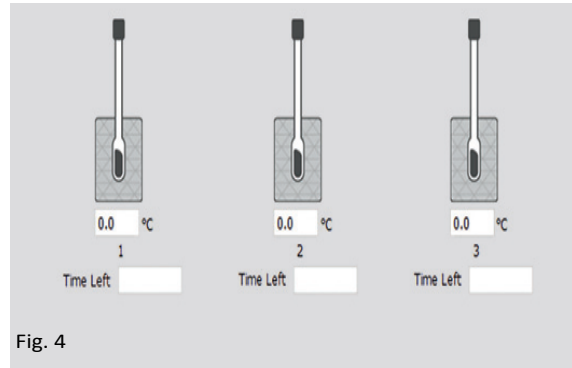
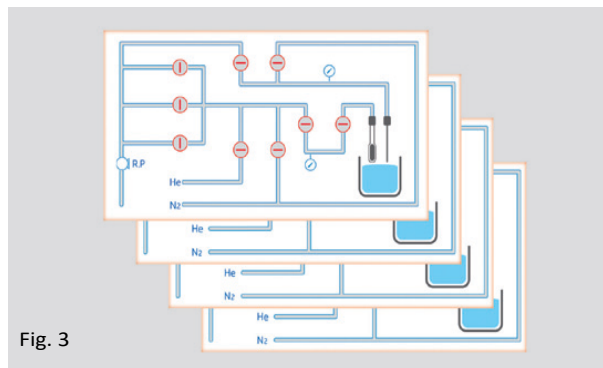
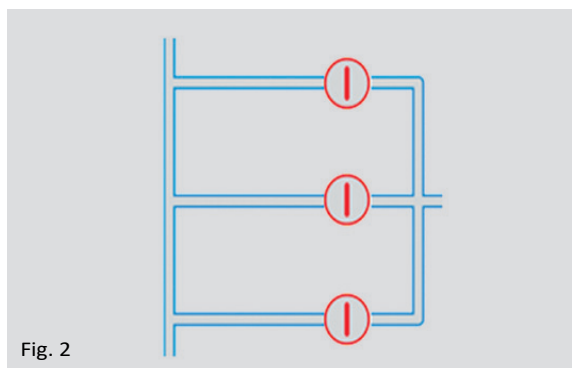
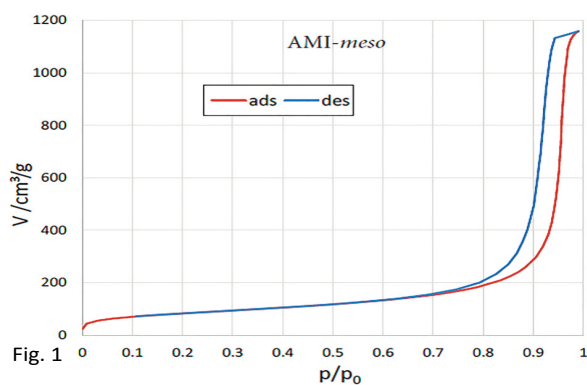


Figure 1: Isotherm

Figure 2: 3-stage evacuation to prevent sample fluidization

Figure 3: Main software screen

Figure 4: Degassing screen