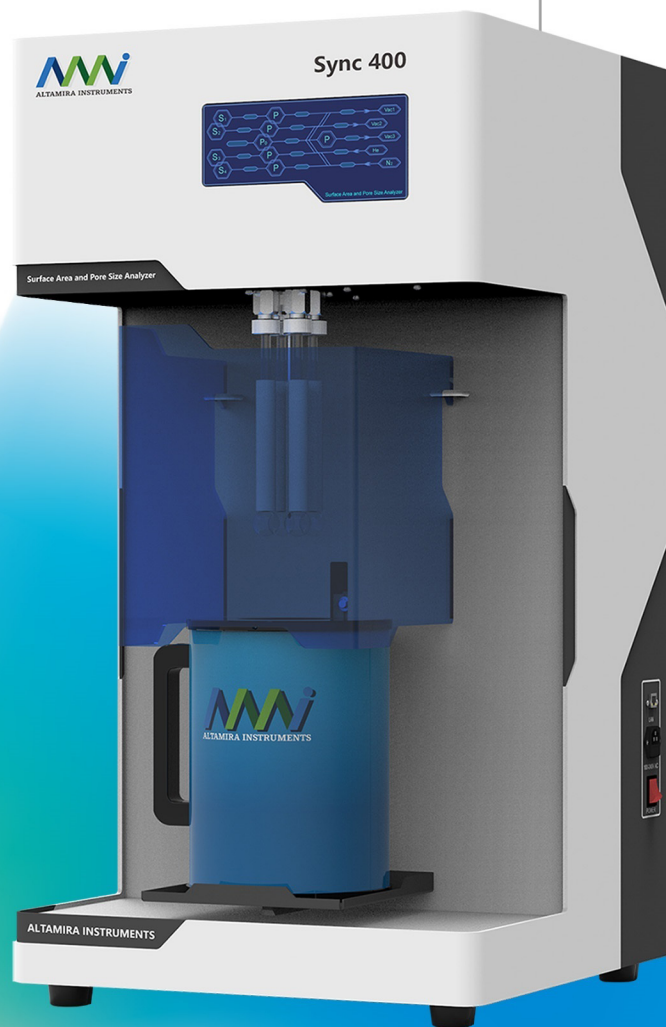


Specific Surface Area And Pore Size Analyzer

Sync series

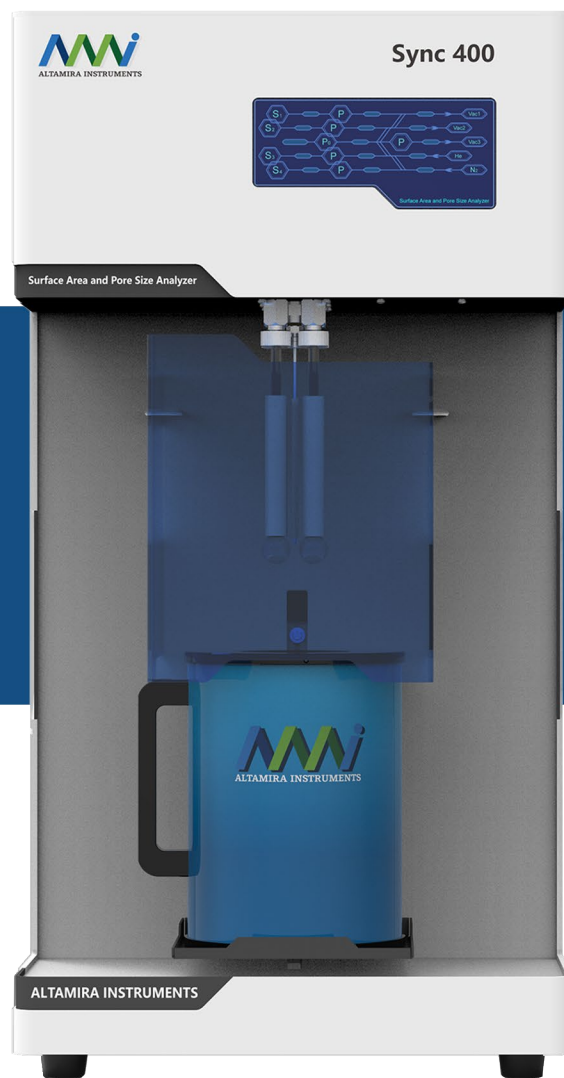
Pore size range
0.35-500nm

Specific surface area
>0.0005m²/g



Sync Series

Specific Surface Area And Pore Size Analyzer



Overview	01
Technical superiority	02
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Pore size
range
0.35-500nm

Specific
surface area
> 0.0005m²/g

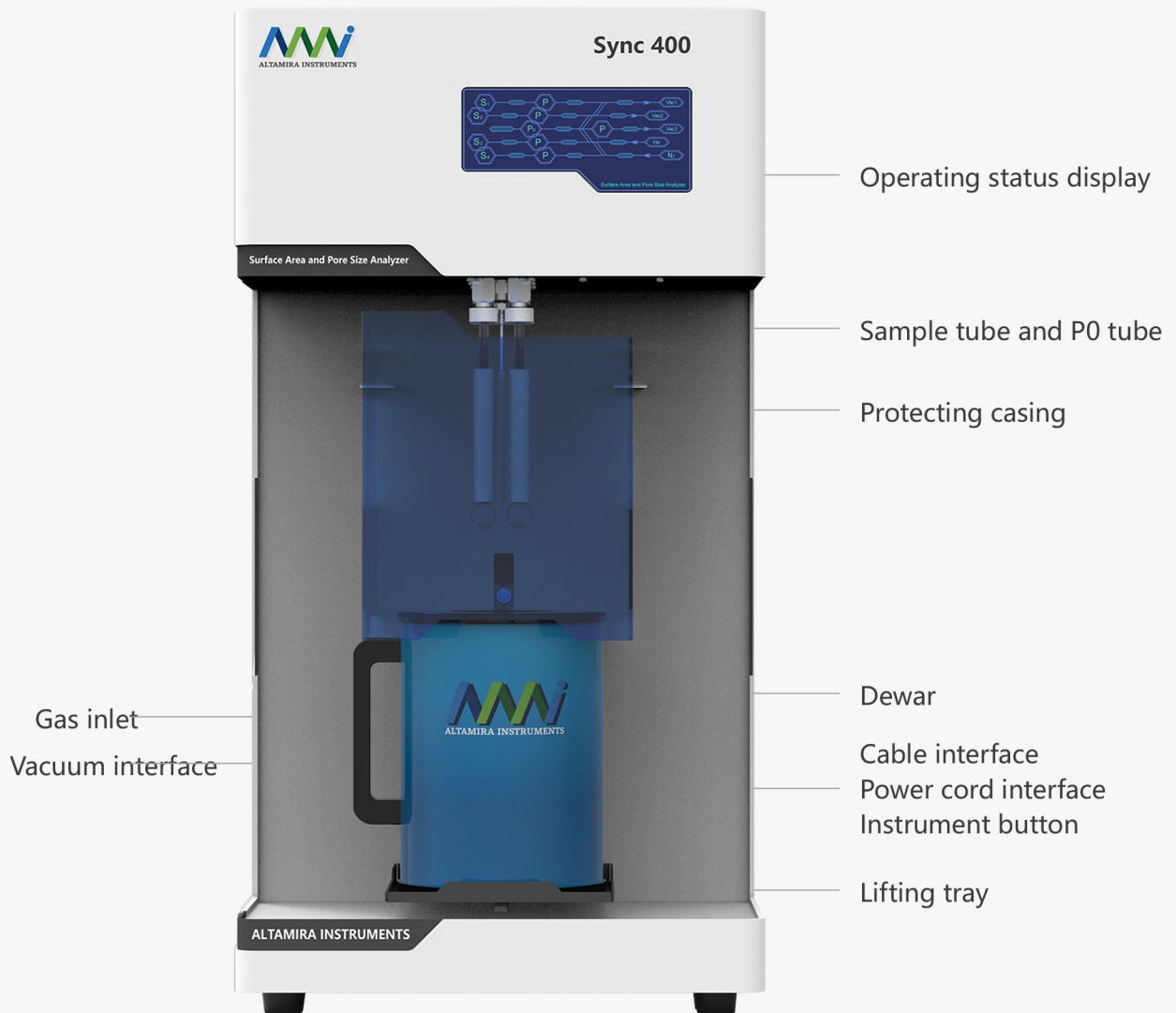
Pore volume
range
> 0.0001cm³/g

Analysis
port
4

Overview

Sync series, specific surface area and pore size analyzers, are the latest instruments to characterize the surface properties and pore structure of micro-nano materials, introduced by Altamira . The most common and reliable static-volumetric gas adsorption method is used in Sync series to analyze the adsorption behavior of materials. During the test, samples share the same Dewar and the same gas source, ensuring the accuracy and repeatability of the analysis test, and truly achieve no differential analysis between multiple stations.

Product structure picture

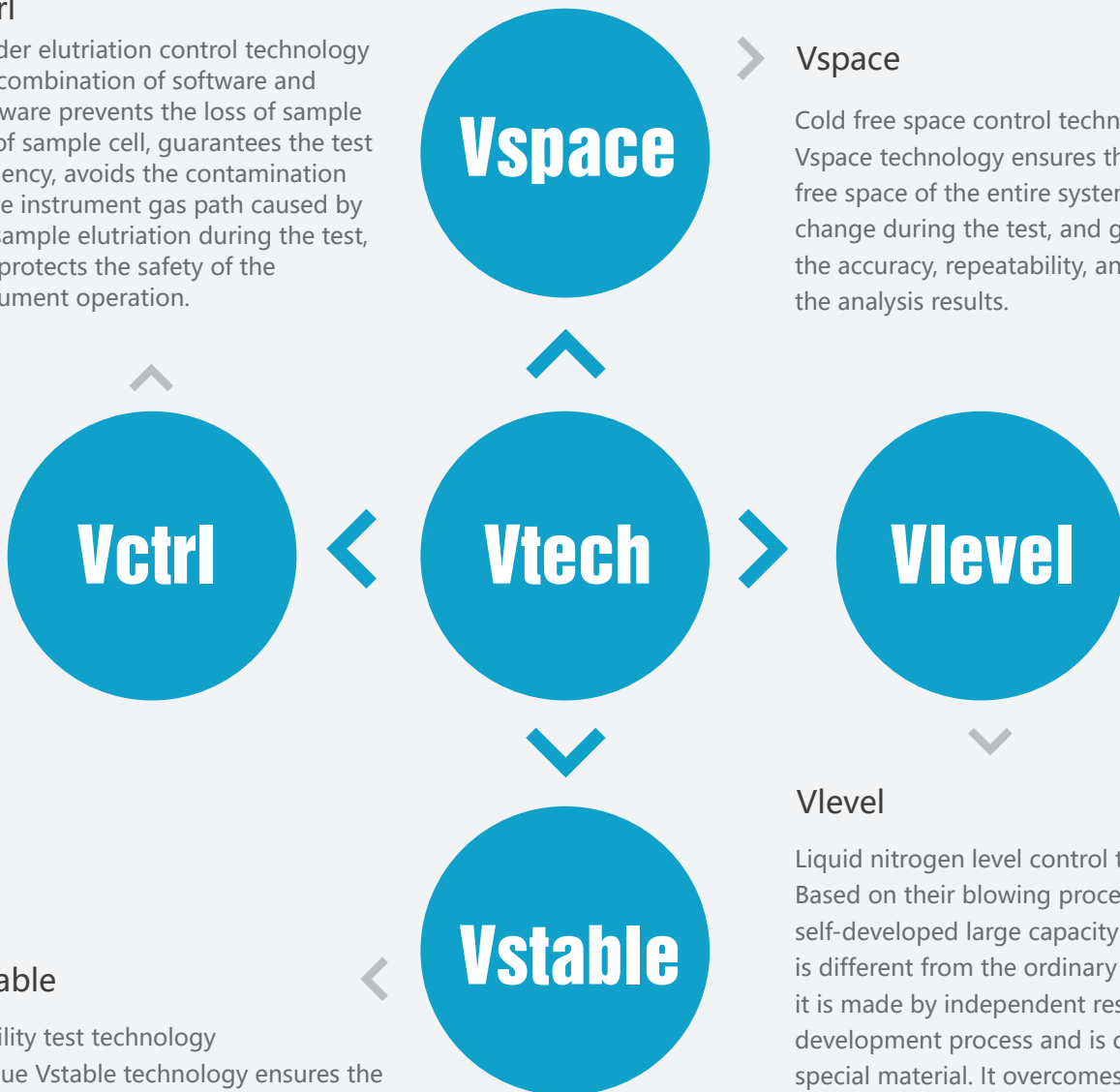


Technical superiority

Unique Vtech technology, including Vspacecold free space control technology, Vlevel liquid nitrogen level control technology, Vstable stability test technology, and Vctrl powder elutriation control technology. further enhances the test efficiency of product on Sync, guarantees the more repeatable and stable test results, and can better meet the test requirements of macroporous materials.

Vctrl

Powder elutriation control technology
The combination of software and hardware prevents the loss of sample out of sample cell, guarantees the test efficiency, avoids the contamination of the instrument gas path caused by the sample elutriation during the test, and protects the safety of the instrument operation.



Vstable

Stability test technology
Unique Vstable technology ensures the stability and accuracy of the test, so that the analysis accuracy of macroporous materials such as white carbon black and alumina is higher, the repeatability and stability are better, and the pore size analysis of materials above 50nm is truly realized.

Vspace

Cold free space control technology
Vspace technology ensures that the cold free space of the entire system does not change during the test, and guarantees the accuracy, repeatability, and stability of the analysis results.

Vlevel

Liquid nitrogen level control technology
Based on their blowing process, the self-developed large capacity glass Dewar is different from the ordinary glass Dewar. it is made by independent research and development process and is composed of special material. It overcomes the defect of uneven thickness caused by blowing and is not fragile. It can guarantee a high vacuum for a long time, and has a long service life and safe properties.

Features

High test efficiency

Up to four samples can be analyzed simultaneously, so that the BET specific surface area test efficiency is up to 20min /sample, meeting the requirements of customers with large test requirements in the fields of production and scientific research.

Security

To ensure the safety of users,

- (1) Independently-operated safety protection software can remotely monitor the operating status of the instrument. When the instrument appears abnormal pressure or other dangers, it can automatically control the instrument, remove the abnormal danger situation and protect the safety of the instrument and the operator.
- (2) The protecting casing of the Dewar prevents the danger of splashing of low temperature liquid such as liquid nitrogen during the operation of the instrument.

Real time Monitoring of P0

Configure an independent P0 sensor to realize real-time monitoring of p0 during the test and eliminate the influence of ambient temperature and atmospheric pressure on the experimental results.

Multi-channel intake

The user can choose the multi-channel gas intake option, which is convenient for the user to switch freely of various adsorbed gases.

Visual display of operating status

A status display system equipped on the front panel of the instrument shows the working diagram of the instrument. The LED lamp of each valve on the display system is used to indicate the on-off of the electromagnetic valve. And the operating process of the instrument can be intuitively observed during the test process.

Linkable and remote access

The communication interface of the instrument is a LAN port, which can realize the integrated control of a computer as a host computer, and can remotely access and control the host computer.

Independent vacuum degasser

Standard configuration with a completely independent vacuum degasser can prepare the sample by programmable temperature. It is more intelligent, flexible, and convenient for sample pretreatment, and at the same time reduces the time caused by in-situ degassing on the analysis position, significantly improving test efficiency.

cryo Tune (Option)

Users can choose cryo Tune— a low-temperature cold bath system. Sync software has cryo Tune compatible setting, which is convenient for users to test adsorption isotherms at different temperatures.

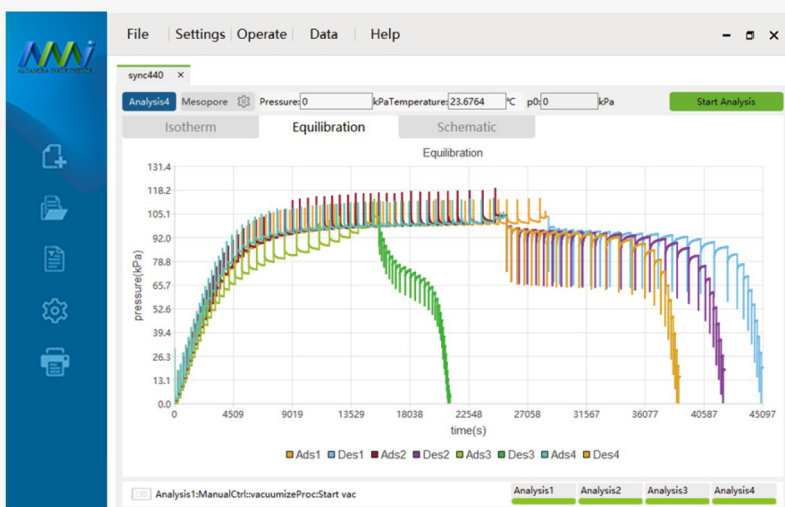
Control / Analysis Software

The newly developed Sync control software is an intelligent software, which implements the operation control, data collection, calculation analysis, and report preview on the Windows platform, and has unique experimental monitoring functions.

Real-time monitoring Pressure balance

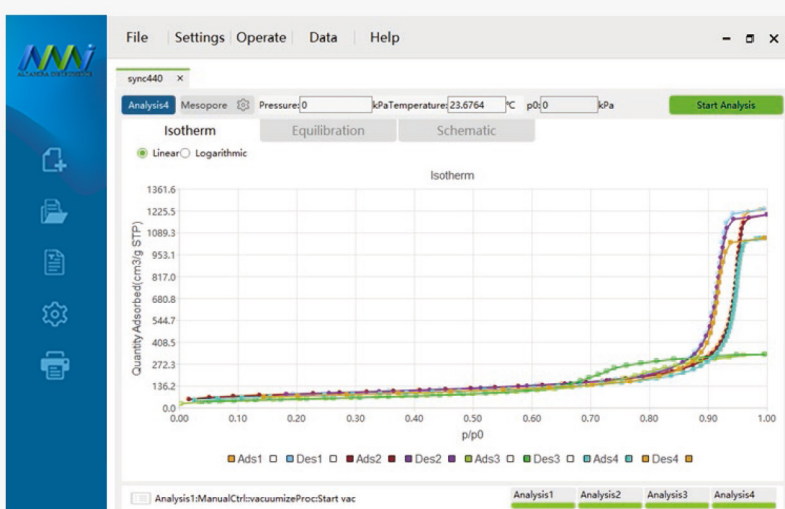
The unique adsorption equilibrium pressure intelligent judgment and control method is adopted. Under the condition of sufficient adsorption balance, the test efficiency is much higher than that of the fixed-point method.

The software has an independent interface to display the adsorption equilibrium process of each sample in real time. This can help to understand the adsorption characteristics of the sample in real time, analyze the abnormal phenomena such as gas leakage and insufficient pretreatment during the sample adsorption process, and monitor the operation of the instrument during the experiment.



Adsorption isotherm

The software has an independent interface to display the adsorption isotherms of each sample in real time, show the experiment progress and adsorption results in real time, helping to determine the experimental abnormalities such as air leakage and cold free space changes.



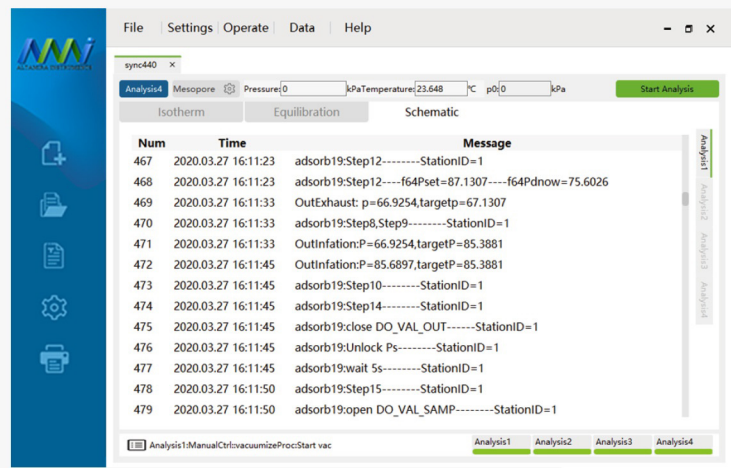
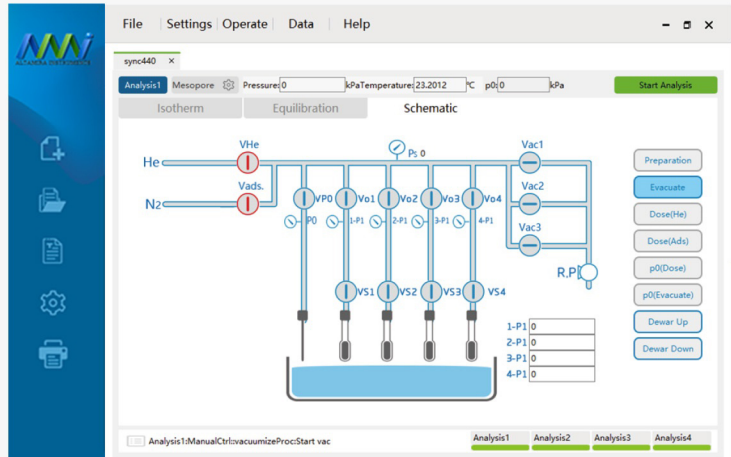
Manual control

Different from other manual on / off valve control, Sync software provides a series of combined automatic control processes, which facilitates users to perform manual operations for multiple purposes, greatly reducing the probability of manual operations failures. During the test, users can visually observe the pressure changes and valve status of various parts inside the instrument, which is convenient for users to understand the test process, and at the same time it is convenient for engineers to diagnose and maintain remotely.

The software provides an automatic process of adding liquid nitrogen. After a long time of experiment, the user can safely add liquid nitrogen according to the prompt of software. The test process is automatically suspended and resumed during the period without human judgment, and the degree of automation is high.

Real-time record storage of instrument control process

Message window can be switched to display, can record experimental control process and software manual operation information of the instrument in real time, which is benefit for engineers to analyze and remotely diagnose abnormal data.



Data analysis

The physical adsorption calculation model includes:

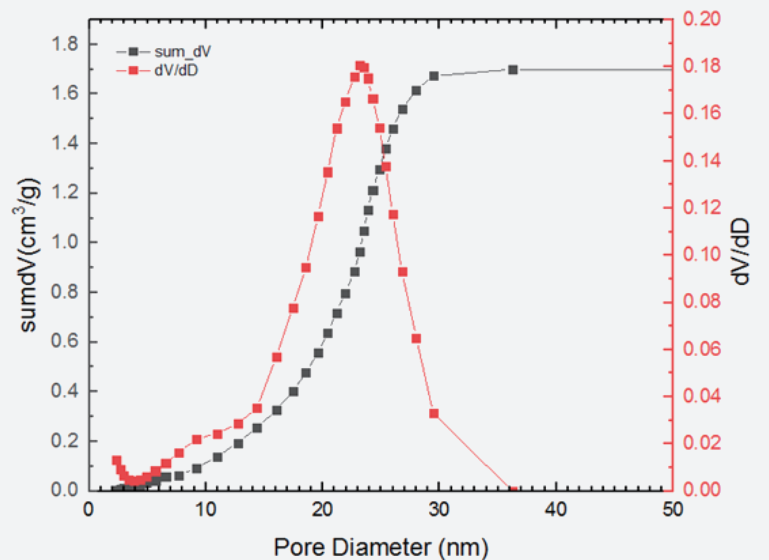
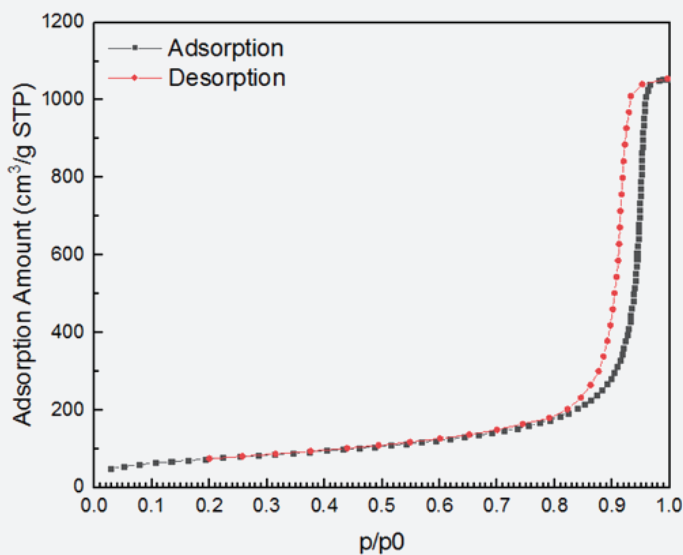
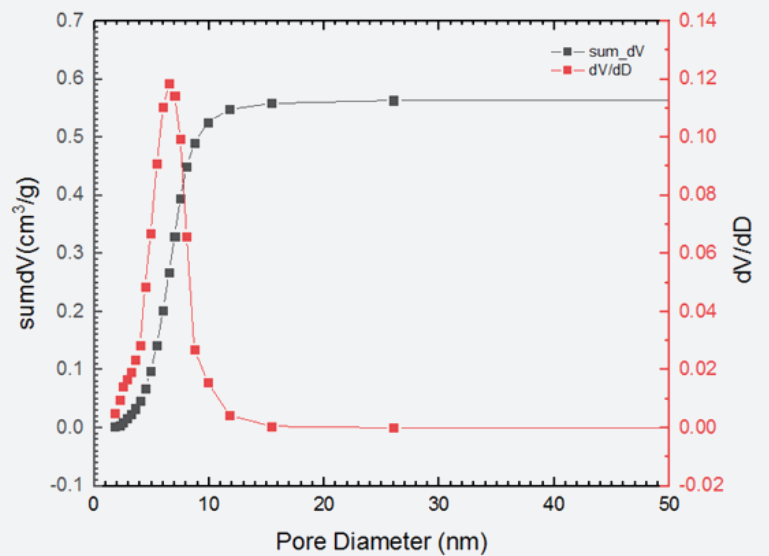
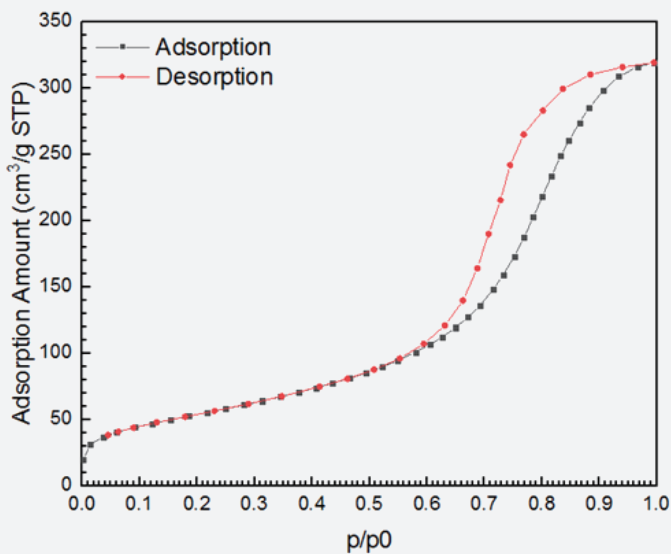
- Isothermal absorption and desorption curve;
- BET specific surface area (single point, multiple points);
- Langmuir surface area;
- Statistical thickness surface area. (STSA);
- BJH pore size analysis;
- t-plot analysis;

- HK pore size analysis;
- SF pore size analysis;
- NLDFT pore size distribution;
- Most acceptable pore size, Average pore size, Total pore volume;
- Adsorption curve etc.;

Typical analysis example

Repeatability of specific surface area BET
 $\leq 1\%$

Sample	Test number	measurement	Average	Repeatability
G8	1	9.094	9.17	0.66%
	2	9.222		
	3	9.243		
	4	9.098		
	5	9.162		
	6	9.228		
C8	1	127.367	126.6	0.31%
	2	126.362		
	3	126.482		
	4	126.578		
	5	126.167		
	6	126.863		



Specifications

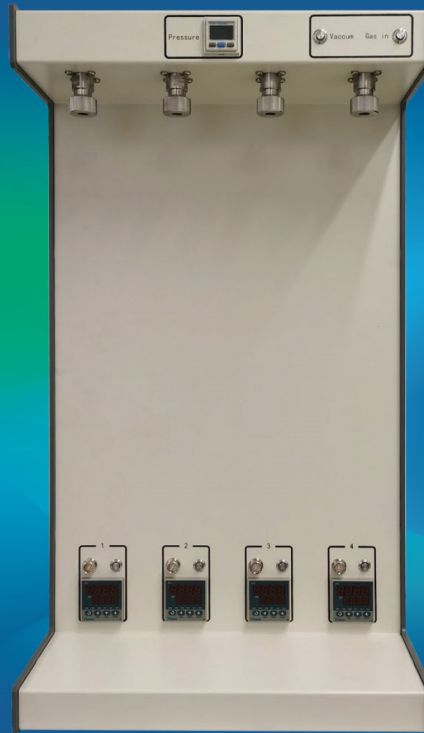
Model	Sync series
Test principle	Static volumetric gas adsorption
Adsorbate gas	N ₂ , Ar, Kr, H ₂ , O ₂ , CO ₂ , CO, NH ₃ , CH ₄ and other non-corrosive gases
Analysis port	1-4 samples tested at the same time
Pressure sensor	1000torr
P/P0 range	10 ⁻⁵ -0.998
Specific surface area range	>0.0005 m ² /g; Standard sample test repeatability (RSD)≤1.0%
Pore size range	0.35nm-500nm; Accurate analysis of mesopores and macropores, pore size repeatability (SD)≤0.2nm
Pore volume range	>0.0001 cm ³ /g
Degassing station	Standard external 4-station vacuum degasser
Degassing temperature	ambient—400°C, control precision 1°C
Vacuum pump	Two-stage rotary vane mechanical vacuum pump, ultimate vacuum 6.7*10 ⁻² Pa
Physical	L 510mm × W 530mm × H 930mm, weight about 40 Kg
Environmental temperature requirements	15-35°C
Environmental humidity requirements	20%-80%, Non-condensing humidity
Power requirements	100-240VAC, 50/60HZ, Maximum power300W
Recommended applications	Battery positive and negative electrode materials, starch and other pharmaceutical auxiliary materials, carbon black, white carbon black, titanium dioxide and other porous powders, alumina, molecular sieve, and other catalytic materials, activated carbon, zeolite and other adsorbent materials.

Static vacuum
Degasser

AMI-TQJ4

Static vacuum degasser

Degassing
Station **4** pcs



Degassing temperature



Ambient ~400°C

Control accuracy $\pm 1\text{C}$, each degassing port has independent temperature control. Intuitive and clear digital tube display.

Heating mantle.



Using high-grade thermal insulation, external soft packing, and a built-in thermocouple, it is easier to place the heater around the sample tube, making the temperature more uniform.

Powder elutriation control



Each degassing position is equipped with an independent powder elutriation control unit, and integrated design with chuck. The filter element is made of acetate fiber material. Filter length up to 15mm, which effectively prevents the contamination of the system by powder samples.

Compatibility



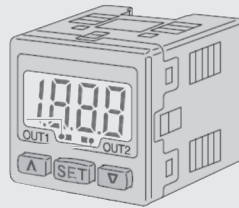
Fully compatible with micromeritics sample tube (1/2"3/8"1/4"), Anton-Paar sample tube (12mm 9mm 6mm), to achieve the universality of the equipment. Chuck adopts the tower structure design.

Vacuum pump



Two-stage rotary vane type mechanical vacuum pump, with ultimate vacuum to 10^{-2} Pa

Pressure display



Real-time display of the pressure in the sample tube, intuitively judge whether the vacuum degree meets the standard



Physical: 405mm*360mm*700mm, weight: 20kg

Power: 110/220V \pm 20V, 50/60Hz, maximum power: 300w



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