

Specific Surface Area/ Pore Size Distribution Measurement Instrument

BELSORP[®]-miniX

Specific surface area: 0.01 m²/g ~

Pore size distribution: 0.7 ~ 500 nm in diameter
(Optional: 0.35 ~ 500 nm)



X's Outstanding Excellences

Features

Measures up to 4 specimens simultaneously with the highest level of precision and reproducibility in the world and a drastic reduction in measurement time

High precision measurement at 1.5x throughput

Simultaneous measurement of up to 4 specimens and high precision simultaneous measurement of 3 specimens.

Measurement time is significantly shortened

The dedicated exhaust valve and improved software greatly reduces measurement time.

Equipped with GDO* function **NEW**

Speedy measurement with optimum amount of gas dosing based on adsorption isotherm data from previous sample measurement.

*Gas Dosing Optimization

Automatically measures adsorption isotherms according to minimum condition settings

Capable of measuring adsorption isotherms of the first sample with minimum condition settings.

Equipped with AFSM™ for increased measurement precision and reproducibility (Japan patent: #3756919 / US Patent: 6,595,036)

The adoption of Advanced Free Space Measurement (AFSM™) has resulted in improved measurement accuracy and reproducibility.

Adsorption isotherm measurement of various gases over a wide range of temperatures

The gas selector and various temperature devices allow adsorption isotherm measurement of various gases over a wide temperature range.

Progress of measurement can be monitored on software. **NEW**

The progress status of a measurement can be checked at a glance, improving working efficiency of operators.

Improved operability

The slide and latch mechanism allows easy attachment/detachment of temperature devices such as Dewar vessels.

Improved maintainability

Improved maintenance software enables monitoring of the performance of each part.

Smallest, most lightweight implementation in the world **NEW**

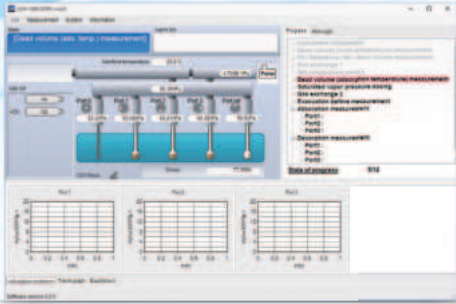
The selection of optimum materials has resulted in the world's smallest and most lightweight instrument.

Conforming to JIS Z8830, Z8831-2, K6217-7 and ISO 9277, 15901-2, 18852.

NEW = New function of BELSORP-miniX



Operation Software



Analysis Software (BELMaster™7)



- VAdsorption-desorption isotherm
- BET specific surface area
 - Type I (ISO9277) BET auto analysis
- Langmuir specific surface area
- BJH, DH, CI, INNES methods
- t-plot method
- NLDFT/GCMC (optional software BELSim™), etc.
- MP method
- Dubinin-Astakhov method
- Differential adsorption isotherm
- Molecular probe method
- α -plot method

Applications

The instrument can be used in a wide range of areas including catalysts, fuel cells, batteries, fibers, polymer materials, medicine, pigments, cosmetics, magnetic powder, separation membranes, filters, toner, cement, ceramics and semiconductor materials.



Catalyst



Battery



Carbon



Medicine



Cosmetics



Cement



Toner



Pigments



Ceramic

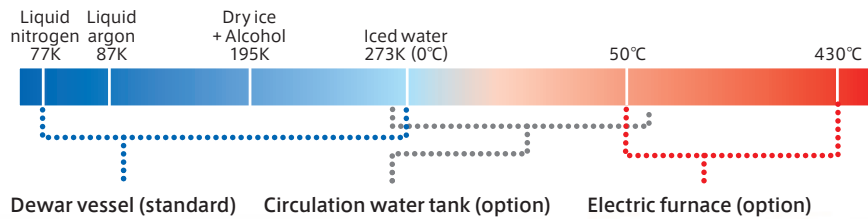


Electronics

Options and Consumables

In addition to the Dewar vessel provided as standard, various options are available for different measurement temperature ranges. The gas selector and temperature controller can be installed with the instrument in a small space.

● Measurement temperature range



Dewar vessel (standard)



Circulation water tank (option)

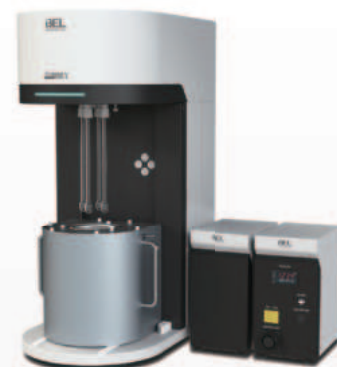


Electric furnace (option)

● Consumables, sample tubes






● Gas selector (left) and temperature controller (right)



Example of combination with the instrument

Pretreatment Instruments

	BELPREP-flowII	BELPREP-vacII	BELPREP-vacIII
			
Flow heating process	✓	Option	Option
Vacuum heating process	—	✓	✓
Number of specimens	3	3	6
Programmed temperature control	✓	✓	✓
Auto purge stop function	—	✓	—
Exhaust speed auto switching function (For sample scatter prevention)	—	✓	—
Dimensions, weight (main unit)	321 (W) × 158 (H) × 363 (D) mm 11 kg	321 (W) × 158 (H) × 363 (D) mm 15 kg	400 (W) × 317 (H) × 383 (D) mm 15 kg
Utility	Gas	N ₂ 0.1MPa Joint: 1/8" Swagelok	
	Power	AC 100~240V(50 / 60Hz) / 5A	AC 100~240V(50 / 60Hz) / 10A (including R.P.)
			AC 100~240V(50 / 60Hz) / 12A (including R.P.)

Specifications

Measurement method	Volumetric gas adsorption + AFSM™
Adsorption gas	N ₂ , Ar, CO ₂ , H ₂ , CH ₄ , butane, and other non-corrosive gas
Free space	Continuous free space measurement (AFSM™) method. (Free space for each isotherm measured at each measurement point and reflected in adsorption amount calculation.)
Pressure gauge	Number of units: 6 units in total (Measurement range: 0 to 133.3 kPa) Saturation vapor pressure: Measured with dedicated port and pressure gauge at all times.
Sample tube	Standard: Approx. 1.8 cm ³ volume Option: 5 cm ³ volume and others
Dimensions, weight	280 (W) × 650 (H) × 465 (D) mm 38 kg (Excluding vacuum pump and computer.)
Utility	Gas He, N ₂ (99.999% or higher purity) 0.1 ± 0.02 MPa, Joint: 1/8" Swagelok
	Exhaust Rotary pump exhaust port, Φ 11 mm
	Power Single phase, AC 100~240V(50 / 60Hz) / 10A (Including R.P.)

*AFSM, BELMaster, and BELSim are trademarks of MicrotracBEL.

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