

SURFACE AREA AND PORE SIZE DISTRIBUTION
ANALYZER

BELSORP MAX



The BELSORP MAX is Microtrac MRB's high-end volumetric gas adsorption instrument. It is used to measure adsorption isotherm from low relative pressure with high accuracy to obtain useful information about micropores.

The BELSORP MAX is designed for surface area and pore size distribution analysis of a wide range of adsorption isotherms. Equipped with a 13.3Pa pressure transducer, it is able to measure adsorption isotherms from a relative pressure as low as 1×10^{-8} (N₂ at 77K, Ar at 87K). The new AFSM method for free space measurement is applied, hence adsorption isotherms can be measured with high accuracy. The chemisorption option permits unattended measurement from pretreatment with step programs.

PRODUCT ADVANTAGES

- | Measurement of specific surface area, pore size distribution, vapor adsorption and chemisorption (OP)
- | Adsorption measurement from extremely low pressure ($p/p_0 = 10^{-8}$ - 0.997)
- | Up to 3 samples can be measured simultaneously
- | Fully automated chemisorption option available
- | Kr adsorption possible for low surface area material
- | No coolant level controller required; highly reproducible data can be obtained (AFSM)
- | BELSim, which analyze the pore size distribution by NLDFT and GCMC simulation method can be incorporated into the powerful data analysis software, BELMaster.
- | ISO 9277 and JIS Z 8830 compliant

TECHNICAL DATA

Please note that the specifications below are just an exemplary configuration.

Please contact us to discuss your individual requirements.

Measurement principle	Volumetric method + AFSM™
Adsorption gas	N ₂ , Ar, Kr, CO ₂ , H ₂ , O ₂ , CH ₄ , NH ₃ , butane, and other non-corrosive gases
Adsorption vapor	H ₂ O, MeOH, EtOH, C ₆ H ₆ , and other non-corrosive vapor
Gas ports	2 ports (optional: 7 ports; 12 ports max.)
Number of measurements (High Accuracy mode)	Max. 3 ports simultaneously (2 ports in High Accuracy mode)
Measurement range (specific surface area)	0.01 m ² /g and above (N ₂) 0.0005 m ² /g and above (Kr) (depending on sample density)
Pore size distribution (Diameter)	0.35 - 500 nm
Low pressure isotherm	p/p ₀ = 10 ⁻⁸ (N ₂ @77K, Ar @87K)
Vapor adsorption	p/p ₀ = ~0.95 @40°C
Pressure transducer	133 kPa (1000 Torr) x 5 units (max.) 1.33 kPa (10 Torr) x 3 units (max.) 0.0133 kPa (0.1 Torr) x 2 units (max.)
Thermostatic air oven	50°C
Vacuum gage / pump	Cold cathode gauge (ATM -5 x 10 ⁻⁷ Pa) Turbo molecular pump + Fore vacuum pump (optional)
Sample tube	Standard tube, approx. 1.8 cm ³ (optional: 5 cm ³)
Dewar vessel	Volume: 2.6 l Holding time: 60 h
Pretreatment heater	50 - 550°C
Water bath	-10 - 70°C
Analysis software BELMaster™ 7	Adsorption isotherm, BET specific surface area I type (ISO 9277), BET automatical analysis, Langmuir supecific surface area, BJH, DH, CI, INNES method, t-plot
Analysis software BELMaster™ 7 cont.	HK, SF, CY method, NLDFT / GCMC (OP BELSim™), MP method, Dubinin-Astakhov method, Difference adsorption isotherm, molecular probe, adsorption rate analysis (opt.)
Dimensions (W x H x D)	565 x 850 x 580 mm
Weight (main body)	84 kg (main body)

Utility - Gas

He, adsorption gas: 0.1MPa
Joint: 1/8" Swagelok joint

Utility - Power

Main unit: AC 100 - 120 V / 200 - 240 V, 1500 W (400 W for vacuum pump), 50 / 60 Hz
Heater: AC 100 - 120 V / 200 - 240 V, 600 W, 50 / 60 Hz

CE certified

yes

www.microtrac.com/belsorp-max