MICROTRAC MRB
PARTICLE CHARACTERIZATION

part of VERDER scientific

# SURFACE AREA AND PORE SIZE DISTRIBUTION ANALYZER

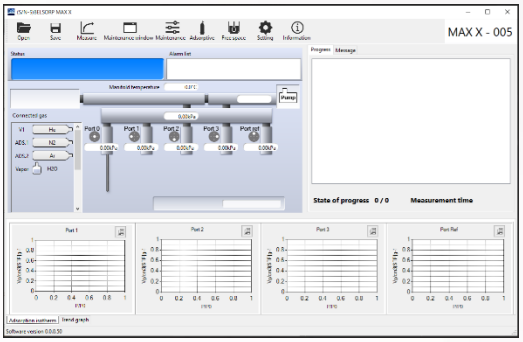
# BELSORP MAX X

## ■FEATURES

- BET and PSD from micro to meso and macropores by gas ads. measurement of N2, Ar
- Low BET specific surface area by Kr gas measurement at 77.4K
- High performance PSD analysis by GCMC・NLDFT in BELMaster Ver.7
- Actual and short time evaluation for each adsorption point by gas dosing optimization function
- Evaluation of hydrophilic and hydrophobic materials
- He less gas adsorption isotherm and NET adsorption measurement by AFSM2

## ■APPRICATION EXAMPLES

Used in various fields such as catalysts, batteries (all-solid-state batteries, fuel cells, etc.), fibers, polymer materials, chemicals, pigments, cosmetics, magnetic powder, separation membranes, filters, toner, cement, ceramics, semiconductor materials, etc.


**Measurement software window**

**Heater/controller**
**(Option)**

**Gas selector**
**(Option)**

**BELSORP MAX X**

## ▪Specification

| | |
|---|---|
| Model | BELSORP MAX X |
| Measurement principle | Volumetric gas adsorption method + AFSM™ |
| Adsorptive | N2, Ar, Kr, CO2, H2, O2, CH4, NH3, butane, and other non-corrosive gases<br>H2O, MeOH, EtOH, C6H6, and other non-corrosive vapors |
| Measurement port* | 4 ports simultaneously (3 ports in High Accuracy mode) |
| Specific surface area | 0,01 m2/g and above ($N_2$, Ar)<br>0,0005 m2/g and above (Kr)<br>depending on sample density |
| Pore size distribution | 0.35 - 500 nm in pore diameter |
| Pressure transducer* | 133 kPa (1000 Torr) 6 units<br>1,33 kPa (10 Torr) Max. 4 units<br>0.0133kPa (0.1 Torr) Max. 3 unit |
| Gas port* | 3 port (He, Ads x 2)（Ads: 5 port in maximum (option)） |
| pump*/Vacuum gauge | Turbo molecular pump +rotary pump/Cold cathode gauge (OP) |
| Sample tube* | Standard: approx. 1,8 $cm^3$ (optional: 5 $cm^3$) |
| Dewar vessel | Volume: 2.6 l, Holding time: 80 h |
| Pretreatment heater * | 50~550°C |
| Analysis software<br>BELMaster™7 | Adsorption isotherm<br>BET specific surface area l type（ISO9277）BET automatically analysis<br>Langmuir specific surface area<br>BJH, DH, CI, INNES method<br>t-plot, Alpha-s plot<br>HK, SF, CY method<br>NLDFT / GCMC<br>MP method<br>Dubinin-Astakhov method<br>Difference adsorption isotherm<br>Molecular probe<br>Adsorption rate analysis（OP） |
| Dimensions | 360 (W) x 870 (H) x 590 (D) mm |
| Customer requirement | Gas He, adsorption gas: 0.1MPa (G), purity: more than 99.999%<br>Joint 1/8" Swagelok joint<br>Power Main body: C 100-240 V (50 / 60 Hz) / 15A (including V.P.) |

## ▪Pretreatment unit

| | BELPREP VAC II | BELPREP VAC III |
|---|---|---|
| |  |  |
| Flow heating process | Option | Option |
| Vacuum heating process | ✓ | ✓ |
| Number of specimens | 3 | 6 |
| Maximum heating temperature | 430°C | 450 °C |
| Temperature control accuracy | ±5°C | ±5°C |
| 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 15 kg | 400 (W) × 317 (H) × 383 (D) mm 15 kg |
| Utility Gas | $N_2$ 0.1 MPa 1/8" Swagelok | $N_2$ 0.1 MPa 1/8" Swagelok |
| Power supply | AC 100-120/200-240V (50/60Hz) /10A (including R.P.) | AC 100-120/200-240V (50/60Hz) /12A (including R.P.) |

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**Microtrac Inc.**
215 Keystone Drive • PA-18936 Montgomeryville • USA
Phone: +1 888 643 5880 • marketing@microtrac.com

**Microtrac Retsch GmbH**
Retsch-Allee 1-5 • 42781 Haan • Germany
Phone: +49 2104 2333 300 • info@microtrac.com

**MicrotracBEL Corp.**
8-2-52 Nanko Higashi, Suminoe-ku • Osaka 559-0031 • Japan
Phone: +81 6-6655-0362 • international@microtrac-bel.com

www.microtrac.com