

# Model ED 23 | Drying and heating chambers with natural convection

The strengths of a BINDER ED series drying chamber include routine drying and sterilization tasks up to +300 °C. Thanks to the natural convection, all thermal processes which use this drying chamber are highly efficient. The ED series ensures fast, uniform drying.

## BENEFITS

- Uniform drying conditions thanks to APT.line™ technology
- Identical test conditions throughout the chamber interior independent of sample size and quantity
- Outstanding thermal insulation saves operation costs



Model 23

## MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +300 °C
- APT.line™ preheating chamber technology
- Natural convection
- Adjustable exhaust air flap
- Controller with timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm

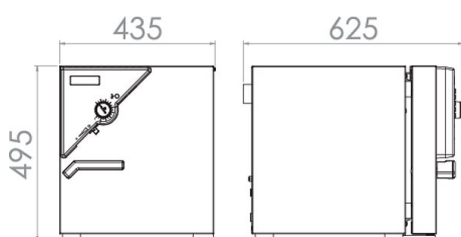
## ORDERING INFORMATION

| Interior volume [L] | Voltage              | Option model | Version      | Art.-No.  |
|---------------------|----------------------|--------------|--------------|-----------|
| 20                  | 230 V 1~ ph 50/60 Hz | Standard     | ED023-230V   | 9010-0190 |
|                     |                      |              |              | 9010-0358 |
|                     | 120 V 1~ ph 60 Hz    | Standard     | ED023UL-120V | 9010-0192 |

**TECHNICAL DATA**

| Description  | ED023-230V <sup>1</sup> | ED023-230V <sup>1</sup> | ED023UL-120V <sup>1</sup> |
|--|-------------------------|-------------------------|---------------------------|
| Article Number   | 9010-0190               | 9010-0358               | 9010-0192                 |
| <b>Performance Data Temperature</b>                          |                         |                         |                           |
| Temperature range +5 °C above ambient temperature to [°C]    | 300                     | 300                     | 300                       |
| Temperature variation at 150 °C [± K]                        | 2.8                     | 2.8                     | 2.8                       |
| Temperature fluctuation at 150 °C [± K]                      | 0.5                     | 0.5                     | 0.5                       |
| Heating-up time to 150 °C [min]                              | 28                      | 28                      | 28                        |
| Recovery time after 30 seconds door open at 150 °C [min]     | 5                       | 5                       | 5                         |
| <b>Air change data</b>                                       |                         |                         |                           |
| Air change (approx.) at 150 °C [x/h]                         | 13                      | 13                      | 13                        |
| <b>Electrical data</b>                                       |                         |                         |                           |
| Rated Voltage [V]  | 230                     | 230                     | 120                       |
| Power frequency [Hz]   | 50/60                   | 50/60                   | 60                        |
| Nominal power [kW]   | 0.8                     | 0.8                     | 0.8                       |
| Unit fuse [A]  | 10                      | 10                      | 12.5                      |
| Phase (Nominal voltage)                                      | 1~                      | 1~                      | 1~                        |
| <b>Measures</b>  |                         |                         |                           |
| Interior volume [L]  | 20                      | 20                      | 20                        |
| Net weight of the unit (empty) [kg]                          | 27                      | 27                      | 27                        |
| Permitted load [kg]  | 25                      | 25                      | 25                        |
| Load per rack [kg]   | 12                      | 12                      | 12                        |
| Wall clearance back [mm]                                     | 100                     | 100                     | 100                       |
| Wall clearance sidewise [mm]                                 | 100                     | 100                     | 100                       |
| <b>Internal Dimensions</b>                                   |                         |                         |                           |
| Width [mm]   | 222                     | 222                     | 222                       |
| Height [mm]  | 330                     | 330                     | 330                       |
| Depth [mm]   | 300                     | 300                     | 300                       |
| <b>Doors</b>   |                         |                         |                           |
| Unit doors   | 1                       | 1                       | 1                         |
| <b>Housing dimensions not incl. fittings and connections</b> |                         |                         |                           |
| Width net [mm]   | 435                     | 435                     | 435                       |
| Height net [mm]  | 495                     | 495                     | 495                       |
| Depth net [mm]   | 520                     | 520                     | 520                       |
| <b>Environment-specific data</b>                             |                         |                         |                           |
| Energy consumption at 150 °C [Wh/h]                          | 148                     | 148                     | 148                       |
| <b>Fixtures</b>  |                         |                         |                           |
| Number of shelves (std./max.)                                | 2/4                     | 2/4                     | 2/4                       |

1 All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10%. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

**DIMENSIONS incl. fittings and connections [mm]**

**OPTIONS**

| Designation  | Description   | *         | Art.-No.  |
|--|---|-----------|-----------|
| <b>Access port with silicone plug</b>                  | back  |           |           |
|  | 10 mm   | 01        | 8012-1282 |
|  | 30 mm   | 01        | 8012-0540 |
|  | 50 mm   | 01        | 8012-0546 |
|  | left  |           |           |
|  | 10 mm   | 01        | 8012-1275 |
|  | 30 mm   | 01        | 8012-0537 |
|  | 50 mm   | 01        | 8012-0542 |
|  | right   |           |           |
|  | 10 mm   | 01        | 8012-1268 |
|  | 30 mm   | 01        | 8012-0536 |
|  | 50 mm   | 01        | 8012-0541 |
|  | top   |           |           |
|  | 10 mm   | 01        | 8012-1262 |
|  | 30 mm   | 01        | 8012-0539 |
|  | 50 mm   | 01        | 8012-0545 |
| 100 mm   | 01  | 8012-0547 |           |
| <b>Alarm function for overheating</b>                  | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device     |           |           |
|  | 120/208 V option model  | -         | 8012-1303 |
|  | 230/400 V option model  | -         | 8012-1299 |
| <b>Analog output 4-20 mA</b>                           | for temperature values (output not adjustable)  | -         | 8012-0430 |
| <b>Calibration certificate, expanded</b>               | for temperature; for extending the measurement in center of chamber to include another test temperature | -         | 8012-1115 |
|  | for temperature, measurement in center of chamber at specified temperature                              | -         | 8012-1134 |
|  | temperature measurement incl. certificate and 27 measuring points at specified temperature              | -         | 8012-1593 |
|  | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature             | -         | 8012-1572 |
|  | temperature measurement incl. certificate, 9 measuring points at specified temperature                  | -         | 8012-1551 |
| <b>Class 3.1 independent temperature safety device</b> | with visual alarm (DIN 12880)   | -         | 8012-0032 |
| <b>Door gasket</b>                                     | made of FKM, silicone-free  | -         | 8012-0493 |
| <b>Door lock</b>                                       | lockable door handle  | -         | 8012-1246 |
| <b>Measurement of air exchange rate</b>                | in accordance with ASTM D5374, definition and protocol according to ambient temperature                 | -         | 8012-0195 |
| <b>Pt 100 temperature sensor</b>                       | additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)             | -         | 8012-1173 |
| <b>Viewing window and interior lighting</b>            | viewing window in door, 180 x 180 mm, and 15 W interior lighting  |           |           |
|  | 120 V option model  | -         | 8012-0379 |
|  | 230 V option model  | -         | 8012-0378 |

\* Notes › See last page

## ACCESSORIES

| Designation                    | Description   | * | Art.-No.  |
|--------------------------------|---|---|-----------|
| <b>pH-neutral detergent</b>    | concentrated, for gentle remove of residual contaminants; 1 kg  | - | 1002-0016 |
| <b>Qualification documents</b> | IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit |   |           |
|                                | Digital in PDF format   | - | 7057-0001 |
|                                | Hard copy inside folder   | - | 7007-0001 |
|                                | IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit     |   |           |
| <b>Rack</b>                    | Digital in PDF format   | - | 7057-0005 |
|                                | Hard copy inside folder   | - | 7007-0005 |
| <b>Rack</b>                    | chrome plated   | - | 8012-2031 |
|                                | stainless steel   | - | 8012-2046 |
| <b>Rubber pads</b>             | set anti-slip feet  | - | 8012-2030 |
| <b>Shelf, perforated</b>       | Stainless steel   | - | 6004-0052 |

\* Notes › See last page

## SERVICES

| Designation   | Description   | *          | Art.-No.  |
|---|---|------------|-----------|
| <b>Installation services</b>                        |   |            |           |
| <b>Unit commissioning</b>                           | Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work)  | 05         | DL10-0100 |
| <b>Unit instructions</b>                            | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming   | 05         | DL10-0500 |
| <b>Maintenance contracts</b>                        |   |            |           |
| <b>Maintenance services</b>                         |   |            |           |
| <b>BRONZE 3-year maintenance contract</b>           | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts  | 05         | DL20-0710 |
| <b>GOLD 3-year maintenance contract</b>             | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate | 05         | DL20-0910 |
| <b>Maintenance</b>                                  | One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate   | 05         | DL20-0200 |
| <b>SILVER 3-year maintenance contract</b>           | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate                              | 05         | DL20-0810 |
| <b>Calibration services</b>                         |   |            |           |
| <b>Calibration certificate, temperature</b>         | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate   | 03, 04, 05 | DL30-0101 |
|   | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate  | 03, 04, 05 | DL30-0102 |
| <b>Measurement of air exchange rate</b>             | including certificate (in accordance with ASTM D5374)   | 03, 04, 05 | DL33-0000 |
| <b>Temperature measurement, 18 measuring points</b> | Temperature measurement with 18 measuring points with a set value specified by the user, including certificate  | 03, 04, 05 | DL30-0118 |
| <b>Temperature measurement, 27 measuring points</b> | Temperature measurement with 27 measuring points with a set value specified by the user, including certificate  | 03, 04, 05 | DL30-0127 |
| <b>Temperature measurement, 9 measuring points</b>  | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate   | 03, 04, 05 | DL30-0109 |

\* Notes › See last page

| <b>Designation</b>         | <b>Description</b>   | <b>*</b> | <b>Art.-No.</b> |
|----------------------------|--|----------|-----------------|
| <b>Validation services</b> |  |          |                 |
| Execution of IQ/OQ         | Execution of IQ/OQ in accordance with qualification folder                         | 05       | DL40-0100       |
| Execution of IQ/OQ/PQ      | Execution of IQ/OQ/PQ in accordance with qualification folder                      | 05       | DL44-0500       |
| <b>Warranty service</b>    |  |          |                 |
| 1-year warranty extension  | The warranty is extended by 1 year from the delivery date, wear parts are excluded | -        | DL50-0010       |

\* Notes › See last page

**NOTES**

- 01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
- 02 UL mark is not granted when this option is used.
- 03 Sensor calibration is performed in an accredited calibration laboratory.
- 04 Calibration is performed according to the BINDER factory standard.
- 05 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).

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