

# Model ED 400 | 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 400

## MAIN FEATURES

- Temperature range: room temperature plus 5 °C 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

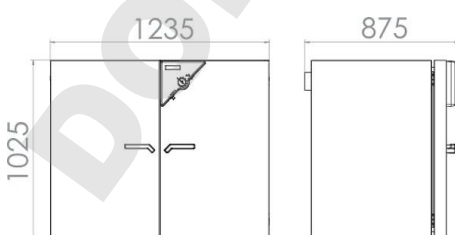
| Interior volume [L] | Voltage              | Option model | Version        | Art.-No.  |
|---------------------|----------------------|--------------|----------------|-----------|
| Model ED 400        |                      |              |                |           |
| 400                 | 400 V 3~ ph 50/60 Hz | with RS 422  | ED400-400V-I   | 9010-0075 |
|                     | 208 V 3~ ph 60 Hz    | with RS 422  | ED400UL-208V-I | 9010-0168 |

## TECHNICAL DATA

| Description  | ED400-400V-I <sup>1</sup> | ED400UL-208V-I <sup>1</sup> |
|--|---------------------------|-----------------------------|
| Article Number   | 9010-0075                 | 9010-0168                   |
| <b>Performance Data Temperature</b>                      |                           |                             |
| Temperature range 5 °C above ambient temperature to [°C] | 300                       | 300                         |
| Temperature variation at 150 °C [± K]                    | 3                         | 3                           |
| Temperature fluctuation at 150 °C [± K]                  | 0.5                       | 0.5                         |
| Heating-up time to 150 °C [min]                          | 71                        | 71                          |
| Recovery time after 30 seconds door open at 150 °C [min] | 31                        | 31                          |
| <b>Air change data</b>                                   |                           |                             |
| Air change (approx.) at 150 °C [x/h]                     | 10                        | 10                          |
| <b>Electrical data</b>                                   |                           |                             |
| Rated Voltage [V]  | 400                       | 208                         |
| Power frequency [Hz]                                     | 50/60                     | 60                          |
| Nominal power [kW]                                       | 3.4                       | 3.4                         |
| Unit fuse [A]  | 3 x 16                    | 3 x 16                      |
| Phase (Nominal voltage)                                  | 3~                        | 3~                          |
| <b>Outer dimensions</b>                                  |                           |                             |
| Width net [mm]   | 1235                      | 1235                        |
| Height net [mm]  | 1025                      | 1025                        |
| Depth net [mm]   | 765                       | 765                         |
| <b>Internal Dimensions</b>                               |                           |                             |
| Depth [mm]   | 520                       | 520                         |
| Height [mm]  | 800                       | 800                         |
| Width [mm]   | 1000                      | 1000                        |
| <b>Measures</b>  |                           |                             |
| Wall clearance back [mm]                                 | 160                       | 160                         |
| Wall clearance sidewise [mm]                             | 100                       | 100                         |
| Interior volume [L]                                      | 400                       | 400                         |
| Net weight of the unit (empty) [kg]                      | 125                       | 125                         |
| permitted load [kg]                                      | 90                        | 90                          |
| Load per rack [kg]                                       | 35                        | 35                          |
| <b>Doors</b>   |                           |                             |
| Unit doors   | 2                         | 2                           |
| <b>Environment-specific data</b>                         |                           |                             |
| Energy consumption at 150 °C [Wh/h]                      | 672                       | 672                         |
| <b>Fixtures</b>  |                           |                             |
| Number of shelves (std./max.)                            | 2/10                      | 2/10                        |

<sup>1</sup> 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 AND ACCESSORIES

| Designation                                     | Description  | *      | Art.-No.  |
|---|--|--------|-----------|
|   | 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 |
|   | 100 mm   | 01, 11 | 8012-0722 |
| Access port with silicone plug                  | right  |        |           |
|   | 10 mm  | 01     | 8012-1268 |
|   | 30 mm  | 01     | 8012-0536 |
|   | 50 mm  | 01     | 8012-0541 |
|   | 100 mm   | 01, 11 | 8012-0721 |
|   | top  |        |           |
|   | 10 mm  | 01     | 8012-1262 |
|   | 30 mm  | 01     | 8012-0539 |
|   | 50 mm  | 01     | 8012-0545 |
|   | 100 mm   | 01, 10 | 8012-0547 |
| Alarm function for overheating                  | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device  |        |           |
|   | 120 V option model   | -      | 8012-1303 |
|   | 230 V option model   | -      | 8012-1299 |
| Analog output 4-20 mA                           | for temperature values (output not adjustable)   | -      | 8012-0430 |
| APT-COM™ 4 BASIC-Edition                        | for simple logging and documentation requirements with up to 5 networked units.<br>version 4, BASIC edition  | 19     | 9053-0039 |
| APT-COM™ 4 GLP-Edition                          | for working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11.<br>version 4, GLP edition    | 19     | 9053-0042 |
| APT-COM™ 4 PROFESSIONAL-Edition                 | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.<br>version 4, PROFESSIONAL edition  | 19     | 9053-0040 |
| Calibration certificate, expanded               | 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 |
| Calibration certificate, temperature            | 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 |
| Class 3.1 independent temperature safety device | with visual alarm (DIN 12880)  | 04, 12 | 8012-0032 |
| Data Logger Kit                                 | T 350: For continuous temperature logging from 0 °C to 350 °C; kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit | 19     | 8012-0714 |
| Data Logger Software                            | LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)   | 19     | 8012-0821 |
| Door gasket                                     | made of FKM, silicone-free   | 03     | 8012-0497 |
| Door lock                                       | lockable door handle   | -      | 8012-1253 |
| Inner chamber, reinforced                       | including 2 reinforced racks   | -      | 8012-1730 |
|   | with lid made from 18/8 stainless steel, stackable, dimensions: 230 x 133 x 45 mm  | -      | 4022-0123 |
|   | with lid made from 18/8 stainless steel, stackable, dimensions: 315 x 215 x 60 mm  | -      | 4022-0124 |
| Measurement of air exchange rate                | in accordance with ASTM D5374, definition and protocol according to ambient temperature  | -      | 8012-0195 |
| pH-neutral detergent                            | concentrated, for gentle remove of residual contaminants; 1 kg   | -      | 1002-0016 |

\* Notes › See last page

| Designation                          | Description   | * | Art.-No.  |
|--------------------------------------|---|---|-----------|
| Pt 100 temperature sensor            | additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin) | - | 8012-1173 |
| Rack                                 | chrome plated   | - | 6004-0005 |
|                                      | stainless steel   | - | 6004-0011 |
| Shelf, perforated                    | Stainless steel   | - | 6004-0032 |
| Table on castors                     | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm            | - | 9051-0019 |
| Viewing window and interior lighting | viewing window in each door, 470 x 290 mm, and 30 W interior lighting                       |   |           |
|                                      | 208 V option model  | - | 8012-0271 |
|                                      | 400 V option model  | - | 8012-0269 |

\* Notes › See last page

## SERVICES

| Designation                                 | Description   | *              | Art.-No.  |
|---|---|----------------|-----------|
| <b>Installation services</b>                |   |                |           |
| Installation                                | and set up of unit at operating location, connect to existing connections   | 13, 18         | DL10-0100 |
| Instruction                                 | unit function instructions for operation and programming of the controller  | 18             | DL10-0500 |
| <b>Preventive maintenance</b>               |   |                |           |
| Preventive maintenance                      | Executive of equipment inspection according to maintenance plan   | 14, 18         | DL20-0200 |
| <b>Calibration services</b>                 |   |                |           |
| Calibration temperature incl. certificate   | including certificate, one measuring point in center of chamber at specified temperature  | 14, 16, 17, 18 | DL30-0101 |
| Measurement of air exchange rate            | including certificate (in accordance with ASTM D5374)   | 14, 16, 17, 18 | DL33-0000 |
| Temperature measurement 18 measuring points | including certificate, 18 measuring points at specified temperature   | 14, 16, 17, 18 | DL30-0118 |
| Temperature measurement 27 measuring points | including certificate, 27 measuring points at specified temperature   | 14, 16, 17, 18 | DL30-0127 |
| Temperature measurement 9 measuring points  | including certificate, 9 measuring points at specified temperature  | 14, 16, 17, 18 | DL30-0109 |
| <b>Validation services</b>                  |   |                |           |
| Execution of IQ/OQ                          | in accordance with qualification folder   | 15, 18, 20     | DL40-0100 |
| Execution of IQ/OQ/PQ                       | in accordance with customer's requirement, price: on request  | 15, 18         | DL44-0500 |
| Qualification folder IQ/OQ                  | supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001     | 15, 18, 20     | 8012-0761 |
| Qualification folder IQ/OQ/PQ               | supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ | 15, 18         | 8012-0942 |
| <b>Warranty service</b>                     |   |                |           |
| Extension of the warranty from 2 to 3 years | beginning with the date of delivery, wearing parts are not included   | -              | DL00-2041 |
| Extension of the warranty from 2 to 5 years | beginning with the date of delivery, wearing parts are not included   | -              | DL00-2042 |

\* 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 Heat resistant only to max. 200 °C.
- 04 Only available on units rated for 230 V.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 07 The additional heat input may affect the temperature behavior.
- 09 Not in conjunction with the optional access port, door with window and interior lighting.
- 10 Not available on 23-liter units.
- 11 Not available on 23- or 53-liter units.
- 12 Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- 16 Sensor calibration is performed in an accredited calibration laboratory.
- 17 Calibration is performed according to the BINDER factory standard.
- 18 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).
- 19 For additional accessories, refer to the Process documentation chapter.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ folder.  
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.

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