

Datasheet

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Best conditions for your success

Model FD 23 | Drying and heating chambers Classic.Line with forced convection

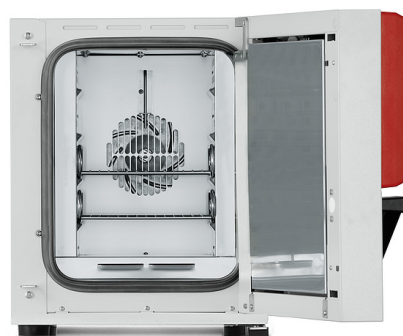
A BINDER FD series heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.

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



Model 23

MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Forced 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 [cu.ft.] | Voltage | Option model | Version | Art.-No. |
|--------------------------|---------------------|--------------|--------------|-----------|
| Model FD 23 | | | | |
| 0.7 | 230 V 1 ph 50/60 Hz | Standard | FD023-230V | 9010-0194 |
| | 120 V 1 ph 60 Hz | Standard | FD023UL-120V | 9010-0196 |

TECHNICAL DATA

| Description | FD023-230V ¹ | FD023UL-120V ¹ |
|--|-------------------------|---------------------------|
| Article Number | 9010-0194 | 9010-0196 |
| Performance Data Temperature | | |
| Temperature range 5 °C above ambient temperature to [°C] | 300 | 300 |
| Temperature variation at 150 °C [± K] | 2.5 | 2.5 |
| Temperature fluctuation at 150 °C [± K] | 0.3 | 0.3 |
| Heating-up time to 150 °C [min] | 25 | 25 |
| Recovery time after 30 seconds door open at 150 °C [min] | 6 | 6 |
| Air change data | | |
| Air change (approx.) at 150 °C [x/h] | 64 | 64 |
| Electrical data | | |
| Rated Voltage [V] | 230 | 120 |
| Power frequency [Hz] | 50/60 | 60 |
| Nominal power [kW] | 0.8 | 0.8 |
| Unit fuse [A] | 10 | 12.5 |
| Phase (Nominal voltage) [ph] | 1 | 1 |
| Outer dimensions | | |
| Width net [mm] | 435 | 435 |
| Height net [mm] | 495 | 495 |
| Depth net [mm] | 520 | 520 |
| Wall clearance back [mm] | 160 | 160 |
| Wall clearance sidewise [mm] | 100 | 100 |
| Doors | | |
| Unit doors | 1 | 1 |
| Internal Dimensions | | |
| Width [mm] | 222 | 222 |
| Height [mm] | 330 | 330 |
| Depth [mm] | 300 | 300 |
| Measures | | |
| Interior volume [L] | 20 | 20 |
| Net weight of the unit (empty) [kg] | 27 | 27 |
| permitted load [kg] | 25 | 25 |
| Load per rack [kg] | 12 | 12 |
| Environment-specific data | | |
| Energy consumption at 150 °C [Wh/h] | 300 | 300 |
| Fixtures | | |
| Number of shelves (std./max.) | 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. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

OPTIONS AND ACCESSORIES

| Designation | Description | * | Art.-No. |
|---|--|-----------|-----------|
| Access port with silicone plug | back | | |
| | 10 mm | 01 | 8012-1283 |
| | 30 mm | 01 | 8012-1368 |
| | 50 mm | 01 | 8012-1384 |
| | left | | |
| | 10 mm | 01 | 8012-1276 |
| | 30 mm | 01 | 8012-1359 |
| | 50 mm | 01 | 8012-1376 |
| | right | | |
| | 10 mm | 01 | 8012-1269 |
| | 30 mm | 01 | 8012-1354 |
| | 50 mm | 01 | 8012-1372 |
| | top | | |
| | 10 mm | 01 | 8012-1263 |
| | 30 mm | 01 | 8012-1364 |
| 50 mm | 01 | 8012-1380 | |
| Alarm function for overheating | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device | | |
| | 120 V, 208 V option model | - | 8012-1304 |
| | 230 V, 400 V option model | - | 8012-1300 |
| Analog output, 4 – 20 mA | for temperature values (output not adjustable) | 02 | 8012-0431 |
| Calibration certificate, expanded | for temperature; for extending the measurement in center of chamber to include another test temperature | - | 8012-1116 |
| Calibration certificate, temperature | for temperature, measurement in center of chamber at specified temperature | - | 8012-1135 |
| | temperature measurement incl. certificate and 27 measuring points at specified temperature | - | 8012-1594 |
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | - | 8012-1573 |
| | temperature measurement incl. certificate, 9 measuring points at specified temperature | - | 8012-1552 |
| Class 3.1 independent temperature safety device | with visual alarm (DIN 12880) | 04, 12 | 8012-1147 |
| 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 | 8012-1306 |
| Door lock | lockable door handle | - | 8012-1247 |
| Instrument tray | with lid made from 18/8 stainless steel, stackable, dimensions: 230 x 133 x 45 mm | | |
| | small | - | 4022-0123 |
| | with lid made from 18/8 stainless steel, stackable, dimensions: 315 x 215 x 60 mm | | |
| large | - | 4022-0124 | |
| Measurement of air exchange rate | in accordance with ASTM D5374, definition and protocol according to ambient temperature | - | 8012-1195 |
| pH-neutral detergent | concentrated, for gentle remove of residual contaminants; 1 kg | - | 1002-0016 |
| Pt 100 temperature sensor | additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin) | - | 8012-1174 |
| Rack | chrome plated | - | 6004-0050 |
| | stainless steel | - | 6004-0051 |
| Rack accessories | Rack accessories – fasteners (1 set of 4) for additional security of racks | - | 8012-0531 |
| Shelf, perforated | stainless steel | - | 6004-0052 |
| Viewing window and interior lighting | viewing window in door, 180 x 180 mm, and 15 W interior lighting | | |
| | 120 V option model | - | 8012-1260 |
| | 230 V option model | - | 8012-1259 |

* Notes › See last page

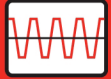
SERVICES

| Designation | Description | * | Art.-No. |
|---|---|-------------------|-----------|
| Installation services | | | |
| Data Logger Kit installation service | unit function instructions for operation and programming of the controller | 18 | DL100400 |
| Installation | and set up of unit at operating location, connect to existing connections | 13, 18 | DL100100 |
| Preventive maintenance | | | |
| Preventive maintenance | Execution of equipment inspection according to maintenance plan | 14, 18 | DL200200 |
| Calibration services | | | |
| Data Logger Kit calibration service | including certificate, one measuring point in center of chamber at specified temperature | 14, 16, 17, 18 | DL300101 |
| Measurement of air exchange rate | including certificate (in accordance with ASTM D5374) | 14, 16, 17, 18 | DL330000 |
| Temperature measurement 18 measuring points | including certificate, 18 measuring points at specified temperature | 14, 16, 17, 18 | DL300118 |
| Temperature measurement 27 measuring points | including certificate, 27 measuring points at specified temperature | 14, 16, 17, 18 | DL300127 |
| Temperature measurement 9 measuring points | including certificate, 9 measuring points at specified temperature | 14, 16, 17, 18 | DL300109 |
| Validation services | | | |
| Data Logger Kit validation service | in accordance with qualification folder | 15, 18, 20 | DL400100 |
| Execution of IQ/OQ/PQ | in accordance with customer's requirement, price: on request | 15, 18 | DL440500 |
| 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 | 8012-0792 |
| 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 | 8012-0943 |
| Warranty service | | | |
| Extension of the warranty from 2 to 3 years | beginning with the date of delivery, wearing parts are not included | - | DL003041 |
| Extension of the warranty from 2 to 5 years | beginning with the date of delivery, wearing parts are not included | - | DL003042 |

* 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 (see the chapter on BINDER Service) 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 both items.
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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