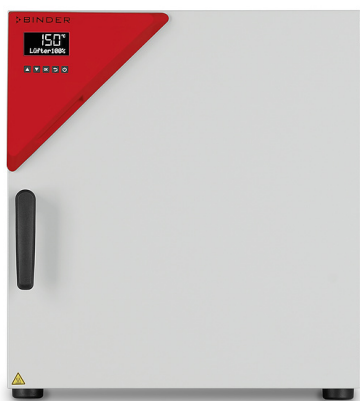


# Model FD 56 | Drying and heating chambers Avantgarde.Line with forced convection

## BENEFITS

- Excellent temporal and spatial temperature accuracy
- High energy efficiency
- USB connection for recording data
- Temperature range up to 300 °C



Model 56



Model 56

## MAIN FEATURES

- Temperature range: ambient temperature plus 10 °C to 300 °C
- High temperature accuracy thanks to APT.line™ technology
- Forced convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Stackable
- Class 2 independent temperature safety device (DIN 12880) with visual temperature alarm
- Ergonomic handle design
- USB port for recording data

## ORDERING INFORMATION

| Interior volume [L] | Voltage           | Option model | Version      | Art.-No.  |
|---------------------|-------------------|--------------|--------------|-----------|
| Model FD 56         |                   |              |              |           |
| 60                  | 230 V 1~ 50/60 Hz | Standard     | FD056-230V   | 9010-0303 |
|                     | 120 V 1~ 60 Hz    | Standard     | FD056UL-120V | 9010-0304 |

## TECHNICAL DATA

| Description   | FD056-230V       | FD056UL-120V     |
|---|------------------|------------------|
| <b>Article Number</b>                                     | <b>9010-0303</b> | <b>9010-0304</b> |
| <b>Performance Data Temperature</b>                       |                  |                  |
| Temperature range 10 °C above ambient temperature to [°C] | 300              | 300              |
| Temperature uniformity at 150 °C [± K]                    | 1.7              | 1.7              |
| Temperature fluctuation at 150 °C [± K]                   | 0.3              | 0.3              |
| Heating-up time to 150 °C [min]                           | 15               | 15               |
| Recovery time after 30 seconds door open at 150 °C [min]  | 5                | 5                |

| Description                           | FD056-230V       | FD056UL-120V     |
|---------------------------------------|------------------|------------------|
| <b>Article Number</b>                 | <b>9010-0303</b> | <b>9010-0304</b> |
| <b>Electrical data</b>                |                  |                  |
| Rated Voltage [V]                     | 230              | 120              |
| Power frequency [Hz]                  | 50/60            | 60               |
| Nominal power [kW]                    | 1.1              | 1.1              |
| Unit fuse [A]                         | 6.3              | 12.5             |
| Phase (Nominal voltage)               | 1~               | 1~               |
| <b>Measures - Outer dimensions</b>    |                  |                  |
| Width net [mm]                        | 560              | 560              |
| Height net [mm]                       | 625              | 625              |
| Depth net [mm]                        | 565              | 565              |
| Wall clearance back [mm]              | 160              | 160              |
| Wall clearance sidewise [mm]          | 100              | 100              |
| <b>Measures - Doors</b>               |                  |                  |
| Unit doors                            | 1                | 1                |
| <b>Measures - Internal Dimensions</b> |                  |                  |
| Width [mm]                            | 400              | 400              |
| Height [mm]                           | 440              | 440              |
| Depth [mm]                            | 345              | 345              |
| <b>Measures</b>                       |                  |                  |
| Interior volume [L]                   | 60               | 60               |
| Net weight of the unit (empty) [kg]   | 40               | 40               |
| Load per rack [kg]                    | 15               | 15               |
| <b>Environment-specific data</b>      |                  |                  |
| Energy consumption at 150 °C          | 290 W            | 290 W            |

## OPTIONS AND ACCESSORIES

| Designation  | Description   | *      | Art.-No.  |
|--|---|--------|-----------|
| <b>Access port with silicone plug</b>                  | 10 mm, left   | 01     | 8012-0388 |
|  | 10 mm, right  | 01     | 8012-0387 |
|  | 10 mm, top  | 01     | 8012-0386 |
|  | 30 mm, left   | 01     | 8012-1016 |
|  | 30 mm, right  | 01     | 8012-1015 |
|  | 30 mm, top  | 01     | 8012-0539 |
|  | 50 mm, left   | 01     | 8012-1020 |
|  | 50 mm, right  | 01     | 8012-1019 |
|  | 50 mm, top  | 01     | 8012-0545 |
|  | 100 mm, top   | 01, 10 | 8012-1029 |
| <b>Calibration certificate, expanded</b>               | each measurement at additional measuring point or testing temperature                       | -      | 8012-0022 |
| <b>Calibration certificate, temperature</b>            | for temperature, measurement in center of chamber at specified temperature                  | -      | 8012-0030 |
|  | temperature measurement incl. certificate and 27 measuring points at specified temperature  | -      | 8012-0921 |
|  | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | -      | 8012-0918 |
|  | temperature measurement incl. certificate, 9 measuring points at specified temperature      | -      | 8012-0915 |
| <b>Cart</b>  | stable cart, casters with locking brakes  | -      | 9051-0018 |
| <b>Class 3.1 independent temperature safety device</b> | with visual alarm (DIN 12880)   | 04, 12 | 8012-0985 |
| <b>Clock, battery-backed</b>                           | Real-time clock   | -      | 8012-0981 |

\* Notes › See last page

## Data Sheet Model FD 56

| Designation                      | Description  | *  | Art.-No.  |
|----------------------------------|--|----|-----------|
| Data Logger Kit                  | T 350: temperature logging from 0 °C to 350 °C   | 19 | 8012-0714 |
| Data Logger Kit, 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 | 8012-1008 |
| Door lock                        | lockable door handle   | -  | 8012-1025 |
| Ethernet interface               | for communication software   | -  | 8012-0988 |
| Instrument tray                  | large  | -  | 4022-0124 |
|                                  | small  | -  | 4022-0123 |
| Interior lighting                | with 1x 15 W (not available in combination with interior socket)   |    |           |
|                                  | 120 V option model   | -  | 8012-0971 |
|                                  | 230 V option model   | -  | 8012-0969 |
| Measurement of air exchange rate | in accordance with ASTM D5374, definition and protocol according to ambient temperature                                | -  | 8012-0195 |
| Overheating alarm                | audible, can be switched off, adjustable limit on the independent temperature safety device                            | -  | 8012-0979 |
| pH-neutral detergent             | concentrated, for gentle remove of residual contaminants; 1 kg   | -  | 1002-0016 |
| Rack                             | chrome plated  | -  | 6004-0166 |
|                                  | stainless steel  | -  | 6004-0150 |
| Rubber pads                      | set of 4 anti-slip feet, for safe stacking of unit   | 10 | 8012-0001 |
| Shelf, perforated                | stainless steel  | -  | 6004-0182 |
| Software                         | APT-COM™ communications software   |    |           |
|                                  | version 2 to 3, GLP edition  | 19 | 9053-0016 |
|                                  | version 3, BASIC edition   | 19 | 9053-0014 |
|                                  | version 3, GLP edition   | 19 | 9053-0015 |
|                                  | version 3, STANDARD edition  | 19 | 9053-0013 |
|                                  | APT-COM™ communications software, price: for free  |    |           |
|                                  | version 3, GLP DEMO Edition  | 19 | 9053-0008 |
| Viewing window                   | viewing window in door   | -  | 8012-0973 |

\* 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         | DL100100 |
| Instruction                                 | unit function instructions for operation and programming of the controller               | 18             | DL100400 |
| <b>Preventive maintenance</b>               |  |                |          |
| Preventive maintenance                      | Execution of equipment inspection according to maintenance plan                          | 14, 18         | DL200200 |
| <b>Calibration services</b>                 |  |                |          |
| Calibration temperature                     | 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 |
| <b>Validation services</b>                  |  |                |          |
| Execution of IQ/OQ                          | 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 |

\* Notes › See last page

| Designation                                 | Description   | *          | Art.-No.  |
|---|---|------------|-----------|
| 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 |
| <b>Warranty service</b>                     |   |            |           |
| 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.
- 05 Attention: The pump is delivered separately. The electric connection for the pump (230 V/1~/50 Hz) must be carried out by an authorized electrician.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 07 The additional heat input may affect the temperature behavior.
- 08 The pump (packaged separately) is ready for connection.
- 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.
- 21 ATEX conformity:  
Pumping chamber (pumped gases): II 2G IIC T3 X  
Environment with inert purge gas: II 2G IIB T4 X  
Environment without inert purge gas: II 3G IIB T4 X  
Motor: II 2G Ex d IIB T4 Gb

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