

# Drying and heating chambers



**Avantgarde.Line**  
ED | FD | FP | FED series

**Classic.Line**  
E | ED | FD | FED | M series

**Solid.Line**  
ED-S | FD-S series



# Drying and heating chambers Avantgarde.Line

|                           |        |
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| Series ED Avantgarde.Line | Page 6 |
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BINDER drying chambers with natural convection or forced convection are renowned for their high quality and reliability. Thanks to their extensive redevelopment, these all-rounders are now even more firmly focused on addressing the requirements involved in drying or heating samples. What's more, in addition to the best energy efficiency on the market and convenient operation, the latest APT.line™ technology offers outstanding temperature accuracy to give the Avantgarde.Line incubators real appeal.

# PRODUCT SELECTION DRYING AND HEATING CHAMBERS AVANTGARDE. LINE

| Features   | Series ED Avantgarde.Line<br>› Page 6 | Series FD Avantgarde.Line<br>› Page 12 | Series FED Avantgarde.<br>Line<br>› Page 19 | Series FP Avantgarde.Line<br>› Page 26 |
|--|---------------------------------------|--|---|--|
| <b>Model</b>   |                                       |  |   |  |
| Model 56   | •                                     | •                                      | •   | •                                      |
| Model 115  | •                                     | •                                      | •   | •                                      |
| Model 260  | •                                     | •                                      | •   | •                                      |
| Model 720  | •                                     | •                                      | •   | •                                      |
| <b>General data</b>  |                                       |  |   |  |
| Temperature range +5 °C<br>above ambient temperature<br>to [°C]  | 300                                   | –                                      | –   | –                                      |
| Temperature range +10 °C<br>above ambient temperature<br>to [°C] | –                                     | 300                                    | 300   | 300                                    |
| Temperature range +12 °C<br>above ambient temperature<br>to [°C] | –                                     | 300                                    | 300   | 300                                    |

•Standard equipment

## ADVANTAGES AT A GLANCE



### **EASY DATA LOGGING**

Series ED, FD, FED

The USB connector, standard on the ED, FD and FED, provides easy data logging. Ethernet connectivity is standard on FED and an option for ED and FD.



### **BEST ENERGY EFFICIENCY ON THE MARKET AND LOW INSTALLATION REQUIREMENTS**

Series ED, FD, FED

thanks to low heat dissipation and an optimized heating system.



### **EASY, INTUITIVE HANDLING**

Series ED, FD, FED

Our state-of-the-art controller with LCD display, excellent readability, alphanumeric display, and various functions provide a user friendly interface. Choice of languages as standard: English, German, and French.



### **COMPLETELY HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series FD, FED

This feature provides excellent spatial and temporal temperature accuracy with the all-new generation of APT.line™ technology.

## Series ED Avantgarde.Line | 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.



ED 56 model

### BENEFITS

- Best energy efficiency on the market
- Excellent temporal and spatial temperature accuracy
- USB connection for recording data
- Temperature range up to +300 °C

### MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +300 °C
- Up to 30% lower energy consumption compared to conventional units on the market
- High temperature accuracy thanks to APT.line™ technology
- Natural convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Units up to 115 liters are stackable
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm
- Ergonomic handle design

### AVAILABLE SIZES

| Model  | Interior volume [L] | Online data sheets  |
|--------|---------------------|---|
| ED 56  | 57                  | › <a href="https://go2binder.com/en-ED56-AL">go2binder.com/en-ED56-AL</a>   |
| ED 115 | 114                 | › <a href="https://go2binder.com/en-ED115-AL">go2binder.com/en-ED115-AL</a> |
| ED 260 | 255                 | › <a href="https://go2binder.com/en-ED260-AL">go2binder.com/en-ED260-AL</a> |
| ED 720 | 743                 | › <a href="https://go2binder.com/en-ED720-AL">go2binder.com/en-ED720-AL</a> |

## OPTIONAL EQUIPMENT

|   |   |   |
|---|---|---|
| <b>Access port with silicone plug</b>       | For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)  |    |
| <b>Viewing window and interior lighting</b> | Viewing window in the door with a triple-glazed insulating glass and interior lighting for easy visibility of the samples.  |    |
| <b>Shelf racks</b>                          | Perforated shelves or shelf racks, chrome-plated or made from stainless steel.  |    |
| <b>HEPA air filter</b>                      | Particle filter on fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm).   |    |
| <b>Services</b>                             | You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.                                  |   |
| <b>BINDER INDIVIDUAL</b>                    | Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. |  |

► All extras online [go2binder.com/en-options](http://go2binder.com/en-options)

## TECHNICAL DATA

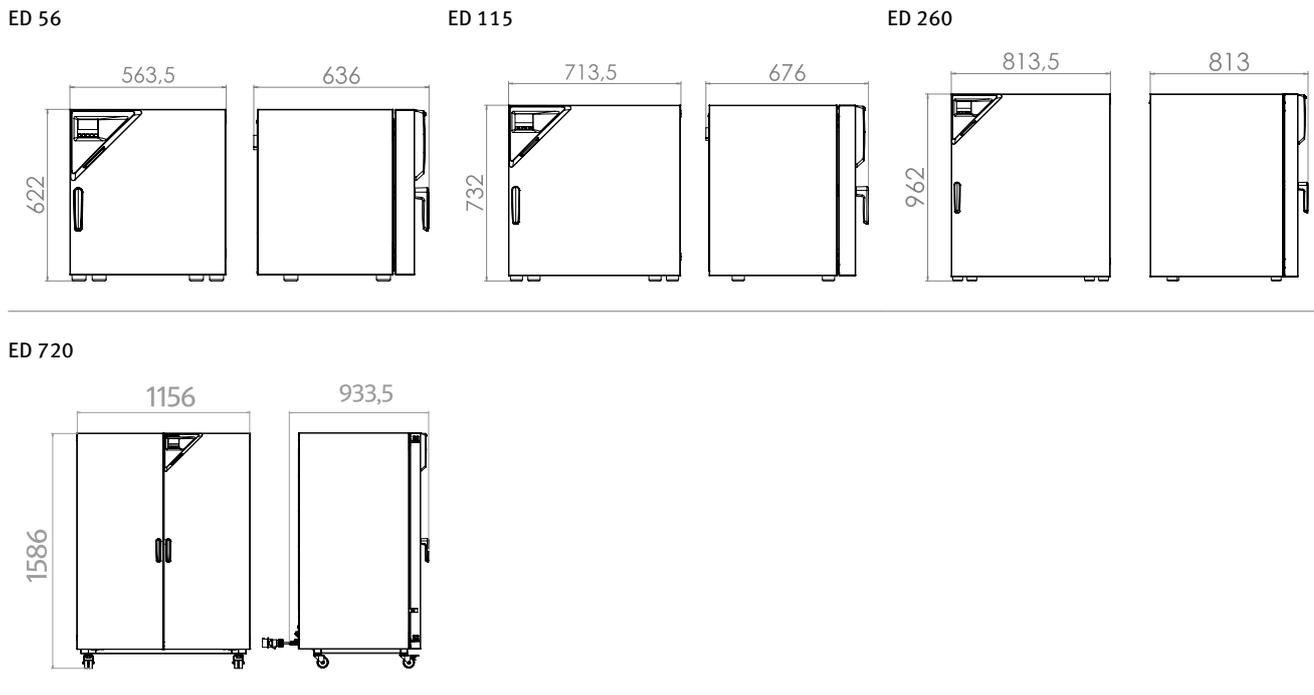
| Description  | ED 56 | ED 115 | ED 260 | ED 720 |
|--|-------|--------|--------|--------|
| <b>Measures</b>  |       |        |        |        |
| Interior volume [L]  | 57    | 114    | 255    | 743    |
| Net weight of the unit (empty) [kg]                          | 42    | 57     | 85     | 169    |
| Permitted load [kg]  | 70    | 150    | 270    | 315    |
| Load per rack [kg]   | 30    | 30     | 40     | 45     |
| Wall clearance back [mm]                                     | 160   | 160    | 160    | 160    |
| Wall clearance sidewise [mm]                                 | 100   | 100    | 100    | 100    |
| <b>Internal Dimensions</b>                                   |       |        |        |        |
| Width [mm]   | 360   | 510    | 610    | 960    |
| Height [mm]  | 420   | 530    | 760    | 1280   |
| Depth [mm]   | 380   | 425    | 550    | 605    |
| <b>Housing dimensions not incl. fittings and connections</b> |       |        |        |        |
| Width net [mm]   | 560   | 710    | 810    | 1165   |
| Height net [mm]  | 625   | 705    | 940    | 1590   |
| Depth net [mm]   | 565   | 605    | 760    | 870    |
| <b>Performance Data Temperature</b>                          |       |        |        |        |
| Temperature range +5 °C above ambient temperature to [°C]    | 300   | 300    | 300    | 300    |
| Temperature variation at 150 °C [± K]                        | 2.3   | 1.5    | 1.8    | 3.2    |
| Temperature fluctuation at 150 °C [± K]                      | 0.4   | 0.4    | 0.8    | 0.8    |
| Heating-up time to 150 °C [min]                              | 50    | 45     | 50     | 85     |
| Recovery time after 30 seconds door open at 150 °C [min]     | 19    | 16     | 20     | 25     |
| <b>Tabellen</b>  |       |        |        |        |
| Air change (approx.) at 100 °C [x/h]                         | 8     | 6      | 3      | 2      |
| <b>Electrical data</b>                                       |       |        |        |        |
| Nominal power (version 120 V) [kW]                           | 1.15  | 1.35   | –      | –      |
| Nominal power (version 230 V) [kW]                           | 1.05  | 1.25   | 2.25   | –      |
| Nominal power (version 240 V) [kW]                           | –     | –      | 2.45   | –      |
| Nominal power (version 400 V) [kW]                           | –     | –      | –      | 4.1    |
| <b>Fixtures</b>  |       |        |        |        |
| Number of shelves (std./max.)                                | 2/4   | 2/5    | 2/8    | 2/16   |

## ORDERING INFORMATION [Art. No.]

Further details: Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | ED 56     | ED 115    | ED 260    | ED 720    |
|-------------------|--------------|-----------|-----------|-----------|-----------|
| 400 V 3~ 50/60 Hz | Standard     | –         | –         | –         | 9010-0341 |
| 240 V 1~ 60 Hz    | Standard     | –         | –         | 9010-0340 | –         |
| 230 V 1~ 50/60 Hz | Standard     | 9010-0333 | 9010-0335 | 9010-0339 | –         |
| 120 V 1~ 60 Hz    | Standard     | 9010-0334 | 9010-0336 | –         | –         |

DIMENSIONS incl. fittings and connections [mm]



ORDERING INFORMATION OPTIONS

| Designation                              | Description   | ED 56 | ED 115 | ED 260 | ED 720    | Art. No.  |
|--|---|-------|--------|--------|-----------|-----------|
| <b>Access port with silicone plug</b>    | back  |       |        |        |           |           |
|  | 10 mm   | •     | •      | •      | •         | 8012-1282 |
|  | 30 mm   | •     | •      | •      | •         | 8012-0540 |
|  | 50 mm   | •     | •      | •      | •         | 8012-0546 |
|  | left  |       |        |        |           |           |
|  | 10 mm   | •     | •      | •      | •         | 8012-1275 |
|  | 30 mm   | •     | •      | •      | •         | 8012-1018 |
|  | 50 mm   | •     | •      | •      | •         | 8012-1022 |
|  | 100 mm  | –     | •      | •      | •         | 8012-1030 |
|  | right   |       |        |        |           |           |
|  | 10 mm   | •     | •      | •      | •         | 8012-1268 |
|  | 30 mm   | •     | •      | •      | •         | 8012-1017 |
|  | 50 mm   | •     | •      | •      | •         | 8012-1021 |
|  | 100 mm  | –     | •      | •      | •         | 8012-1031 |
|  | top   |       |        |        |           |           |
|  | 10 mm   | •     | •      | •      | •         | 8012-1262 |
| 30 mm                                    | •   | •     | •      | •      | 8012-0539 |           |
| 50 mm                                    | •   | •     | •      | •      | 8012-0545 |           |
| 100 mm                                   | •   | •     | •      | •      | 8012-1029 |           |
| <b>Alarm function for overheating</b>    | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device     | •     | •      | •      | •         | 8012-1635 |
| <b>Analog output 4-20 mA</b>             | for temperature values (output not adjustable)  | •     | •      | •      | •         | 8012-1623 |
| <b>Calibration certificate, expanded</b> | for temperature; for extending the measurement in center of chamber to include another test temperature | •     | •      | •      | •         | 8012-1115 |

| Designation  | Description   | ED 56 | ED 115 | ED 260 | ED 720    | Art. No.  |
|--|---|-------|--------|--------|-----------|-----------|
| <b>Calibration certificate, temperature</b>            | 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)   | •     | •      | •      | •         | 8012-0985 |
| <b>Clock</b>   | battery-backed  | •     | •      | •      | •         | 8012-1640 |
| <b>Door gasket</b>                                     | made of FKM, silicone-free  | •     | –      | –      | –         | 8012-1008 |
|  |   | –     | •      | –      | –         | 8012-1009 |
|  |   | –     | –      | •      | –         | 8012-1011 |
|  |   | –     | –      | –      | •         | 8012-1013 |
|  |   | •     | •      | •      | –         | 8012-1664 |
| <b>Door lock</b>                                       | lockable door handle  | –     | –      | –      | •         | 8012-1817 |
|  |   | •     | •      | •      | –         | 8012-1645 |
| <b>Ethernet interface</b>                              | for Multi Management Software APT-COM™  | –     | –      | –      | •         | 8012-1836 |
|  |   | •     | •      | •      | •         | 8012-1645 |
| <b>Inner chamber, reinforced</b>                       | max. total load 350 kg  | –     | –      | –      | •         | 8012-1827 |
| <b>Interior lighting</b>                               | with 15 W light bulb  |       |        |        |           |           |
|  | 120 V option model  | •     | •      | –      | –         | 8012-1631 |
|  | 230/240 V option model  | •     | •      | •      | –         | 8012-1627 |
|  | with two 15 W light bulbs   |       |        |        |           |           |
| 400 V option model                                     | –   | –     | –      | •      | 8012-1824 |           |
| <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, for displaying the temperature on the unit display    | •     | •      | •      | •         | 8012-1619 |
| <b>Viewing window and interior lighting</b>            | viewing window (triple insulating glass) in door, 240 x 240 mm, and 15 W interior           |       |        |        |           |           |
|  | 120 V option model  | •     | –      | –      | –         | 8012-1059 |
|  | 230 V option model  | •     | –      | –      | –         | 8012-1058 |
|  | viewing window (triple insulating glass) in door, 300 x 480 mm, and 30 W interior           |       |        |        |           |           |
|  | 400 V option model  | –     | –      | –      | •         | 8012-1830 |
|  | viewing window (triple insulating glass) in door, 370 x 370 mm, and 15 W interior           |       |        |        |           |           |
|  | 120 V option model  | –     | •      | –      | –         | 8012-1063 |
|  | 230 V option model  | –     | •      | –      | –         | 8012-1060 |
|  | 240 V option model  | –     | –      | •      | –         | 8012-1064 |
|  |   | –     | –      | •      | –         | 8012-1065 |

## ORDERING INFORMATION ACCESSORIES

| Designation                     | Description   | ED 56 | ED 115 | ED 260 | ED 720 | Art. No.  |
|---------------------------------|---|-------|--------|--------|--------|-----------|
| <b>APT-COM™ 4 BASIC-Edition</b> | for simple logging and documentation requirements with up to 5 networked units. |       |        |        |        |           |
|                                 | version 4, BASIC edition  | •     | •      | •      | •      | 9053-0039 |

| Designation                            | Description   | ED 56 | ED 115 | ED 260 | ED 720 | Art. No.  |
|--|---|-------|--------|--------|--------|-----------|
| <b>APT-COM™ 4 GLP-Edition</b>          | 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.   |       |        |        |        |           |
|  | version 4, GLP edition  | •     | •      | •      | •      | 9053-0042 |
| <b>APT-COM™ 4 PROFESSIONAL-Edition</b> | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.  |       |        |        |        |           |
|  | version 4, PROFESSIONAL edition   | •     | •      | •      | •      | 9053-0040 |
| <b>Ethernet interface</b>              | for Multi Management Software APT-COM™  | •     | •      | •      | –      | 8012-1645 |
| <b>pH-neutral detergent</b>            | concentrated, for gentle remove of residual contaminants; 1 kg  | •     | •      | •      | •      | 8012-2250 |
| <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     |       |        |        |        |           |
|  | Digital in PDF format   | •     | •      | •      | •      | 7057-0005 |
|  | Hard copy inside folder   | •     | •      | •      | •      | 7007-0005 |
| <b>Rack</b>                            | chrome plated   | •     | –      | –      | –      | 8012-2039 |
|  |   | –     | •      | –      | –      | 8012-2041 |
|  |   | –     | –      | •      | –      | 8012-2043 |
|  |   | –     | –      | –      | •      | 8012-2045 |
|  | stainless steel   | •     | –      | –      | –      | 8012-2171 |
|  |   | –     | •      | –      | –      | 8012-2172 |
|  |   | –     | –      | •      | –      | 8012-2173 |
|  |   | –     | –      | –      | •      | 8012-2174 |
|  |   | –     | –      | •      | –      | 8012-2187 |
|  |   | –     | –      | –      | •      | 8012-2186 |
| <b>Rack, heavy load</b>                | Stainless steel, max. load per rack 70 kg   |       |        |        |        |           |
| <b>Rubber pads</b>                     | set anti-slip feet  | •     | •      | •      | –      | 8012-2030 |
| <b>Shelf, perforated</b>               | Stainless steel   | •     | –      | –      | –      | 8012-2179 |
|  |   | –     | •      | –      | –      | 8012-2180 |
|  |   | –     | –      | •      | –      | 8012-2181 |
|  |   | –     | –      | –      | •      | 8012-2182 |
| <b>Table on castors</b>                | stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm  | •     | •      | –      | –      | 9051-0018 |
|  | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm  | –     | –      | •      | –      | 9051-0019 |

## Series FD Avantgarde.Line | with forced convection

A BINDER FD series Avantgarde.Line 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.



FD 56 model

### BENEFITS

- Best energy efficiency on the market
- Excellent temporal and spatial temperature accuracy
- USB connection for recording data
- Temperature range up to +300 °C

### MAIN FEATURES

- Temperature range: +10 °C above ambient temperature 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
- Units up to 115 L are stackable
- Class 2 independent temperature safety device (DIN 12880) with visual temperature alarm
- Ergonomic handle design
- USB port for recording data

### AVAILABLE SIZES

| Model  | Interior volume [L] | Online data sheets  |
|--------|---------------------|---|
| FD 56  | 60                  | › <a href="https://go2binder.com/en-FD56-AL">go2binder.com/en-FD56-AL</a>   |
| FD 115 | 116                 | › <a href="https://go2binder.com/en-FD115-AL">go2binder.com/en-FD115-AL</a> |
| FD 260 | 259                 | › <a href="https://go2binder.com/en-FD260-AL">go2binder.com/en-FD260-AL</a> |
| FD 720 | 741                 | › <a href="https://go2binder.com/en-FD720-AL">go2binder.com/en-FD720-AL</a> |

## OPTIONAL EQUIPMENT

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



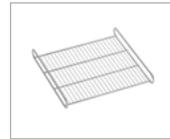
### Viewing window and interior lighting

Viewing window in the door with a triple-glazed insulating glass and interior lighting for easy visibility of the samples.



### Shelf racks

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



### HEPA air filter

Particle filter on fresh air supply for unit; filter classification H14 (acc. to EN 1822-1:2009, > 99.995% at 0.3 µm).



### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

## TECHNICAL DATA

| Description  | FD 56 | FD 115 | FD 260 | FD 720 |
|--|-------|--------|--------|--------|
| <b>Measures</b>  |       |        |        |        |
| Interior volume [L]  | 60    | 116    | 259    | 741    |
| Net weight of the unit (empty) [kg]                          | 41    | 57     | 85     | 166    |
| Permitted load [kg]  | 70    | 150    | 270    | 315    |
| Load per rack [kg]   | 30    | 30     | 40     | 45     |
| Wall clearance back [mm]                                     | 160   | 160    | 160    | 160    |
| Wall clearance sidewise [mm]                                 | 100   | 100    | 100    | 100    |
| <b>Internal Dimensions</b>                                   |       |        |        |        |
| Width [mm]   | 400   | 550    | 650    | 1000   |
| Height [mm]  | 440   | 550    | 780    | 1300   |
| Depth [mm]   | 345   | 385    | 515    | 570    |
| <b>Housing dimensions not incl. fittings and connections</b> |       |        |        |        |
| Width net [mm]   | 560   | 710    | 810    | 1165   |
| Height net [mm]  | 625   | 735    | 940    | 1590   |
| Depth net [mm]   | 565   | 605    | 825    | 870    |
| <b>Performance Data Temperature</b>                          |       |        |        |        |
| Temperature range +10 °C above ambient temperature to [°C]   | 300   | 300    | 300    | –      |
| Temperature range +12 °C above ambient temperature to [°C]   | –     | –      | –      | 300    |
| Temperature variation at 150 °C [± K]                        | 1.7   | 1.7    | 1.9    | 2.5    |
| Temperature fluctuation at 150 °C [± K]                      | 0.3   | 0.3    | 0.4    | 0.6    |
| Heating-up time to 150 °C [min]                              | 15    | 18     | 19     | 25     |
| Recovery time after 30 seconds door open at 150 °C [min]     | 4     | 4      | 5      | 6      |
| <b>Tabellen</b>  |       |        |        |        |
| Air change (approx.) at 100 °C [x/h]                         | 80    | 32     | 9      | 5      |
| <b>Electrical data</b>                                       |       |        |        |        |
| Nominal power (version 120 V) [kW]                           | 1.2   | 1.4    | –      | –      |
| Nominal power (version 230 V) [kW]                           | 1.1   | 1.3    | 2.3    | –      |
| Nominal power (version 240 V) [kW]                           | –     | –      | 2.5    | –      |
| Nominal power (version 400 V) [kW]                           | –     | –      | –      | 4.5    |
| <b>Fixtures</b>  |       |        |        |        |
| Number of shelves (std./max.)                                | 2/4   | 2/5    | 2/8    | 2/16   |

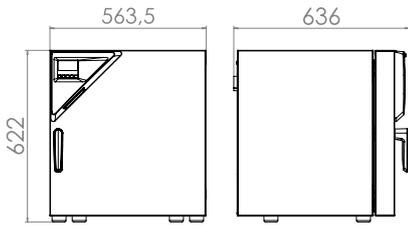
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

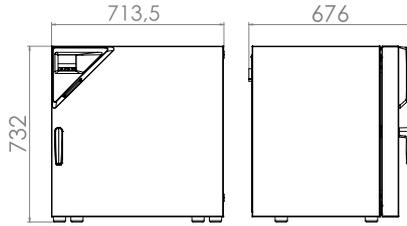
| Voltage           | Option model | FD 56     | FD 115    | FD 260    | FD 720    |
|-------------------|--------------|-----------|-----------|-----------|-----------|
| 400 V 3~ 50/60 Hz | Standard     | –         | –         | –         | 9010-0311 |
| 240 V 1~ 60 Hz    | Standard     | –         | –         | 9010-0310 | –         |
| 230 V 1~ 50/60 Hz | Standard     | 9010-0303 | 9010-0305 | 9010-0309 | –         |
| 120 V 1~ 60 Hz    | Standard     | 9010-0304 | 9010-0306 | –         | –         |

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

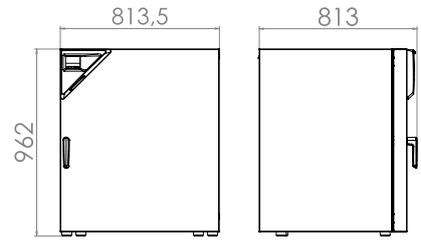
FD 56



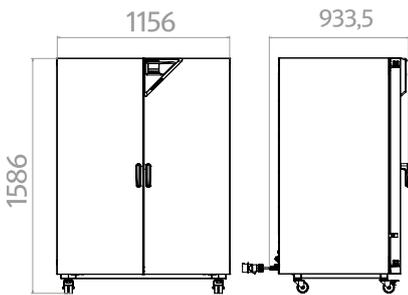
FD 115



FD 260



FD 720



**ORDERING INFORMATION OPTIONS**

| Designation                              | Description   | FD 56   | FD 115 | FD 260 | FD 720 | Art. No.  |
|--|---|---|--------|--------|--------|-----------|
| <b>Access port with silicone plug</b>    | left  |   |        |        |        |           |
|  | 10 mm   | •   | •      | •      | •      | 8012-1276 |
|  | 30 mm   | •   | •      | •      | •      | 8012-1016 |
|  | 50 mm   | •   | •      | •      | •      | 8012-1020 |
|  | 100 mm  | –   | •      | •      | •      | 8012-1027 |
|  | right   |   |        |        |        |           |
|  | 10 mm   | •   | •      | •      | •      | 8012-1269 |
|  | 30 mm   | •   | •      | •      | •      | 8012-1015 |
|  | 50 mm   | •   | •      | •      | •      | 8012-1019 |
|  | 100 mm  | –   | •      | •      | •      | 8012-1028 |
|  | top   |   |        |        |        |           |
|  | 10 mm   | •   | •      | •      | •      | 8012-1263 |
|  | 30 mm   | •   | •      | •      | •      | 8012-1364 |
|  | 50 mm   | •   | •      | •      | •      | 8012-1380 |
|  | 100 mm  | •   | •      | •      | •      | 8012-1671 |
|  | <b>Alarm function for overheating</b>   | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device | •      | •      | •      | •         |
| <b>Analog output 4-20 mA</b>             | for temperature values (output not adjustable)  | •   | •      | •      | •      | 8012-1624 |
| <b>Calibration certificate, expanded</b> | for temperature; for extending the measurement in center of chamber to include another test temperature | •   | •      | •      | •      | 8012-1116 |

| Designation  | Description  | FD 56 | FD 115 | FD 260 | FD 720 | Art. No.  |
|--|--|-------|--------|--------|--------|-----------|
| <b>Calibration certificate, temperature</b>            | 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 |
| <b>Class 3.1 independent temperature safety device</b> | with visual alarm (DIN 12880)  | •     | •      | •      | •      | 8012-1643 |
| <b>Clock</b>   | battery-backed   | •     | •      | •      | •      | 8012-1641 |
| <b>Door gasket</b>                                     | made of FKM, silicone-free   | •     | –      | –      | –      | 8012-1648 |
|  |  | –     | •      | –      | –      | 8012-1650 |
|  |  | –     | –      | •      | –      | 8012-1652 |
|  |  | –     | –      | –      | •      | 8012-1833 |
|  |  | •     | •      | •      | –      | 8012-1665 |
| <b>Door lock</b>                                       | lockable door handle   | –     | –      | –      | •      | 8012-1818 |
| <b>Ethernet interface</b>                              | for Multi Management Software APT-COM™   | •     | •      | •      | –      | 8012-0988 |
|  |  | –     | –      | –      | •      | 8012-0989 |
| <b>Fan, reinforced</b>                                 | for increased air change rates, incl. uprated heat output for faster heating up time and improved recovery time; max. 300 °C; not in conjunction with load management option   |       |        |        |        |           |
|  | 400 V option model   | –     | –      | –      | •      | 8012-1062 |
|  |  | •     | –      | –      | –      | 8012-1683 |
| <b>Gas-tight option model</b>                          | Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option                                     | –     | •      | –      | –      | 8012-1685 |
|  |  | –     | –      | •      | –      | 8012-1687 |
| <b>Heating output, reinforced</b>                      | for faster heating up time and improved recovery time; max. 300 °C   |       |        |        |        |           |
|  | 400 V option model   | –     | –      | –      | •      | 8012-1061 |
|  |  | •     | –      | –      | –      | 8012-1056 |
|  | 120/230 V option model   | –     | •      | –      | –      | 8012-1057 |
| <b>HEPA air filter</b>                                 | On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm); not in conjunction with reinforced heating output, reinforced fan      | •     | –      | –      | –      | 8012-1050 |
|  |  | –     | •      | –      | –      | 8012-1051 |
|  |  | –     | –      | •      | –      | 8012-1052 |
|  |  | –     | –      | –      | •      | 8012-1099 |
|  |  | •     | –      | –      | –      | 8012-1689 |
| <b>Inert gas connection</b>                            | With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | –     | •      | –      | –      | 8012-1691 |
|  |  | –     | –      | •      | –      | 8012-1693 |
| <b>Inner chamber, reinforced</b>                       | max. total load 170 kg   | –     | •      | –      | –      | 8012-1054 |
|  | max. total load 300 kg   | –     | –      | •      | –      | 8012-1055 |
|  | max. total load 350 kg   | –     | –      | –      | •      | 8012-1821 |
|  | max. total load 85 kg  | •     | –      | –      | –      | 8012-1053 |
| <b>Interior lighting</b>                               | with 15 W light bulb   |       |        |        |        |           |
|  | 120 V option model   | •     | •      | –      | –      | 8012-1632 |
|  | 230/240 V option model   | •     | •      | •      | –      | 8012-1628 |
|  | with two 15 W light bulbs  |       |        |        |        |           |
|  | 400 V option model   | –     | –      | –      | •      | 8012-1825 |
| <b>Measurement of air exchange rate</b>                | in accordance with ASTM D5374, definition and protocol according to ambient temperature  | •     | •      | •      | •      | 8012-1195 |
| <b>Pt 100 temperature sensor</b>                       | additional flexible Pt 100, interior, for displaying the temperature on the unit display   | •     | •      | •      | •      | 8012-1620 |

| Designation                          | Description   | FD 56 | FD 115 | FD 260 | FD 720 | Art. No.  |
|--------------------------------------|---|-------|--------|--------|--------|-----------|
| Viewing window and interior lighting | viewing window (triple insulating glass) in door, 240 x 240 mm, and 15 W interior |       |        |        |        |           |
|                                      | 120 V option model  | •     | –      | –      | –      | 8012-1702 |
|                                      | 230 V option model  | •     | –      | –      | –      | 8012-1700 |
|                                      | viewing window (triple insulating glass) in door, 300 x 480 mm, and 30 W interior |       |        |        |        |           |
|                                      | 400 V option model  | –     | –      | –      | •      | 8012-1831 |
|                                      | viewing window (triple insulating glass) in door, 370 x 370 mm, and 15 W interior |       |        |        |        |           |
|                                      | 120 V option model  | –     | •      | –      | –      | 8012-1706 |
|                                      | 230 V option model  | –     | •      | –      | –      | 8012-1704 |
|                                      | 240 V option model  | –     | –      | •      | –      | 8012-1708 |
|                                      | 240 V option model  | –     | –      | •      | –      | 8012-1710 |

## ORDERING INFORMATION ACCESSORIES

| Designation                     | Description   | FD 56 | FD 115 | FD 260 | FD 720 | Art. No.  |
|---------------------------------|---|-------|--------|--------|--------|-----------|
| APT-COM™ 4 BASIC-Edition        | for simple logging and documentation requirements with up to 5 networked units.<br>version 4, BASIC edition   | •     | •      | •      | •      | 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   | •     | •      | •      | •      | 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   | •     | •      | •      | •      | 9053-0040 |
| pH-neutral detergent            | concentrated, for gentle remove of residual contaminants; 1 kg  | •     | •      | •      | •      | 8012-2250 |
| Qualification documents         | 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     |       |        |        |        |           |
|                                 | Digital in PDF format   | •     | •      | •      | •      | 7057-0005 |
| Rack                            | chrome plated   | •     | –      | –      | –      | 8012-2038 |
|                                 |   | –     | •      | –      | –      | 8012-2040 |
|                                 |   | –     | –      | •      | –      | 8012-2042 |
|                                 |   | –     | –      | –      | •      | 8012-2044 |
|                                 |   | •     | –      | –      | –      | 8012-2085 |
|                                 | stainless steel   | –     | •      | –      | –      | 8012-2168 |
|                                 |   | –     | –      | •      | –      | 8012-2169 |
|                                 |   | –     | –      | –      | •      | 8012-2170 |
|                                 |   | –     | –      | •      | –      | 8012-2184 |
|                                 |   | –     | –      | –      | •      | 8012-2185 |
| Rubber pads                     | set anti-slip feet  | •     | •      | •      | –      | 8012-2030 |

| Designation              | Description  | FD 56 | FD 115 | FD 260 | FD 720 | Art. No.  |
|--------------------------|--|-------|--------|--------|--------|-----------|
| <b>Shelf, perforated</b> | Stainless steel  | •     | -      | -      | -      | 8012-2175 |
|                          |  | -     | •      | -      | -      | 8012-2176 |
|                          |  | -     | -      | •      | -      | 8012-2177 |
|                          |  | -     | -      | -      | •      | 8012-2178 |
| <b>Table on castors</b>  | stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm | •     | •      | -      | -      | 9051-0018 |
|                          | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm | -     | -      | •      | -      | 9051-0019 |

## Series FED Avantgarde.Line | with forced convection and enhanced timer functions

BINDER heating chambers of the FED Avantgarde.Line series provide almost unlimited capacity and are particularly adaptable. With advanced timing functions and a controllable fan, temperature and convection conditions are easily controlled.



FED 56 model

### BENEFITS

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

### MAIN FEATURES

- Temperature range: +10 °C above ambient temperature to +300 °C
- Up to 30% lower energy consumption compared to conventional units on the market
- High temperature accuracy thanks to APT.line™ technology
- Adjustable fan speed
- Controller with LCD display and enhanced time functions
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Units up to 115 liters are stackable
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm
- Ergonomic handle design

### AVAILABLE SIZES

| Model   | Interior volume [L] | Online data sheets  |
|---------|---------------------|---|
| FED 56  | 60                  | › <a href="https://go2binder.com/en-FED56-AL">go2binder.com/en-FED56-AL</a>   |
| FED 115 | 116                 | › <a href="https://go2binder.com/en-FED115-AL">go2binder.com/en-FED115-AL</a> |
| FED 260 | 259                 | › <a href="https://go2binder.com/en-FED260-AL">go2binder.com/en-FED260-AL</a> |
| FED 720 | 741                 | › <a href="https://go2binder.com/en-FED720-AL">go2binder.com/en-FED720-AL</a> |



Find all details online: [go2binder.com/en-FED](https://go2binder.com/en-FED)

## OPTIONAL EQUIPMENT

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**Access port with silicone plug**

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



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**Viewing window and interior lighting**

Viewing window in the door with a triple-glazed insulating glass and interior lighting for easy visibility of the samples.



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**Shelf racks**

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



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**HEPA air filter**

Particle filter on fresh air supply for unit; filter classification H14 (acc. to EN 1822-1:2009, > 99.995% at 0.3 µm).



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**Services**

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



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**BINDER INDIVIDUAL**

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



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► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

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## TECHNICAL DATA

| Description  | FED 56 | FED 115 | FED 260 | FED 720 |
|--|--------|---------|---------|---------|
| <b>Measures</b>  |        |         |         |         |
| Interior volume [L]  | 60     | 116     | 259     | 741     |
| Net weight of the unit (empty) [kg]                          | 41     | 57      | 85      | 166     |
| Permitted load [kg]  | 70     | 150     | 270     | 315     |
| Load per rack [kg]   | 30     | 30      | 40      | 45      |
| Wall clearance back [mm]                                     | 160    | 160     | 160     | 160     |
| Wall clearance sidewise [mm]                                 | 100    | 100     | 100     | 100     |
| <b>Internal Dimensions</b>                                   |        |         |         |         |
| Width [mm]   | 400    | 550     | 650     | 1000    |
| Height [mm]  | 440    | 550     | 780     | 1300    |
| Depth [mm]   | 345    | 385     | 515     | 570     |
| <b>Housing dimensions not incl. fittings and connections</b> |        |         |         |         |
| Width net [mm]   | 560    | 710     | 810     | 1165    |
| Height net [mm]  | 625    | 705     | 940     | 1590    |
| Depth net [mm]   | 565    | 605     | 760     | 870     |
| <b>Performance Data Temperature</b>                          |        |         |         |         |
| Temperature range +10 °C above ambient temperature to [°C]   | 300    | 300     | 300     | -       |
| Temperature range +12 °C above ambient temperature to [°C]   | -      | -       | -       | 300     |
| Temperature variation at 150 °C [± K]                        | 1.4    | 1.2     | 1.6     | 2.0     |
| Temperature fluctuation at 150 °C [± K]                      | 0.3    | 0.3     | 0.4     | 0.6     |
| Heating-up time to 150 °C [min]                              | 15     | 18      | 19      | 25      |
| Recovery time after 30 seconds door open at 150 °C [min]     | 4      | 4       | 5       | 6       |
| <b>Electrical data</b>                                       |        |         |         |         |
| Nominal power (version 120 V) [kW]                           | 1.2    | 1.4     | -       | -       |
| Nominal power (version 208 V) [kW]                           | -      | -       | -       | 4.5     |
| Nominal power (version 230 V) [kW]                           | 1.1    | 1.3     | 2.3     | -       |
| Nominal power (version 240 V) [kW]                           | -      | -       | 2.5     | -       |
| Nominal power (version 400 V) [kW]                           | -      | -       | -       | 4.5     |
| <b>Fixtures</b>  |        |         |         |         |
| Number of shelves (std./max.)                                | 2/4    | 2/5     | 2/8     | 2/16    |

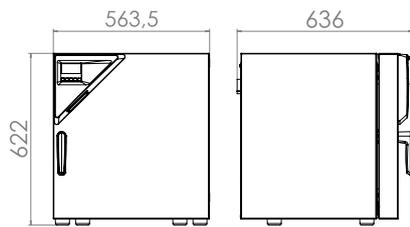
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

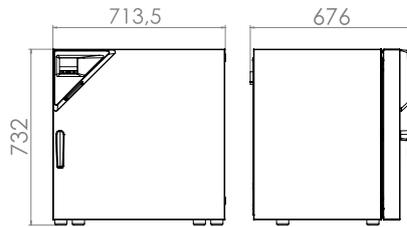
| Voltage           | Option model | FED 56    | FED 115   | FED 260   | FED 720   |
|-------------------|--------------|-----------|-----------|-----------|-----------|
| 400 V 3~ 50/60 Hz | Standard     | -         | -         | -         | 9010-0301 |
| 240 V 1~ 60 Hz    | Standard     | -         | -         | 9010-0300 | -         |
| 230 V 1~ 50/60 Hz | Standard     | 9010-0295 | 9010-0293 | 9010-0299 | -         |
| 208 V 3~ 60 Hz    | Standard     | -         | -         | -         | 9010-0302 |
| 120 V 1~ 60 Hz    | Standard     | 9010-0296 | 9010-0294 | -         | -         |

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

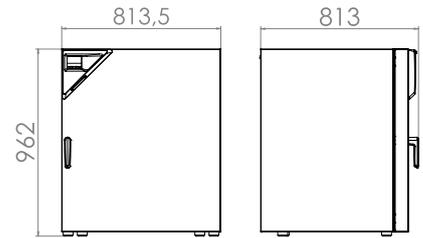
FED 56



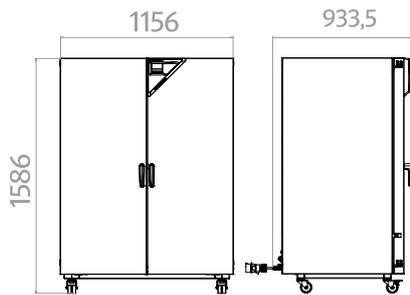
FED 115



FED 260



FED 720



**ORDERING INFORMATION OPTIONS**

| Designation                              | Description   | FED 56 | FED 115 | FED 260 | FED 720   | Art. No.  |
|--|---|--------|---------|---------|-----------|-----------|
| <b>Access port with silicone plug</b>    | left  |        |         |         |           |           |
|  | 10 mm   | •      | •       | •       | •         | 8012-1278 |
|  | 30 mm   | •      | •       | •       | •         | 8012-1655 |
|  | 50 mm   | •      | •       | •       | •         | 8012-1657 |
|  | 100 mm  | –      | •       | •       | •         | 8012-1669 |
|  | right   |        |         |         |           |           |
|  | 10 mm   | •      | •       | •       | •         | 8012-1271 |
|  | 30 mm   | •      | •       | •       | •         | 8012-1654 |
|  | 50 mm   | •      | •       | •       | •         | 8012-1656 |
|  | 100 mm  | –      | •       | •       | •         | 8012-1670 |
|  | top   |        |         |         |           |           |
|  | 10 mm   | •      | •       | •       | •         | 8012-1264 |
| 30 mm                                    | •   | •      | •       | •       | 8012-1365 |           |
| 50 mm                                    | •   | •      | •       | •       | 8012-1381 |           |
| 100 mm                                   | •   | •      | •       | •       | 8012-1672 |           |
| <b>Alarm function for overheating</b>    | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device     | •      | •       | •       | •         | 8012-1637 |
| <b>Analog output 4-20 mA</b>             | for temperature values (output not adjustable)  | •      | •       | •       | •         | 8012-1625 |
| <b>Calibration certificate, expanded</b> | for temperature; for extending the measurement in center of chamber to include another test temperature | •      | •       | •       | •         | 8012-1118 |

| Designation  | Description  | FED 56 | FED 115 | FED 260 | FED 720 | Art. No.  |
|--|--|--------|---------|---------|---------|-----------|
| <b>Calibration certificate, temperature</b>            | for temperature, measurement in center of chamber at specified temperature   | •      | •       | •       | •       | 8012-1137 |
|  | temperature measurement incl. certificate and 27 measuring points at specified temperature   | •      | •       | •       | •       | 8012-1596 |
|  | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature  | •      | •       | •       | •       | 8012-1575 |
|  | temperature measurement incl. certificate, 9 measuring points at specified temperature   | •      | •       | •       | •       | 8012-1554 |
| <b>Class 3.1 independent temperature safety device</b> | with visual alarm (DIN 12880)  | •      | •       | •       | •       | 8012-1644 |
| <b>Clock</b>   | battery-backed   | •      | •       | •       | •       | 8012-1642 |
| <b>Door gasket</b>                                     | made of FKM, silicone-free   | •      | –       | –       | –       | 8012-1649 |
|  |  | –      | •       | –       | –       | 8012-1651 |
|  |  | –      | –       | •       | –       | 8012-1653 |
|  |  | –      | –       | –       | •       | 8012-1834 |
|  |  | •      | •       | •       | –       | 8012-1666 |
| <b>Door lock</b>                                       | lockable door handle   | –      | –       | –       | •       | 8012-1819 |
| <b>Fan, reinforced</b>                                 | for increased air change rates, incl. uprated heat output for faster heating up time and improved recovery time; max. 300 °C; not in conjunction with load management option   | •      | –       | –       | –       | 8012-1684 |
|  | 400 V option model   | –      | –       | –       | •       | 8012-1781 |
| <b>Gas-tight option model</b>                          | Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option                                     | –      | •       | –       | –       | 8012-1686 |
|  |  | –      | –       | •       | –       | 8012-1688 |
|  |  | •      | –       | –       | –       | 8012-1698 |
| <b>Heating output, reinforced</b>                      | for faster heating up time and improved recovery time; max. 300 °C   | –      | •       | –       | –       | 8012-1699 |
|  | 120/230 V option model   | •      | –       | –       | –       | 8012-1695 |
| <b>HEPA air filter</b>                                 | On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm); not in conjunction with reinforced heating output, reinforced fan      | –      | •       | –       | –       | 8012-1696 |
|  |  | –      | –       | •       | –       | 8012-1697 |
|  |  | –      | –       | –       | •       | 8012-1835 |
|  |  | •      | –       | –       | –       | 8012-1690 |
| <b>Inert gas connection</b>                            | With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | –      | •       | –       | –       | 8012-1692 |
|  |  | –      | –       | •       | –       | 8012-1694 |
|  |  | –      | •       | –       | –       | 8012-1714 |
| <b>Inner chamber, reinforced</b>                       | max. total load 170 kg   | –      | –       | •       | –       | 8012-1715 |
|  | max. total load 300 kg   | –      | –       | –       | •       | 8012-1822 |
|  | max. total load 350 kg   | •      | –       | –       | –       | 8012-1713 |
|  | max. total load 85 kg  | –      | –       | –       | –       | 8012-1713 |
| <b>Interior lighting</b>                               | with 15 W light bulb   | •      | •       | –       | –       | 8012-1633 |
|  | 120 V option model   | •      | •       | •       | –       | 8012-1629 |
|  | 230/240 V option model   | –      | –       | –       | •       | 8012-0972 |
|  | with two 15 W light bulbs  | –      | –       | –       | •       | 8012-1826 |
|  | 208 V option model   | –      | –       | –       | •       | 8012-1826 |
| <b>Measurement of air exchange rate</b>                | 400 V option model   | •      | •       | •       | •       | 8012-1197 |
| <b>Pt 100 temperature sensor</b>                       | in accordance with ASTM D5374, definition and protocol according to ambient temperature  | •      | •       | •       | •       | 8012-1197 |
|  | additional flexible Pt 100, interior, for displaying the temperature on the unit display   | •      | •       | •       | •       | 8012-1621 |

| Designation                          | Description   | FED 56 | FED 115 | FED 260 | FED 720 | Art. No.  |
|--------------------------------------|---|--------|---------|---------|---------|-----------|
| Viewing window and interior lighting | viewing window (triple insulating glass) in door, 240 x 240 mm, and 15 W interior |        |         |         |         |           |
|                                      | 120 V option model  | •      | –       | –       | –       | 8012-1703 |
|                                      | 230 V option model  | •      | –       | –       | –       | 8012-1701 |
|                                      | viewing window (triple insulating glass) in door, 300 x 480 mm, and 30 W interior |        |         |         |         |           |
|                                      | 208/400 V option model  | –      | –       | –       | •       | 8012-1832 |
|                                      | viewing window (triple insulating glass) in door, 370 x 370 mm, and 15 W interior |        |         |         |         |           |
|                                      | 120 V option model  | –      | •       | –       | –       | 8012-1707 |
|                                      | 230 V option model  | –      | •       | –       | –       | 8012-1705 |
|                                      | 240 V option model  | –      | –       | •       | –       | 8012-1711 |

## ORDERING INFORMATION ACCESSORIES

| Designation                     | Description   | FED 56 | FED 115 | FED 260 | FED 720 | Art. No.  |
|---------------------------------|---|--------|---------|---------|---------|-----------|
| APT-COM™ 4 BASIC-Edition        | for simple logging and documentation requirements with up to 5 networked units.<br>version 4, BASIC edition   | •      | •       | •       | •       | 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   | •      | •       | •       | •       | 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   | •      | •       | •       | •       | 9053-0040 |
| pH-neutral detergent            | concentrated, for gentle remove of residual contaminants; 1 kg  | •      | •       | •       | •       | 8012-2250 |
| Qualification documents         | 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     |        |         |         |         |           |
|                                 | Digital in PDF format   | •      | •       | •       | •       | 7057-0005 |
|                                 | Hard copy inside folder   | •      | •       | •       | •       | 7007-0005 |
| Rack                            |   | •      | –       | –       | –       | 8012-2038 |
|                                 |   | –      | •       | –       | –       | 8012-2040 |
|                                 |   | –      | –       | •       | –       | 8012-2042 |
|                                 |   | –      | –       | –       | •       | 8012-2044 |
|                                 |   | •      | –       | –       | –       | 8012-2085 |
|                                 |   | –      | •       | –       | –       | 8012-2168 |
|                                 |   | –      | –       | •       | –       | 8012-2169 |
|                                 |   | –      | –       | –       | •       | 8012-2170 |
| Rack, heavy load                | Stainless steel, max. load per rack 70 kg   | –      | –       | •       | –       | 8012-2184 |
|                                 |   | –      | –       | –       | •       | 8012-2185 |
| Rubber pads                     | set anti-slip feet  | •      | •       | •       | –       | 8012-2030 |

| Designation              | Description  | FED<br>56 | FED<br>115 | FED<br>260 | FED<br>720 | Art. No.  |
|--------------------------|--|-----------|------------|------------|------------|-----------|
| <b>Shelf, perforated</b> | Stainless steel  | •         | -          | -          | -          | 8012-2175 |
|                          |  | -         | •          | -          | -          | 8012-2176 |
|                          |  | -         | -          | •          | -          | 8012-2177 |
|                          |  | -         | -          | -          | •          | 8012-2178 |
| <b>Table on castors</b>  | stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm | •         | •          | -          | -          | 9051-0018 |
|                          | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm | -         | -          | •          | -          | 9051-0019 |

## Series FP Avantgarde.Line | with forced convection and program functions

A BINDER material test chamber with mechanical convection of the FP series provides reliably short drying times and particularly fast heating – even for chambers under full loads.



FP 115 model

### 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
- Advanced programming options

### MAIN FEATURES

- Temperature range: +10 °C above ambient temperature up to +300 °C
- High temperature accuracy thanks to APT.line™ technology
- Adjustable fan speed
- Controller with interval and real-time programming
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Units up to 115 liters are stackable
- Class 2 independent adjustable temperature safety device (DIN 12880) and class 3.1 independent temperature safety device (DIN 12880) with visual/acoustic alarm available for selection on the controller
- Ergonomic handle design
- Computer interface: Ethernet

### AVAILABLE SIZES

| Model  | Interior volume [L] | Online data sheets  |
|--------|---------------------|---|
| FP 56  | 60                  | › <a href="https://go2binder.com/en-FP56">go2binder.com/en-FP56</a>   |
| FP 115 | 116                 | › <a href="https://go2binder.com/en-FP115">go2binder.com/en-FP115</a> |
| FP 260 | 259                 | › <a href="https://go2binder.com/en-FP260">go2binder.com/en-FP260</a> |
| FP 720 | 741                 | › <a href="https://go2binder.com/en-FP720">go2binder.com/en-FP720</a> |

## OPTIONAL EQUIPMENT

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



### Viewing window and interior lighting

Viewing window in the door with a triple-glazed insulating glass and interior lighting for easy visibility of the samples.



### Shelf racks

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



### HEPA air filter

Particle filter on fresh air supply for unit; filter classification H14 (acc. to EN 1822-1:2009, > 99.995% at 0.3 µm).



### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

## TECHNICAL DATA

| Description  | FP 56 | FP 115 | FP 260 | FP 720 |
|--|-------|--------|--------|--------|
| <b>Measures</b>  |       |        |        |        |
| Interior volume [L]  | 60    | 116    | 259    | 741    |
| Net weight of the unit (empty) [kg]                          | 44    | 62     | 96     | 194    |
| Permitted load [kg]  | 70    | 150    | 270    | 315    |
| Load per rack [kg]   | 30    | 30     | 40     | 45     |
| Wall clearance back [mm]                                     | 160   | 160    | 160    | 160    |
| Wall clearance sidewise [mm]                                 | 100   | 100    | 100    | 100    |
| <b>Internal Dimensions</b>                                   |       |        |        |        |
| Width [mm]   | 400   | 550    | 650    | 1000   |
| Height [mm]  | 400   | 550    | 780    | 1300   |
| Depth [mm]   | 342   | 383    | 512    | 574    |
| <b>Housing dimensions not incl. fittings and connections</b> |       |        |        |        |
| Width net [mm]   | 560   | 710    | 810    | 1160   |
| Height net [mm]  | 622   | 732    | 962    | 1590   |
| Depth net [mm]   | 596   | 636    | 786    | 816    |
| <b>Performance Data Temperature</b>                          |       |        |        |        |
| Temperature range +10 °C above ambient temperature to [°C]   | 300   | 300    | 300    | –      |
| Temperature range +12 °C above ambient temperature to [°C]   | –     | –      | –      | 300    |
| Temperature variation at 150 °C [± K]                        | 1.4   | 1.4    | 1.7    | 2.4    |
| Temperature fluctuation at 150 °C [± K]                      | 0.4   | 0.3    | 0.4    | 0.6    |
| Heating-up time to 150 °C [min]                              | 15    | 19     | 19     | 25     |
| Recovery time after 30 seconds door open at 150 °C [min]     | 4     | 5      | 6      | 6      |
| <b>Tabellen</b>  |       |        |        |        |
| Air change (approx.) at 100 °C [x/h]                         | 80    | 32     | 9      | 5      |
| <b>Electrical data</b>                                       |       |        |        |        |
| Nominal power (version 120 V) [kW]                           | 1.2   | 1.4    | 2.5    | –      |
| Nominal power (version 208 V) [kW]                           | –     | –      | –      | 4.5    |
| Nominal power (version 230 V) [kW]                           | 1.2   | 1.4    | 2.5    | –      |
| Nominal power (version 400 V) [kW]                           | –     | –      | –      | 4.5    |
| <b>Fixtures</b>  |       |        |        |        |
| Number of shelves (std./max.)                                | 2/5   | 2/5    | 2/8    | 2/16   |

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | FP 56     | FP 115    | FP 260    | FP 720    |
|-------------------|--------------|-----------|-----------|-----------|-----------|
| 400 V 3~ 50/60 Hz | Standard     | –         | –         | –         | 9010-0366 |
| 230 V 1~ 50/60 Hz | Standard     | 9010-0363 | 9010-0364 | 9010-0365 | –         |
| 208 V 3~ 60 Hz    | Standard     | –         | –         | –         | 9010-0370 |
| 120 V 1~ 60 Hz    | Standard     | 9010-0367 | 9010-0368 | 9010-0369 | –         |

## ORDERING INFORMATION OPTIONS

| Designation                                 | Description  | FP 56  | FP 115 | FP 260 | FP 720 | Art. No.  |
|---|--|--|--------|--------|--------|-----------|
| <b>Access port with silicone plug</b>       | left   |  |        |        |        |           |
|   | 10 mm  | •  | •      | •      | •      | 8012-2198 |
|   | 30 mm  | •  | •      | •      | •      | 8012-2210 |
|   | 50 mm  | •  | •      | •      | •      | 8012-2213 |
|   | 100 mm   | –  | •      | •      | •      | 8012-2207 |
|   | right  |  |        |        |        |           |
|   | 10 mm  | •  | •      | •      | •      | 8012-2206 |
|   | 30 mm  | •  | •      | •      | •      | 8012-2212 |
|   | 50 mm  | •  | •      | •      | •      | 8012-2215 |
|   | 100 mm   | –  | •      | •      | •      | 8012-2209 |
|   | top  |  |        |        |        |           |
|   | 10 mm  | •  | •      | •      | •      | 8012-2199 |
|   | 30 mm  | •  | •      | •      | •      | 8012-2211 |
|   | 50 mm  | •  | •      | •      | •      | 8012-2214 |
|   | 100 mm   | •  | •      | •      | •      | 8012-2208 |
|   | <b>Analog output 4-20 mA</b>   | for temperature values (output not adjustable) | •      | •      | •      | •         |
| <b>Calibration certificate, expanded</b>    | for temperature; for extending the measurement in center of chamber to include another test temperature  | •  | •      | •      | •      | 8012-2231 |
| <b>Calibration certificate, temperature</b> | for temperature, measurement in center of chamber at specified temperature   | •  | •      | •      | •      | 8012-2227 |
|   | temperature measurement incl. certificate and 27 measuring points at specified temperature   | •  | •      | •      | •      | 8012-2229 |
|   | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature  | •  | •      | •      | •      | 8012-2228 |
|   | temperature measurement incl. certificate, 9 measuring points at specified temperature   | •  | •      | •      | •      | 8012-2230 |
| <b>Door gasket</b>                          | made of FKM, silicone-free   | •  | –      | –      | –      | 8012-2233 |
|   |  | –  | •      | –      | –      | 8012-2234 |
|   |  | –  | –      | •      | –      | 8012-2235 |
|   |  | –  | –      | –      | •      | 8012-2236 |
| <b>Door lock</b>                            | lockable door handle   | •  | •      | •      | –      | 8012-2237 |
|   |  | –  | –      | –      | •      | 8012-2238 |
| <b>Gas-tight option model</b>               | Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option                                     | •  | –      | –      | –      | 8012-2216 |
|   |  | –  | •      | –      | –      | 8012-2217 |
|   |  | –  | –      | •      | –      | 8012-2218 |
| <b>HEPA air filter</b>                      | On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm); not in conjunction with reinforced heating output, reinforced fan      | •  | –      | –      | –      | 8012-2219 |
|   |  | –  | •      | –      | –      | 8012-2220 |
|   |  | –  | –      | •      | –      | 8012-2221 |
|   |  | –  | –      | –      | •      | 8012-2222 |
| <b>Inert gas connection</b>                 | With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | •  | –      | –      | –      | 8012-2195 |
|   |  | –  | •      | –      | –      | 8012-2196 |
|   |  | –  | –      | •      | –      | 8012-2197 |
| <b>Inner chamber, reinforced</b>            | max. total load 170 kg   | –  | •      | –      | –      | 8012-2224 |
|   | max. total load 300 kg   | –  | –      | •      | –      | 8012-2225 |
|   | max. total load 350 kg   | –  | –      | –      | •      | 8012-2226 |
|   | max. total load 85 kg  | •  | –      | –      | –      | 8012-2223 |
| <b>Measurement of air exchange rate</b>     | in accordance with ASTM D5374, definition and protocol according to ambient temperature  | •  | •      | •      | •      | 8012-2232 |

| Designation                      | Description  | FP 56 | FP 115 | FP 260 | FP 720 | Art. No.  |
|----------------------------------|--|-------|--------|--------|--------|-----------|
| <b>Pt 100 temperature sensor</b> | additional flexible Pt 100, interior, for displaying the temperature on the unit display | •     | •      | •      | •      | 8012-2193 |

## ORDERING INFORMATION ACCESSORIES

| Designation                            | Description  | FP 56 | FP 115 | FP 260 | FP 720 | Art. No.  |
|--|--|-------|--------|--------|--------|-----------|
| <b>APT-COM™ 4 BASIC-Edition</b>        | for simple logging and documentation requirements with up to 5 networked units.<br>version 4, BASIC edition  | •     | •      | •      | •      | 9053-0039 |
| <b>APT-COM™ 4 GLP-Edition</b>          | 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  | •     | •      | •      | •      | 9053-0042 |
| <b>APT-COM™ 4 PROFESSIONAL-Edition</b> | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.<br>version 4, PROFESSIONAL edition  | •     | •      | •      | •      | 9053-0040 |
| <b>pH-neutral detergent</b>            | concentrated, for gentle remove of residual contaminants; 1 kg   | •     | •      | •      | •      | 8012-2250 |
| <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<br>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<br>Digital in PDF format     | •     | •      | •      | •      | 7057-0005 |
|  | Hard copy inside folder  | •     | •      | •      | •      | 7007-0005 |
|  |  |       | •      | –      | –      | –         |
| <b>Rack</b>                            | chrome plated  | –     | •      | –      | –      | 8012-2040 |
|  |  | –     | –      | •      | –      | 8012-2042 |
|  | stainless steel  | –     | –      | –      | •      | 8012-2044 |
|  |  | •     | –      | –      | –      | 8012-2085 |
|  |  | –     | •      | –      | –      | 8012-2168 |
|  |  | –     | –      | •      | –      | 8012-2169 |
|  |  | –     | –      | –      | •      | 8012-2170 |
| <b>Rack accessories</b>                | fasteners (1 set of 4) for additional security of racks  | •     | •      | •      | •      | 8012-0531 |
| <b>Rack, heavy load</b>                | Stainless steel, max. load per rack 70 kg  | –     | –      | •      | –      | 8012-2184 |
|  |  | –     | –      | –      | •      | 8012-2185 |
| <b>Rubber pads</b>                     | set anti-slip feet   | •     | •      | •      | –      | 8012-2030 |
|  |  | •     | –      | –      | –      | 8012-2175 |
| <b>Shelf, perforated</b>               | Stainless steel  | –     | •      | –      | –      | 8012-2176 |
|  |  | –     | –      | •      | –      | 8012-2177 |
|  |  | –     | –      | –      | •      | 8012-2178 |
| <b>Table on castors</b>                | stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm   | •     | •      | –      | –      | 9051-0018 |
|  | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm   | –     | –      | •      | –      | 9051-0019 |

# Drying and heating chambers Classic.Line

|                         |         |
|-------------------------|---------|
| Series E Classic.Line   | Page 36 |
| Series ED Classic.Line  | Page 40 |
| Series FD Classic.Line  | Page 45 |
| Series FED Classic.Line | Page 50 |
| Series M Classic.Line   | Page 55 |

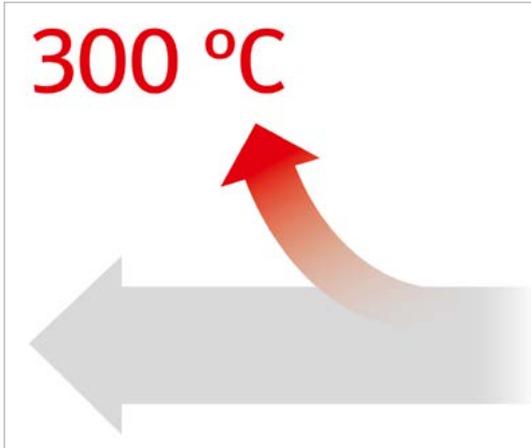
With natural or forced convection, all BINDER drying and heating chambers offer first-rate quality and process reliability. With its wide temperature range from 5 °C above ambient temperature to 300 °C, the heating chamber can be used in all applications. Short heating-up times and large power reserves are ideal for applications in science, research, and industry. The excellent thermal insulation also reduces operating costs. In its FP and M series, BINDER offers material test chambers with forced convection and customized programming.

## PRODUCT SELECTION DRYING AND HEATING CHAMBERS CLASSIC.LINE

| Features  | Series E Classic.Line<br>› Page 36 | Series ED Classic.Line<br>› Page 40 | Series FD Classic.Line<br>› Page 45 | Series FED Classic.Line<br>› Page 50 | Series M Classic.Line<br>› Page 55 |
|---|------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|
| <b>Model</b>  |                                    |                                     |                                     |                                      |                                    |
| Model 23  | –                                  | •                                   | •                                   | –                                    | –                                  |
| Model 28  | •                                  | –                                   | –                                   | –                                    | –                                  |
| Model 53  | –                                  | –                                   | –                                   | –                                    | •                                  |
| Model 115   | –                                  | –                                   | –                                   | –                                    | •                                  |
| Model 240   | –                                  | –                                   | –                                   | –                                    | •                                  |
| Model 400   | –                                  | •                                   | –                                   | •                                    | •                                  |
| Model 720   | –                                  | –                                   | –                                   | –                                    | •                                  |
| <b>General data</b>                                       |                                    |                                     |                                     |                                      |                                    |
| Temperature range [°C]                                    | 60...230                           | –                                   | –                                   | –                                    | –                                  |
| Temperature range +5 °C above ambient temperature to [°C] | –                                  | 300                                 | 300                                 | 300                                  | 300                                |

•Standard equipment

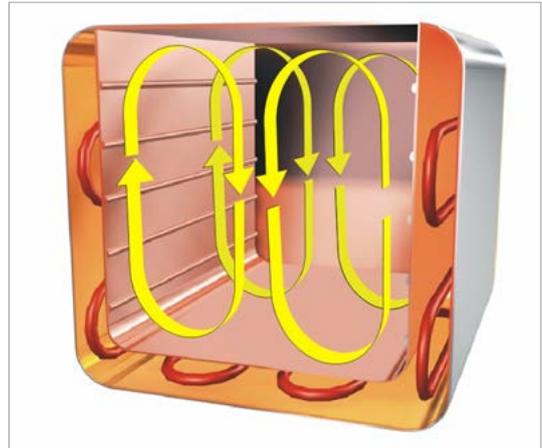
## ADVANTAGES AT A GLANCE



### **BROAD RANGE OF APPLICATIONS**

Series ED, FD, FED, M

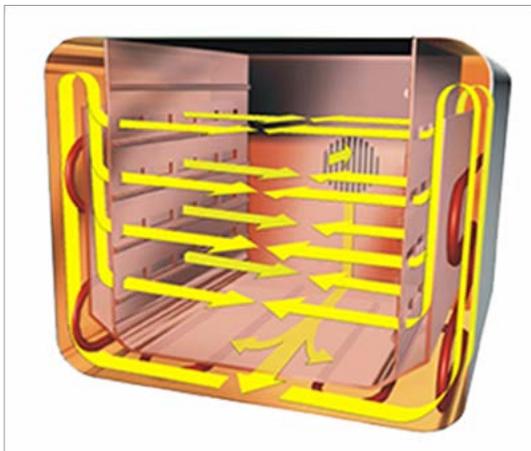
Many different applications can take advantage of the wide temperature range from 5 °C above ambient temperature to 300 °C. The FP and M series also impress with their adjustable air change rates and large power reserves.



### **HOMOGENEOUS TEMPERATURE CONDITIONS WITH NATURAL CONVECTION**

Series ED

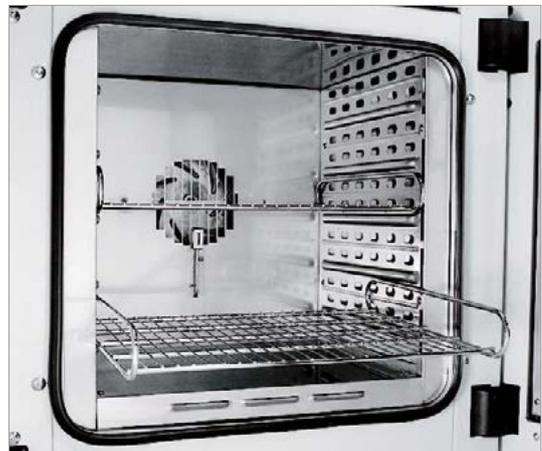
Gentle temperature distribution provided by the APT.line™ preheating chamber technology.



### **HOMOGENEOUS TEMPERATURE CONDITIONS WITH FORCED CONVECTION**

Series FD, FED, M

Long-term operational stability even under full load from the APT.line™ preheating chamber technology.



### **CONVENIENT WORK ENVIRONMENT**

Series E, FD, FED, M

BINDER interior concept: highlights rack with tilt protection, no permanent fixtures and stainless-steel inner chamber.

## Series E Classic.Line | with mechanical adjustment

With a BINDER E series heating oven, you obtain a reliable and powerful unit in a solid configuration at a very attractive price. This heating oven is preferred for tasks in basic research, as well as in human and veterinary medicine.



E 28 model

### 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

### MAIN FEATURES

- Temperature range: +60 °C to +230 °C
- Adjustable exhaust air flap
- Hydro-mechanical thermostat
- Class 1 temperature limitation device (Model E028-230V-T)
- Timer 0 – 120 min
- 2 chrome-plated racks

### AVAILABLE SIZES

| Model | Interior volume [L] | Online data sheets  |
|-------|---------------------|---|
| E 28  | 28                  | <a href="https://go2binder.com/en-E28-CL">go2binder.com/en-E28-CL</a> |

## OPTIONAL EQUIPMENT

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



### Viewing window and interior lighting

Viewing window in the door with interior lighting for easy samples viewing.



### Shelf racks

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

## TECHNICAL DATA

| Description  | E 28     |
|--|----------|
| <b>Measures</b>  |          |
| Interior volume [L]  | 28       |
| Net weight of the unit (empty) [kg]                          | 22       |
| Permitted load [kg]  | 25       |
| Load per rack [kg]   | 10       |
| Wall clearance back [mm]                                     | 160      |
| Wall clearance sidewise [mm]                                 | 100      |
| <b>Internal Dimensions</b>                                   |          |
| Width [mm]   | 400      |
| Height [mm]  | 280      |
| Depth [mm]   | 250      |
| <b>Housing dimensions not incl. fittings and connections</b> |          |
| Width net [mm]   | 580      |
| Height net [mm]  | 405      |
| Depth net [mm]   | 425      |
| <b>Performance Data Temperature</b>                          |          |
| Temperature range [°C]                                       | 60...230 |
| Heating-up time to 150 °C [min]                              | 36       |
| Recovery time after 30 seconds door open at 150 °C [min]     | 19       |
| <b>Electrical data</b>                                       |          |
| Nominal power (version 120 V) [kW]                           | 0.8      |
| Nominal power (version 230 V) [kW]                           | 0.8      |
| <b>Fixtures</b>  |          |
| Number of shelves (std./max.)                                | 2/4      |

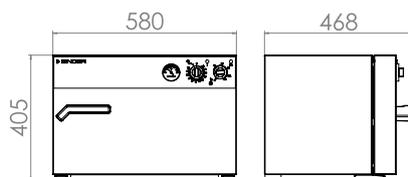
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | E 28      |
|-------------------|--------------|-----------|
| 230 V 1~ 50/60 Hz | Standard     | 9010-0001 |
| 120 V 1~ 60 Hz    | Standard     | 9010-0106 |

## DIMENSIONS incl. fittings and connections [mm]

E 28



## ORDERING INFORMATION OPTIONS

| Designation                                 | Description   | E<br>28 | Art. No.  |
|---|---|---------|-----------|
| <b>Calibration certificate, expanded</b>    | for temperature; for extending the measurement in center of chamber to include another test temperature | •       | 8012-1114 |
| <b>Calibration certificate, temperature</b> | for temperature, measurement in center of chamber at specified temperature                              | •       | 8012-1133 |

## ORDERING INFORMATION ACCESSORIES

| Designation                 | Description  | E<br>28 | Art. No.  |
|-----------------------------|--|---------|-----------|
| <b>pH-neutral detergent</b> | concentrated, for gentle remove of residual contaminants; 1 kg | •       | 8012-2250 |
| <b>Rack</b>                 | chrome plated  | •       | 8012-2032 |
| <b>Shelf, perforated</b>    | Stainless steel  | •       | 8012-2160 |

## Series ED Classic.Line | 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.



BD 400 model

### 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

### 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

### AVAILABLE SIZES

| Model  | Interior volume [L] | Online data sheets  |
|--------|---------------------|---|
| ED 23  | 20                  | › <a href="https://go2binder.com/en-ED23-CL">go2binder.com/en-ED23-CL</a>   |
| ED 400 | 400                 | › <a href="https://go2binder.com/en-ED400-CL">go2binder.com/en-ED400-CL</a> |

## OPTIONAL EQUIPMENT

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



### Viewing window and interior lighting

Viewing window in the door with interior lighting for easy samples viewing.



### Shelf racks

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

## TECHNICAL DATA

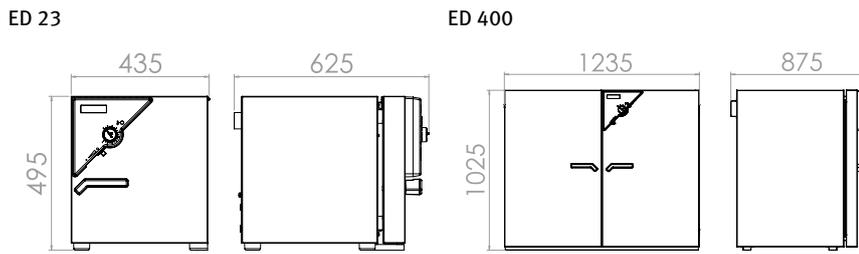
| Description  | ED 23 | ED 400 |
|--|-------|--------|
| <b>Measures</b>  |       |        |
| Interior volume [L]  | 20    | 400    |
| Net weight of the unit (empty) [kg]                          | 27    | 125    |
| Permitted load [kg]  | 25    | 90     |
| Load per rack [kg]   | 12    | 35     |
| Wall clearance back [mm]                                     | 100   | 160    |
| Wall clearance sidewise [mm]                                 | 100   | 100    |
| <b>Internal Dimensions</b>                                   |       |        |
| Width [mm]   | 222   | 1000   |
| Height [mm]  | 330   | 800    |
| Depth [mm]   | 300   | 520    |
| <b>Housing dimensions not incl. fittings and connections</b> |       |        |
| Width net [mm]   | 435   | 1235   |
| Height net [mm]  | 495   | 1025   |
| Depth net [mm]   | 520   | 765    |
| <b>Performance Data Temperature</b>                          |       |        |
| Temperature range +5 °C above ambient temperature to [°C]    | 300   | 300    |
| Temperature variation at 150 °C [± K]                        | 2.8   | 3      |
| Temperature fluctuation at 150 °C [± K]                      | 0.5   | 0.5    |
| Heating-up time to 150 °C [min]                              | 28    | 71     |
| Recovery time after 30 seconds door open at 150 °C [min]     | 5     | 31     |
| <b>Electrical data</b>                                       |       |        |
| Nominal power (version 120 V) [kW]                           | 0.8   | –      |
| Nominal power (version 208 V) [kW]                           | –     | 3.4    |
| Nominal power (version 230 V) [kW]                           | 0.8   | –      |
| Nominal power (version 400 V) [kW]                           | –     | 3.4    |
| <b>Fixtures</b>  |       |        |
| Number of shelves (std./max.)                                | 2/4   | 2/10   |

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | ED 23     | ED 400    |
|-------------------|--------------|-----------|-----------|
| 400 V 3~ 50/60 Hz | with RS 422  | –         | 9010-0075 |
| 230 V 1~ 50/60 Hz | Standard     | 9010-0190 | –         |
| 208 V 3~ 60 Hz    | with RS 422  | –         | 9010-0168 |
| 120 V 1~ 60 Hz    | Standard     | 9010-0192 | –         |

## DIMENSIONS incl. fittings and connections [mm]



## ORDERING INFORMATION OPTIONS

| Designation  | Description   | ED 23 | ED 400    | Art. No.  |
|--|---|-------|-----------|-----------|
| <b>Access port with silicone plug</b>                  | back  |       |           |           |
|  | 10 mm   | •     | •         | 8012-1282 |
|  | 30 mm   | •     | •         | 8012-0540 |
|  | 50 mm   | •     | •         | 8012-0546 |
|  | left  |       |           |           |
|  | 10 mm   | •     | •         | 8012-1275 |
|  | 30 mm   | •     | •         | 8012-0537 |
|  | 50 mm   | •     | •         | 8012-0542 |
|  | 100 mm  | –     | •         | 8012-0722 |
|  | right   |       |           |           |
|  | 10 mm   | •     | •         | 8012-1268 |
|  | 30 mm   | •     | •         | 8012-0536 |
|  | 50 mm   | •     | •         | 8012-0541 |
|  | 100 mm  | –     | •         | 8012-0721 |
|  | top   |       |           |           |
|  | 10 mm   | •     | •         | 8012-1262 |
| 30 mm  | •   | •     | 8012-0539 |           |
| 50 mm  | •   | •     | 8012-0545 |           |
| 100 mm   | •   | •     | 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 |
|  |   | –     | •         | 8012-0497 |

| Designation                                 | Description   | ED 23 | ED 400 | Art. No.  |
|---|---|-------|--------|-----------|
| <b>Door lock</b>                            | lockable door handle  | •     | –      | 8012-1246 |
|   |   | –     | •      | 8012-1253 |
| <b>Inner chamber, reinforced</b>            | including 2 reinforced racks  | –     | •      | 8012-1730 |
| <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 |
|   | viewing window in each door, 290 x 470 mm, and 30 W interior lighting                       |       |        |           |
|   | 208 V option model  | –     | •      | 8012-0271 |
|   | 400 V option model  | –     | •      | 8012-0269 |

## ORDERING INFORMATION ACCESSORIES

| Designation                            | Description   | ED 23 | ED 400 | Art. No.  |
|--|---|-------|--------|-----------|
| <b>APT-COM™ 4 BASIC-Edition</b>        | for simple logging and documentation requirements with up to 5 networked units.<br>version 4, BASIC edition   | –     | •      | 9053-0039 |
| <b>APT-COM™ 4 GLP-Edition</b>          | 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   | –     | •      | 9053-0042 |
| <b>APT-COM™ 4 PROFESSIONAL-Edition</b> | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.<br>version 4, PROFESSIONAL edition   | –     | •      | 9053-0040 |
| <b>pH-neutral detergent</b>            | concentrated, for gentle remove of residual contaminants; 1 kg  | •     | •      | 8012-2250 |
| <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     |       |        |           |
|  | Digital in PDF format   | •     | •      | 7057-0005 |
|  | Hard copy inside folder   | •     | •      | 7007-0005 |
| <b>Rack</b>                            | chrome plated   | •     | –      | 8012-2031 |
|  |   | –     | •      | 8012-2036 |
|  | stainless steel   | •     | –      | 8012-2046 |
|  |   | –     | •      | 8012-2159 |
| <b>Rubber pads</b>                     | set anti-slip feet  | •     | –      | 8012-2030 |
| <b>Shelf, perforated</b>               | Stainless steel   | –     | •      | 8012-2162 |
| <b>Table on castors</b>                | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm  | –     | •      | 9051-0019 |

## Series FD 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.



FD 23 model

### 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

### MAIN FEATURES

- Temperature range: +5 °C above ambient temperature 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

### AVAILABLE SIZES

| Model | Interior volume [L] | Online data sheets  |
|-------|---------------------|---|
| FD 23 | 20                  | › <a href="https://go2binder.com/en-FD23-CL">go2binder.com/en-FD23-CL</a> |



Find all details online: [go2binder.com/en-FD](https://go2binder.com/en-FD)

## OPTIONAL EQUIPMENT

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**Access port with silicone plug**

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



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**Viewing window and interior lighting**

Viewing window in the door with interior lighting for easy samples viewing.



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**Shelf racks**

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



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**Services**

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



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**BINDER INDIVIDUAL**

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



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► All extras online [go2binder.com/en-options](http://go2binder.com/en-options)

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## TECHNICAL DATA

| Description  | FD 23 |
|--|-------|
| <b>Measures</b>  |       |
| Interior volume [L]  | 20    |
| Net weight of the unit (empty) [kg]                          | 27    |
| Permitted load [kg]  | 25    |
| Load per rack [kg]   | 12    |
| Wall clearance back [mm]                                     | 160   |
| Wall clearance sidewise [mm]                                 | 100   |
| <b>Internal Dimensions</b>                                   |       |
| Width [mm]   | 222   |
| Height [mm]  | 330   |
| Depth [mm]   | 300   |
| <b>Housing dimensions not incl. fittings and connections</b> |       |
| Width net [mm]   | 435   |
| Height net [mm]  | 495   |
| Depth net [mm]   | 520   |
| <b>Performance Data Temperature</b>                          |       |
| Temperature range +5 °C above ambient temperature to [°C]    | 300   |
| Temperature variation at 150 °C [± K]                        | 2.5   |
| Temperature fluctuation at 150 °C [± K]                      | 0.3   |
| Heating-up time to 150 °C [min]                              | 25    |
| Recovery time after 30 seconds door open at 150 °C [min]     | 6     |
| <b>Electrical data</b>                                       |       |
| Nominal power (version 120 V) [kW]                           | 0.8   |
| Nominal power (version 230 V) [kW]                           | 0.8   |
| <b>Fixtures</b>  |       |
| Number of shelves (std./max.)                                | 2/4   |

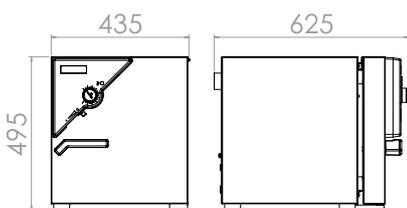
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | FD 23     |
|-------------------|--------------|-----------|
| 230 V 1~ 50/60 Hz | Standard     | 9010-0194 |
| 120 V 1~ 60 Hz    | Standard     | 9010-0196 |

## DIMENSIONS incl. fittings and connections [mm]

FD 23



## ORDERING INFORMATION OPTIONS

| Designation  | Description   | FD 23   | Art. No.  |
|--|---|---|-----------|
| <b>Access port with silicone plug</b>                  | back  |   |           |
|  | 10 mm   | •   | 8012-1283 |
|  | left  |   |           |
|  | 10 mm   | •   | 8012-1276 |
|  | 30 mm   | •   | 8012-1359 |
|  | 50 mm   | •   | 8012-1376 |
|  | right   |   |           |
|  | 10 mm   | •   | 8012-1269 |
|  | 30 mm   | •   | 8012-1354 |
|  | 50 mm   | •   | 8012-1372 |
|  | top   |   |           |
|  | 10 mm   | •   | 8012-1263 |
|  | 30 mm   | •   | 8012-1364 |
|  | 50 mm   | •   | 8012-1380 |
|  | <b>Alarm function for overheating</b>   | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device |           |
| 120 V option model                                     |   | •   | 8012-1304 |
| 230 V option model                                     |   | •   | 8012-1300 |
| <b>Analog output 4-20 mA</b>                           | for temperature values (output not adjustable)  | •   | 8012-0431 |
| <b>Calibration certificate, expanded</b>               | for temperature; for extending the measurement in center of chamber to include another test temperature | •   | 8012-1116 |
|  | 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 |
| <b>Calibration certificate, temperature</b>            | temperature measurement incl. certificate, 9 measuring points at specified temperature                  | •   | 8012-1552 |
|  |   |   |           |
| <b>Class 3.1 independent temperature safety device</b> | with visual alarm (DIN 12880)   | •   | 8012-1147 |
| <b>Door gasket</b>                                     | made of FKM, silicone-free  | •   | 8012-1306 |
| <b>Door lock</b>                                       | lockable door handle  | •   | 8012-1247 |
| <b>Measurement of air exchange rate</b>                | in accordance with ASTM D5374, definition and protocol according to ambient temperature                 | •   | 8012-1195 |
| <b>Pt 100 temperature sensor</b>                       | additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)             | •   | 8012-1174 |
| <b>Viewing window and interior lighting</b>            | viewing window in door, 180 x 180 mm, and 15 W interior lighting  |   |           |
|  | 120 V option model  | •   | 8012-1260 |
|  | 230 V option model  | •   | 8012-1259 |

## ORDERING INFORMATION ACCESSORIES

| Designation                 | Description  | FD 23 | Art. No.  |
|-----------------------------|--|-------|-----------|
| <b>pH-neutral detergent</b> | concentrated, for gentle remove of residual contaminants; 1 kg | •     | 8012-2250 |

| <b>Designation</b>             | <b>Description</b>  | <b>FD<br/>23</b> | <b>Art. No.</b> |
|--------------------------------|---|------------------|-----------------|
| <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>Rack accessories</b>        | fasteners (1 set of 4) for additional security of racks   | •                | 8012-0531       |
| <b>Shelf, perforated</b>       | Stainless steel   | •                | 8012-2164       |

## Series FED Classic.Line | with forced convection and enhanced timer functions

BINDER heating chambers of the FED series provide almost unlimited capacity and are particularly adaptable. With advanced timing functions and a adjustable fan, temperature and convection conditions are easily controlled.



BF 400 model

### 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

### MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Adjustable exhaust air flap
- Controller with expanded timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

### AVAILABLE SIZES

| Model   | Interior volume [L] | Online data sheets  |
|---------|---------------------|---|
| FED 400 | 400                 | › <a href="https://go2binder.com/en-FED400-CL">go2binder.com/en-FED400-CL</a> |

## OPTIONAL EQUIPMENT

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



### Viewing window and interior lighting

Viewing window in the door with interior lighting for easy samples viewing.



### Shelf racks

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

## TECHNICAL DATA

| Description  | FED 400 |
|--|---------|
| <b>Measures</b>  |         |
| Interior volume [L]  | 400     |
| Net weight of the unit (empty) [kg]                          | 145     |
| Permitted load [kg]  | 90      |
| Load per rack [kg]   | 35      |
| Wall clearance back [mm]                                     | 160     |
| Wall clearance sidewise [mm]                                 | 100     |
| <b>Internal Dimensions</b>                                   |         |
| Width [mm]   | 1000    |
| Height [mm]  | 800     |
| Depth [mm]   | 510     |
| <b>Housing dimensions not incl. fittings and connections</b> |         |
| Width net [mm]   | 1235    |
| Height net [mm]  | 1025    |
| Depth net [mm]   | 765     |
| <b>Performance Data Temperature</b>                          |         |
| Temperature range +5 °C above ambient temperature to [°C]    | 300     |
| Temperature variation at 150 °C [± K]                        | 3.8     |
| Temperature fluctuation at 150 °C [± K]                      | 0.7     |
| Heating-up time to 150 °C [min]                              | 29      |
| Recovery time after 30 seconds door open at 150 °C [min]     | 6       |
| <b>Electrical data</b>                                       |         |
| Nominal power (version 208 V) [kW]                           | 3.4     |
| Nominal power (version 400 V) [kW]                           | 3.4     |
| <b>Fixtures</b>  |         |
| Number of shelves (std./max.)                                | 2/10    |

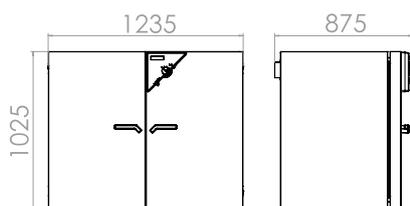
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | FED 400   |
|-------------------|--------------|-----------|
| 400 V 3~ 50/60 Hz | Standard     | 9010-0216 |
| 208 V 3~ 60 Hz    | Standard     | 9010-0217 |

## DIMENSIONS incl. fittings and connections [mm]

FED 400



## ORDERING INFORMATION OPTIONS

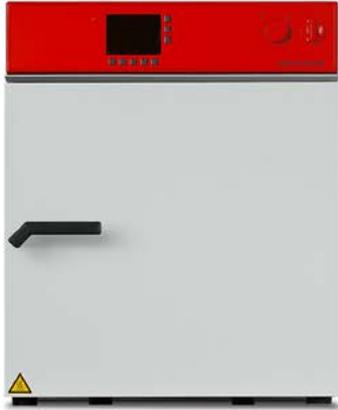
| Designation  | Description   | FED 400   | Art. No.  |
|--|---|-----------|-----------|
| <b>Access port with silicone plug</b>                  | back  |           |           |
|  | 10 mm   | •         | 8012-1285 |
|  | 30 mm   | •         | 8012-1369 |
|  | 50 mm   | •         | 8012-1385 |
|  | left  |           |           |
|  | 10 mm   | •         | 8012-1278 |
|  | 30 mm   | •         | 8012-1361 |
|  | 50 mm   | •         | 8012-1377 |
|  | 100 mm  | •         | 8012-1509 |
|  | right   |           |           |
|  | 10 mm   | •         | 8012-1271 |
|  | 30 mm   | •         | 8012-1356 |
|  | 50 mm   | •         | 8012-1373 |
|  | 100 mm  | •         | 8012-1506 |
|  | top   |           |           |
|  | 10 mm   | •         | 8012-1264 |
| 30 mm  | •   | 8012-1365 |           |
| 50 mm  | •   | 8012-1381 |           |
| 100 mm   | •   | 8012-1388 |           |
| <b>Alarm function for overheating</b>                  | Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device   |           |           |
|  | 208 V option model  | •         | 8012-1305 |
|  | 400 V option model  | •         | 8012-1301 |
| <b>Analog output 4-20 mA</b>                           | for temperature values (output not adjustable)  | •         | 8012-0433 |
| <b>Calibration certificate, expanded</b>               | for temperature; for extending the measurement in center of chamber to include another test temperature   | •         | 8012-1118 |
|  | for temperature, measurement in center of chamber at specified temperature  | •         | 8012-1137 |
|  | temperature measurement incl. certificate and 27 measuring points at specified temperature  | •         | 8012-1596 |
|  | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature   | •         | 8012-1575 |
|  | temperature measurement incl. certificate, 9 measuring points at specified temperature  | •         | 8012-1554 |
| <b>Class 3.1 independent temperature safety device</b> | with visual alarm (DIN 12880)   | •         | 8012-1148 |
| <b>Door gasket</b>                                     | made of FKM, silicone-free  | •         | 8012-1310 |
| <b>Door lock</b>                                       | lockable door handle  | •         | 8012-1254 |
| <b>Fan, reinforced</b>                                 | to increase air change rates  |           |           |
|  | 400 V option model  | •         | 8012-0200 |
| <b>HEPA air filter</b>                                 | On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm); not in conjunction with reinforced heating output, reinforced fan | •         | 8012-0076 |
| <b>Inner chamber, reinforced</b>                       | including 2 reinforced racks  | •         | 8012-0339 |
| <b>Measurement of air exchange rate</b>                | in accordance with ASTM D5374, definition and protocol according to ambient temperature   | •         | 8012-1197 |
| <b>Pt 100 temperature sensor</b>                       | additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)   | •         | 8012-1176 |
| <b>Viewing window and interior lighting</b>            | viewing window in each door, 290 x 470 mm, and 30 W interior lighting   |           |           |
|  | 208 V option model  | •         | 8012-1241 |
|  | 400 V option model  | •         | 8012-1239 |

## ORDERING INFORMATION ACCESSORIES

| Designation                            | Description  | FED 400 | Art. No.  |
|--|--|---------|-----------|
| <b>APT-COM™ 4 BASIC-Edition</b>        | for simple logging and documentation requirements with up to 5 networked units.<br>version 4, BASIC edition  | •       | 9053-0039 |
| <b>APT-COM™ 4 GLP-Edition</b>          | 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  | •       | 9053-0042 |
| <b>APT-COM™ 4 PROFESSIONAL-Edition</b> | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.<br>version 4, PROFESSIONAL edition  | •       | 9053-0040 |
| <b>pH-neutral detergent</b>            | concentrated, for gentle remove of residual contaminants; 1 kg   | •       | 8012-2250 |
| <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<br>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<br>Digital in PDF format     | •       | 7057-0005 |
|  | Hard copy inside folder  | •       | 7007-0005 |
| <b>Rack</b>                            | chrome plated  | •       | 8012-2036 |
|  | stainless steel  | •       | 8012-2159 |
| <b>Rack accessories</b>                | fasteners (1 set of 4) for additional security of racks  | •       | 8012-0531 |
| <b>Rack, reinforced</b>                | stainless steel, with fasteners (1 set of 4)   | •       | 8012-0346 |
| <b>Shelf, perforated</b>               | Stainless steel  | •       | 8012-2162 |
| <b>Table on castors</b>                | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm   | •       | 9051-0019 |

## Series M Classic.Line | with forced convection and advanced program functions

With a maximum of 300 °C and various programming options the M series material test chambers are ideal for material and aging tests. With a high air flow, the powerful fans ensure rapid heating.



M 53 model

### 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
- Advanced programming options

### MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Program-controlled ventilation flap
- Color LCD controller with time-segment programming
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

### AVAILABLE SIZES

| Model | Interior volume [L] | Online data sheets  |
|-------|---------------------|---|
| M 53  | 53                  | › <a href="https://go2binder.com/en-M53-CL">go2binder.com/en-M53-CL</a>   |
| M 115 | 115                 | › <a href="https://go2binder.com/en-M115-CL">go2binder.com/en-M115-CL</a> |
| M 240 | 240                 | › <a href="https://go2binder.com/en-M240-CL">go2binder.com/en-M240-CL</a> |
| M 400 | 400                 | › <a href="https://go2binder.com/en-M400-CL">go2binder.com/en-M400-CL</a> |
| M 720 | 720                 | › <a href="https://go2binder.com/en-M720-CL">go2binder.com/en-M720-CL</a> |



Find all details online: [go2binder.com/en-M](https://go2binder.com/en-M)

## OPTIONAL EQUIPMENT

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**Access port with silicone plug**

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



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**Viewing window and interior lighting**

Viewing window in the door with interior lighting for easy samples viewing.



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**Shelf racks**

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.



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**Services**

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



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**BINDER INDIVIDUAL**

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.



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► All extras online [go2binder.com/en-options](http://go2binder.com/en-options)

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## TECHNICAL DATA

| Description  | M 53 | M 115 | M 240 | M 400 | M 720 |
|--|------|-------|-------|-------|-------|
| <b>Measures</b>  |      |       |       |       |       |
| Interior volume [L]  | 53   | 115   | 240   | 400   | 720   |
| Net weight of the unit (empty) [kg]                          | 61   | 89    | 131   | 173   | 203   |
| Permitted load [kg]  | 40   | 50    | 70    | 90    | 120   |
| Load per rack [kg]   | 15   | 20    | 30    | 35    | 45    |
| Wall clearance back [mm]                                     | 160  | 160   | 160   | 160   | 160   |
| Wall clearance sidewise [mm]                                 | 100  | 100   | 100   | 100   | 100   |
| <b>Internal Dimensions</b>                                   |      |       |       |       |       |
| Width [mm]   | 400  | 600   | 800   | 1000  | 1000  |
| Height [mm]  | 400  | 480   | 600   | 800   | 1200  |
| Depth [mm]   | 340  | 410   | 510   | 510   | 610   |
| <b>Housing dimensions not incl. fittings and connections</b> |      |       |       |       |       |
| Width net [mm]   | 635  | 835   | 1035  | 1235  | 1235  |
| Height net [mm]  | 780  | 865   | 985   | 1190  | 1690  |
| Depth net [mm]   | 575  | 645   | 745   | 795   | 865   |
| <b>Performance Data Temperature</b>                          |      |       |       |       |       |
| Temperature range +5 °C above ambient temperature to [°C]    | 300  | 300   | 300   | 300   | 300   |
| Temperature variation at 150 °C [± K]                        | 1.3  | 2.5   | 1.5   | 1.5   | 1.9   |
| Temperature fluctuation at 150 °C [± K]                      | 0.3  | 0.3   | 0.3   | 0.3   | 0.3   |
| Heating-up time to 150 °C [min]                              | 15   | 16    | 19    | 18    | 21    |
| Recovery time after 30 seconds door open at 150 °C [min]     | 3    | 3     | 3     | 3     | 3     |
| <b>Tabellen</b>  |      |       |       |       |       |
| Air change (approx.) at 150 °C [x/h]                         | 192  | 96    | 60    | 54    | 36    |
| <b>Electrical data</b>                                       |      |       |       |       |       |
| Nominal power (version 230 V) [kW]                           | 1.2  | 1.6   | 2.7   | –     | –     |
| Nominal power (version 400 V) [kW]                           | –    | –     | –     | 3.4   | 5     |
| <b>Fixtures</b>  |      |       |       |       |       |
| Number of shelves (std./max.)                                | 2/5  | 2/6   | 2/7   | 2/10  | 2/16  |

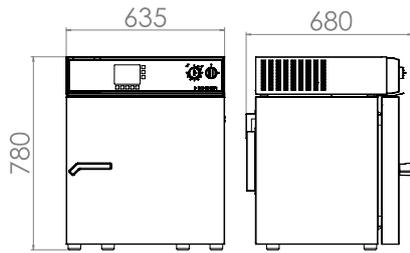
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

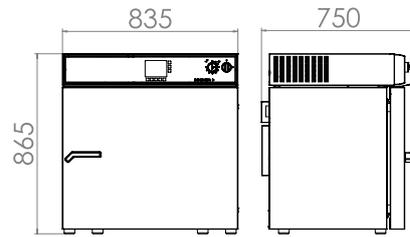
| Voltage           | Option model | M 53      | M 115     | M 240     | M 400     | M 720     |
|-------------------|--------------|-----------|-----------|-----------|-----------|-----------|
| 400 V 3~ 50/60 Hz | Standard     | –         | –         | –         | 9010-0204 | 9010-0205 |
| 230 V 1~ 50/60 Hz | Standard     | 9010-0201 | 9010-0202 | 9010-0203 | –         | –         |

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

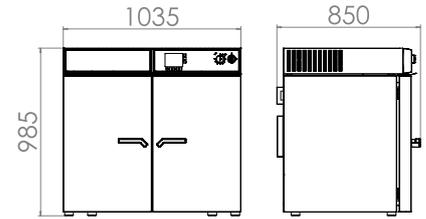
M 53



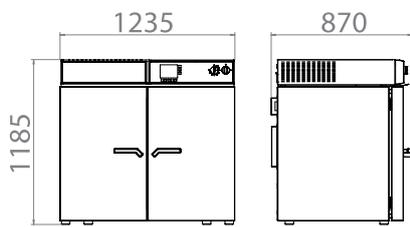
M 115



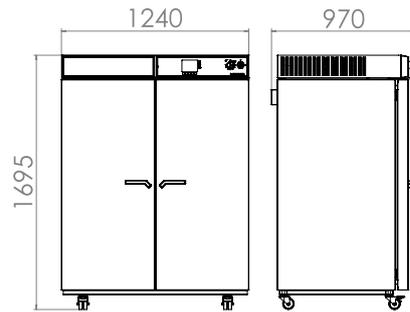
M 240



M 400



M 720



**ORDERING INFORMATION OPTIONS**

| Designation                              | Description   | M  | M   | M   | M   | M         | Art. No.  |
|--|---|----|-----|-----|-----|-----------|-----------|
|  |   | 53 | 115 | 240 | 400 | 720       |           |
| Access port with silicone plug           | back  |    |     |     |     |           |           |
|  | 10 mm   | •  | •   | •   | •   | •         | 8012-1287 |
|  | 30 mm   | •  | •   | •   | •   | •         | 8012-1371 |
|  | 50 mm   | •  | •   | •   | •   | •         | 8012-1387 |
|  | left  |    |     |     |     |           |           |
|  | 10 mm   | •  | •   | •   | •   | •         | 8012-1280 |
|  | 30 mm   | •  | •   | •   | •   | •         | 8012-1363 |
|  | 50 mm   | •  | •   | •   | •   | •         | 8012-1379 |
|  | 100 mm  | •  | •   | •   | •   | •         | 8012-1511 |
|  | right   |    |     |     |     |           |           |
|  | 10 mm   | •  | •   | •   | •   | •         | 8012-1273 |
|  | 30 mm   | •  | •   | •   | •   | •         | 8012-1358 |
|  | 50 mm   | •  | •   | •   | •   | •         | 8012-1375 |
|  | 100 mm  | •  | •   | •   | •   | •         | 8012-1508 |
|  | top   |    |     |     |     |           |           |
|  | 10 mm   | •  | •   | •   | •   | •         | 8012-1266 |
| 30 mm                                    | •   | •  | •   | •   | •   | 8012-1367 |           |
| 50 mm                                    | •   | •  | •   | •   | •   | 8012-1383 |           |
| <b>Analog output 4-20 mA</b>             | for temperature values (output not adjustable)  | •  | •   | •   | •   | •         | 8012-0480 |
| <b>Calibration certificate, expanded</b> | for temperature; for extending the measurement in center of chamber to include another test temperature | •  | •   | •   | •   | •         | 8012-1123 |

| Designation   | Description   | M 53 | M 115 | M 240 | M 400 | M 720     | Art. No.  |
|---|---|------|-------|-------|-------|-----------|-----------|
| <b>Calibration certificate, temperature</b>                           | for temperature, measurement in center of chamber at specified temperature  | •    | •     | •     | •     | •         | 8012-1142 |
|   | temperature measurement incl. certificate and 27 measuring points at specified temperature  | •    | •     | •     | •     | •         | 8012-1601 |
|   | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature   | •    | •     | •     | •     | •         | 8012-1580 |
|   | temperature measurement incl. certificate, 9 measuring points at specified temperature  | •    | •     | •     | •     | •         | 8012-1559 |
| <b>Door gasket</b>  | made of FKM, silicone-free  | •    | –     | –     | –     | –         | 8012-1307 |
|   |   | –    | •     | –     | –     | –         | 8012-1308 |
|   |   | –    | –     | •     | –     | –         | 8012-1309 |
|   |   | –    | –     | –     | •     | –         | 8012-1312 |
|   |   | –    | –     | –     | –     | •         | 8012-1315 |
| <b>Door lock</b>  | lockable door handle  | •    | •     | –     | –     | –         | 8012-1251 |
|   |   | –    | –     | •     | •     | •         | 8012-1256 |
| <b>Gas-tight option model</b>   | Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option  | •    | •     | –     | –     | –         | 8012-0181 |
| <b>HEPA air filter</b>  | On fresh air supply for unit; filter classification H14 (acc. to EN 1822-1:2009, > 99.995% at 0.3 µm); not in conjunction with reinforced heating output, reinforced fan              | •    | •     | •     | •     | •         | 8012-0222 |
| <b>Inert gas connection</b>   | with gas inlet and outlet, Ø 10 mm, incl. additional measures to provide the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | •    | •     | –     | –     | –         | 8012-1545 |
| <b>Inner chamber, reinforced</b>                                      | including 2 reinforced racks  | –    | –     | •     | –     | –         | 8012-0341 |
|   | max. total load 250 kg  | –    | –     | –     | •     | –         | 8012-0342 |
|   |   | –    | –     | –     | –     | •         | 8012-0343 |
| <b>Lockable controller keyboard</b>                                   | Lockable controller keyboard with key-operated switch   | •    | •     | •     | •     | •         | 8012-0529 |
| <b>Measurement of air exchange rate</b>                               | in accordance with ASTM D5374, definition and protocol according to ambient temperature   | •    | •     | •     | •     | •         | 8012-1199 |
| <b>Pt 100 temperature sensor</b>                                      | additional flexible Pt 100, interior, for displaying the temperature on the unit display  | •    | •     | •     | •     | •         | 8012-0334 |
| <b>Viewing window and interior lighting</b>                           | viewing window in door, 230 x 230 mm, and 15 W interior lighting  | •    | –     | –     | –     | –         | 8012-0055 |
|   | 230 V option model  |      |       |       |       |           |           |
|   | viewing window in door, 320 x 260 mm, and 15 W interior lighting  | –    | •     | –     | –     | –         | 8012-0057 |
|   | 230 V option model  |      |       |       |       |           |           |
|   | viewing window in each door, 290 x 470 mm, and 30 W interior lighting   | –    | –     | –     | •     | –         | 8012-0061 |
|   | 400 V option model  |      |       |       |       |           |           |
| –   | –   | –    | –     | •     | –     | 8012-0063 |           |
| viewing window in each door, 350 x 240 mm, and 30 W interior lighting | –   | –    | •     | –     | –     | 8012-0059 |           |
| 230 V option model  |   |      |       |       |       |           |           |

## ORDERING INFORMATION ACCESSORIES

| Designation                            | Description   | M<br>53                 | M<br>115 | M<br>240 | M<br>400 | M<br>720 | Art. No.  |           |
|--|---|-------------------------|----------|----------|----------|----------|-----------|-----------|
| <b>APT-COM™ 4 BA-SIC-Edition</b>       | for simple logging and documentation requirements with up to 5 networked units.   |                         |          |          |          |          |           |           |
|  | version 4, BASIC edition  | •                       | •        | •        | •        | •        | 9053-0039 |           |
| <b>APT-COM™ 4 GLP-Edition</b>          | 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.   |                         |          |          |          |          |           |           |
|  | version 4, GLP edition  | •                       | •        | •        | •        | •        | 9053-0042 |           |
| <b>APT-COM™ 4 PROFESSIONAL-Edition</b> | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.  |                         |          |          |          |          |           |           |
|  | version 4, PROFESSIONAL edition   | •                       | •        | •        | •        | •        | 9053-0040 |           |
| <b>Base</b>                            | the base equipped with casters is used for the secure positioning and leveling of a BINDER drying and heating chamber   | –                       | •        | –        | –        | –        | 9051-0033 |           |
|  |   | –                       | –        | •        | –        | –        | 9051-0034 |           |
| <b>pH-neutral detergent</b>            | concentrated, for gentle remove of residual contaminants; 1 kg  | •                       | •        | •        | •        | •        | 8012-2250 |           |
| <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     | Digital in PDF format   | •        | •        | •        | •        | •         | 7057-0005 |
|  |   | Hard copy inside folder | •        | •        | •        | •        | •         | 7007-0005 |
|  |   |                         | •        | –        | –        | –        | –         | 8012-2033 |
| <b>Rack</b>                            | chrome plated   | –                       | •        | –        | –        | –        | 8012-2034 |           |
|  |   | –                       | –        | •        | –        | –        | 8012-2035 |           |
|  |   | –                       | –        | –        | •        | –        | 8012-2036 |           |
|  |   | –                       | –        | –        | –        | •        | 8012-2037 |           |
|  |   | •                       | –        | –        | –        | –        | 8012-2047 |           |
|  | stainless steel   | –                       | •        | –        | –        | –        | 8012-2048 |           |
|  |   | –                       | –        | •        | –        | –        | 8012-2080 |           |
|  |   | –                       | –        | –        | •        | –        | 8012-2159 |           |
|  |   | –                       | –        | –        | –        | •        | 8012-2082 |           |
|  |   | •                       | •        | •        | •        | •        | 8012-0531 |           |
| <b>Rack accessories</b>                | fasteners (1 set of 4) for additional security of racks   | •                       | •        | •        | •        | •        | 8012-0531 |           |
|  |   | –                       | –        | •        | –        | –        | 8012-0345 |           |
| <b>Rack, reinforced</b>                | stainless steel, with fasteners (1 set of 4)  | –                       | –        | –        | •        | –        | 8012-0346 |           |
|  |   | –                       | –        | –        | –        | •        | 8012-0374 |           |
| <b>Rubber pads</b>                     | set anti-slip feet  | •                       | •        | •        | •        | –        | 8012-2030 |           |
|  |   | •                       | –        | –        | –        | –        | 8012-2083 |           |
| <b>Shelf, perforated</b>               | Stainless steel   | –                       | •        | –        | –        | –        | 8012-2161 |           |
|  |   | –                       | –        | •        | –        | –        | 8012-2084 |           |
|  |   | –                       | –        | –        | •        | –        | 8012-2162 |           |
|  |   | –                       | –        | –        | –        | •        | 8012-2081 |           |
|  |   | •                       | •        | –        | –        | –        | 9051-0018 |           |
| <b>Table on castors</b>                | stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm  | •                       | •        | –        | –        | –        | 9051-0018 |           |
|  | stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm  | –                       | –        | •        | •        | –        | 9051-0019 |           |

# Drying and heating chambers Solid.Line

Series ED-S Solid.Line

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Series FD-S Solid.Line

Page 70

With its new Solid.Line range, BINDER is expanding its product portfolio of drying and heating chambers, incubators, and constant climate chambers. This new line embodies solid product design with great value for money. The new Solid.Line is the ideal addition to BINDER's popular premium products, thus complementing the entire product range with BINDER's quality guarantee – Made in Germany.

## PRODUCT SELECTION DRYING AND HEATING CHAMBERS SOLID.LINE

| Features   | Series ED-S Solid.Line<br><small>› Page 66</small> | Series FD-S Solid.Line<br><small>› Page 70</small> |
|--|--|--|
| <b>Model</b>   |  |  |
| Model 56   | •  | •  |
| Model 115  | •  | •  |
| <b>General data</b>  |  |  |
| Temperature range +7 °C above ambient temperature to [°C]  | 250  | –  |
| Temperature range +10 °C above ambient temperature to [°C] | –  | 250  |
| •Standard equipment  |  |  |

## ADVANTAGES AT A GLANCE



### **EASY OPERATION OF THE UNIT**

Series ED-S, FD-S

Using controller with digital display in °C and °F.



### **ADJUSTABLE EXHAUST AIR FLAP ABOVE THE UNIT**

Series ED-S, FD-S

For setting the air change rates.



### **COMPLETELY HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series FD-S

This feature provides excellent spatial and temporal temperature accuracy with the all-new generation of APT.line™ technology.

## Series ED-S Solid.Line | with natural convection

The new products in the Solid.Line impress with their tried-and-tested BINDER quality and reliability. They are suited to drying and heating. The attributes of the Solid.Line are geared towards the application in question and therefore used in research and quality assurance.



ED-S 56 model

### BENEFITS

- Easy handling
- Accurate temperature control
- Simple and ergonomic door opening

### MAIN FEATURES

- Temperature range: +7 °C above ambient temperature to +250 °C
- APT.line™ preheating chamber technology
- Natural convection
- Adjustable exhaust air flap
- Controller with timer function
- 1 chrome-plated rack, incl. shelf supports
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm

### AVAILABLE SIZES

| Model    | Interior volume [L] | Online data sheets  |
|----------|---------------------|---|
| ED-S 56  | 62                  | › <a href="https://go2binder.com/en-ED-S56">go2binder.com/en-ED-S56</a>   |
| ED-S 115 | 118                 | › <a href="https://go2binder.com/en-ED-S115">go2binder.com/en-ED-S115</a> |



Find all details online: [go2binder.com/en-ED-S](https://go2binder.com/en-ED-S)

## OPTIONAL EQUIPMENT

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### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



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► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

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## TECHNICAL DATA

| Description  | ED-S 56 | ED-S 115 |
|--|---------|----------|
| <b>Measures</b>  |         |          |
| Interior volume [L]  | 62      | 118      |
| Net weight of the unit (empty) [kg]                          | 36      | 50       |
| Permitted load [kg]  | 45      | 75       |
| Load per rack [kg]   | 15      | 20       |
| Wall clearance back [mm]                                     | 160     | 160      |
| Wall clearance sidewise [mm]                                 | 100     | 100      |
| <b>Internal Dimensions</b>                                   |         |          |
| Width [mm]   | 400     | 550      |
| Height [mm]  | 440     | 550      |
| Depth [mm]   | 350     | 390      |
| <b>Housing dimensions not incl. fittings and connections</b> |         |          |
| Width net [mm]   | 614     | 764      |
| Height net [mm]  | 625     | 735      |
| Depth net [mm]   | 577     | 616      |
| <b>Performance Data Temperature</b>                          |         |          |
| Temperature range +7 °C above ambient temperature to [°C]    | 250     | 250      |
| Temperature variation at 150 °C [± K]                        | 3.4     | 2.8      |
| Temperature fluctuation at 150 °C [± K]                      | 0.8     | 0.9      |
| Heating-up time to 150 °C [min]                              | 60      | 55       |
| <b>Electrical data</b>                                       |         |          |
| Nominal power (version 120V) [kW]                            | 1.15    | 1.35     |
| Nominal power (version 230V) [kW]                            | 1.05    | 1.25     |
| <b>Environment-specific data</b>                             |         |          |
| Energy consumption at 150 °C [Wh/h]                          | 210     | 300      |
| <b>Fixtures</b>  |         |          |
| Number of shelves (std./max.)                                | 1/3     | 1/5      |

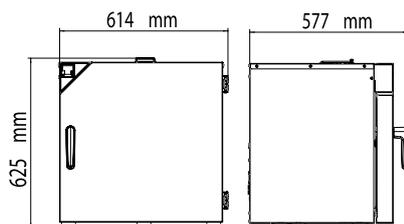
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

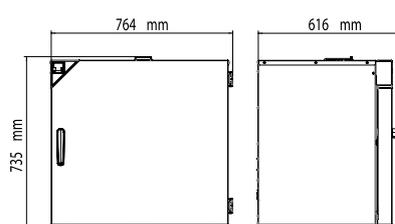
| Voltage           | Option model | ED-S 56   | ED-S 115  |
|-------------------|--------------|-----------|-----------|
| 230 V 1~ 50/60 Hz | Standard     | 9090-0014 | 9090-0020 |
| 120 V 1~ 60 Hz    | Standard     | 9090-0015 | 9090-0021 |

## DIMENSIONS incl. fittings and connections [mm]

ED-S 56



ED-S 115



## ORDERING INFORMATION ACCESSORIES

| <b>Designation</b>          | <b>Description</b>   | <b>ED-S<br/>56</b> | <b>ED-S<br/>115</b> | <b>Art. No.</b> |
|-----------------------------|--|--------------------|---------------------|-----------------|
| <b>Grid shelf</b>           | Incl. shelf supports   | •                  | –                   | 8012-1807       |
|                             | chrome plated  | –                  | •                   | 8012-1808       |
| <b>pH-neutral detergent</b> | concentrated, for gentle remove of residual contaminants; 1 kg | •                  | •                   | 8012-2250       |
| <b>Rubber pads</b>          | set anti-slip feet   | •                  | •                   | 8012-2030       |

## Series FD-S Solid.Line | with forced convection

The new products in the Solid.Line impress with their tried-and-tested BINDER quality and reliability. They are suited to drying and heating. The attributes of the Solid.Line are geared towards the application in question and therefore used in research and quality assurance.



FD-S 115 model

### BENEFITS

- Easy handling
- Accurate temperature control
- Simple and ergonomic door opening

### MAIN FEATURES

- Temperature range: +10 °C above ambient temperature to +250 °C
- APT.line™ preheating chamber technology
- Forced convection
- Adjustable exhaust air flap
- Controller with timer function
- 1 chrome-plated rack, incl. shelf supports
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm

### AVAILABLE SIZES

| Model    | Interior volume [L] | Online data sheets  |
|----------|---------------------|---|
| FD-S 56  | 55                  | › <a href="https://go2binder.com/en-FD-S56">go2binder.com/en-FD-S56</a>   |
| FD-S 115 | 106                 | › <a href="https://go2binder.com/en-FD-S115">go2binder.com/en-FD-S115</a> |

## OPTIONAL EQUIPMENT

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### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.



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► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

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## TECHNICAL DATA

| Description  | FD-S 56 | FD-S 115 |
|--|---------|----------|
| <b>Measures</b>  |         |          |
| Interior volume [L]  | 55      | 106      |
| Net weight of the unit (empty) [kg]                          | 36      | 48       |
| Permitted load [kg]  | 45      | 75       |
| Load per rack [kg]   | 15      | 20       |
| Wall clearance back [mm]                                     | 160     | 160      |
| Wall clearance sidewise [mm]                                 | 100     | 100      |
| <b>Internal Dimensions</b>                                   |         |          |
| Width [mm]   | 400     | 550      |
| Height [mm]  | 440     | 550      |
| Depth [mm]   | 310     | 350      |
| <b>Housing dimensions not incl. fittings and connections</b> |         |          |
| Width net [mm]   | 614     | 764      |
| Height net [mm]  | 625     | 735      |
| Depth net [mm]   | 577     | 616      |
| <b>Performance Data Temperature</b>                          |         |          |
| Temperature range +10 °C above ambient temperature to [°C]   | 250     | 250      |
| Temperature variation at 150 °C [± K]                        | 2.6     | 2.0      |
| Temperature fluctuation at 150 °C [± K]                      | 0.4     | 0.4      |
| Heating-up time to 150 °C [min]                              | 15      | 20       |
| <b>Tabellen</b>  |         |          |
| Air change (approx.) at 100 °C [x/h]                         | 4       | 2        |
| <b>Electrical data</b>                                       |         |          |
| Nominal power (version 120V) [kW]                            | 1.2     | 1.4      |
| Nominal power (version 230V) [kW]                            | 1.1     | 1.3      |
| <b>Environment-specific data</b>                             |         |          |
| Energy consumption at 150 °C [Wh/h]                          | 290     | 340      |
| <b>Fixtures</b>  |         |          |
| Number of shelves (std./max.)                                | 1/3     | 1/5      |

## ORDERING INFORMATION [Art. No.]

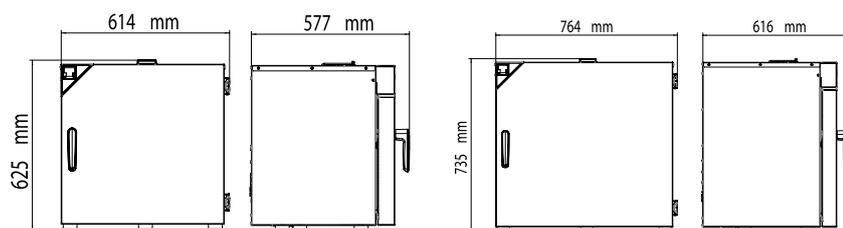
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

| Voltage           | Option model | FD-S 56   | FD-S 115  |
|-------------------|--------------|-----------|-----------|
| 230 V 1~ 50/60 Hz | Standard     | 9090-0018 | 9090-0024 |
| 120 V 1~ 60 Hz    | Standard     | 9090-0019 | 9090-0025 |

## DIMENSIONS incl. fittings and connections [mm]

FD-S 56

FD-S 115



## ORDERING INFORMATION ACCESSORIES

| Designation                 | Description  | FD-S<br>56 | FD-S<br>115 | Art. No.  |
|-----------------------------|--|------------|-------------|-----------|
|                             | Incl. shelf supports   |            |             |           |
| <b>Grid shelf</b>           |  | •          | –           | 8012-1807 |
|                             | chrome plated  | –          | •           | 8012-1808 |
| <b>pH-neutral detergent</b> | concentrated, for gentle remove of residual contaminants; 1 kg | •          | •           | 8012-2250 |
| <b>Rubber pads</b>          | set anti-slip feet   | •          | •           | 8012-2030 |