

# Model KBF 240 | Constant climate chambers with large temperature / humidity range

The BINDER KBF is the specialist for unconditionally reliable stability testing and precise maintenance of constant climate conditions. From programming to documentation, this constant climate chamber meets all critical requirements.

## BENEFITS

- Homogeneous climate conditions thanks to APT.line™ technology
- Automatic water and wastewater management
- Pressure humidification with fast response times



Model 240



Model 240

## MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Humidity range: 10 % to 80 % RH
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Intuitive touchscreen controller with time-segment and real-time programming with internal data recording
- Tight-sealing inner door made of safety glass (ESG) with special TIMELESS coating
- 2 stainless steel racks
- Access port with silicone plug, 30 mm, left
- 4 stable castors, two with brakes, from 240 liters
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
- Computer interface: Ethernet
- Door heating

## ORDERING INFORMATION

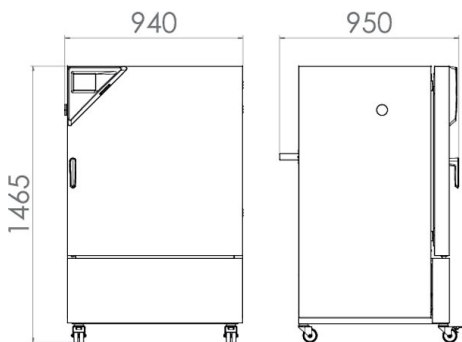
| Interior volume [cu.ft.] | Voltage                   | Option model | Version       | Art.-No.  |
|--------------------------|---------------------------|--------------|---------------|-----------|
| Model KBF 240            |                           |              |               |           |
| 8.7                      | 200...230 V 1 ph 50/60 Hz | Standard     | KBF240-230V   | 9020-0322 |
|                          | 200...240 V 1 ph 50/60 Hz | Standard     | KBF240UL-240V | 9020-0323 |

## TECHNICAL DATA

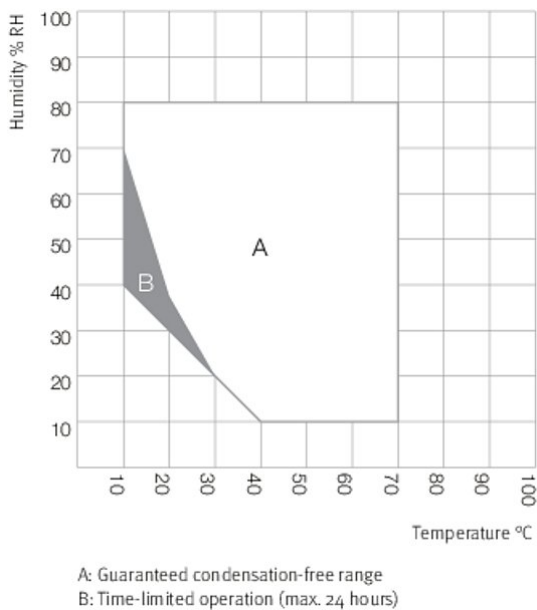
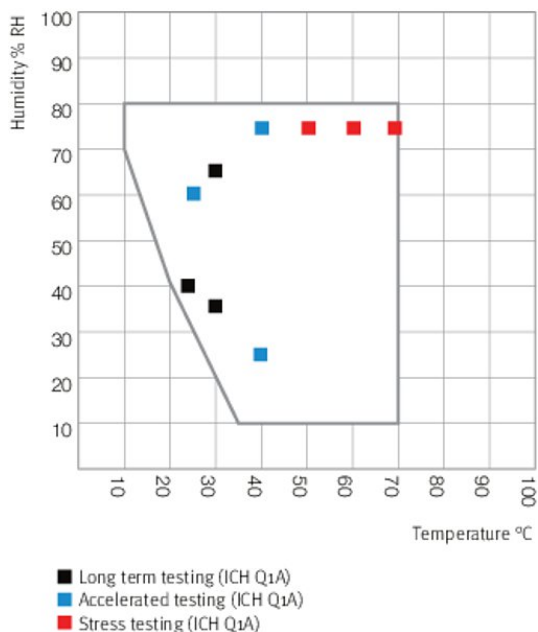
| Description  | KBF240-230V <sup>1</sup> | KBF240UL-240V <sup>1</sup> |
|--|--------------------------|----------------------------|
| Article Number   | 9020-0322                | 9020-0323                  |
| <b>Performance Data Temperature</b>                                    |                          |                            |
| Temperature range [°C]   | 0...70                   | 0...70                     |
| Temperature variation at 40 °C [± K]                                   | 0.3                      | 0.3                        |
| Temperature fluctuation [± K]  | 0.1                      | 0.1                        |
| Max. heat compensation at 40 °C [W]                                    | 300                      | 300                        |
| <b>Performance Data Climate</b>  |                          |                            |
| Temperature range [°C]   | 10...70                  | 10...70                    |
| Temperature variation at 25 °C and 60 % RH [± K]                       | 0.3                      | 0.3                        |
| Temperature variation at 40 °C and 75 % RH [± K]                       | 0.3                      | 0.3                        |
| Temperature fluctuation at 25 °C and 60 % RH [± K]                     | 0.1                      | 0.1                        |
| Temperature fluctuation at 40 °C and 75 % RH [± K]                     | 0.1                      | 0.1                        |
| Humidity range [% RH]  | 10...80                  | 10...80                    |
| Humidity fluctuation at 25 °C and 60 % RH                              | 1,5 ± % RH               | 1,5 ± % RH                 |
| Humidity fluctuation at 40 °C and 75 % RH                              | 1,5 ± % RH               | 1,5 ± % RH                 |
| Humidity recovery time after 30 s door open at 25 °C and 60 % RH [min] | 5                        | 5                          |
| Humidity recovery time after 30 s door open at 40 °C and 75 % RH [min] | 11                       | 11                         |
| <b>Electrical data</b>   |                          |                            |
| Rated Voltage [V]  | 200...230                | 200...240                  |
| Power frequency [Hz]   | 50/60                    | 50/60                      |
| Nominal power [kW]   | 2.1                      | 2.1                        |
| Unit fuse [A]  | 16                       | 16                         |
| Phase (Nominal voltage) [ph]   | 1                        | 1                          |
| <b>Outer dimensions</b>  |                          |                            |
| Width net [mm]   | 925                      | 925                        |
| Height net [mm]  | 1460                     | 1460                       |
| Depth net [mm]   | 800                      | 800                        |
| Wall clearance back [mm]   | 100                      | 100                        |
| Wall clearance sidewise [mm]   | 100                      | 100                        |
| <b>Doors</b>   |                          |                            |
| Inner doors  | 1                        | 1                          |
| Unit doors   | 1                        | 1                          |
| <b>Internal Dimensions</b>   |                          |                            |
| Width [mm]   | 650                      | 650                        |
| Height [mm]  | 785                      | 785                        |
| Depth [mm]   | 485                      | 485                        |
| <b>Measures</b>  |                          |                            |
| Interior volume [L]  | 247                      | 247                        |
| Net weight of the unit (empty) [kg]                                    | 184                      | 184                        |
| permitted load [kg]  | 100                      | 100                        |
| Load per rack [kg]   | 30                       | 30                         |
| <b>Environment-specific data</b>                                       |                          |                            |
| Energy consumption at 40 °C and 75 % RH [Wh/h]                         | 650                      | 650                        |
| Sound-pressure level [dB(A)]   | 52                       | 52                         |
| <b>Fixtures</b>  |                          |                            |
| Number of shelves (std./max.)  | 2/9                      | 2/9                        |

<sup>1</sup> All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

DIMENSIONS incl. fittings and connections [mm]



CHARTS



Climate chart

Temperature-humidity chart with ICH checkpoints

OPTIONS AND ACCESSORIES

| Designation                    | Description   | *  | Art.-No.  |
|--------------------------------|---|----|-----------|
| Access port with silicone plug | left  |    |           |
|                                | 30 mm   | 01 | 8012-1442 |
|                                | 50 mm   | 01 | 8012-1472 |
|                                | 100 mm  | 01 | 8012-0515 |
|                                | right   |    |           |
|                                | 30 mm   | 01 | 8012-1436 |
|                                | 50 mm   | 01 | 8012-1466 |
|                                | 100 mm  | 01 | 8012-0514 |
|                                | top   |    |           |
|                                | 30 mm   | 01 | 8012-1448 |
|                                | 50 mm   | 01 | 8012-1454 |
|                                | 100 mm  | 01 | 8012-1460 |
| Alarm output, zero-voltage     | for temperature ( $\pm 2$ °C) and humidity ( $\pm 5$ % RH), accessible via 6-pin DIN socket (max. 24 V - 2.5 A), with audible signal that can be switched off | -  | 8012-1037 |
| Analog output 4-20 mA          | for temperature and humidity values (output not adjustable)   | -  | 8012-1040 |

\* Notes > See last page

| Designation                                       | Description  | *  | Art.-No.  |
|---|--|----|-----------|
| Calibration certificate, expanded                 | for temperature and humidity; for extending the measurement in center of chamber to include another test value   | -  | 8012-0155 |
| Calibration certificate, temperature              | temperature measurement incl. certificate and 27 measuring points at specified temperature   | -  | 8012-0923 |
|   | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature  | -  | 8012-0920 |
|   | temperature measurement incl. certificate, 9 measuring points at specified temperature   | -  | 8012-0917 |
| Calibration certificate, temperature and humidity | Measurement in center of chamber at 25 °C / 60% RH or at specified test values   | -  | 8012-0154 |
|   | temperature (according to DIN12880) and humidity measurement incl. certificate, 27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values  | -  | 8012-0924 |
| Class 3.3 independent temperature safety device   | with visual alarm (DIN 12880)  |    |           |
|   | 230 V option model   | -  | 8012-1033 |
| Converter, voltage                                | to operate the device at a nominal voltage of 120 V 1 ph 60 Hz   |    |           |
|   | 240 V option model   | -  | 8009-0821 |
| Data Logger Kit                                   | T 220: For continuous temperature logging from -90 °C to 220 °C. The kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit   | 19 | 8012-0715 |
|   | TH 70/70: For continuous temperature and humidity logging from -40 °C to 70 °C / 0% to 100% RH and additional logging of ambient conditions. Kit includes 1 data logger, 2 attachable combined humidity/temperature sensors, 2 m extension cable and 1 fixture for mounting to the BINDER unit | 19 | 8012-0717 |
|   | TH 70: For continuous temperature and humidity logging from -40 °C to 70 °C; 0% to 100% RH. Kit includes 1 data logger, Pt 100 sensor with 2 m extension cable, and 1 magnetic fixture for mounting to the BINDER unit   | 19 | 8012-0716 |
| Data Logger Software                              | LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)   | 19 | 8012-0821 |
| Door lock   | lockable door handle   | -  | 8012-1023 |
| Interface converter                               | RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit   |    |           |
|   | 120 V, 60 Hz option model  | -  | 8012-0557 |
|   | 230 V, 50/60 Hz option model   | -  | 8012-0556 |
|   | RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit   |    |           |
| Interface converter, USB / RS422                  | 120 V, 60 Hz option model  | -  | 8012-0405 |
|   | 230 V, 50/60 Hz option model   | -  | 8012-0380 |
| Interface converter, USB / RS422                  | RS 422 cable set and RS 422 / USB interface converter for connection to 10-way plug distributor or for connection to a unit (USB-powered converter)  | -  | 8012-0665 |
| Interior socket                                   | Waterproof, switched flush-mounting box (CA3GD) for nominal voltage in unit interior, with cover and corresponding plug (nominal voltage; max. 500 W; max. 90 °C; protection class IP67)   | 07 | 8012-1043 |
| LED light bars                                    | Basic set consisting of 2 pieces, attachment material, control unit for max. 4 light strips, 100-240 V, 50/60 Hz   |    |           |
|   | Basic set 300, length 30 cm  | -  | 8012-1107 |
|   | Basic set 500, length 50 cm  | -  | 8012-1108 |
|   | Expansion set consisting of 2 pieces, attachment material: clips. For expanding the basic set of light bars  |    |           |
| LED light bars                                    | Expansion set 300, length 30 cm  | -  | 8012-1716 |
|   | Expansion set 500, length 50 cm  | -  | 8012-1717 |
| pH-neutral detergent                              | concentrated, for gentle remove of residual contaminants; 1 kg   | -  | 1002-0016 |
| Pt 100 temperature sensor                         | additional Pt 100, with flexible cable installed with external connection, incl. 6-pin DIN socket  | -  | 8012-1042 |
| Rack  | stainless steel  | -  | 6004-0101 |
| Rack accessories                                  | Rack accessories – fasteners (1 set of 4) for additional security of racks   | -  | 8012-0620 |
| Rack, reinforced                                  | stainless steel, with 1 set of 4 fasteners, max. load 70 kg  | -  | 8012-0638 |
| RS 422 interface                                  | modular plug distributor for 10 RS 422 interfaces  | -  | 8012-0295 |
| RS 422 interface, cable (15 m)                    | RS 422 connection cable (15 m) between plug distributor and RS 422 interface   | -  | 5023-0036 |
| RS 422 interface, cable (50 m)                    | RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor   | -  | 5023-0117 |
| RS 485, 2-wire                                    | Additional serial interface can be used parallel to Ethernet, for communication software   | -  | 8012-1066 |
| Shelf, perforated                                 | Stainless steel  | -  | 6004-0040 |

\* Notes › See last page

| Designation      | Description  | *  | Art.-No.  |
|------------------|--|----|-----------|
| Software         | APT-COM™ communications software   |    |           |
|                  | version 2 to 3, GLP edition  | 19 | 9053-0016 |
|                  | version 3, BASIC edition   | 19 | 9053-0014 |
|                  | version 3, GLP edition   | 19 | 9053-0015 |
|                  | version 3, STANDARD edition  | 19 | 9053-0013 |
|                  | APT-COM™ communications software, price: for free  |    |           |
|                  | version 3, GLP DEMO Edition  | 19 | 9053-0008 |
| Water supply set | external, consisting of fresh- and waste-water containers (20 liters each), cabling and pump | -  | 8012-0643 |

\* Notes › See last page

## SERVICES

| Designation  | Description   | *              | Art.-No.  |
|--|---|----------------|-----------|
| <b>Installation services</b>   |   |                |           |
| Data Logger Kit installation service   | unit function instructions for operation and programming of the controller  | 18             | DL100700  |
| Installation   | and set up of unit at operating location, connect to existing connections   | 13, 18         | DL100300  |
| <b>Preventive maintenance</b>  |   |                |           |
| Preventive maintenance   | Executive of equipment inspection according to maintenance plan   | 14, 18         | DL200400  |
| <b>Calibration services</b>  |   |                |           |
| Calibration temperature and humidity   | including certificate, one measuring point in center of chamber at 25 °C / 60 % RH or at specified values   | 14, 16, 17, 18 | DL300301  |
| Temperature and humidity measurement according to DIN12880                             | including certificate (27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values)                           | 14, 16, 17, 18 | DL300427  |
| Temperature measurement 18 temperature measuring points and 1 humidity measuring point | including certificate, 18 temperature measuring points and 1 humidity measuring point in center of chamber, at 25 °C / 60 % RH or at specified values       | 14, 16, 17, 18 | DL300318  |
| Temperature measurement 27 temperature measuring points and 1 humidity measuring point | including certificate, 27 temperature measuring points and 1 humidity measuring point in center of chamber, at 25 °C / 60 % RH or at specified values       | 14, 16, 17, 18 | DL300327  |
| Temperature measurement 9 temperature measuring points and 1 humidity measuring point  | including certificate, 9 temperature measuring points and 1 humidity measuring point in center of chamber, at 25 °C / 60 % RH or at specified values        | 14, 16, 17, 18 | DL300309  |
| <b>Validation services</b>   |   |                |           |
| Execution of IQ/OQ   | in accordance with qualification folder   | 15, 18, 20     | DL420300  |
| Execution of IQ/OQ/PQ  | in accordance with customer's requirement, price: on request  | 15, 18         | DL440500  |
| Qualification folder IQ/OQ   | supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001     | 15, 18, 20     | 8012-0867 |
| Qualification folder IQ/OQ/PQ  | supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ | 15, 18         | 8012-0955 |
| <b>Warranty service</b>  |   |                |           |
| Extension of the warranty from 2 to 3 years  | beginning with the date of delivery, wearing parts are not included   | -              | DL014041  |
| Extension of the warranty from 2 to 5 years  | beginning with the date of delivery, wearing parts are not included   | -              | DL014042  |

\* Notes › See last page

## NOTES

- 01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
- 02 UL mark is not granted when this option is used.
- 03 Heat resistant only to max. 200 °C.
- 04 Only available on units rated for 230 V.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 07 The additional heat input may affect the temperature behavior.
- 09 Not in conjunction with the optional access port, door with window and interior lighting.
- 10 Not available on 23-liter units.
- 11 Not available on 23- or 53-liter units.
- 12 Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- 16 Sensor calibration is performed in an accredited calibration laboratory.
- 17 Calibration is performed according to the BINDER factory standard.
- 18 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).
- 19 For additional accessories, refer to the Process documentation chapter.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for both items.  
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.