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

**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
- Intuitive touchscreen controller with time-segment and real-time programming
- BINDER Multi Management Software APT-COM™ Basic Edition
- Internal data logger, measured values can be read out in open format via USB
- Unit self-test for comprehensive status analysis
- Tight-sealing inner door made of safety glass (ESG)
- Avoidance of glass corrosion by special TiMELESS coating
- Inner chamber made of stainless steel
- 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**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>247</td>
<td>200…230 V 1~ ph 50/60 Hz Standard</td>
<td>KBF240-230V</td>
<td>9020-0322</td>
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<td>200…240 V 1~ ph 50/60 Hz Standard</td>
<td>KBF240UL-240V</td>
<td>9020-0323</td>
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## TECHNICAL DATA

<table>
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<tr>
<th>Description</th>
<th>KBF240-230V&lt;sup&gt;a&lt;/sup&gt;</th>
<th>KBF240UL-240V&lt;sup&gt;a&lt;/sup&gt;</th>
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<tbody>
<tr>
<td><strong>Article Number</strong></td>
<td>9020-0322</td>
<td>9020-0323</td>
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</table>

### Performance Data Temperature

- **Temperature range**
  - KBF240: 0...70
  - KBF240UL: 0...70
- **Temperature variation at 40 °C [± K]**
  - KBF240: 0.3
  - KBF240UL: 0.3
- **Temperature fluctuation [± K]**
  - KBF240: 0.1
  - KBF240UL: 0.1
- **Max. heat compensation at 40 °C [W]**
  - KBF240: 300
  - KBF240UL: 300

### Performance Data Climate

- **Temperature range [°C]**
  - KBF240: 10...70
  - KBF240UL: 10...70
- **Temperature variation at 25 °C and 60 % RH [± K]**
  - KBF240: 0.3
  - KBF240UL: 0.3
- **Temperature variation at 40 °C and 75 % RH [± K]**
  - KBF240: 0.3
  - KBF240UL: 0.3
- **Temperature fluctuation at 25 °C and 60 % RH [± K]**
  - KBF240: 0.1
  - KBF240UL: 0.1
- **Temperature fluctuation at 40 °C and 75 % RH [± K]**
  - KBF240: 0.1
  - KBF240UL: 0.1
- **Humidity range [% RH]**
  - KBF240: 10...80
  - KBF240UL: 10...80
- **Humidity fluctuation at 25 °C and 60 % RH [± % RH]**
  - KBF240: 1.5 ± % RH
  - KBF240UL: 1.5 ± % RH
- **Humidity fluctuation at 40 °C and 75 % RH [± % RH]**
  - KBF240: 1.5 ± % RH
  - KBF240UL: 1.5 ± % RH
- **Humidity recovery time after 30 s door open at 25 °C and 60 % RH [min]**
  - KBF240: 5
  - KBF240UL: 5
- **Humidity recovery time after 30 s door open at 40 °C and 75 % RH [min]**
  - KBF240: 11
  - KBF240UL: 11

### Electrical data

- **Rated Voltage [V]**
  - KBF240: 200...230
  - KBF240UL: 200...240
- **Power frequency [Hz]**
  - KBF240: 50/60
  - KBF240UL: 50/60
- **Nominal power [kW]**
  - KBF240: 2.1
  - KBF240UL: 2.1
- **Unit fuse [A]**
  - KBF240: 16
  - KBF240UL: 16
- **Phase (Nominal voltage)**
  - KBF240: 1~
  - KBF240UL: 1~

### Measures

- **Interior volume [L]**
  - KBF240: 247
  - KBF240UL: 247
- **Net weight of the unit (empty) [kg]**
  - KBF240: 189
  - KBF240UL: 189
- **Permitted load [kg]**
  - KBF240: 100
  - KBF240UL: 100
- **Load per rack [kg]**
  - KBF240: 30
  - KBF240UL: 30
- **Wall clearance back [mm]**
  - KBF240: 100
  - KBF240UL: 100
- **Wall clearance sidewise [mm]**
  - KBF240: 100
  - KBF240UL: 100

### Internal Dimensions

- **Width [mm]**
  - KBF240: 650
  - KBF240UL: 650
- **Height [mm]**
  - KBF240: 785
  - KBF240UL: 785
- **Depth [mm]**
  - KBF240: 485
  - KBF240UL: 485

### Doors

- **Inner doors**
  - KBF240: 1
  - KBF240UL: 1
- **Unit doors**
  - KBF240: 1
  - KBF240UL: 1

### Housing dimensions not incl. fittings and connections

- **Width net [mm]**
  - KBF240: 925
  - KBF240UL: 925
- **Height net [mm]**
  - KBF240: 1460
  - KBF240UL: 1460
- **Depth net [mm]**
  - KBF240: 800
  - KBF240UL: 800

### Environment-specific data

- **Energy consumption at 40 °C and 75 % RH [Wh/h]**
  - KBF240: 650
  - KBF240UL: 650
- **Sound-pressure level [dB(A)]**
  - KBF240: 52
  - KBF240UL: 52

### Fixtures

- **Number of shelves (std./max.)**
  - KBF240: 2/9
  - KBF240UL: 2/9

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

CHARTS

Climate chart

Temperature-humidity chart with ICH checkpoints

OPTIONS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>*</th>
<th>Art.-No.</th>
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<tbody>
<tr>
<td>left</td>
<td></td>
<td>01</td>
<td>8012-1442</td>
</tr>
<tr>
<td>30 mm</td>
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<td>01</td>
<td>8012-1472</td>
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<tr>
<td>50 mm</td>
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<td>100 mm</td>
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<td></td>
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<tr>
<td>right</td>
<td></td>
<td>01</td>
<td>8012-1436</td>
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<tr>
<td>30 mm</td>
<td>Access port with silicone plug</td>
<td>01</td>
<td>8012-1466</td>
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<tr>
<td>50 mm</td>
<td></td>
<td>01</td>
<td>8012-0514</td>
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<tr>
<td>100 mm</td>
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<td>top</td>
<td></td>
<td>01</td>
<td>8012-1448</td>
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<tr>
<td>30 mm</td>
<td></td>
<td>01</td>
<td>8012-1454</td>
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<tr>
<td>50 mm</td>
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<td></td>
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</tr>
<tr>
<td>100 mm</td>
<td></td>
<td>01</td>
<td>8012-1460</td>
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<tr>
<td>Alarm output, zero-voltage</td>
<td>for temperature (±2 °C) and humidity (±5 % RH), accessible via 6-pin DIN socket (max. 24 V • 2.5 A), with audible signal that can be switched off</td>
<td>–</td>
<td>8012-1037</td>
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<tr>
<td>Analog output 4-20 mA</td>
<td>for temperature and humidity values (output not adjustable)</td>
<td>–</td>
<td>8012-1040</td>
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* Notes › See last page
### Designation

<table>
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<tr>
<th>Description</th>
<th>Art.-No.</th>
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<tbody>
<tr>
<td>Calibration certificate, expanded</td>
<td>8012-0155</td>
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<tr>
<td>Calibration certificate, temperature</td>
<td>8012-0923</td>
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<tr>
<td>Calibration certificate, temperature and humidity</td>
<td>8012-0920</td>
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<tr>
<td>Class 3.3 independent temperature safety device</td>
<td>8012-0917</td>
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<tr>
<td>Converter, voltage</td>
<td>8012-0154</td>
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<tr>
<td>Door lock</td>
<td>8009-0821</td>
</tr>
<tr>
<td>Interior socket</td>
<td>8012-0923</td>
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<tr>
<td>Pt 100 temperature sensor</td>
<td>8012-0917</td>
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<tr>
<td>RS 485 interface, 2-wire</td>
<td>8012-1033</td>
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<td><strong>ACCESSORIES</strong></td>
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<tr>
<td>APT-COM™ 4 BASIC-Edition</td>
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<tr>
<td>APT-COM™ 4 GLP-Edition</td>
<td>9053-0040</td>
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<tr>
<td>APT-COM™ 4 PROFESSIONAL-Edition</td>
<td>9053-0041</td>
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<tr>
<td>BINDER PURE AQUA SERVICE</td>
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<td>8012-1043</td>
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<tr>
<td>Data Logger Kit</td>
<td>8012-1044</td>
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<td>Data Logger Software</td>
<td>8012-1045</td>
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<tr>
<td>LED light bars</td>
<td>8012-1046</td>
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<tr>
<td>pH-neutral detergent</td>
<td>8012-1047</td>
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</table>

* *Notes › See last page*
## Data Sheet Model KBF 240

**Designation** | **Description** | **Art.-No.**
--- | --- | ---
IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature and humidity values | 7057-0002
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 and humidity values | 7057-0006
Rack | stainless steel | 6004-0101
Rack accessories | fasteners (1 set of 4) for additional security of racks | 8012-0620
Rack, reinforced | stainless steel, with fasteners (1 set of 4) | 8012-0638
RS 485 / RS 422 interface converter | RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor | 8012-0599
Shelf, perforated | Stainless steel | 6004-0040
Water supply set | consisting of fresh- and waste-water containers (20 liters each), cabling and pump | 8012-0643

### Services

**Designation** | **Description** | **Art.-No.**
--- | --- | ---
Installation services | Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work) | 13, 18
Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming | 18
Maintenance services | Maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of chamber without certificate | 14, 18
Calibration services | Expansion – Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate | 14, 16, 17, 18
Temperature and humidity measurement according to DIN 12880 | Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate | 14, 16, 17, 18
Temperature and humidity measurement, 18-1 measuring points | Temperature measurement with 18 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate | 14, 16, 17, 18
Temperature and humidity measurement, 27-1 measuring points | Temperature measurement with 27 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate | 14, 16, 17, 18
Temperature and humidity measurement, 9-1 measuring points | Temperature measurement with 9 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate | 14, 16, 17, 18
Validation services | Execution of IQ/OQ in accordance with qualification folder | 15, 18
Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | 15, 18
Warranty service | Warranty extension from 2 to 3 years | DL01-4041
Warranty extension from 2 to 5 years | The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded | DL01-4042

* 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.
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.