

Model KBF-S ECO 400 | Constant climate chambers with environmentally friendly thermoelectric cooling

Thanks to thermoelectric cooling technology with patented heat dissipation, the new KBF-S ECO climatic chamber is one of the most energy-efficient constant climate chambers on the market. The thermoelectric cooling technology means the KBF-S ECO series is also very quiet during operation.

BENEFITS

- Safe thanks to standard-compliant testing according to the ICH Q1A guideline, even with full load.
- Reliable thanks to failsafe operation without compromise.
- Smart, as a wide range of accessories makes it highly compatible for adaptation to specific customer requirements.
- Economical, as energy consumption is minimal thanks to optimized thermoelectric cooling.



Model KBF-S ECO 400



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MAIN FEATURES

- Temperature range: 0 °C to +70 °C (max. 26 °C under ambient temperature)
- Humidity range: 10% to 80% RH
- APT.line™ preheating chamber technology
- Independent water supply via tank
- LCD to display temperature and humidity along with additional information and alarms
- Internal data logger, measured values can be read out in open format via USB
- Unit self-test for comprehensive status analysis
- Inner chamber made completely of stainless steel
- 2 stainless steel racks, including shelf carrier
- Access port with silicone plug Ø 30 mm, left
- Computer interface: Ethernet

ORDERING INFORMATION

| Interior volume [L] | Voltage | Option model | Version | Art.-No. |
|---------------------|----------------------------|--------------|-------------------|-----------|
| 400 | 200...230 V 1~ ph 50/60 Hz | Standard | KBFSECO400-230V | 9020-0463 |
| | 100...120 V 1~ ph 50/60 Hz | Standard | KBFSECO400UL-120V | 9020-0464 |

TECHNICAL DATA

| Description | KBFSECO400-230V ¹ | KBFSECO400UL-120V ¹ |
|---|------------------------------|--------------------------------|
| Article Number | 9020-0463 | 9020-0464 |
| Performance Data Temperature | | |
| Temperature range (max. 26 °C under ambient temperature) [°C] | 0...70 | 0...70 |
| Temperature variation at 40 °C [± K] | 0.5 | 0.5 |
| Temperature fluctuation at 40 °C [± K] | 0.1 | 0.1 |
| Max. heat compensation at 40 °C [W] | 300 | 300 |
| Performance Data Climate | | |
| Temperature range (max. 26 °C under ambient temperature) [°C] | 5...70 | 5...70 |
| Temperature variation at 25 °C and 60 % RH [± K] | 0.1 | 0.1 |
| Temperature variation at 40 °C and 75 % RH [± K] | 0.5 | 0.5 |
| 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 | 10...80 | 10...80 |
| Humidity fluctuation at 25 °C and 60 % RH | 0,3 % RH | 0,3 % RH |
| Humidity fluctuation at 40 °C and 75 % RH | 0,3 % RH | 0,3 % RH |
| Recovery time after 30 seconds door open at 25 °C and 60 % RH [min] | 6 | 6 |
| Recovery time after 30 seconds door open at 40 °C and 75 % RH [min] | 15 | 15 |
| Electrical data | | |
| Rated Voltage [V] | 200...230 | 100...120 |
| Power frequency [Hz] | 50/60 | 50/60 |
| Nominal power [kW] | 1.1 | 1.1 |
| Unit fuse [A] | 16 | 16 |
| Phase (Nominal voltage) | 1~ | 1~ |
| Measures | | |
| Interior volume [L] | 400 | 400 |
| Net weight of the unit (empty) [kg] | 192 | 192 |
| Permitted load [kg] | 120 | 120 |
| Load per rack [kg] | 30 | 30 |
| Wall clearance back [mm] | 100 | 100 |
| Wall clearance sidewise [mm] | 180 | 180 |
| Internal Dimensions | | |
| Interior width [mm] | 650 | 650 |
| Interior height [mm] | 1200 | 1200 |
| Interior depth [mm] | 390 | 390 |
| Doors | | |
| Unit doors | 1 | 1 |
| Housing dimensions not incl. fittings and connections | | |
| Width net [mm] | 925 | 925 |
| Height net [mm] | 1946 | 1946 |
| Depth net [mm] | 796 | 796 |
| Environment-specific data | | |
| Energy consumption at 40 °C and 75 % RH [Wh/h] | 70 | 70 |
| Sound-pressure level [dB(A)] | 46 | 46 |

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 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.

For model KBF-S ECO 240, temperature differences are possible up to 28 °C below ambient temperature; for models KBF-S ECO 400, KBF-S ECO 720 and KBF-S ECO 1020, temperature differences are possible up to 24 °C below ambient temperature.

The lowest operating temperature for all units is 0 °C irrespective of the ambient temperature.

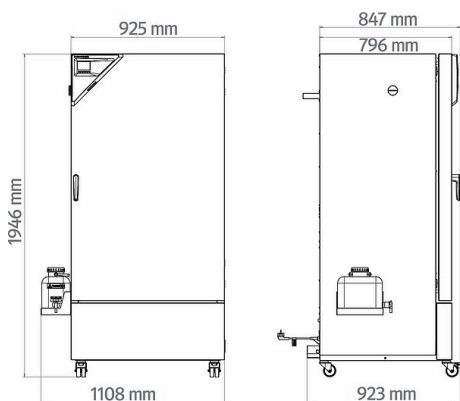
| Description | KBFSECO400-230V ¹ | KBFSECO400UL-120V ¹ |
|-------------------------------|------------------------------|--------------------------------|
| Article Number | 9020-0463 | 9020-0464 |
| Fixtures | | |
| Number of shelves (std./max.) | 2/15 | 2/15 |

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 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.

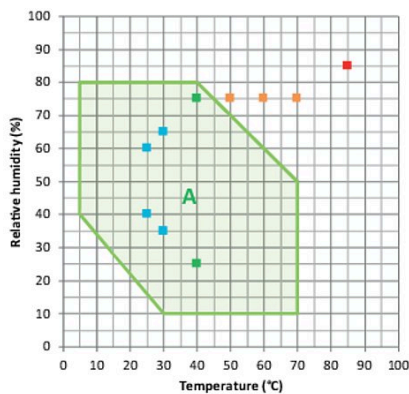
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DIMENSIONS incl. fittings and connections [mm]



CHARTS



- ICH Long term stability testing
 - Accelerated stability testing
 - ICH Stress testing
 - Industrial THB testing (85/85)
- A: Guaranteed condensation-free range

Climate chart

OPTIONS

| Designation | Description | * | Art.-No. |
|--|---|----|-----------|
| Access port with silicone plug | left | | |
| | 30 mm | 01 | 8012-2072 |
| | 50 mm | 01 | 8012-2079 |
| | 100 mm | 01 | 8012-2077 |
| | right | | |
| | 30 mm | 01 | 8012-2071 |
| | 50 mm | 01 | 8012-2078 |
| | 100 mm | 01 | 8012-2076 |
| | top | | |
| | 30 mm | 01 | 8012-2073 |
| | 50 mm | 01 | 8012-2074 |
| | 100 mm | 01 | 8012-2075 |
| Calibration certificate, expanded | for temperature and humidity; for extending the measurement in center of chamber to include another test value | - | 8012-2066 |
| Calibration certificate, temperature | temperature measurement incl. certificate and 27 measuring points at specified temperature | - | 8012-2069 |
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | - | 8012-2068 |
| | temperature measurement incl. certificate, 9 measuring points at specified temperature | - | 8012-2067 |
| Calibration certificate, temperature and humidity | Measurement in center of chamber at 25 °C / 60% RH or at specified test values | - | 8012-2065 |
| | 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 | - | 8012-2070 |
| Door lock | lockable door handle | - | 8012-2086 |

* Notes › See last page

ACCESSORIES

| Designation | Description | * | Art.-No. |
|--|---|---|-----------|
| APT-COM™ 4 BASIC-Edition | for simple logging and documentation requirements with up to 5 networked units. 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. 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. version 4, PROFESSIONAL edition | - | 9053-0040 |
| BINDER PURE AQUA SERVICE | System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts | - | 8012-0759 |
| BINDER PURE AQUA SERVICE, accessories | Single-use, replacement cartridge for BINDER PURE AQUA System | - | 6011-0165 |
| Convenient water supply | Flexible positioning of the water container with magnetic holder, hose adapter for water container with practical quick coupling, and water stop function | | |
| | External, with magnetic holder | - | 8012-1847 |
| 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 | | |
| | 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 | - | 8012-2250 |

* Notes › See last page

| Designation | Description | * | Art.-No. |
|--------------------------------|--|---|-----------|
| 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 and humidity values | | |
| | Digital in PDF format | – | 7057-0002 |
| | Hard copy inside folder | – | 7007-0002 |
| | 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 | | |
| | Digital in PDF format | – | 7057-0006 |
| | Hard copy inside folder | – | 7007-0006 |
| Rack | stainless steel | – | 8012-2050 |
| Rack accessories | fasteners (1 set of 4) for additional security of racks | – | 8012-2280 |
| Rack, reinforced | stainless steel, with fasteners (1 set of 4) | – | 8012-0638 |
| Shelf, perforated | Stainless steel | – | 8012-2163 |
| WLAN kit | The kit contains a client bridge that establishes a wireless connection between BINDER units and APT-COM4, LIMS, or customer-specific software via an Ethernet interface. It provides an alternative solution in situations where units need to be positioned in locations without an on-site Ethernet connection. In secured networks, installation and configuration must be performed by the customer's IT service. | – | 8012-2262 |

* Notes › See last page

SERVICES

| Designation | Description | * | Art.-No. |
|---|--|------------|-----------|
| Maintenance contracts | | | |
| Installation services | | | |
| Maintenance services | | | |
| Calibration services | | | |
| Validation services | | | |
| Warranty service | | | |
| 1-year warranty extension | The warranty is extended by 1 year from the delivery date, wear parts are excluded | – | DL50-0030 |
| BRONZE 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts | 05 | DL20-0710 |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder | 05 | DL42-0300 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | 05 | DL44-0500 |
| GOLD 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one temperature/humidity value, including certificate | 05 | DL20-0920 |
| Maintenance | One-off 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 usable space without certificate | 05 | DL20-0400 |
| SILVER 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate | 05 | DL20-0820 |
| Temperature and humidity calibration | Expansion – Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate | 03, 04, 05 | DL30-0302 |
| | Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate | 03, 04, 05 | DL30-0301 |
| Temperature and humidity measurement according to DIN12880 | 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 | 03, 04, 05 | DL30-0427 |
| 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 | 03, 04, 05 | DL30-0318 |

* Notes › See last page

| Designation | Description | * | Art.-No. |
|---|--|---------------|-----------|
| 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 | 03, 04, 05 | DL30-0327 |
| 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 | 03, 04, 05 | DL30-0309 |
| Unit commissioning | 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) | 05 | DL10-0300 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming | 05 | DL10-0700 |

* 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 Sensor calibration is performed in an accredited calibration laboratory.
- 04 Calibration is performed according to the BINDER factory standard.
- 05 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).

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