

Model KBF-S ECO 400 | Humidity test 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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IMPORTANT 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 | Power supply - unit fuse | Plug* | Version | Model version | Art.-No. |
|----------------------------|--------------------------|---------------------------------|---------|---------------|-------------------|
| [L] | [L] | | | | |
| Model KBF-S ECO 400 | | | | | |
| 400 | 400 | 200...230 V 1~ 50/60 Hz -16,0 A | CEE 7/7 | Standard | KBFSECO400-230V |
| | | 100...120 V 1~ 50/60 Hz -16,0 A | CEE 7/7 | Standard | KBFSECO400UL-120V |

TECHNICAL DATA

| Data | | |
|---|--|--|
| Designation | KBFSECO400-230V | KBFSECO400UL-120V |
| Article Number | 9020-0463 | 9020-0464 |
| Option model | Standard | Standard |
| Performance Data Temperature | | |
| Temperature range | (max. 26 °C under ambient temperature) 0...70 °C | (max. 26 °C under ambient temperature) 0...70 °C |
| Max. heat compensation at 40°C | 300 W | 300 W |
| Performance Data Climate | | |
| Temperature range with humidity | (max. 26 °C under ambient temperature) 5...70 °C | (max. 26 °C under ambient temperature) 5...70 °C |
| Humidity range | 10...80 % r.F. | 10...80 % r.F. |
| Temperature uniformity at 25°C and 60% RH | 0.1 ± K | 0.1 ± K |
| Temperature uniformity at 40°C and 75% RH | 0.5 ± K | 0.5 ± K |
| Temperature fluctuation at 25°C and 60% RH | 0.1 ± K | 0.1 ± K |
| Temperature fluctuation at 40°C and 75% RH | 0.1 ± K | 0.1 ± K |
| Recovery time after door was opened for 30 s at 25°C and 60% RH | 6 min | 6 min |
| Recovery time after door was opened for 30 s at 40°C and 75% RH | 15 min | 15 min |
| Electrical data | | |
| Rated Voltage | 200...230 V | 100...120 V |
| Power frequency | 50/60 Hz | 50/60 Hz |
| Nominal power | 1,1 kW | 1,1 kW |
| Unit fuse | 16,0 A | 16,0 A |
| Phase (Nominal voltage) | 1~ | 1~ |
| Measures | | |
| Interior volume | 400 L | 400 L |
| Net weight of the unit (empty) | 192 kg | 192 kg |
| Load per rack | 30 kg | 30 kg |
| Permitted load | 120 kg | 120 kg |
| Wall clearance back | 100 mm | 100 mm |

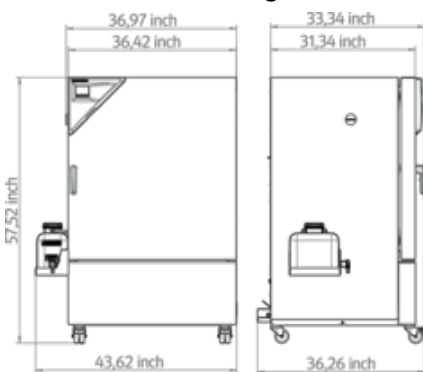
| | | |
|--|----------|----------|
| Wall clearance sidewise | 180 mm | 180 mm |
| Housing dimensions not incl. fittings and connections | | |
| Width net | 925 mm | 925 mm |
| Height net | 1,946 mm | 1,946 mm |
| Depth net | 796 mm | 796 mm |
| Internal Dimensions | | |
| Interior width | 650 mm | 650 mm |
| Interior height | 1,268 mm | 1,268 mm |
| Interior depth | 485 mm | 485 mm |
| Unit doors | 1 | 1 |
| Environment-specific data | | |
| Sound-pressure level | 45 dB(A) | 45 dB(A) |
| Energy consumption at 25°C and 60% RH | 60 Wh/h | 60 Wh/h |
| Energy consumption at 40°C and 75% RH | 70 Wh/h | 70 Wh/h |
| Fixtures | | |
| Number of shelves (std./max.) | 2/15 | 2/15 |

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.

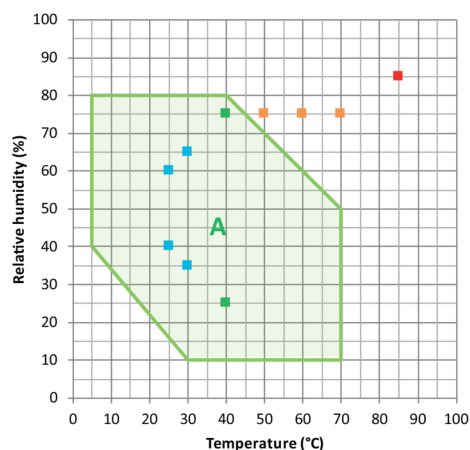
For model KBF-S ECO 240, temperature differences are possible up to 28 °C below ambient temperature; for models KBF-S ECO 400, KBF-S ECO 720 and KBF-S ECO 1020, temperature differences are possible up to 24 °C below ambient temperature.

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

DIMENSIONS Incl. fittings and connections [mm]



DIAGRAMS



- 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 | KBF-S ECO 400 | * | Art.-No. |
|--------------------------------------|--|---------------|----|-----------|
| | left | | | |
| | 30 mm | • | 01 | 8012-2072 |
| | 50 mm | • | 01 | 8012-2079 |
| | 100 mm | • | 01 | 8012-2077 |
| | right | | | |
| | 30 mm | • | 01 | 8012-2071 |
| Access port with silicone plug | 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, 9 measuring points at specified temperature | • | - | 8012-2067 |

| Designation | Description | KBF-S ECO 400 | * | Art.-No. |
|--|---|------------------|---|-----------|
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | • | - | 8012-2068 |
| | temperature measurement incl. certificate and 27 measuring points at specified temperature | • | - | 8012-2069 |
| | Measurement in center of chamber at 25°C / 60% RH or at specified test values | • | - | 8012-2065 |
| Calibration certificate, temperature and humidity | 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 |

ACCESSORIES

| Designation | Description | KBF-S ECO 400 | * | Art.-No. |
|--|--|------------------|---|-----------|
| | Multi Management Software APT-COM™ | | | |
| APT-COM™ 4 | version 4, BASIC edition | • | - | 9053-0039 |
| | version 4, GLP edition | • | - | 9053-0042 |
| | 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 |
| Qualification documents | 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 |

| Designation | Description | KBF-S ECO 400 | * | Art.-No. |
|----------------------|--|------------------|---|-----------|
| | Hard copy inside folder | • | - | 7007-0006 |
| | 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 |
| Rack | stainless steel | • | - | 8012-2050 |
| Rack, reinforced | stainless steel, with fasteners (1 set of 4) | • | - | 8012-0638 |
| Rack accessories | fasteners (1 set of 4) for additional security of racks | • | - | 8012-2280 |
| 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 |
| pH-neutral detergent | concentrated, for gentle remove of residual contaminants; 1 kg | • | - | 8012-2250 |

SERVICES

| Designation | Description | * | Art.-No. |
|---|---|---|-----------|
| Calibration services | | | |
| Temperature and humidity calibration | Expansion –Additional Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate. Travel to be quoted separate. | – | DL30-0302 |
| | Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate. Travel to be quoted separate. | – | 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 | – | DL30-0427 |
| Temperature measurement, 9 temperature measuring points and 1 humidity measuring point | 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. Travel to be quoted separate. A total of 3 shelves are required. | – | DL30-0309 |
| Temperature measurement, 18 temperature measuring points and 1 humidity measuring point | 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. Travel to be quoted separate. A total of 2 shelves are required. | – | DL30-0318 |
| Temperature measurement, 27 temperature measuring points and 1 humidity measuring point | 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. Travel to be quoted separate. A total of 3 shelves are required. | – | DL30-0327 |
| Installation services | | | |

| Designation | Description | * | Art.-No. |
|------------------------------------|--|---|-----------|
| Unit installation | 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) Travel to be quoted as separate. | – | DL10-0300 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming. Travel to be quoted as separate Limited to 3 hours. | – | DL10-0700 |
| Maintenance services | | | |
| BRONZE 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate. 10% Discount on Spare Parts and Labor for any additional Services needed Wear + tear parts to be purchased or billed to customer. Travel to be quoted as separate. | – | DL20-0710 |
| GOLD 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate of both Temperature and Humidity. 25% Discount on Spare Parts and Labor for any additional Services needed. One additional courtesy visit per year can be used for service visit or operator. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate. | – | DL20-0920 |
| Preventive maintenance | One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Checking a test temperature specified by the user in center of usable space without certificate. Wear + tear parts need to be purchased or billed to customer. Travel to be quoted as separate. | – | DL20-0400 |
| SILVER 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate 15% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator training. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate. | – | DL20-0820 |
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate. | – | DL42-0300 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate. | – | DL44-0500 |
| Warranty service | | | |
| 1-year warranty extension | The warranty is extended by 1 year from the delivery date, wear parts are excluded | – | DL50-0030 |

NOTES

01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.

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