

Model KBF 115 | Humidity test 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 humidity test 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 115

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
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
- Computer interface: Ethernet
- Door heating

ORDERING INFORMATION

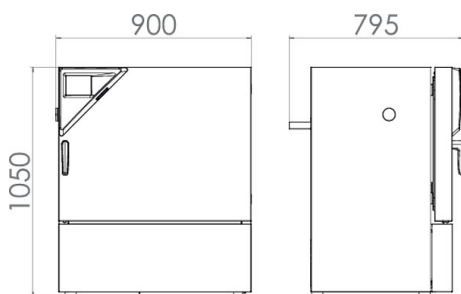
| Interior volume [cu.ft.] | Voltage | Option model | Version | Art.-No. |
|--------------------------|-------------------------|--------------|---------------|-----------|
| 3.6 | 200...230 V 1~ 50/60 Hz | Standard | KBF115-230V | 9020-0320 |
| | 200...240 V 1~ 50/60 Hz | Standard | KBF115UL-240V | 9020-0321 |

TECHNICAL DATA

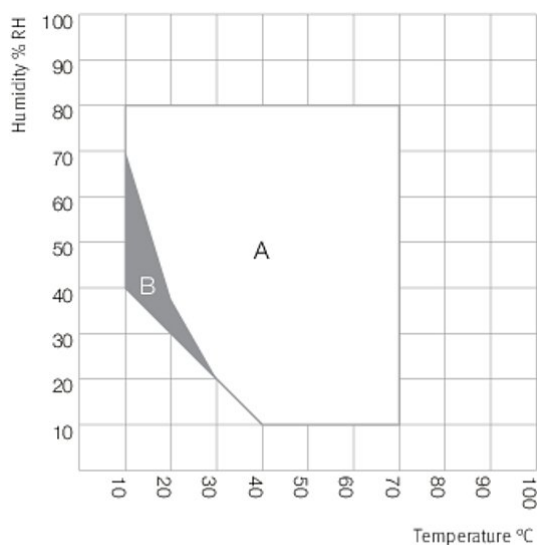
| Description | KBF115-230V ¹ | KBF115UL-240V ¹ |
|--|--------------------------|----------------------------|
| Article Number | 9020-0320 | 9020-0321 |
| Performance Data Temperature | | |
| Temperature range | 0...70 | 0...70 |
| Temperature variation at 40 °C [± K] | 0.2 | 0.2 |
| Temperature fluctuation [± K] | 0.1 | 0.1 |
| Max. heat compensation at 40 °C [W] | 200 | 200 |
| Performance Data Climate | | |
| Temperature range [°C] | 10...70 | 10...70 |
| Temperature variation at 25 °C and 60 % RH [± K] | 0.2 | 0.2 |
| Temperature variation at 40 °C and 75 % RH [± K] | 0.2 | 0.2 |
| 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 | ≤2 ± % RH | ≤2 ± % RH |
| Humidity fluctuation at 40 °C and 75 % RH | ≤2 ± % RH | ≤2 ± % RH |
| Humidity recovery time after 30 s door open at 25 °C and 60 % RH [min] | 6 | 6 |
| Humidity recovery time after 30 s door open at 40 °C and 75 % RH [min] | 7 | 7 |
| Electrical data | | |
| Rated Voltage [V] | 200...230 | 200...240 |
| Power frequency [Hz] | 50/60 | 50/60 |
| Nominal power [kW] | 0 | 0 |
| Unit fuse [A] | 16 | 16 |
| Phase (Nominal voltage) | 1~ | 1~ |
| Measures | | |
| Interior volume [cu.ft.] | 3.6 | 3.6 |
| Net weight of the unit (empty) [lbs] | 282 | 282 |
| Permitted load [lbs] | 220 | 220 |
| Load per rack [lbs] | 66 | 66 |
| Wall clearance back [in] | 3.94 | 3.94 |
| Wall clearance sidewise [in] | 3.94 | 3.94 |
| Internal Dimensions | | |
| Width [in] | 23.64 | 23.64 |
| Height [in] | 19.03 | 19.03 |
| Depth [in] | 13.83 | 13.83 |
| Doors | | |
| Inner doors | 1 | 1 |
| Unit doors | 1 | 1 |
| Housing dimensions not incl. fittings and connections | | |
| Width net [in] | 34.67 | 34.67 |
| Height net [in] | 41.4 | 41.4 |
| Depth net [in] | 25.61 | 25.61 |
| Environment-specific data | | |
| Energy consumption at 40 °C and 75 % RH [Wh/h] | 470 | 470 |
| Sound-pressure level [dB(A)] | 52 | 52 |
| Fixtures | | |
| Number of shelves (std./max.) | 2/5 | 2/5 |

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.

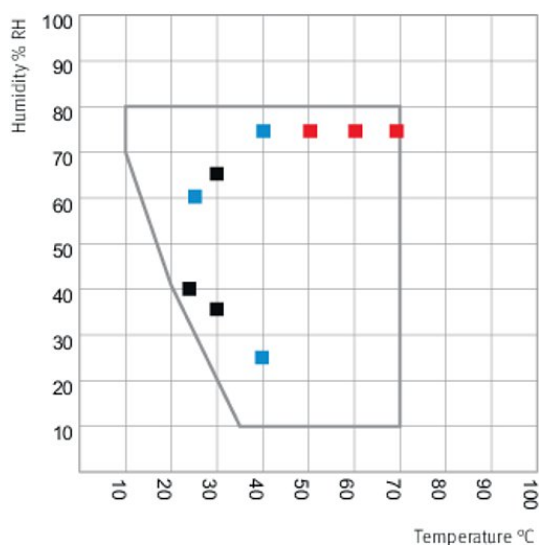
DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



CHARTS



Climate chart



Temperature-humidity chart with ICH checkpoints

OPTIONS

| 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 (± 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 | – | 8012-1036 |
| Analog output 4-20 mA | for temperature and humidity values (output not adjustable) | – | 8012-1039 |
| Calibration certificate, expanded | for temperature and humidity; for extending the measurement in center of chamber to include another test value | – | 8012-0155 |

* Notes > See last page

| Designation | Description | * | Art.-No. |
|---|---|----|-----------|
| 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) | – | 8012-1032 |
| Converter, voltage | to operate the device at a nominal voltage of 120 V 1 ph 60 Hz | | |
| | 240 V option model | – | 8009-0821 |
| Door lock | lockable door handle | – | 8012-1023 |
| 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 |
| Pt 100 temperature sensor | additional flexible Pt 100, interior, for displaying the temperature on the unit display | – | 8012-1042 |
| RS 485 interface, 2-wire | Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™ | – | 8012-1066 |

* 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 | 19 | 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 | 19 | 9053-0042 |
| APT-COM™ 4 PROFESSIONAL-Edition | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. | 19 | 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 |
| 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 |
| 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 | – | 1002-0016 |

* 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 | – | 6004-0112 |
| Rack accessories | fasteners (1 set of 4) for additional security of racks | – | 8012-0620 |
| Rack, reinforced | stainless steel, with fasteners (1 set of 4) | – | 8012-0700 |
| RS 485 / RS 422 interface converter | RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor | | |
| | 115 V option model | – | 8012-0599 |
| | 230 V option model | – | 8012-0589 |
| Shelf, perforated | Stainless steel | – | 6004-0115 |
| Water supply set | consisting of fresh- and waste-water containers (20 liters each), cabling and pump | | |
| | external, for hanging from the back of the device | – | 8012-0643 |
| | external, free-standing | – | 8012-1846 |

* Notes › See last page

SERVICES

| Designation | Description | * | Art.-No. |
|--|--|----------------|-----------|
| Installation services | | | |
| Unit installation | Unpacking and setting up of unit, connecting to existing connections, and checking function | 13, 18 | DL10-0300 |
| Unit instructions | Unit function instructions for operation and programming of the controller | 18 | DL10-0700 |
| Preventive maintenance | | | |
| Maintenance | Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule | 14, 18 | DL20-0400 |
| Calibration services | | | |
| Temperature and humidity calibration | Expansion – including certificate, each additional measuring point in center of chamber at 25 °C / 60% RH or at specified values | 14, 16, 17, 18 | DL30-0302 |
| | Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate | 14, 16, 17, 18 | DL30-0301 |
| Temperature measurement in accordance with DIN 12880, 27 temperature measuring points and 1 humidity measuring point | Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate | 14, 16, 17, 18 | DL30-0427 |
| 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 1 specified pair of values, including certificate | 14, 16, 17, 18 | 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 1 specified pair of values, including certificate | 14, 16, 17, 18 | DL30-0327 |
| 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 at specified values, including certificate | 14, 16, 17, 18 | DL30-0309 |
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder | 15, 18 | DL42-0300 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | 15, 18 | DL44-0500 |
| Warranty service | | | |
| Warranty extension from 2 to 3 years | The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded | – | 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.

BINDER GmbH
Tuttlingen, Germany
TEL +49 7462 2005 0
FAX +49 7462 2005 100
info@binder-world.com
www.binder-world.com

BINDER Asia Pacific (Hong Kong) Ltd.
Kowloon, Hong Kong, P.R. China
TEL +852 39070500
FAX +852 39070507
asia@binder-world.com
www.binder-world.com

Representative Office for CIS
Moscow, Russia
TEL +7 495 988 15 16
FAX +7 495 988 15 17
russia@binder-world.com
www.binder-world.com

BINDER Environmental Testing
Equipment (Shanghai) Co., Ltd.
Shanghai, P.R. China
TEL +86 21 685 808 25
FAX +86 21 685 808 29
china@binder-world.com
www.binder-world.com

BINDER Inc.
Bohemia, NY, USA
TEL +1 631 224 4340
FAX +1 631 224 4354
usa@binder-world.com
www.binder-world.us