

# Model KBF PRO 720 | Humidity test chambers with expanded temperature / humidity range

A powerful all-rounder among constant climate chambers: Equipped with all kinds of sophisticated technology, the KBF PRO takes any material test in its stride – whether it takes place at -20°C or under THB conditions at +85°C and 85% relative humidity. It offers flexible water supply options for all installation sites and consumes up to 40% less energy than its predecessor, the KMF model. Optional light modules are also available to turn the KBF PRO into a chamber for ICH photostability testing or plant growth.

## BENEFITS

- Reliable and powerful thanks to innovative temperature control technology
- Reliable: long-term operation based on proven compressor technology and inner chamber made of stainless steel
- Smart: signal triangle with light-up status display, ergonomic control terminal with touchscreen program controller, rack with telescopic rails
- Efficient: low energy consumption thanks to modern inverter cooling technology



Model 720



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## IMPORTANT FEATURES

- Temperature range: -20 °C to +100 °C
- Humidity range: 10% to 98% RH
- Proven APT.line™ preheating chamber technology
- Up to 40% lower energy consumption compared to the previous model
- Energy-efficient cooling with modern inverter cooling unit
- Cooling with climate-neutral R-290 refrigerant
- Door heating to prevent condensation
- Adjustable fan speed
- Humidity regulation with capacitive humidity sensor and responsive steam humidification
- Sturdy housing design with HIT sandwich technology
- Stainless-steel inner chamber
- Inner doors made of metal oxide-coated safety glass
- Two racks made of stainless steel with telescopic rails
- 80 mm x 45 mm access port with silicone plug
- Floor-standing units featuring sturdy twin casters with brakes at the front
- Intuitive touchscreen controller with time-segment and real-time programming
- Ergonomically adjustable operating terminal
- Signal triangle with light-up status display
- Internal data logger, measured values can be read out in open format via USB
- Class 3.3 independent temperature safety device (DIN 12880) with visual and acoustic alarms
- Unit self-test for comprehensive status analysis
- Data interfaces: Ethernet, USB
- BINDER Multi Management Software APT-COM™ basic edition
- Optional light modules for ICH photostability tests
- Optional LED light modules for plant growth

## ORDERING INFORMATION

| Interior volume   |     | Power supply - unit fuse        | Plug*   | Version  | Model version | Art.-No.  |
|-------------------|-----|---------------------------------|---------|----------|---------------|-----------|
| [cu.ft.]          | [L] |                                 |         |          |               |           |
| Model KBF PRO 720 |     |                                 |         |          |               |           |
| 26                | 727 | 208...240 V 1~ 50/60 Hz -16,0 A | CEE 7/7 | Standard | KBFP720-230V  | 9020-0442 |

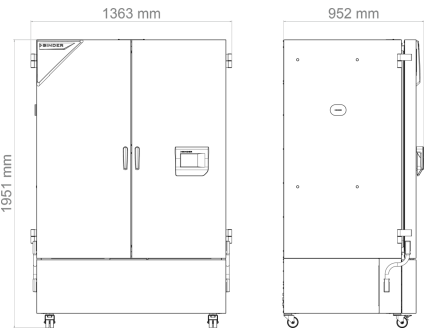
**TECHNICAL DATA**

| Data                                                            |                |
|-----------------------------------------------------------------|----------------|
| Article Number                                                  | 9020-0442      |
| Designation                                                     | KBFPRO720-230V |
| Option model                                                    | Standard       |
| Performance Data Temperature                                    |                |
| Temperature range                                               | -20...100 °C   |
| Max. heat compensation at 40°C                                  | 1,000 W        |
| Performance Data Climate                                        |                |
| Temperature range with humidity                                 | 10...90 °C     |
| Humidity range                                                  | 10...98 % r.F. |
| Temperature uniformity at 25°C and 60% RH                       | 0.3 ± K        |
| Temperature uniformity at 40°C and 75% RH                       | 0.3 ± K        |
| Temperature fluctuation at 25°C and 60% RH                      | 0.1 ± K        |
| Temperature fluctuation at 40°C and 75% RH                      | 0.1 ± K        |
| Humidity fluctuation at 25°C and 60% RH                         | 1 ± % r.F.     |
| Humidity fluctuation at 40°C and 75% RH                         | 1 ± % r.F.     |
| Recovery time after door was opened for 30 s at 25°C and 60% RH | 2 min          |
| Recovery time after door was opened for 30 s at 40°C and 75% RH | 5 min          |
| Electrical data                                                 |                |
| Rated Voltage                                                   | 208...240 V    |
| Power frequency                                                 | 50/60 Hz       |
| Nominal power                                                   | 1,8 kW         |
| Unit fuse                                                       | 16,0 A         |
| Phase (Nominal voltage)                                         | 1~             |
| Dimensions and weights                                          |                |
| Interior volume                                                 | 26 cu.ft.      |
| Net weight of the unit (empty)                                  | 688 lbs        |
| Load per rack                                                   | 88 lbs         |
| Permitted load                                                  | 441 lbs        |
| Wall clearance back                                             | 7,09 in        |

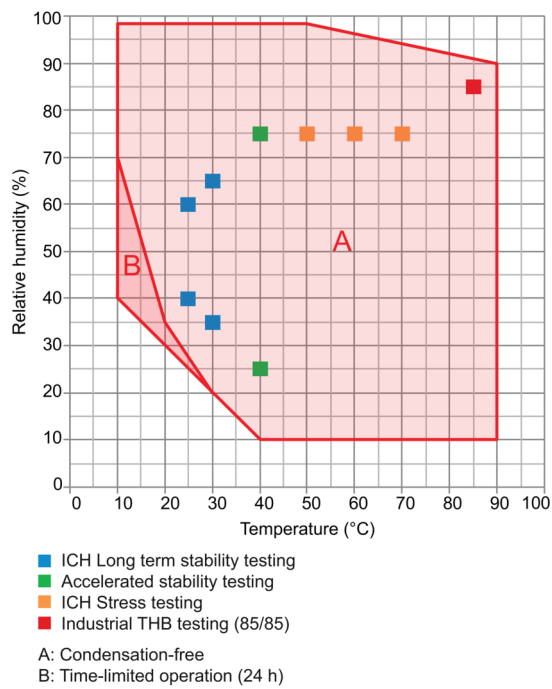
|                                                       |          |
|-------------------------------------------------------|----------|
| Wall clearance sidewise                               | 7,09 in  |
| Housing dimensions not incl. fittings and connections |          |
| Width net                                             | 50.59 in |
| Height net                                            | 76.81 in |
| Depth net                                             | 35.43 in |
| Internal Dimensions                                   |          |
| Interior width                                        | 39.8 in  |
| Interior height                                       | 49.21 in |
| Interior depth                                        | 22.64 in |
| Inner doors                                           | 2        |
| Unit doors                                            | 2        |
| Environment-specific data                             |          |
| Sound-pressure level at 25°C and 60% RH               | 50 dB(A) |
| Energy consumption at 25°C and 60% RH                 | 390 Wh/h |
| Energy consumption at 40°C and 75% RH                 | 435 Wh/h |
| Energy consumption at 85°C and 85% RH                 | 600 Wh/h |
| Fixtures                                              |          |
| Number of shelves (std./max.)                         | 2/16     |

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]



DIAGRAMS



Climate chart

OPTIONS

| Designation                    | Description                                                 | *  | Art.-No.  |
|--------------------------------|-------------------------------------------------------------|----|-----------|
| Access port with silicone plug | left                                                        |    |           |
|                                | 30 mm                                                       | 01 | 8012-2489 |
|                                | 50 mm                                                       | 01 | 8012-2490 |
|                                | 100 mm                                                      | 01 | 8012-2491 |
|                                | right                                                       |    |           |
|                                | 30 mm                                                       | 01 | 8012-2492 |
|                                | 50 mm                                                       | 01 | 8012-2493 |
|                                | 100 mm                                                      | 01 | 8012-2494 |
|                                | top                                                         |    |           |
|                                | 30 mm                                                       | 01 | 8012-2500 |
|                                | 50 mm                                                       | 01 | 8012-2495 |
|                                | 100 mm                                                      | 01 | 8012-2496 |
| Alarm                          | accessible via 3-pin clamping sleeve (max. 24 V - 2.5 A)    | -  | 8012-2504 |
| Analog output 4-20 mA          | for temperature and humidity values (output not adjustable) | -  | 8012-2375 |

| Designation                                       | Description                                                                                                                                                                               | * | Art.-No.  |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------|
| Calibration certificate, expanded                 | for temperature and humidity; for extending the measurement in center of chamber to include another test value                                                                            | - | 8012-2576 |
| Calibration certificate, temperature              | temperature measurement incl. certificate, 9 measuring points at specified temperature                                                                                                    | - | 8012-2379 |
|                                                   | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature                                                                                               | - | 8012-2383 |
|                                                   | temperature measurement incl. certificate and 27 measuring points at specified temperature                                                                                                | - | 8012-2427 |
| Calibration certificate, temperature and humidity | Measurement in center of chamber at 25°C / 60% RH or at specified test values                                                                                                             | - | 8012-2438 |
|                                                   | 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 | - | 8012-2578 |
| Coated heat exchanger                             | For preventing damage to the aluminum heat exchanger caused by corrosive sample material                                                                                                  | - | 8012-2585 |
| Door lock                                         | lockable door handle                                                                                                                                                                      | - | 8012-2539 |
| Door lock, electromechanical                      | can be opened with PIN code via controller                                                                                                                                                | - | 8012-2590 |
| Inner chamber, reinforced                         | permitted load with U rails 300 kg                                                                                                                                                        | - | 8012-2527 |
| Interior lighting                                 | With climate-resistant LEDs, switches when the unit door is opened                                                                                                                        | - | 8012-2566 |
| Shipping pallet                                   | with unloading ramp for installing unit without forklift                                                                                                                                  | - | 8012-2548 |
| Specimen temperature display                      | Flexible Pt 100 indoor temperature sensor, for object temperature display or control                                                                                                      | - | 8012-2554 |
| Swivel casters, height-adjustable                 | For horizontal alignment of the unit on uneven floors                                                                                                                                     | - | 8012-2544 |

## ACCESSORIES

| Designation                           | Description                                                                                                                                                                    | * | Art.-No.  |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------|
| 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 |
| Converter, voltage                    | to operate the device at a nominal voltage of 120 V 1 ph 60 Hz                                                                                                                 |   |           |
|                                       | 240 V option model                                                                                                                                                             | - | 8009-0821 |
| CO <sub>2</sub> gassing module        | BINDER CO <sub>2</sub> gassing module 0-1%, with NDIR CO <sub>2</sub> sensor and analog output 4-20 mA                                                                         | - | 8012-2140 |

| Designation                      | Description                                                                                                                                                                                                                                                                             | * | Art.-No.  |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------|
|                                  | BINDER CO <sub>2</sub> gassing module 0-20%, with NDIR CO <sub>2</sub> sensor and analog output 4-20 mA                                                                                                                                                                                 | - | 8012-2138 |
| ICH light module                 | BINDER ICH-Q1B light module consisting of a VIS cassette and a UVA cassette as well as an independent power supply                                                                                                                                                                      | - | 8012-2442 |
|                                  | BINDER ICH-Q1B light module with light-dose control consisting of a VIS cassette, a UVA cassette, a spherical VIA sensor, a spherical UVA sensor as well as an independent power supply                                                                                                 | - | 8012-2444 |
| 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 500, length 50 cm                                                                                                                                                                                                                                                             | - | 8012-1108 |
|                                  | Basic set 900, length 90 cm                                                                                                                                                                                                                                                             | - | 8012-1109 |
|                                  | Expansion set consisting of 2 pieces, attachment material: clips. For expanding the basic set of light bars                                                                                                                                                                             |   |           |
|                                  | Expansion set 500, length 50 cm                                                                                                                                                                                                                                                         | - | 8012-1717 |
|                                  | Expansion set 900, length 90 cm                                                                                                                                                                                                                                                         | - | 8012-1718 |
| Light module for plants          | BINDER LED plant light module consisting of 16 LED strip lights, 3-channel controller and fresh air pump as well as independent power supply                                                                                                                                            | - | 8012-2439 |
| pH-neutral detergent             | concentrated, for gentle remove of residual contaminants; 1 kg                                                                                                                                                                                                                          | - | 8012-2250 |
| Qualification documents IQ/OQ    | IQ/OQ documents digital in PDF format – supporting documents for validation consisting of: IQ/OQ checklists, comprehensive unit documentation covering:                                                                                                                                 |   |           |
|                                  | temperature, humidity, and light values. Excluded: Document execution is separate.                                                                                                                                                                                                      | - | 7057-0012 |
|                                  | temperature and humidity. Excluded: Document execution is separate.                                                                                                                                                                                                                     | - | 7057-0011 |
| Qualification documents IQ/OQ/PQ | IQ/OQ/PQ documents digital in PDF format – supporting documents for validation customized to customer requirements, PQ section added to the qualification folder IQ/OQ; supporting documents for validation consisting of: IQ/OQ checklists, comprehensive unit documentation covering: |   |           |
|                                  | temperature and humidity values. Excluded: Document execution is separate.                                                                                                                                                                                                              | - | 7057-0017 |
|                                  | temperature, humidity, CO <sub>2</sub> and O <sub>2</sub> values. Excluded: Document execution is separate.                                                                                                                                                                             | - | 7057-0027 |
|                                  | temperature, humidity and CO <sub>2</sub> values. Excluded: Document execution is separate.                                                                                                                                                                                             | - | 7057-0026 |
|                                  | temperature, humidity values and light values. Excluded: Document execution is separate.                                                                                                                                                                                                | - | 7057-0018 |
|                                  | temperature and light values. Excluded: Document execution is separate.                                                                                                                                                                                                                 | - | 7057-0025 |
| Reinforced rack                  | Shelf rack in set with pair of retaining rails (U rails), made entirely of stainless steel                                                                                                                                                                                              |   |           |
|                                  | Load-bearing capacity 80 kg                                                                                                                                                                                                                                                             | - | 8012-2414 |
| Shelf rack, perforated           | Shelf rack in set with pair of retaining rails (U rails), made entirely of stainless steel                                                                                                                                                                                              |   |           |
|                                  | Load-bearing capacity 40 kg                                                                                                                                                                                                                                                             | - | 8012-2408 |
| Standard rack                    | Shelf rack in set with pair of retaining rails (ball bearing mounted telescopic rails), made entirely of stainless steel                                                                                                                                                                |   |           |
|                                  | Load-bearing capacity 40 kg                                                                                                                                                                                                                                                             | - | 8012-2385 |

| Designation  | Description                                                                                                                           | * | Art.-No.  |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------|---|-----------|
|              | Shelf rack in set with pair of retaining rails (U rails), made entirely of stainless steel                                            |   |           |
|              | Load-bearing capacity 40 kg                                                                                                           | - | 8012-2391 |
| Water supply | External, free-standing, set consisting of 20-liter fresh water canister with pump and level sensor and 20-liter waste water canister | - | 8012-2592 |

## SERVICES

| Designation                                                                             | Description                                                                                                                                                                                                                                                                                     | *  | Art.-No.  |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------|
| Calibration services                                                                    |                                                                                                                                                                                                                                                                                                 |    |           |
| Calibration services                                                                    | Calibration of CO <sub>2</sub> concentration at 0,5 % by vol. with analyzed test gas, including certificate                                                                                                                                                                                     | 05 | DL30-0404 |
|                                                                                         | Calibration of CO <sub>2</sub> concentration at 5,0 % by vol. with analyzed test gas, including certificate                                                                                                                                                                                     | 05 | DL30-0405 |
|                                                                                         | Measurement of irradiance (UVA) and illumination intensity (VIS) at 25 measuring points each, recording of emission spectra for UVA and VIS, including certificate                                                                                                                              | 05 | DL30-0530 |
| 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.                                                                                                    | 05 | 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.                                                                                                                          | 05 | DL30-0340 |
| 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.                                            | 05 | 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.                                           | 05 | 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.                                           | 05 | DL30-0327 |
| Installation services                                                                   |                                                                                                                                                                                                                                                                                                 |    |           |
| Installation services                                                                   | Installation of BINDER CO <sub>2</sub> gassing module (0-1% or 0-20%), assembly of supply box, insertion of CO <sub>2</sub> sensor and gas hose in interior, sealing of access port, connection of box to an existing CO <sub>2</sub> gas supply, update of controller data set, function check | 05 | DL10-0130 |
|                                                                                         | Installation of BINDER ICH-Q1B light module: assembly of supply box, insertion and connection of illumination cassettes, (LQC: and of light sensors), sealing of access port, (LQC: update of controller data set), function check                                                              | 05 | DL10-0140 |
|                                                                                         | Installation of BINDER LED plant light module, assembly of supply box, assembly of LED strip lights as specified, laying of cables and fresh air hose, sealing of access port, function check                                                                                                   | 05 | DL10-0150 |
| Unit installation                                                                       | Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.:                                                                                                                                           | 05 | DL10-0170 |

| Designation                        | Description                                                                                                                                                                                                                                                                                                                                                                | *  | Art.-No.  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------|
|                                    | unpacking, setup, controller instructions, programming, installation work) Travel to be quoted as separate.                                                                                                                                                                                                                                                                |    |           |
| 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.                                                                                                                                                                                 | 05 | DL10-0550 |
| <b>Maintenance services</b>        |                                                                                                                                                                                                                                                                                                                                                                            |    |           |
| 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.                                                                                                                  | 05 | 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. | 05 | 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.              | 05 | DL20-0613 |
| 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.                           | 05 | DL20-0820 |
| <b>Validation services</b>         |                                                                                                                                                                                                                                                                                                                                                                            |    |           |
| Execution of IQ/OQ                 | Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.                                                                                                                                                                                                                                                                                  | 05 | DL42-0300 |
| Execution of IQ/OQ/PQ              | Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.                                                                                                                                                                                                                                                                               | 05 | DL44-0500 |
| <b>Warranty service</b>            |                                                                                                                                                                                                                                                                                                                                                                            |    |           |
| 1-year warranty extension          | The warranty is extended by 1 year from the delivery date, wear parts are excluded                                                                                                                                                                                                                                                                                         | 05 | 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.
- 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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