

## Model KB 470 | Cooling incubators with a large temperature range

The powerful virtuoso in cooling incubators for microorganisms: KB units are able to incubate with exceptional precision even when fully loaded, feature a hot-air disinfection routine, and can be programmed for weekend operation with ease. The new KB unit consumes as much as 40% less energy than the previous model.

### BENEFITS

- Assured: highly precise incubation conditions thanks to power reserves
- Reliable: failsafe operation over the long term thanks to proven compressor technology and interior made of stainless steel
- Smart: hot-air disinfection and easy programming of a second set temperature
- Economical: up to 40% lower energy consumption than the previous model thanks to modern inverter cooling technology



Model 470



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### IMPORTANT FEATURES

- Temperature range: 0 °C to +70 °C
- 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-600a refrigerant
- Door heating to prevent condensation
- Sturdy housing design with HIT sandwich technology
- Interior made completely of stainless steel
- Inner doors made of metal oxide-coated safety glass
- Two racks made of stainless steel
- 80 mm x 45 mm access port with silicone plug
- Floor-standing units featuring sturdy twin casters with brakes at the front
- Simple programming of a second set temperature value
- 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

### ORDERING INFORMATION

| Interior volume<br>[L] | Power supply - unit fuse        | Plug*     | Version  | Model version | Art.-No.  |
|------------------------|---------------------------------|-----------|----------|---------------|-----------|
| <b>Model KB 470</b>    |                                 |           |          |               |           |
| 472                    | 220...240 V 1~ 50/60 Hz -16,0 A | CEE 7/7   | Standard | KB470-230V    | 9020-0474 |
|                        | 120 V 1~ 50/60 Hz -16,0 A       | NEMA 5-20 | Standard | KB470UL-120V  | 9020-0502 |

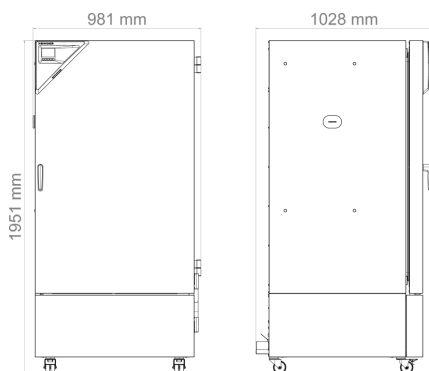
## TECHNICAL DATA

| Data                                                  |             |              |
|-------------------------------------------------------|-------------|--------------|
| Article Number                                        | 9020-0474   | 9020-0502    |
| Designation                                           | KB470-230V  | KB470UL-120V |
| Option model                                          | Standard    | Standard     |
| Performance Data Temperature                          |             |              |
| Temperature range                                     | 0...70 °C   | 0...70 °C    |
| Temperature uniformity at 37°C                        | 0.2 ± K     | 0.2 ± K      |
| Temperature fluctuation at 37°C                       | 0.1 ± K     | 0.1 ± K      |
| Max. heat compensation at 37°C                        | 530 W       | 530 W        |
| Recovery time after door was opened for 30 s at 37°C  | 3 min       | 3 min        |
| Electrical data                                       |             |              |
| Rated Voltage                                         | 220...240 V | 120 V        |
| Power frequency                                       | 50/60 Hz    | 50/60 Hz     |
| Nominal power                                         | 1,3 kW      | 1,3 kW       |
| Unit fuse                                             | 16,0 A      | 16,0 A       |
| Phase (Nominal voltage)                               | 1~          | 1~           |
| Dimensions and weights                                |             |              |
| Interior volume                                       | 472 L       | 472 L        |
| Net weight of the unit (empty)                        | 212 kg      | 212 kg       |
| Load per rack                                         | 40 kg       | 40 kg        |
| Permitted load                                        | 200 kg      | 200 kg       |
| Wall clearance back                                   | 100 mm      | 100 mm       |
| Wall clearance sidewise                               | 180 mm      | 180 mm       |
| Housing dimensions not incl. fittings and connections |             |              |
| Width net                                             | 930 mm      | 930 mm       |
| Height net                                            | 1,951 mm    | 1,951 mm     |
| Depth net                                             | 900 mm      | 900 mm       |
| Internal Dimensions                                   |             |              |
| Interior width                                        | 656 mm      | 656 mm       |
| Interior height                                       | 1,250 mm    | 1,250 mm     |

|                                  |          |          |
|----------------------------------|----------|----------|
| Interior depth                   | 575 mm   | 575 mm   |
| Inner doors                      | 1        | 1        |
| Unit doors                       | 1        | 1        |
| <b>Environment-specific data</b> |          |          |
| Sound-pressure level at 25°C     | 51 dB(A) | 51 dB(A) |
| Energy consumption at 25°C       | 135 Wh/h | 170 Wh/h |
| Energy consumption at 37°C       | 140 Wh/h | 165 Wh/h |
| <b>Fixtures</b>                  |          |          |
| Number of shelves (std./max.)    | 2/16     | 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]



## OPTIONS

| Designation                    | Description | KB 470 | *  | Art.-No.  |
|--------------------------------|-------------|--------|----|-----------|
|                                | left        |        |    |           |
|                                | 30 mm       | •      | 01 | 8012-2465 |
|                                | 50 mm       | •      | 01 | 8012-2466 |
|                                | 100 mm      | •      | 01 | 8012-2467 |
| Access port with silicone plug | right       |        |    |           |
|                                | 30 mm       | •      | 01 | 8012-2468 |
|                                | 50 mm       | •      | 01 | 8012-2469 |
|                                | 100 mm      | •      | 01 | 8012-2470 |
|                                | top         |        |    |           |

| Designation                          | Description                                                                                             | KB 470 | *  | Art.-No.  |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|--------|----|-----------|
|                                      | 30 mm                                                                                                   | •      | 01 | 8012-2497 |
|                                      | 50 mm                                                                                                   | •      | 01 | 8012-2471 |
|                                      | 100 mm                                                                                                  | •      | 01 | 8012-2472 |
| Alarm output, zero-voltage           | accessible via 3-pin clamping sleeve (max. 24 V - 2.5 A)                                                | •      | -  | 8012-2370 |
| Analog output 4-20 mA                | for temperature values (output not adjustable)                                                          | •      | -  | 8012-2371 |
| Calibration certificate, expanded    | for temperature; for extending the measurement in center of chamber to include another test temperature | •      | -  | 8012-2372 |
| Calibration certificate, temperature | for temperature, measurement in center of chamber at specified temperature                              | •      | -  | 8012-2571 |
|                                      | temperature measurement incl. certificate, 9 measuring points at specified temperature                  | •      | -  | 8012-2376 |
|                                      | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature             | •      | -  | 8012-2380 |
|                                      | temperature measurement incl. certificate and 27 measuring points at specified temperature              | •      | -  | 8012-2424 |
| Door lock                            | lockable door handle                                                                                    | •      | -  | 8012-2529 |
| Door lock, electromechanical         | can be opened with PIN code via controller                                                              | •      | -  | 8012-2531 |
| Inner chamber, reinforced            | permitted load with U rails 300 kg                                                                      | •      | -  | 8012-2508 |
| Interior lighting                    | With climate-resistant LEDs, switches when the unit door is opened                                      | •      | -  | 8012-2559 |
| Shipping pallet                      | with unloading ramp for installing unit without forklift                                                | •      | -  | 8012-2545 |
| Specimen temperature display         | Flexible Pt 100 indoor temperature sensor, for object temperature display or control                    | •      | -  | 8012-2549 |
| Swivel casters, height-adjustable    | For horizontal alignment of the unit on uneven floors                                                   | •      | -  | 8012-2541 |

## ACCESSORIES

| Designation                     | Description                                                                                                                                                 | KB 470 | * | 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 |

| Designation             | Description                                                                                                                                                                                                                                                         | KB 470 | * | Art.-No.  |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|-----------|
| 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 |
| 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, CO <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit     |        |   |           |
|                         | Digital in PDF format                                                                                                                                                                                                                                               | •      | - | 7057-0005 |
|                         | Hard copy inside folder                                                                                                                                                                                                                                             | •      | - | 7007-0005 |
|                         | IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit |        |   |           |
|                         | Digital in PDF format                                                                                                                                                                                                                                               | •      | - | 7057-0001 |
|                         | Hard copy inside folder                                                                                                                                                                                                                                             | •      | - | 7007-0001 |
| Reinforced rack         | Shelf rack in set with pair of retaining rails (U rails), made entirely of stainless steel                                                                                                                                                                          |        |   |           |
|                         | Load-bearing capacity 80 kg                                                                                                                                                                                                                                         | •      | - | 8012-2413 |
| Shelf rack, perforated  | Shelf rack in set with pair of retaining rails (U rails), made entirely of stainless steel                                                                                                                                                                          |        |   |           |
|                         | Load-bearing capacity 40 kg                                                                                                                                                                                                                                         | •      | - | 8012-2407 |
| 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                                                                                                                                                                                                                                         | •      | - | 8012-2384 |
|                         | Shelf rack in set with pair of retaining rails (U rails), made entirely of stainless steel                                                                                                                                                                          |        |   |           |
|                         | Load-bearing capacity 40 kg                                                                                                                                                                                                                                         | •      | - | 8012-2390 |

## SERVICES

| Designation                          | Description                                                                                               | *  | Art.-No.  |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------|----|-----------|
| Calibration services                 |                                                                                                           |    |           |
| Calibration certificate, temperature | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate | 05 | DL30-0135 |

| Designation                                  | Description                                                                                                                                                                                                                                                                                                                                 | *  | Art.-No.  |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------|
|                                              | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate                                                                                                                                                                                              | 05 | DL30-0102 |
| Temperature measurement, 9 measuring points  | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate                                                                                                                                                                                                                               | 05 | DL30-0109 |
| Temperature measurement, 18 measuring points | Temperature measurement with 18 measuring points with a set value specified by the user, including certificate                                                                                                                                                                                                                              | 05 | DL30-0118 |
| Temperature measurement, 27 measuring points | Temperature measurement with 27 measuring points with a set value specified by the user, including certificate                                                                                                                                                                                                                              | 05 | DL30-0127 |
| <b>Installation services</b>                 |                                                                                                                                                                                                                                                                                                                                             |    |           |
| 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 | DL10-0170 |
| Unit instructions                            | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming                                                                                                                                                                                                       | 05 | DL10-0550 |
| <b>Maintenance contracts</b>                 |                                                                                                                                                                                                                                                                                                                                             |    |           |
| 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 | DL20-0720 |
| 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 test temperature specified by the user in the center of the usable space, including certificate | 05 | DL20-0945 |
| 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 | DL20-0845 |
| <b>Maintenance services</b>                  |                                                                                                                                                                                                                                                                                                                                             |    |           |
| 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 | DL20-0604 |
| <b>Validation services</b>                   |                                                                                                                                                                                                                                                                                                                                             |    |           |
| Execution of IQ/OQ                           | Execution of IQ/OQ in accordance with qualification folder                                                                                                                                                                                                                                                                                  | 05 | DL41-0200 |
| Execution of IQ/OQ/PQ                        | Execution of IQ/OQ/PQ in accordance with qualification folder                                                                                                                                                                                                                                                                               | 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 | DL50-0010 |

## 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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