Model KB PRO 470 | Cooling incubators with an extended temperature range

A temperature control cabinet that can do it all, the KB PRO is our most powerful cooling incubator. With a temperature range of -20°C to +100°C and comprehensive programming options, it covers a wide range of applications that extend well beyond incubation. Optional light modules are also available to turn the KB PRO into a chamber for ICH photostability testing or plant growth.

BENEFITS

- Reliable and powerful thanks to innovative temperature control technology
- Reliable: failsafe operation over the long term thanks to 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 470



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IMPORTANT FEATURES

- Temperature range: -20 °C to +100 °C
- Proven APT.line™ preheating chamber technology
- Energy-efficient cooling with modern inverter cooling unit
- Cooling with climate-neutral R-290 refrigerant
- Door heating to prevent condensation
- Adjustable fan speed
- 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
- Optional CO_2 gassing modules for plant growth (0-1%) and cell culture (0-20%)

ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
Model KB PRO 470					
472	208...240 V 1~ 50/60 Hz -16,0 A	CEE 7/7	Standard	KBPRO470-230V	9020-0435

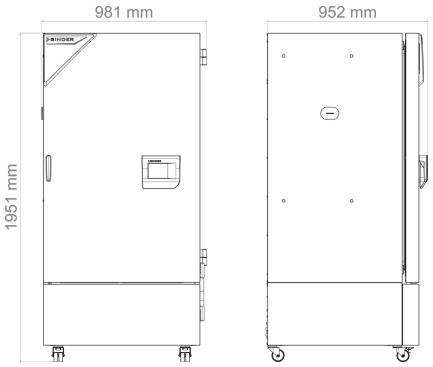
TECHNICAL DATA

Data	
Article Number	9020-0435
Designation	KBPRO470-230V
Option model	Standard
Performance Data Temperature	
Temperature range	-20...100 °C
Temperature uniformity at 37°C	0.2 ± K
Temperature fluctuation at 37°C	0.1 ± K
Max. heat compensation at 37°C	800 W
Recovery time after door was opened for 30 s at 37°C	4 min
Electrical data	
Rated Voltage	208...240 V
Power frequency	50/60 Hz
Nominal power	1,5 kW
Unit fuse	16,0 A
Phase (Nominal voltage)	1~
Dimensions and weights	
Interior volume	472 L
Net weight of the unit (empty)	233 kg
Load per rack	40 kg
Permitted load	200 kg
Wall clearance back	100 mm
Wall clearance sidewise	180 mm
Housing dimensions not incl. fittings and connections	
Width net	930 mm
Height net	1,951 mm
Depth net	900 mm
Internal Dimensions	
Interior width	656 mm
Interior height	1,250 mm

Interior depth	575 mm
Inner doors	1
Unit doors	1
Environment-specific data	
Sound-pressure level at 25°C	50 dB(A)
Energy consumption at 25°C	200 Wh/h
Energy consumption at 37°C	205 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]



OPTIONS

Designation	Description	*	Art.-No.
	left		
	30 mm	01	8012-2473
	50 mm	01	8012-2474
	100 mm	01	8012-2475
Access port with silicone plug	right		
	30 mm	01	8012-2476
	50 mm	01	8012-2477
	100 mm	01	8012-2478
	top		

Designation	Description	*	Art.-No.
	30 mm	01	8012-2498
	50 mm	01	8012-2479
	100 mm	01	8012-2480
Alarm output, zero-voltage	accessible via 3-pin clamping sleeve (max. 24 V - 2.5 A)	-	8012-2502
Analog output 4-20 mA	for temperature values (output not adjustable)	-	8012-2573
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-2373
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	-	8012-2572
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-2377
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-2381
	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-2425
Coated heat exchanger	For preventing damage to the aluminum heat exchanger caused by corrosive sample material	-	8012-2463
Door lock	lockable door handle	-	8012-2532
Door lock, electromechanical	can be opened with PIN code via controller	-	8012-2534
Inner chamber, reinforced	permitted load with U rails 300 kg	-	8012-2514
Interior lighting	With climate-resistant LEDs, switches when the unit door is opened	-	8012-2560
Shipping pallet	with unloading ramp for installing unit without forklift	-	8012-2546
Specimen temperature display	Flexible Pt 100 indoor temperature sensor, for object temperature display or control	-	8012-2553
Swivel casters, height-adjustable	For horizontal alignment of the unit on uneven floors	-	8012-2542

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
CO_2 gassing module	BINDER CO_2 gassing module 0-1%, with NDIR CO_2 sensor and analog output 4-20 mA	-	8012-2140
	BINDER CO_2 gassing module 0-20%, with NDIR CO_2 sensor and analog output 4-20 mA	-	8012-2138

Designation	Description	*	Art.-No.
ICH light module	BINDER ICH-Q1B light module consisting of a VIS cassette and a UVA cassette as well as an independent power supply	-	8012-2441
ICH light module with LQC	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	-	8012-2443
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
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/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature, CO_2, O_2 – 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_2, O_2, 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
	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
CO_2 regulation calibration 0-1%	Calibration of CO_2 concentration at 0,5 % by vol. with analyzed test gas, including certificate	05	DL30-0404
CO_2 regulation calibration 0-20%	Calibration of CO_2 concentration at 5,0 % by vol. with analyzed test gas, including certificate	05	DL30-0405
ICH light measurement with certificate	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 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
Installation services			
Installation CO_2 control module	Installation of the BINDER CO_2 control module (0-1% oder 0-20%), Mounting the supply box, inserting the CO_2 sensor and the gas hose into the interior, sealing the access port, connecting the box to an existing CO_2 gas supply, updating the controller data set, function check	05	DL10-0130
Installation ICH light module	Installation of the BINDER ICH-Q1B light module: Mounting the supply box, installing and connecting the light cassettes, (LQC: and light sensors,) sealing the access port, (LQC: updating the controller dataset,) function check	05	DL10-0140
Installation LED plant light module	Installation of the BINDER LED plant light module, mounting the supply box, mounting the LED light bars on demand, laying the cables and fresh air hose, sealing the access port, function check	05	DL10-0150
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
Maintenance contracts			
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

Designation	Description	*	Art.-No.
Maintenance services			
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
Validation services			
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
Warranty service			
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).

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

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

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