Cooled incubator with mechanical convection

The most versatile among the cooled incubators for microorganisms: The BINDER KB series cooled incubator controls temperature ranges of -5 °C to 100 °C. With its comprehensive program functions, this cooled incubator offers a wide range of capabilities and delivers reproducible test results.

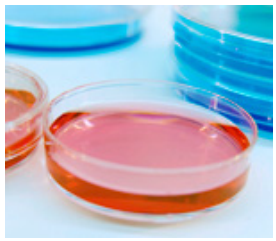
Advantages:

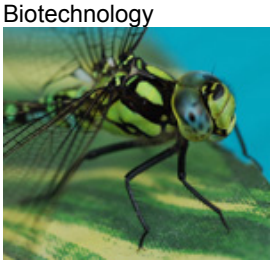
- Safe and reproducible incubation
- Disinfection routine
- Broad range of products and applications

Areas of application:


Biotechnology


Food / Beverage


Microbiology


Plant / Insect Growth

Features	Customer benefits	Characteristics
APT.line™	• Rapid and constant growth of microorganisms • Reliable and reproducable incubation results • Broad range of applications	**APT.line™ for maximum precision** • Homogeneous temperature distribution even under full load • Tenths of a degree accuracy, precise temperature setting • Long-term stability • High standard according to DIN 12880 (27-point measurement)
Disinfection and cleaning	• Simple and fast cleaning • Maximum occupational safety	**Disinfection routine at 100 °C** • High-quality inner chamber made of stainless steel • Fully removable elements without bothersome fixtures
Inner chamber concept	• More specimen storage with the same chamber volume • Minimal operating costs	**High energy efficiency** • Very tight door closure with 2-point door latch • Low heat dissipation due to 60 mm insulation • Inner glass door • Condensation-free inner chamber • Double door seal • Door heating
Cooling system	• Reproducible results • Safe incubation conditions at high ambient temperature • Flexible use of external devices (e.g. shakers)	• Cooling system with large evaporator plates • No freezing thanks to double evaporator plate • Carefully measured cooling up to -5 °C
Control and Documentation	• Professional support during validation • Time and cost savings • Simple data transfer • FDA-compliant documentation	• Programmable controller with intelligent temperature control and weekly program timer • FDA-compliant software APT-COM™ • Years of proven and recognized validation and documentation materials • Standard RS 422 interface for network connection
Accessories and Service	• The appropriate BINDER device for every installation site • Broad range of applications • BINDER INDIVIDUAL for customer-specific solutions • Worldwide BINDER Service	**Wide range of products** • 23 l to 720 l inner chamber with mechanical convection • Additional product lines with humidity, light, CO2 or vacuum • Voltage variants and certificates (UL) • Various options: Shaker platform, inner chamber socket, access ports, Data Logger Kits • Worldwide service network

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- Electronically controlled APT.line™ preheating chamber and patented DCT™ refrigeration system assuring temperature accuracy and reproducible results in both heating and cooling situations
- Temperature range -5 °C to 100 °C
- MP controller with 2 programs with 10 sections each, alternatively switchable to 1 program with 20 sections
- Integrated week program timer with real-time function
  - Adjustable ramp function via program editor
  - Digital temperature setting with an accuracy of a tenth of a degree
  - Adjustable fan speed
  - Elapsed time indicator
- Independent adjustable temperature safety device class 3.1, providing full protection against chamber over-temperature, with visual and audible temperature alarm
- Inner glass doors
- RS 422 interface for communication software APT-COM™ DataControlSystem
- Adjustable intervals for printer
- 4 castors (2 with brakes)
- Access port with silicone plug Ø 30 mm, left side
- 2 stainless steel racks
- BINDER test confirmation

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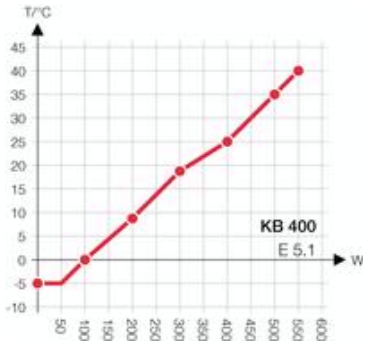
KB 400 (E5.1)

Exterior dimensions	
Width (mm)	930
Height (incl. casters) (mm)	1945
Depth (plus door handle, I-panel and connection 100 mm) (mm)	800
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Interior dimensions	
Width (mm)	650
Height (mm)	1270
Depth (mm)	485
Interior volume (l)	400
Racks (number standard/max.)	2 / 15
Load per rack (kg)	30
Permitted total load (kg)	120
Weight (empty) (kg)	220

Temperature data	
Temperature range (°C) 1)	-5 - 100
Temperature variation max. (± K)	0,6
at 4 °C (± K)	0,4
at 25 °C (± K)	0,2
at 37 °C (± K)	0,3
Temperature fluctuation max. (± K)	0,1
Recovery time after door was opened for 30 sec 2)	
at 4 °C (min.)	14
at 37 °C (min.)	3

Heat compensation



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Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage (± 10%) 50 / 60 Hz (V)	200-240 1N~
Nominal power at 240 V (kW)	1,4
Energy consumption 3)	
at 37 °C (W)	420
Noise level (dB (A))	53

1) Lower values are valid up to an ambient temperature of max. 25 °C
2) To 98% of the set value
3) These values can be used for dimensioning air condition systems

The useable interior height depends on the position of racks

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a line voltage fluctuation of ±10%. The temperature data is determined in accordance to factory standard following DIN 12880, respecting the recommended wall clearances of 10% of the height, width and depth of the inner chamber. All figures are typical average values for series devices. We reserve the right to alter technical specifications at any time.

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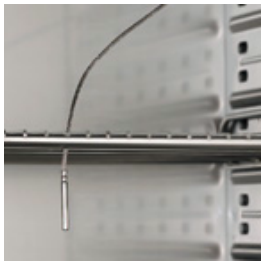
Watertight inner chamber socket

Switched via main switch. For connecting external devices within the chamber.

BINDER Data Logger Kits

The new BINDER Data Logger Kits – Makes independent recording of temperature data in the BINDER device possible. The tailored product solution contains helpful accessories: from mounting the logger to the BINDER device to cable access assistance to the sensor mount.

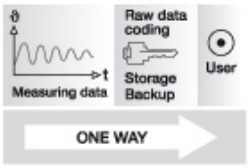


Additional PT 100 temperature sensor

Fixed or flexible installation with external connection for accurate temperature measurement within the sample material.

Calibration certificate & validation

BINDER can significantly reduce the workload in qualifying and validating devices. Nobody knows our devices as well and has as much experience in certifications as we do.



Operating data documentation: APT-COM™ DataControlSystem

The only standard software that guarantees seamless documentation of all testing parameters in compliance with standards. Can be fully validated in accordance with GLP/GMP and FDA 21 CFR Part 11.

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Access ports with silicone plug 30, 50, 100 mm	O
Securing elements for additional fastening of racks (1 set of 4 pieces)	O
Additional PT 100 temperature sensor, flexibly installed, with external connection, including DIN connector (6-pin)	O
Ethernet interface for communication software APT-COM™ DataControlSystem	O
Factory calibration certificate. Measurement in center of chamber at 37 °C or at specified testing temperature	O
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or temperature	O
Temperature measurement acc. to DIN 12880 (27 measuring points) at 37 °C or at specified temperature with measuring protocol and certificate	O
Data Logger Kit T 220: For continuous temperature recording of -90 °C to 220 °C. Kit includes 1 data logger, PT 100 sensor with 2 m Teflon extension cable and 1 fixture for the connection at the BINDER unit	O
Data Logger converter cable RS 232 to USB 2.0	O
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	O
Rack, stainless steel	O
Reinforced rack, stainless steel, with 1 set of securing elements (1 set of 4 pieces), max. load 70 kg	O
Shelf, perforated, stainless steel	O
Vibration compatible shelf / platform (positioned at bottom level) to be mounted inside the chamber for shaker / spinner / roller operation. Other positions available on request	O
Locking door handle with key	O
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	O
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug (IP66 protected) Max. allowed operating temperature 50 °C	O
Analog temperature output, 4-20 mA, with 6-pin DIN socket (output not adjustable)	O
Zero-voltage relay outputs accessible via 6-pin DIN socket. Additional module for controlling 2 relay outputs via 2 of the programmable controller's controller contacts. Outputs can be switched on and off program-controlled either automatically, or also manually	O

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