

## Refrigerated incubators with forced convection

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



### Advantages:

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

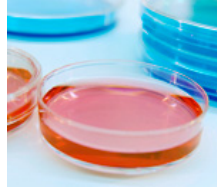
### Areas of application:



Biotechnology



Food / Beverage



Microbiology



Plant / Insect Growth

Features	Customer benefits	Characteristics
APT.line™	<ul style="list-style-type: none"> <li>• Rapid and constant growth of microorganisms</li> <li>• Reliable and reproducible incubation results</li> <li>• Broad range of applications</li> </ul>	<b>APT.line™ for maximum precision</b> <ul style="list-style-type: none"> <li>• Homogeneous temperature distribution even under full load</li> <li>• Tenths of a degree accuracy, precise temperature setting</li> <li>• Long-term stability</li> <li>• High standard according to DIN 12880 (27-point measurement)</li> </ul>
Disinfection and cleaning	<ul style="list-style-type: none"> <li>• Simple and fast cleaning</li> <li>• Maximum occupational safety</li> </ul>	<b>Disinfection routine at 100 °C</b> <ul style="list-style-type: none"> <li>• High-quality inner chamber made of stainless steel</li> <li>• Fully removable elements without bothersome fixtures</li> </ul>
Inner chamber concept	<ul style="list-style-type: none"> <li>• More specimen storage with the same chamber volume</li> <li>• Minimal operating costs</li> </ul>	<b>High energy efficiency</b> <ul style="list-style-type: none"> <li>• Very tight door closure with 2-point door latch</li> <li>• Low heat dissipation due to 60 mm insulation</li> <li>• Inner glass door</li> <li>• Condensation-free inner chamber</li> <li>• Double door seal</li> <li>• Door heating</li> </ul>
Cooling system	<ul style="list-style-type: none"> <li>• Reproducible results</li> <li>• Safe incubation conditions at high ambient temperature</li> <li>• Flexible use of external devices (e.g. shakers)</li> </ul>	<ul style="list-style-type: none"> <li>• Cooling system with large evaporator plates</li> <li>• No freezing thanks to double evaporator plate</li> <li>• Carefully measured cooling up to -5 °C</li> </ul>
Control and Documentation	<ul style="list-style-type: none"> <li>• Professional support during validation</li> <li>• Time and cost savings</li> <li>• Simple data transfer</li> <li>• FDA-compliant documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Programmable controller with intelligent temperature control and weekly program timer</li> <li>• FDA-compliant software APT-COM™</li> <li>• Years of proven and recognized validation and documentation materials</li> <li>• Standard RS 422 interface for network connection</li> </ul>
Accessories and Service	<ul style="list-style-type: none"> <li>• The appropriate BINDER device for every installation site</li> <li>• Broad range of applications</li> <li>• BINDER INDIVIDUAL for customer-specific solutions</li> <li>• Worldwide BINDER Service</li> </ul>	<b>Wide range of products</b> <ul style="list-style-type: none"> <li>• 23 l to 720 l inner chamber with mechanical convection</li> <li>• Additional product lines with humidity, light, CO<sub>2</sub> or vacuum</li> <li>• Voltage variants and certificates (UL)</li> <li>• Various options: Shaker platform, inner chamber socket, access ports, Data Logger Kits</li> <li>• Worldwide service network</li> </ul>

- Electronically controlled APT.line™ preheating chamber with DCT™ cooling system assuring temperature accuracy and reproducible results
- 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 weekly 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 temperature safety device class 3.1 (DIN 12880) with optical and audible temperature alarm
- Inner glass doors
- RS 422 interface for use with APT-COM™ DataControlSystem communication software or switch over to printer output with RS 232 / RS 422 interface converter
- Adjustable intervals for printer
- Access port with silicone plug Ø 30 mm, left side
- 2 shelves, stainless steel
- BINDER test certificate

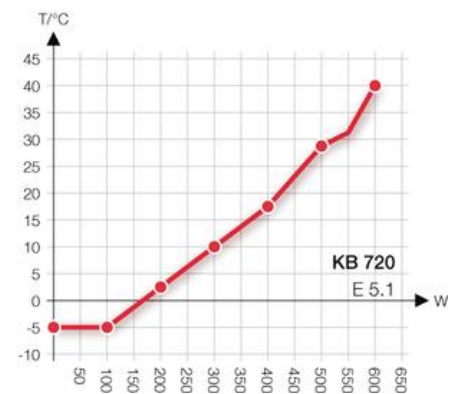
## KB 720 (E5.1)

▶ Exterior dimensions	
Width (mm)	1250
Height (incl. casters) (mm)	1925
Depth (plus door handle, I-panel and connection 52 mm) (mm)	887
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Steam space volume (l)	918
Number of doors (ea.)	2
Inner glass door(s) (ea.)	2

▶ Interior dimensions	
Width (mm)	970
Height (mm)	1250
Depth (mm)	576
Interior volume (l)	698
Racks (number standard/max.)	2 / 15
Load per rack (kg)	45
Permitted total load (kg)	150
Weight (empty) (kg)	309

▶ Temperature data	
Temperature range (°C) 1)	-5 - 100
Temperature variation max. (± C)	0,5
at 4 °C (± K)	0,2
at 25 °C (± K)	0,2
at 37 °C (± K)	0,2
Temperature fluctuation max. (± K)	0,1
Recovery time after door was opened for 30 sec 2)	
at 4 °C (min.)	12
at 37 °C (min.)	2

## Heat compensation



**KB 720 (E5.1)**

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	200-240 1N~
Nominal power at 240 V (kW)	2,3
Energy consumption 3)	
at 37 °C (W)	510
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  $\pm 10\%$ . 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.



### Watertight inner chamber socket

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



### Additional PT 100 temperature sensor

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



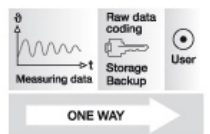
### Calibration certificate & validation

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.



### 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.



### 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.

**KB 720 (E5.1)**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Fasteners for additional security for racks (1 set of 4)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed with external connection, includes 6-pin DIN socket	<input type="radio"/>
Ethernet interface for communication software APT-COM™ DataControlSystem	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 37 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points) at 37 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
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 mounting to the BINDER unit	<input type="radio"/>
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Reinforced rack, stainless steel, with 1 set of fasteners (1 set of 4), max. load 70 kg	<input type="radio"/>
Perforated shelf, stainless steel	<input type="radio"/>
Stable shelf (positioned at bottom shelf level) with additional mounting for shaker operation. Other positions possible on request	<input type="radio"/>
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	<input type="radio"/>
Switchable waterproof interior socket 230 V AC (max. 200 W), Protection class IP 65, with corresponding plug (protection class IP 66). Max. permissible operating temperature 50 °C	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Zero-voltage relay outputs accessible via 6-pin DIN socket. Additional module for controlling 2 relay outputs via 2 of the programmable controller's contacts. Outputs can be switched on and off either automatically and manually	<input type="radio"/>
Door lock	<input type="radio"/>