

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

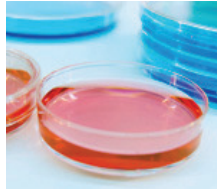
Areas of application:



Biotechnology



Food / Beverage



Microbiology



Plant / Insect Growth

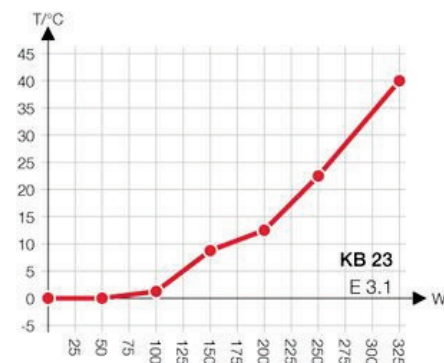
Features	Customer benefits	Characteristics
APT.line™	<ul style="list-style-type: none"> • Rapid and constant growth of microorganisms • Reliable and reproducible incubation results • Broad range of applications 	APT.line™ for maximum precision <ul style="list-style-type: none"> • Homogeneous temperature 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	<ul style="list-style-type: none"> • Simple and fast cleaning • Maximum occupational safety 	Disinfection routine at 100 °C <ul style="list-style-type: none"> • High-quality inner chamber made of stainless steel • Fully removable elements without bothersome fixtures
Inner chamber concept	<ul style="list-style-type: none"> • More specimen storage with the same chamber volume • Minimal operating costs 	High energy efficiency <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Reproducible results • Safe incubation conditions at high ambient temperature • Flexible use of external devices (e.g. shakers) 	<ul style="list-style-type: none"> • Cooling system with large evaporator plates • No freezing thanks to double evaporator plate • Carefully measured cooling up to -5 °C
Control and Documentation	<ul style="list-style-type: none"> • Professional support during validation • Time and cost savings • Simple data transfer • FDA-compliant documentation 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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

- 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 0 °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 alarm
- Inner glass door
- RS 422 interface for communication software APT-COM™ DataControlSystem
- Adjustable intervals for printer
- Units up to 115 liters are stackable
- 2 shelves, stainless steel
- BINDER test confirmation

KB 23 (E3.1)

▶ Exterior dimensions	
Width (mm)	435
Height (incl. feet) (mm)	620
Depth (plus door handle, l-panel and connection 73 mm) (mm)	520
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Steam space volume (l)	36
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Heat compensation



▶ Interior dimensions	
Width (mm)	222
Height (mm)	330
Depth (mm)	277
Interior volume (l)	20
Racks (number standard/max.)	2 / 3
Load per rack (kg)	10
Permitted total load (kg)	25
Weight (empty) (kg)	44

▶ Temperature data	
Temperature range (°C) 1)	0 - 100
Temperature variation	
at 4 °C (± K)	0,7
at 25 °C (± K)	0,3
at 37 °C (± K)	0,3
Temperature fluctuation max. (± K)	0,2
Recovery time after door was opened for 30 sec 2)	
at 4 °C (min.)	5
at 37 °C (min.)	2

KB 23 (E3.1)

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ($\pm 10\%$) 50 / 60 Hz (V)	230, 1 N ~
Nominal power (kW)	0,34
Energy consumption 3)	
at 37 °C (W)	60
Noise level (dB (A))	47

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.



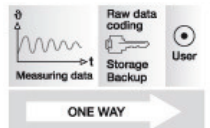
Calibration certificate & validation

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 23 (E3.1)

Access ports with silicone plug 10, 30, 50, 100 mm	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including LEMO connector (3-pin)	<input type="radio"/>
Factory calibration certificate, measurement in center of chamber at 37 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration factory certificate. Each additional measurement at an additional measuring point or temperature	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (15 measuring points) at 37 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Data Logger Kit T 220: For the 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	<input type="radio"/>
Data Logger converter cable RS 232 to USB 2.0	<input type="radio"/>
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Locking door handle with key	<input type="radio"/>
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug. Max. allowed operating temperature 50 °C	<input type="radio"/>
Analog temperature output, 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 controller contacts. Outputs can be switched on and off program-controlled either automatically, or also manually	<input type="radio"/>

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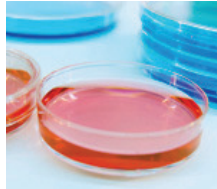
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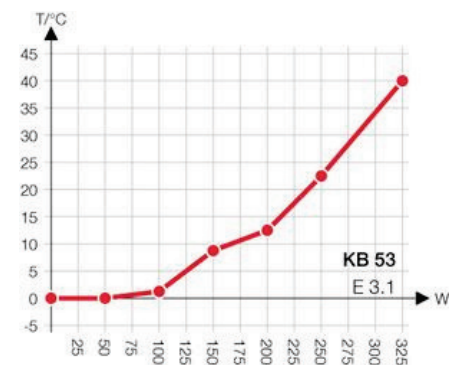
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- Temperature range -5 °C to 100 °C
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- Integrated week program timer with real-time function
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 - Elapsed time indicator
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- Adjustable intervals for printer
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- 2 shelves, stainless steel
- BINDER test confirmation

KB 53 (E3.1)

▶ Exterior dimensions	
Width (mm)	635
Height (incl. feet) (mm)	840
Depth (plus door handle, l-panel and connection 100 mm) (mm)	580
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	160
Steam space volume (l)	77
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Heat compensation



▶ Interior dimensions	
Width (mm)	400
Height (mm)	400
Depth (mm)	330
Interior volume (l)	53
Racks (number standard/max.)	2 / 4
Load per rack (kg)	15
Permitted total load (kg)	40
Weight (empty) (kg)	72

▶ Temperature data	
Temperature range (°C) 1)	-5 - 100
Temperature variation	
at 4 °C (± K)	0,6
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.)	4
at 37 °C (min.)	1

KB 53 (E3.1)

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ($\pm 10\%$) 50 / 60 Hz (V)	230, 1 N ~
Nominal power (kW)	0,46
Energy consumption 3)	
at 37 °C (W)	215
Noise level (dB (A))	47

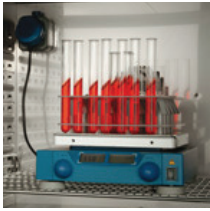
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The useable interior height depends on the position of racks.

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

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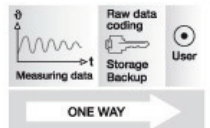
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Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including LEMO connector (3-pin)	<input type="radio"/>
Factory calibration certificate, measurement in center of chamber at 37 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration factory certificate. Each additional measurement at an additional measuring point or 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 the 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	<input type="radio"/>
Data Logger converter cable RS 232 to USB 2.0	<input type="radio"/>
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Vibration compatible shelf / platform (positioned at bottom level) to be mounted inside the chamber for shaker / spinner / roller operation	<input type="radio"/>
Locking door handle with key	<input type="radio"/>
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	<input type="radio"/>
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug. Max. allowed operating temperature 50 °C	<input type="radio"/>
Analog temperature output, 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 controller contacts. Outputs can be switched on and off program-controlled either automatically, or also manually	<input type="radio"/>
Interior lighting (15 W)	<input type="radio"/>

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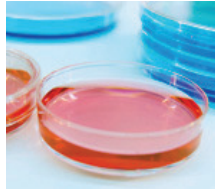
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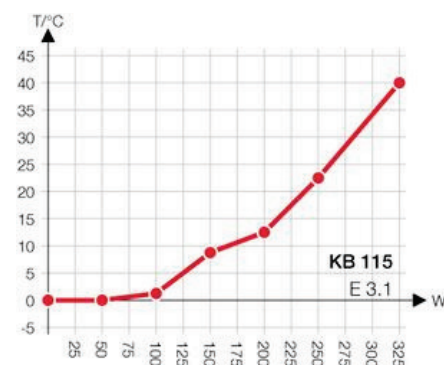
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Inner chamber concept	<ul style="list-style-type: none"> • More specimen storage with the same chamber volume • Minimal operating costs 	High energy efficiency <ul style="list-style-type: none"> • Very tight door closure with 2-point door latch • Low heat dissipation due to 60 mm insulation • Inner glass door • Condensation-free inner chamber • Double door seal • Door heating
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Control and Documentation	<ul style="list-style-type: none"> • Professional support during validation • Time and cost savings • Simple data transfer • FDA-compliant documentation 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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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- Inner glass door
- RS 422 interface for communication software APT-COM™ DataControlSystem
- Adjustable intervals for printer
- Units up to 115 liters are stackable
- 2 shelves, stainless steel
- BINDER test confirmation

KB 115 (E3.1)

▶ Exterior dimensions	
Width (mm)	835
Height (incl. feet) (mm)	1025
Depth (plus door handle, l-panel and connection 100 mm) (mm)	650
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	160
Steam space volume (l)	158
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Heat compensation



▶ Interior dimensions	
Width (mm)	600
Height (mm)	480
Depth (mm)	400
Interior volume (l)	115
Racks (number standard/max.)	2 / 5
Load per rack (kg)	20
Permitted total load (kg)	50
Weight (empty) (kg)	105

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

KB 115 (E3.1)

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ($\pm 10\%$) 50 / 60 Hz (V)	230, 1 N ~
Nominal power (kW)	0,46
Energy consumption 3)	
at 37 °C (W)	115
Noise level (dB (A))	47

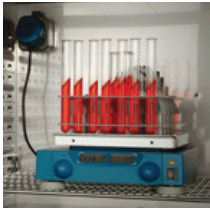
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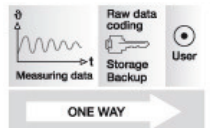
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KB 115 (E3.1)

Access ports with silicone plug 10, 30, 50, 100 mm	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including LEMO connector (3-pin)	<input type="radio"/>
Factory calibration certificate, measurement in center of chamber at 37 °C or at specified testing temperature	<input type="radio"/>
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Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
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Vibration compatible shelf / platform (positioned at bottom level) to be mounted inside the chamber for shaker / spinner / roller operation	<input type="radio"/>
Locking door handle with key	<input type="radio"/>
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	<input type="radio"/>
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug. Max. allowed operating temperature 50 °C	<input type="radio"/>
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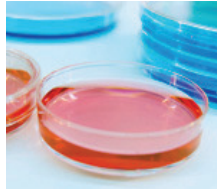
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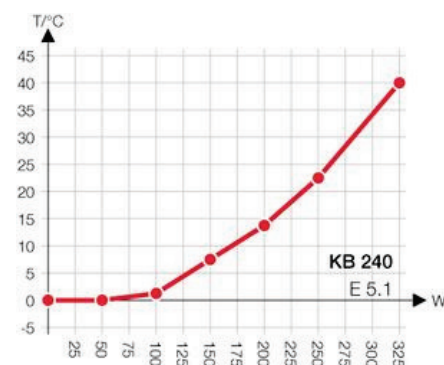
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Disinfection and cleaning	<ul style="list-style-type: none"> • Simple and fast cleaning • Maximum occupational safety 	Disinfection routine at 100 °C <ul style="list-style-type: none"> • High-quality inner chamber made of stainless steel • Fully removable elements without bothersome fixtures
Inner chamber concept	<ul style="list-style-type: none"> • More specimen storage with the same chamber volume • Minimal operating costs 	High energy efficiency <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Reproducible results • Safe incubation conditions at high ambient temperature • Flexible use of external devices (e.g. shakers) 	<ul style="list-style-type: none"> • Cooling system with large evaporator plates • No freezing thanks to double evaporator plate • Carefully measured cooling up to -5 °C
Control and Documentation	<ul style="list-style-type: none"> • Professional support during validation • Time and cost savings • Simple data transfer • FDA-compliant documentation 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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

- 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 door
- 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

KB 240 (E5.1)

▶ Exterior dimensions	
Width (mm)	930
Height (incl. casters) (mm)	1460
Depth (plus door handle, l-panel and connection 100 mm) (mm)	800
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Steam space volume (l)	348
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Heat compensation



▶ Interior dimensions	
Width (mm)	650
Height (mm)	785
Depth (mm)	485
Interior volume (l)	247
Racks (number standard/max.)	2 / 9
Load per rack (kg)	30
Permitted total load (kg)	100
Weight (empty) (kg)	170

▶ Temperature data	
Temperature range (°C) 1)	-5 - 100
Temperature variation max. (± K)	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.)	16
at 37 °C (min.)	1

KB 240 (E5.1)

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ($\pm 10\%$) 50/60 Hz (V)	200-240, 1 N ~
Nominal power at 240 V (kW)	1,2
Energy consumption 3)	
at 37 °C (W)	260
Noise level (dB (A))	52

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.



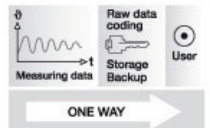
Calibration certificate & validation

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 240 (E5.1)

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	
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

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

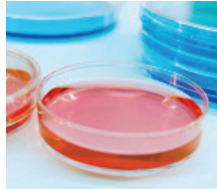
Areas of application:



Biotechnology



Food / Beverage



Microbiology



Plant / Insect Growth

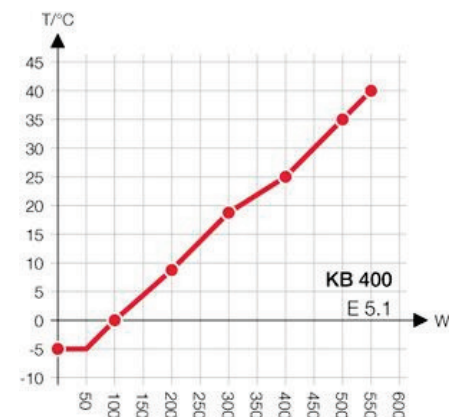
Features	Customer benefits	Characteristics
APT.line™	<ul style="list-style-type: none"> • Rapid and constant growth of microorganisms • Reliable and reproducible incubation results • Broad range of applications 	APT.line™ for maximum precision <ul style="list-style-type: none"> • Homogeneous temperature 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	<ul style="list-style-type: none"> • Simple and fast cleaning • Maximum occupational safety 	Disinfection routine at 100 °C <ul style="list-style-type: none"> • High-quality inner chamber made of stainless steel • Fully removable elements without bothersome fixtures
Inner chamber concept	<ul style="list-style-type: none"> • More specimen storage with the same chamber volume • Minimal operating costs 	High energy efficiency <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Reproducible results • Safe incubation conditions at high ambient temperature • Flexible use of external devices (e.g. shakers) 	<ul style="list-style-type: none"> • Cooling system with large evaporator plates • No freezing thanks to double evaporator plate • Carefully measured cooling up to -5 °C
Control and Documentation	<ul style="list-style-type: none"> • Professional support during validation • Time and cost savings • Simple data transfer • FDA-compliant documentation 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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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- Temperature range -5 °C to 100 °C
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- 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

KB 400 (E5.1)

▶ Exterior dimensions	
Width (mm)	930
Height (incl. casters) (mm)	1945
Depth (plus door handle, l-panel and connection 100 mm) (mm)	800
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Steam space volume (l)	564
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Heat compensation



▶ 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

KB 400 (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)	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 $\pm 10\%$. 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.



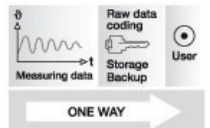
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KB 400 (E5.1)

Access ports with silicone plug 30, 50, 100 mm	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including DIN connector (6-pin)	<input type="radio"/>
Ethernet interface for communication software APT-COM™ DataControlSystem	<input type="radio"/>
Factory calibration certificate. Measurement in center of chamber at 37 °C or at specified testing temperature	<input type="radio"/>
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or 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 the connection at the BINDER unit	<input type="radio"/>
Data Logger converter cable RS 232 to USB 2.0	<input type="radio"/>
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Reinforced rack, stainless steel, with 1 set of securing elements (1 set of 4 pieces), max. load 70 kg	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Vibration compatible shelf / platform (positioned at bottom level) to be mounted inside the chamber for shaker / spinner / roller operation. Other positions available on request	<input type="radio"/>
Locking door handle with key	<input type="radio"/>
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	<input type="radio"/>
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug (IP66 protected) Max. allowed operating temperature 50 °C	<input type="radio"/>
Analog temperature output, 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 controller contacts. Outputs can be switched on and off program-controlled either automatically, or also manually	<input type="radio"/>

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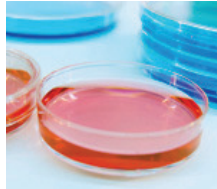
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- Inner glass door
- RS 422 interface for communication software APT-COM™ DataControlSystem
- Adjustable intervals for printer
- 4 castors (2 with brakes)
- Access port with silicone plug Ø 30 mm, left side
- 2 stainless steel racks
- BINDER test confirmation

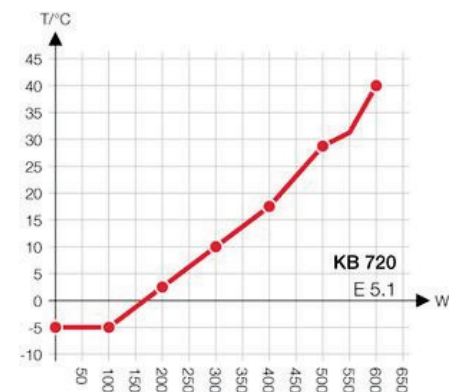
KB 720 (E5.1)

▶ Exterior dimensions	
Width (mm)	1255
Height (incl. casters) (mm)	1925
Depth (plus door handle, l-panel and connection 100 mm) (mm)	890
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, 1 N ~
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.



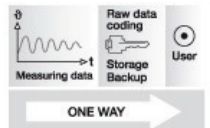
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KB 720 (E5.1)

Access ports with silicone plug 30, 50, 100 mm	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including DIN connector (6-pin)	<input type="radio"/>
Ethernet interface for communication software APT-COM™ DataControlSystem	<input type="radio"/>
Factory calibration certificate. Measurement in center of chamber at 37 °C or at specified testing temperature	<input type="radio"/>
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or 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 the connection at the BINDER unit	<input type="radio"/>
Data Logger converter cable RS 232 to USB 2.0	<input type="radio"/>
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Reinforced rack, stainless steel, with 1 set of securing elements (1 set of 4 pieces), max. load 70 kg	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Vibration compatible shelf / platform (positioned at bottom level) to be mounted inside the chamber for shaker / spinner / roller operation. Other positions available on request	<input type="radio"/>
Locking door handle with key	<input type="radio"/>
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	<input type="radio"/>
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug (IP66 protected) Max. allowed operating temperature 50 °C	<input type="radio"/>
Analog temperature output, 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 controller contacts. Outputs can be switched on and off program-controlled either automatically, or also manually	<input type="radio"/>