Incubators and cooling incubators



Incubator with gravity convection

The BINDER incubator of the BD series with gravity convection is the specialist in long-term and stable continuous operation. This incubator is specially designed for gentle incubation of organisms, as well as conditioning of heat-sensitive media or microbiological heating.



Advantages:

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

Areas of application:



Basic Research / Research Institutes



Food / Beverage



Microbiology



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
Control and Documentation	 Professional support during validation Time and cost savings Simple data transfer FDA-compliant documentation 	 Microprocessor control 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 I to 720 I inner chamber with gravity 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

Performance characteristics



- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range from 5 °C above room temperature to 100 °C
- · DS control with integrated timer 0 to 99 hrs
- Digital temperature setting with an accuracy of a tenth of a degree
- Independent temperature safety device class 3.1 (DIN 12880) with optical alarm
- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Inner glass doors
- RS 422 interface for communication software APT-COM™ DataControlSystem
- 2 chrome-plated racks included
- · BINDER test confirmation



BD 400

•	Exterior dimensions	
	Width (mm)	1235
	Height (incl. feet) (mm)	1025
	Depth (mm)	765
	Plus door handle and connection (mm)	90
	Wall clearance, rear (mm)	100
	Wall clearance, side (mm)	160
	Steam space volume (I)	457
	Number of doors (ea.)	2

•	Interior dimensions	
	Width (mm)	1000
	Height (mm)	800
	Depth (mm)	500
	Interior volume (I)	400
	Racks (number standard/max.)	2 / 10
	Load per rack (kg)	35
	Permitted total load (kg)	90
	Weight (empty) (kg)	135

Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	100
Temperature variation	
at 37 °C (± K)	0,5
at 50 °C (± K)	0,9
Temperature fluctuation	
at 37 °C (± K)	0,1
at 50 °C (± K)	0,1
Warm-up time 1)	
to 37 °C (min.)	105
to 50 °C (min.)	132
Recovery time after doors were open for 30 sec. 1)	
at 37 °C (min.)	6
at 50 °C (min.)	29

Specifications



BD 400

•	Electrical data	
	IP protection class acc. to EN 60529	IP 20
	Voltage (± 10%) 50/60 Hz (V)	230
	Nominal power (kW)	0,85
	Energy consumption at 37 °C (W)	56

1) To 98% of the set value

All technical data are specified for units with standard equipment at an ambient temperature of 25 $^{\circ}$ 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.





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.



Watertight inner chamber socket

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



Door lock

Prevents unauthorized access to the process sequences in the chamber.



Numerous access ports

With silicone plugs for introducing external measuring instruments into the chamber, access ports with 10, 30, 50, 100 mm diameters.

Options



BD 400

Access ports with silicone plug, 10, 30, 50, 100 mm	0
Switchable waterproof interior socket 230 V AC (max. 500 W), protection class IP 65, with corresponding plug. Max. permissible operating temperature 50 $^{\circ}$ C	0
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	0
Additional PT 100 temperature sensor, flexibly installed with external connection, includes LEMO connector (3-pin)	0
Temperature measurement acc. to DIN 12880 (27 measuring points) at 37 $^{\circ}$ C or at specified temperature with measuring protocol and certificate	0
Calibration certificate, measurement in center of chamber at 37 °C or at specified testing temperature	0
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	0
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	0
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	0
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable	0
Rack, chrome-plated	0
Rack, stainless steel	0
Perforated shelf, stainless steel	0
Door lock	0