

BD 400 - Microbiological incubator with natural convection

BD series incubators are specially designed for long-term and stable continuous operation. Ideal for gentle incubation of organisms, such as on agar plates, and also for conditioning of heat sensitive media.



► Performance features and equipment:

- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range 5 °C (41 °F) above ambient up to 100 °C (212 °F)
- · Digital temperature setting with an accuracy of a tenth of a degree
- DS controller with integrated timer 0 to 99 h
- Independent adjustable temperature safety device class 3.1, providing full protection against chamber over-temperature, with visual alarm
- Adjustable ventilation by means of rear exhaust duct, Ø 50 mm (1.97 inch) with ventilation flap and front ventilation slide
- · Inner glass door
- RS 422 interface for use with optional GMP/GLP and FDA guideline 21 CFR Part 11 compliant APT-COM™
 DataControlSystem software
- Units up to 115 liters (4.1 cu.ft.) are stackable
- 2 chrome-plated racks included
- · BINDER test certificate





Width (mm/inch)		BD 400
Height (inclusive feet) (mm/inch) Depth (mm/inch) Depth (mm/inch) Depth (mm/inch) Depth (mm/inch) Depth (mm/inch) Wall clearance rear (mm/inch) Wall clearance side (mm/inch) Wall clearance side (mm/inch) Steam space volume (l/cu.ft.) Number of doors Interior dimensions Width (mm/inch) Height (mm/inch) Depth (mm/inch) Depth (mm/inch) Depth (mm/inch) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature variation at 37 °C (½ °C) Temperature variation at 37 °C (Min.) Heating up time 1) to 37 °C (Min.) Heating up time 1) to 37 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) At 50 °C (Min.) Bettertical data Housing protection acc. to EN 60529 Nominal power (kW) Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) Nominal power (kW) Nominal power (kW) Nominal voltage (±10 %) 50 / 60 Hz (V)	Exterior dimensions	
Depth (mm/inch) 765 / 30.1 plus door handle and exhaust duct (mm/inch) 90 / 3.5 Wall clearance rear (mm/inch) 100 / 3.9 Wall clearance side (mm/inch) 160 / 6.3 Steam space volume (l/cu.ft.) 457 / 16.2 Number of doors 2 Interior dimensions Width (mm/inch) 1000 / 39.4 Height (mm/inch) 500 / 19.7 Interior volume (l/cu.ft.) 400 / 14.3 Racks (number standard/max.) 2 / 10 Load per rack (kg/lbs.) 35 / 77 Permitted total load (kg/lbs.) 90 / 199 Weight of the unit (empty) (kg/lbs.) 135 / 298 Temperature data Temperature variation 1 100 / 212 Temperature variation 1 100 / 212 Temperature fluctuation (± °C) 1 0.5 at 50 °C (± °C) 0.9 Temperature fluctuation (± °C) 1 0.1 at 50 °C (Min.) 105 to 50 °C (Min.) 105 Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,855	Width (mm/inch)	1234 / 48.6
plus door handle and exhaust duct (mm/inch) Wall clearance rear (mm/inch) Wall clearance side (mm/inch) Steam space volume (l/cu.ft.) Number of doors Interior dimensions Width (mm/inch) Height (mm/inch) Depth (mm/inch) Depth (mm/inch) Interior volume (l/cu.ft.) Racks (number standard/max.) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) to 50 °C (Min.) Heating up time 1) to 50 °C (Min.) at 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) Nominal power (kW)	Height (inclusive feet) (mm/inch)	1022 / 40.2
Wall clearance rear (mm/inch) Wall clearance side (mm/inch) Wall clearance side (mm/inch) Steam space volume (l/cu.ft.) Number of doors 2 Interior dimensions Width (mm/inch) Height (mm/inch) Depth (mm/inch) Depth (mm/inch) Interior volume (l/cu.ft.) Racks (number standard/max.) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) Heating up time 1) to 37 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal power (kW) Nominal power (kW)	Depth (mm/inch)	765 / 30.1
Wall clearance side (mm/inch) Steam space volume (I/cu.ft.) Number of doors Interior dimensions Width (mm/inch) Height (mm/inch) Depth (mm/inch) Depth (mm/inch) Interior volume (I/cu.ft.) Racks (number standard/max.) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 37 °C (Min.) Heating up time 1) to 37 °C (Min.) Heating up time 1) to 37 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW)	plus door handle and exhaust duct (mm/inch)	90 / 3.5
Steam space volume (l/cu.ft.) 457 / 16.2	Wall clearance rear (mm/inch)	100 / 3.9
Number of doors 2	Wall clearance side (mm/inch)	160 / 6.3
Interior dimensions	Steam space volume (I/cu.ft.)	457 / 16.2
Width (mm/inch) Height (mm/inch) Depth (mm/inch) Depth (mm/inch) Noo / 19.7 Interior volume (I/cu.ft.) Racks (number standard/max.) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) et al 37 °C (Min.) to 50 °C (Min.) At 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) to 50 °C (Min.) At 50 °C (Min.)	Number of doors	2
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Depth (mm/inch) 500 / 19.7 Interior volume (I/cu.ft.) 400 / 14.3 Racks (number standard/max.) 2 / 10 Load per rack (kg/lbs.) 35 / 77 Permitted total load (kg/lbs.) 90 / 199 Weight of the unit (empty) (kg/lbs.) 135 / 298 Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) 100 / 212 Temperature variation at 37 °C (± °C) 0.5 at 50 °C (± °C) 0.9 Temperature fluctuation (± °C) 31	Width (mm/inch)	1000 / 39.4
Interior volume (I/cu.ft.) Racks (number standard/max.) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) to 37 °C (Min.) to 37 °C (Min.) 105 to 50 °C (Min.) at 37 °C (Min.) at 37 °C (Min.) to 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW)	Height (mm/inch)	800 / 31.5
Racks (number standard/max.) Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 50 °C (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) at 37 °C (Min.) to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW)	Depth (mm/inch)	500 / 19.7
Load per rack (kg/lbs.) Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) at 37 °C (Min.) at 37 °C (Min.) becovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) at 50 °C (Min.) becovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) at 50 °C (Min.) becovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) at 50 °C (Min.) contact the probability of the	Interior volume (I/cu.ft.)	400 / 14.3
Permitted total load (kg/lbs.) Weight of the unit (empty) (kg/lbs.) Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW)	Racks (number standard/max.)	2 / 10
Temperature data Temperature variation at 37 °C (± °C) at 50 °C (41 °C) at 37 °C (Min.) Heating up time 1) to 50 °C (Min.) at 37 °C (Min.) at 37 °C (Min.) at 37 °C (Min.) Hecovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal power (kW) Temperature data 100 / 212	Load per rack (kg/lbs.)	35 / 77
Temperature data Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) 105 to 50 °C (Min.) 132 Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) 100 / 212 100 / 21 100 / 2	Permitted total load (kg/lbs.)	90 / 199
Temperature range, 5 °C (41 °F) above ambient up to (°C / °F) Temperature variation at 37 °C (± °C) at 50 °C (± °C) Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal yoltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) 10.5 100 / 212 100 / 21 100 / 2	Weight of the unit (empty) (kg/lbs.)	135 / 298
Temperature variation at 37 °C (± °C)	Temperature data	
at 37 °C (± °C) 0.5 at 50 °C (± °C) 0.9 Temperature fluctuation (± °C) at 37 °C (Min.) 0.1 at 50 °C (Min.) 0.1 Heating up time 1) to 37 °C (Min.) 105 to 50 °C (Min.) 132 Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	Temperature range, 5 °C (41 °F) above ambient up to (°C / °F)	100 / 212
at 50 °C (± °C) 0.9 Temperature fluctuation (± °C) at 37 °C (Min.) 0.1 at 50 °C (Min.) 0.1 Heating up time 1) to 37 °C (Min.) 105 to 50 °C (Min.) 132 Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	Temperature variation	
Temperature fluctuation (± °C) at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) 105 to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) 0.1 105 105 105 105 107 108 109 109 109 109 109 109 109	at 37 °C (± °C)	0.5
at 37 °C (Min.) at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) 105 to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW)	at 50 °C (± °C)	0.9
at 50 °C (Min.) Heating up time 1) to 37 °C (Min.) to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) 0.1 105 6 6 29 IP 20 Nominal power (kW)	Temperature fluctuation (± °C)	
Heating up time 1) to 37 °C (Min.) to 50 °C (Min.) Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) at 50 °C (Min.) Electrical data Housing protection acc. to EN 60529 Nominal voltage (±10 %) 50 / 60 Hz (V) Nominal power (kW) 105 105 105 105 105 105 105 10	at 37 °C (Min.)	0.1
to 37 °C (Min.) 105 to 50 °C (Min.) 132 Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 IP 20 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	at 50 °C (Min.)	0.1
to 50 °C (Min.) 132 Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 IP 20 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	Heating up time 1)	
Recovery time after door was opened 30 sec. 1) at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 IP 20 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	to 37 °C (Min.)	105
at 37 °C (Min.) 6 at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 IP 20 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	to 50 °C (Min.)	132
at 50 °C (Min.) 29 Electrical data Housing protection acc. to EN 60529 IP 20 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	Recovery time after door was opened 30 sec. 1)	
Electrical data Housing protection acc. to EN 60529	at 37 °C (Min.)	6
Housing protection acc. to EN 60529 IP 20 Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	at 50 °C (Min.)	29
Nominal voltage (±10 %) 50 / 60 Hz (V) 230 Nominal power (kW) 0,85	Electrical data	
Nominal power (kW) 0,85	Housing protection acc. to EN 60529	IP 20
	Nominal voltage (±10 %) 50 / 60 Hz (V)	230
Energy consumption at 37 °C (98.6 °F) (W) 56	Nominal power (kW)	0,85
	Energy consumption at 37 °C (98.6 °F) (W)	56

1) up to 98 % of the set value
All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. The temperature
data are determinated 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 indications are average values, typical for units produced in series. We reserve the right to alter technical specifications
at all times.





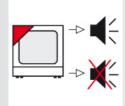
► Waterproof interior power socket in the inner chamber

Connected to the main switch. To connect ancillary equipment inside the chamber.



► Additional PT 100 temperature sensor

In situ or flexible installation for exact temperature measurement within the specimen material; connects to a special plug on the back wall of the inner chamber.



► Acoustic alarm

Activates in the event of excess temperature, with adjustable setpoint at the temperature controller. Acoustic alarm can be switched off.



► Lockable door

Prevents unauthorized access and interference with processes in the chamber.



Access ports

With silicon plugs for inserting external measuring devices into the chamber. Access ports with 10, 30, 50 mm (0.4, 1.2, 2 inch) diameter.

Options and accessories BD series





	BD 400
Access port with silicone plugs, 10 mm (0.39 inch), 30 mm (1.18 inch), 50 mm (1.97 inch)	0
Switchable waterproof interior socket 230 V AC (max. 500 W), IP65 protected, with corresponding plug (IP 66 protected)	0
Over temperature alarm, acoustic, can be switched off. Temperature limit can be set at the independent, adjustable temperature safety device class 2	0
Additional PT 100 temperature sensor, flexibly installed, with external connection, including LEMO connector (3 - pin)	0
Factory calibration certificate. Measurement in center of chamber at 37 °C (98.6 °F) or at specified testing temperature.	0
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or temperature.	0
Anti-slip rubber pads for safe stacking (4 pieces)	0
Access port with silicone plugs, 100 mm (3.94 inch), top	0
Temperature measurement acc. to DIN 12880 (27 measuring points) at 37 °C (98.6 °F) or at specified temperature with measuring protocol and certificate	0
Rack, chrome - plated or stainless steel	0
Shelf, perforated, stainless steel	0
Lockable door	0