

## BD series

### Microbiological incubators 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.



#### Leistungsmerkmale/Ausstattung:

- Electronically controlled APT.line™ preheating chamber technology
- Temperature range of 5 °C (9 °F) above ambient temperature up to 100 °C (212 °F)
- DS controller with integrated timer 0 to 99 hours
- Digital temperature setting with an accuracy of a tenth of a degree
- Independent adjustable temperature safety device, Class 3.1 (DIN 12880), with visual alarm
- Adjustable ventilation by means of rear exhaust duct, 50 mm (2 inch) diameter with ventilation flap and front ventilation slide
- Inner glass door
- RS 422 interface for communication software APT-COM™ DataControlSystem
- Units up to 115 liters (4.1 cu.ft.) are stackable
- 2 chrome-plated racks
- BINDER test certificate
- **Only at BINDER: Precision regardless of size – the 20-liter (0.7 cu.ft) bench-top units.**

## Technische Daten BD series

|  | BD 23      | BD 53      | BD 115     | BD 240      | BD 400      | BD 720      |
|--|------------|------------|------------|-------------|-------------|-------------|
| <b>Exterior dimensions</b>                               |            |            |            |             |             |             |
| Width (mm/inch)  | 433 / 17.1 | 634 / 25.0 | 834 / 32.8 | 1034 / 40.7 | 1234 / 48.6 | 1234 / 48.6 |
| Height (inclusive feet/casters) (mm/inch)                | 492 / 19.4 | 617 / 24.3 | 702 / 27.6 | 822 / 32.4  | 1022 / 40.2 | 1528 / 60.2 |
| Depth (mm/inch)  | 516 / 20.3 | 575 / 22.6 | 645 / 25.4 | 745 / 29.3  | 765 / 30.1  | 865 / 34.1  |
| Plus door handle, l-triangle, exhaust duct (mm/in.)      | 85 / 3.4   | 85 / 3.4   | 85 / 3.4   | 85 / 3.4    | 85 / 3.4    | 85 / 3.4    |
| Wall clearance rear (mm/inch)                            | 100 / 3.9  | 100 / 3.9  | 100 / 3.9  | 100 / 3.9   | 100 / 3.9   | 100 / 3.9   |
| Wall clearance side (mm/inch)                            | 100 / 3.9  | 160 / 6.3  | 160 / 6.3  | 160 / 6.3   | 160 / 6.3   | 160 / 6.3   |
| Steam space volume (l/cu.ft.)                            | 36 / 1.3   | 70 / 2.5   | 142 / 5.0  | 283 / 10.0  | 457 / 16.2  | 808 / 28.6  |
| Number of doors  | 1          | 1          | 1          | 2           | 2           | 2           |
| Number of inner glass doors                              | 1          | 1          | 1          | 2           | 2           | 2           |
| <b>Interior dimensions</b>                               |            |            |            |             |             |             |
| Width (mm/inch)  | 222 / 8.7  | 400 / 15.8 | 600 / 23.6 | 800 / 31.5  | 1000 / 39.4 | 1000 / 39.4 |
| Height (mm/inch)   | 330 / 13.0 | 400 / 15.8 | 480 / 18.9 | 600 / 23.6  | 800 / 31.5  | 1200 / 47.2 |
| Depth (mm/inch)  | 277 / 10.9 | 330 / 13.0 | 400 / 15.8 | 500 / 19.7  | 500 / 19.7  | 600 / 23.6  |
| Interior volume (l/cu.ft.)                               | 20 / 0.7   | 53 / 1.9   | 115 / 4.1  | 240 / 8.6   | 400 / 14.3  | 720 / 25.7  |
| Racks (number standard/max.)                             | 2/3        | 2/4        | 2/5        | 2/7         | 2/10        | 2/16        |
| Load per rack (kg/lbs.)                                  | 12 / 26    | 15 / 33    | 20 / 44    | 30 / 66     | 35 / 77     | 45 / 99     |
| Permitted total load (kg/lbs.)                           | 25 / 55    | 40 / 88    | 50 / 110   | 70 / 155    | 90 / 199    | 120 / 265   |
| Weight of the unit (empty) (kg/lbs.)                     | 26 / 57    | 43 / 95    | 61 / 135   | 93 / 205    | 135 / 298   | 191 / 422   |
| <b>Temperature data</b>                                  |            |            |            |             |             |             |
| Temperature range, 5°C (9°F) above ambient up to (°C/°F) | 100 / 212  | 100 / 212  | 100 / 212  | 100 / 212   | 100 / 212   | 100 / 212   |
| <b>Temperature variation</b>                             |            |            |            |             |             |             |
| at 37 °C (98.6 °F) (± °C)                                | 0,5        | 0,5        | 0,4        | 0,5         | 0,5         | 0,5         |
| at 50 °C (122 °F) (± °C)                                 | 1,8        | 1,1        | 0,8        | 0,9         | 0,9         | 0,8         |
| <b>Temperature fluctuation (± °C)</b>                    |            |            |            |             |             |             |
| at 37 °C (98.6 °F) (Min.)                                | 0,2        | 0,1        | 0,1        | 0,1         | 0,1         | 0,1         |
| at 50 °C (122 °F) (Min.)                                 | 0,3        | 0,1        | 0,1        | 0,1         | 0,1         | 0,1         |
| <b>Heating up time 1)</b>                                |            |            |            |             |             |             |
| to 37 °C (98.6 °F) (Min.)                                | 49         | 38         | 62         | 70          | 105         | 84          |
| to 50 °C (122 °F) (Min.)                                 | 32         | 59         | 91         | 115         | 132         | 90          |
| <b>Recovery time after door was opened 30 sec. 1)</b>    |            |            |            |             |             |             |
| at 37 °C (98.6 °F) (Min.)                                | 3          | 5          | 5          | 5           | 6           | 4           |
| at 50 °C (122 °F) (Min.)                                 | 4          | 7          | 7          | 6           | 29          | 24          |
| <b>Electrical data</b>                                   |            |            |            |             |             |             |
| Housing protection acc. to EN 60529                      | IP 20      | IP 20      | IP 20      | IP 20       | IP 20       | IP 20       |
| Nominal voltage (±10 %) 50/60 Hz (V)                     | 230 / 115  | 230 / 115  | 230 / 115  | 230 / 115   | 230 / 115   | 230 / 115   |
| Nominal power (W)  | 200        | 400        | 400        | 680         | 850         | 1250        |
| Energy consumption at 37 °C (98.6 °F) (W)                | 11         | 11         | 20         | 33          | 56          | 80          |

1) up to 98 % of the set value

All technical specifications are specified for units with standard equipment at an ambient temperature of + 25 °C (77 °F) and a voltage fluctuation of ±10 %. The temperature data are determined in accordance to factory standard following DIN 12880, part 2 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.



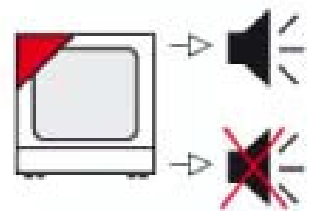
### Waterproof interior power socket in the inner chamber

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.



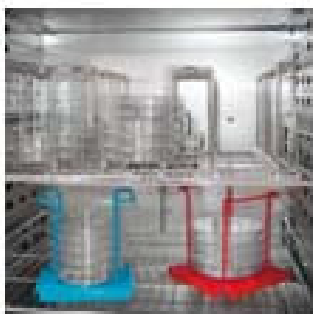
### Acoustic alarm

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.



### Petri dish rack

For fast and organized loading of specimens. Available in stainless steel or with different color coding for rapid identification of batches.



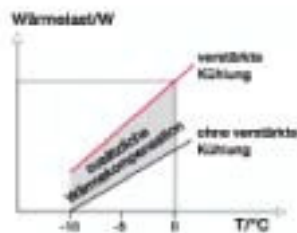
### Calibration certificates and validation

BINDER can significantly reduce the time and effort needed for equipment qualification and validation. We draw on unparalleled knowledge of our equipment applications and years of experience in certification.



### 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.



### Reinforced refrigeration system

Provides constant low temperature in the interior in the case of additional heat input.

|   | BD 23 | BD 53 | BD 115 | BD 240 | BD 400 | BD 720 |
|---|-------|-------|--------|--------|--------|--------|
| Access port with silicone plug  | ○     | ○     | ○      | ○      | ○      | ○      |
| Rack, chrome-plated or stainless steel  | ○     | ○     | ○      | ○      | ○      | ○      |
| Rack, perforated, stainless steel   | ○     | ○     | ○      | ○      | ○      | ○      |
| Perforated shelf (positioned at bottom level), with additional fixation for shaker operation  | -     | -     | -      | -      | -      | -      |
| Reinforced rack, stainless steel, with 1 set of rack securings (max. 70 kg / 154 lbs.)  | -     | -     | -      | -      | -      | -      |
| Securing elements for additional fastening of racks (1 set of 4)  | -     | -     | -      | -      | -      | -      |
| Enhanced refrigeration system   | -     | -     | -      | -      | -      | -      |
| Interior lighting   | -     | -     | -      | -      | -      | -      |
| Lockable door   | ○     | ○     | ○      | ○      | ○      | ○      |
| Waterproof interior socket 230 V (maximum 500 W)  | ○     | ○     | ○      | ○      | ○      | ○      |
| Temperature measurement according to DIN 12880-2 or with 9 measuring points with measurement log and certificate  | ○     | ○     | ○      | ○      | ○      | ○      |
| Ind. adjustable temp. safety device, Class 3.3 (DIN 12880)  | -     | -     | -      | -      | -      | -      |
| Additional PT 100 temperature sensor flexible or fix with external connection, incl. LEMO collector (3-pin)   | ○     | ○     | ○      | ○      | ○      | ○      |
| Analog temperature output, 4-20 mA, with 6-pin DIN socket (output not adjustable)   | ○     | ○     | ○      | ○      | ○      | ○      |
| Potential free switching outputs accessible via 6-pin DIN socket. Additional module to control 3 switching outputs via 3 contacts of program controller           | -     | -     | -      | -      | -      | -      |
| Over-temperature alarm, acoustic, can be switched off   | ○     | ○     | ○      | ○      | ○      | ○      |
| Rubber pads for safe stacking   | ○     | ○     | ○      | ○      | ○      | ○      |
| Serial printer with interface converter for printing temp. logs. Incl. set of connection cables for RS 422 interface and RS 232/RS 422 interface converter, 230 V | -     | -     | -      | -      | -      | -      |
| Calibration certificate   | ○     | ○     | ○      | ○      | ○      | ○      |
| Extension of calibration certificate (additional values)  | ○     | ○     | ○      | ○      | ○      | ○      |
| Cleaning kit cleaning and disinfection  | ○     | ○     | ○      | ○      | ○      | ○      |
| Rack for stacking petri dishes  | ○     | ○     | ○      | ○      | ○      | ○      |
| Stable table on castors with locking brakes   | -     | ○     | ○      | ○      | ○      | -      |