

## CB series

**CO2 incubators with hot air sterilization**

Precision equipment for cell cultivation of the future. It has a drift-free infrared CO<sub>2</sub> measuring system to ensure stable pH values, condensation-free Permady™ interior chamber with integrated shelf supports, easy to clean, where the surface area is kept to a minimum in order to reduce potential sites for germs to establish; an effective sterilization program that operates at 180 °C in compliance with standards, for cultivation without any contamination. All of these features along with the absolutely precise temperature accuracy, which you have come to expect from us.

**Leistungsmerkmale/Ausstattung:**

- Electronically controlled APT.line™ preheating chamber technology
- Temperature range of 7 °C (13 °F) above ambient temperature up to 60 °C (140 °F)
- MCS controller for temperature and CO<sub>2</sub> concentration
- User-friendly LCD screen
- Easy-to-read menu guide
- Integrated electronic chart recorder
- Variety of options for the graphic display of process parameters
- Real-time clock
- Standard-compliant hot-air sterilization at 180 °C (356 °F) (DIN 58947)
- VENTAIR jacket system™
- Drift free infrared CO<sub>2</sub> measurement system
- Gas mixing head
- Weldless deep-drawn inner chamber made of stainless steel Mat. No. 1.4301 (V2A) / AISI 304
- Permady™ system, condensation-free double-pan humidification system
- Electronic self-diagnostic system for errors with optical and acoustic alarm, as well as relay contact for central monitoring
- Independent adjustable temperature safety device, Class 3.1 (DIN 12880) with visual and acoustic temperature alarm
- Tightly closing inner glass door
- RS 422 interface for communication software APT-COM™ DataControlSystem
- 3 perforated shelves made of stainless steel Mat. No. 1.4301 (V2A) / AISI 304 (in standard and O<sub>2</sub>-control versions)
- BINDER test certificate

	CB 150	CB 210
<b>Exterior dimensions</b>		
Width (mm/inch)	680 / 26.8	740 / 29.1
Height (inclusive feet/castors) (mm/inch)	919 / 36.2	1069 / 42.1
Depth (plus 54 mm (2.13 in.) for instrument panel) (mm/in.)	715 / 28.2	715 / 28.2
Wall clearance side (mm/inch)	50 / 2.0	50 / 2.0
<b>Interior dimensions</b>		
Width (mm/inch)	500 / 19.7	560 / 22.1
Height (mm/inch)	600 / 23.6	750 / 29.5
Depth (mm/inch)	500 / 19.7	500 / 19.7
Interior volume (l/cu.ft.)	150 / 5.4	210 / 7.5
Perforated shelves, stainless steel (number standard/max.)	3 / 6	3 / 8
Dimensions of perforated shelves, Width (mm/inch)	473 / 18.6	533 / 21.0
Depth (mm/inch)	448 / 17.6	448 / 17.6
Weight of the unit (empty) (kg/lbs.)	107 / 236	121 / 267
<b>Temperature / CO2 data</b>		
Temperature range 7 °C (13 °F) above ambient up to °C/°F	60 / 140	60 / 140
Temperature variation at 37 °C (98.6 °F) (± °C)	0,3	0,4
Temperature fluctuation (± °C)	0,1	0,1
Recovery time after door was opened for 30 sec. 1)		
at 37 °C (98.6 °F) (Min.)	3	3
CO2-range (Vol.-% CO2)	0-20	0-20
Setting accuracy (Vol.-% CO2)	0,1	0,1
Recovery time after door was opened for 30 sec. 1)		
up to 5 vol. % (min)	6	6
CO2-measurement	IR	IR
Hose connectors for CO2 (mm/inch)	6 / 0.24	6 / 0.24
Humidity (constant) (% r.H.)	95	95
<b>Electrical data</b>		
Housing protection acc. to EN 60529	IP 20	IP 20
Nominal voltage (±10 %) 50/60 Hz (V)	230 / 115	230 / 115
Nominal power (W)	1300	1500
Energy consumption at 37 °C (98.6 °F) (W)	140	140
O2-range (Vol.-% O2)	0.2–95	0.2–95
Setting accuracy (Vol.-% O2)	0.1	0.1
Recovery time 1)		
from 20 vol % up to 0.2 vol % O2 (Min.)	120	120
from 20 vol % up to 5 vol % O2 (Min.)	64	64
from 20 vol % up to 10 vol % O2 (Min.)	31	31
from 20 vol % up to 15 vol % O2 (Min.)	14	14
from 20 vol % up to 30 vol % O2 (Min.)	7	7
from 20 vol % up to 50 vol % O2 (Min.)	25	25
from 20 vol % up to 80 vol % O2 (Min.)	75	75
O2-measurement	ZrO2	ZrO2
Hose connectors for O2/N2 (mm/inch)	6 / 0.24	6 / 0.24

1) up to 98 % of the set value

All specified technical data apply for standard equipment operating at an ambient temperature of + 25 °C (77 °F), with line voltage fluctuations of  $\pm 10\%$  and a gas feed pressure of 2.0 bar (28 psi). These typical average values for series equipment were determined in accordance with the BINDER factory standard. They are based upon the recommended distances from the inner chamber walls, namely 10% of height, width and depth. Differing ambient temperatures or variances in the design of individual equipment may produce different performance data.

We therefore recommend that equipment be calibrated and/or validated on a case-by-case basis when working at the extremes of the permissible ambient temperature range.



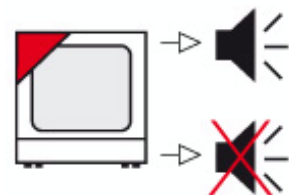
### Waterproof interior power socket in the inner chamber

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.



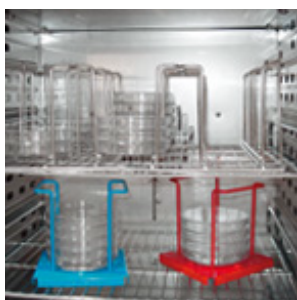
### Acoustic alarm

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.



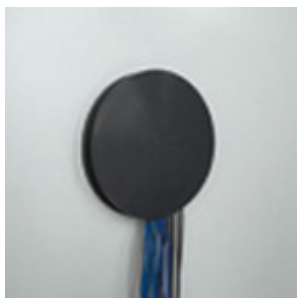
### Petri dish rack

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



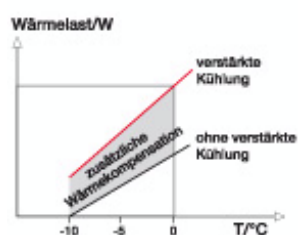
## Calibration certificates and validation

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.

	CB 150	CB 210
CO2-incubator with O2 control, Inner chamber stainless steel	O	O
CO2-incubator with gastight, divided inner glass door and divided shelves*	O	O
CO2-incubator with O2 control with gastight, divided inner glass door and divided shelves*	O	O
Shelf, perforated, stainless steel or cooper	O	O
Divided shelf for divided inner glass door, stainless steel or cooper	O	O
Divided inner glass door (4 doors) with 2 divided shelves, cooper or stainless steel	O	-
Divided inner glass door (6 doors) with 3 divided shelves, cooper or stainless steel	-	O
Looking of controller keyboard	O	O
CO2 bottle changer for connecting two gas cylinders with alarm messaging and incident reporting	O	O
Additional O2 control	O	O
CO2 bottle changer for connecting two gas cylinders with external connection for up to one additional CO2 incubator with alarm messaging and incident reporting	O	O
O2 and N2 bottle changer for connecting two cylinders of either gas (Attention: Only in combination with O2 control!)	O	O
Connection kit for CO2, O2 or N2, consisting of a bootle pressure regulator, max. pressure 10 bar (145 psi) with connection parts, and a 5 m (16 ft.) hose	O	O
Interior LEMO socket (with cover) with LEMO plug (max. power rating 230 V AC, 3A)	O	O
CELLROLL set. Modular, expandable roller bottle system for cell cultivation. Complete set consisting of: motor drive, connection cables, low voltage connection (8-pin) (max. 24 V AC, 2A)	O	O
Stacking adapter for direct thermal decoupled stacking of 2 CB incubators	O	O
Stacking frame for 2 CB incubators on castors with brakes	O	O
Analog output 4–20 mA for temperature and CO2, with 6-pin DIN socket (output not adjustable)	O	O
Independent electronic safety system Intelligent Fail Safe. Unique safety plus for continous monitoring of the CO2 control, preventing any unnoticed deviations of the CO2 concentration form set point. (Attention: Only available for models with stainless steel interior! Not available in conjunction with O2 control!)	O	O
Calibration certificate for temperature and CO2/O2. Temperature measurement in center/calibration with analyzed test gas (5 % CO2 / 80 % O2)	O	O
Cleaning kit for cleaning and disinfection	O	O
Manual for Primary Human Cell Culture	O	O

O Option - not available

Technical specifications subject to change

\* CB 150 I with 2 shelf levels and 2 divided shelves, CB 210 I with 3 shelf levels and 3 divided shelves

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