

# Model CB 56 | CO<sub>2</sub> incubators with hot air sterilization and heat sterilizable CO<sub>2</sub> sensor

The powerful and versatile CB CO<sub>2</sub> incubator is suitable for cell-based assays in drug and medical research. This BINDER incubator is even suitable for complex cultivation experiments or individual environments with hypoxic conditions thanks to its comprehensive assortment of options and accessories.

## BENEFITS

- Safe – cell cultures receive maximum protection against contamination
- Reliable – constant well-being conditions for the cells
- Smart – simple routine cleaning and convenient operation
- Economical – efficient operation without consumables



Model 56



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## IMPORTANT FEATURES

- Optimized humidification system with condensation protection
- Tried-and-tested anti-contamination concept with 180°C hot air sterilization
- Hot-air sterilizable CO<sub>2</sub> sensor with single-beam infrared technology
- Seamless inner chamber made of stainless steel with flanges as shelf support system
- Fanless interior with Venturi CO<sub>2</sub> gas mixing nozzle
- Intuitive touchscreen controller
- Internal data recording, can be read out in open format via USB interface
- Fault diagnosis system with visual and acoustic alarm
- Interfaces: Ethernet, USB, zero-voltage alarm contact
- Fail-safe CO<sub>2</sub> system for protecting the pH of cell cultures

## OPTIONAL EQUIPMENT

- Multi-sectional glass doors with special shelves for dividing up the space to accommodate different experiments
- Stacking adapter for secure, space-saving installation
- Gas tank changer for connecting two gas tanks to one or two incubators

## ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
<b>Model CB 56</b>					
53	200...230 V 1~ 50/60 Hz -10,0 A	CEE 7/7	Standard	CB056-230V	9640-0005
	100...120 V 1~ 50/60 Hz -16,0 A	NEMA 5-20	Standard	CB056UL-120V	9640-0007

**TECHNICAL DATA**

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Designation

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Article Number

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Option model

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Temperature range

---

Temperature range without illumination cassettes

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Temperature range with 100% illumination

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Temperature uniformity dependent on set value

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Temperature uniformity at -80°C

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Temperature uniformity with 100% illumination

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Temperature uniformity without illumination cassettes

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Temperature uniformity at 37°C

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Temperature uniformity at 100°C

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Temperature uniformity at 150°C

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Temperature fluctuation dependent on set value

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Temperature fluctuation at -80°C

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Temperature fluctuation at 37°C

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Temperature fluctuation with 100% illumination

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Temperature fluctuation without illumination cassettes

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Temperature fluctuation at 100°C

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Temperature fluctuation at 150°C

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Heating up time to 100°C

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Heating up time to 150°C

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Heating up time to 37°C

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Average heating-up rate according to IEC 60068-3-5

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Cooling down time from 110°C to -40°C

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Cooling down time from 180°C to -40°C

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Cooling down time from 180°C to -70°C

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Cooling down time from 22°C to -80°C

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Average cooling down time according to IEC 60068-3-5

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Max. heat compensation at 37°C

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Max. heat compensation at 40°C

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Max. heat compensation at 40°C with illumination

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Recovery time after door was opened for 30 s at 150°C

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Recovery time after door was opened for 30 s at 37°C

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Temperature range with humidity and without illumination cassettes

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Temperature range with humidity and 100% illumination

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Temperature range with humidity

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Humidity range

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Humidity range without illumination cassettes

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Humidity range with 100% illumination

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Temperature uniformity at 25°C and 60% RH

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Temperature uniformity at 40°C and 75% RH

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Temperature uniformity with illumination at 25°C and 60% RH

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Temperature uniformity with illumination at 40°C and 75% RH

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Temperature uniformity with humidity dependent on set value

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Temperature fluctuation at 25°C and 60% RH

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Temperature fluctuation at 40°C and 75% RH

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Temperature fluctuation with illumination at 25°C and 60% RH

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Temperature fluctuation with illumination at 40°C and 75% RH

---

Temperature fluctuation with humidity dependent on set value

---

Humidity fluctuation at 25°C and 60% RH

---

Humidity fluctuation at 40°C and 75% RH

---

Humidity fluctuation with illumination at 25°C and 60% RH

---

Humidity fluctuation with illumination at 40°C and 75% RH

---

Humidity fluctuation with humidity dependent on set value

---

Recovery time after door was opened for 30 s at 25°C and 60% RH

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Recovery time after door was opened for 30 s at 40°C and 75% RH

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Recovery time after door was opened for 30 s with illumination at 25°C and 60% RH

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Recovery time after door was opened for 30 s with illumination at 40°C and 75% RH

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Max. heat compensation at 25°C and 90% RH

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CO<sub>2</sub> range

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CO<sub>2</sub> measuring technology

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CO<sub>2</sub> recovery time after door was opened for 30 s at 5 vol. % CO<sub>2</sub>

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Standard O<sub>2</sub> control range

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O<sub>2</sub> control ranges with option: O<sub>2</sub> range

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O<sub>2</sub> recovery time after door was opened for 30 s at 5 vol. % O<sub>2</sub>

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ICH compliant illumination for photo stability testing

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ICH compliant illumination for photo stability testing

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Daylight tubes

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Daylight tubes

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Fluora® growth lamps

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Arabidopsis lamps

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Air circulation (approx.)

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Volumetric flow rate of exhaust air acc. to EN 1539 at 50 °C

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Air change rate at 100°C

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Air change rate at 150°C

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Permitted end vacuum

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Leckrate

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Highest permitted solvent quantity (at T=180°C, M=100g/mol, U=40g/m<sup>3</sup>, K=0,5)

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Rated Voltage

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Power frequency

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Nominal power

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Unit fuse

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Phase (Nominal voltage)

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Vacuum connection with small flange

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Measuring access port with small flange

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Inert gas connection with flow limiter (RP<sup>o</sup>)

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Compressed air connection for pressure-encapsulation

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Interior volume

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Net weight of the unit (empty)

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Load per rack

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Permitted load

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Wall clearance back

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Wall clearance sidewise

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Width net

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Height net

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Depth net

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Interior width

---

Interior height

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Interior depth

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Viewing window width

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Viewing window height

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Inner doors

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Unit doors

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Sound-pressure level

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Average heat compensation at set value -80°C and Ta = 21°C

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Energy consumption at 25°C and 60% RH

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Energy consumption at 100°C

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Energy consumption at 150°C

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Energy consumption at 20°C

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Energy consumption at 37°C

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Energy consumption at 37°C and 75% RH

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Energy consumption at 37°C and with illumination

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Energy consumption at 40°C and 75% RH

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Energy consumption at 85°C and 85% RH

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Energieverbrauch bei Sollwert -80 °C und  $T_u = 20$  °C

Number of shelves (std./max.)

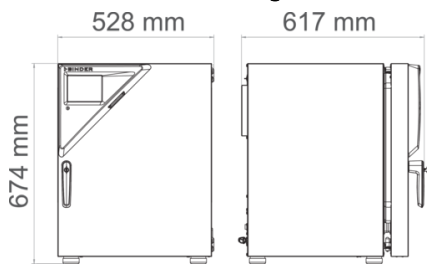
Number of illumination cassettes (std./max.)

Freezer racks per compartment

Cryoboxes, 50 mm

All technical data is specified for unloaded units with standard equipment at an ambient temperature of  $+22$  °C  $\pm 3$  °C and a power supply voltage fluctuation of  $\pm 10\%$ . The temperature data is determined to BINDER factory standard following DIN 12880, observing 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 change technical specifications at any time.

## DIMENSIONS Incl. fittings and connections [mm]



## OPTIONS

Designation	Description	CB 56	*	Art.-No.
Access port with silicone plug	back			
	30 mm	•	01	8612-0025
	left			
	30 mm	•	01	8612-0026
	right			
	30 mm	•	01	8612-0027
Analog output 4-20 mA	for temperature and CO <sub>2</sub> values (outputs not adjustable)	•	02	8612-0022
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	•	-	8012-1132
	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	-	8012-1550
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-1571
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	-	8012-1592
Calibration certificate, temperature and CO <sub>2</sub>	for temperature and CO <sub>2</sub> , temperature measurement in center of chamber, CO <sub>2</sub> measurement performed using test gas at 37 °C and 5 % CO <sub>2</sub>	•	-	8012-1235
Door hinged on the left	Unit door and standard glass inner door with door hinged on the left	•	-	8612-0034

Designation	Description	CB 56	*	Art.-No.
Electric access port	8-pin, for low voltage with LEMO socket (coverable) and LEMO plug (max. 24 V – 2 A)	•	-	8612-0033
Inner door, divided	Cell therapy compartmentalization, consisting of 4 inner doors and two shelf levels with one partition wall each	•	-	8612-0029

## ACCESSORIES

Designation	Description	CB 56	*	Art.-No.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition	•	-	9053-0039
APT-COM™ 4 GLP-Edition	for working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11. version 4, GLP edition	•	-	9053-0042
APT-COM™ 4 PROFESSIONAL-Edition	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. version 4, PROFESSIONAL edition	•	-	9053-0040
Base	the base equipped with casters is used for the secure positioning and leveling of a BINDER CO <sub>2</sub> incubator	•	-	9051-0043
Gas cylinder connection set	for CO <sub>2</sub> , consisting of a gas tank pressure regulator with connection parts and 5-meter hose	•	-	8012-0014
Gas tank changer	external, BINDER Gas Supply Service, for connecting 2 gas tanks (CO <sub>2</sub> , N <sub>2</sub> or O <sub>2</sub> ), with audible and visual alarms, as well as zero-voltage alarm output	•	-	8012-2344
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
Qualification documents	IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit			
	Digital in PDF format	•	-	7057-0005
	Hard copy inside folder	•	-	7007-0005
Rubber pads	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit			
	Digital in PDF format	•	-	7057-0001
	Hard copy inside folder	•	-	7007-0001
Shelf, perforated	set anti-slip feet	•	-	8012-0702
	Stainless steel	•	-	8012-2166
Shelf, perforated	for divided inner door			
	stainless steel	•	-	8012-2058

Designation	Description	CB 56	*	Art.-No.
Stacking adapter	for the thermally isolated stacking of two BINDER CO <sub>2</sub> incubators	•	-	9051-0038

## SERVICES

Designation	Description	*	Art.-No.
<b>Calibration services</b>			
Calibration certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	-	DL30-0140
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	-	DL30-0102
CO <sub>2</sub> calibration	CO <sub>2</sub> calibration at a specified value, measurements are taken with analyzed test gas at 5%, including certificate	-	DL30-0401
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	-	DL30-0109
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	-	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	-	DL30-0127
<b>Installation services</b>			
Unit commissioning	Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work)	-	DL10-0110
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	-	DL10-0510
<b>Maintenance contracts</b>			
BRONZE 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	-	DL20-0710
GOLD 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate	-	DL20-0975
SILVER 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate	-	DL20-0875
<b>Maintenance services</b>			
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	-	DL20-0608
<b>Validation services</b>			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	-	DL41-0200
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	-	DL44-0500



Designation	Description	*	Art.-No.
<b>Warranty service</b>			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	–	DL50-0020

## NOTES

- 01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
- 02 UL mark is not granted when this option is used.

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