

Model CB 56 | CO₂ incubators with hot air sterilization and heat sterilizable CO₂ sensor

The BINDER CB series CO₂ incubator is the premium class among the CO₂ incubators. It is suitable for all sensitive incubation applications and ensures optimal cell growth. A BINDER CB series CO₂ incubator can perform complex cultivation experiments as well as specific environmental conditions.

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 CO₂ sensor with single-beam infrared technology
- Seamless inner chamber made of stainless steel with flanges as shelf support system
- Fanless interior with Venturi CO₂ 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 CO₂ 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 | | Power supply - unit fuse | Plug* | Version | Model version | Art.-No. |
|--------------------|-----|---------------------------------|-----------|----------|---------------|-----------|
| [L] | [L] | | | | | |
| Model CB 56 | | | | | | |
| 53 | 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

Designation

Article Number

Option model

Temperature range

Temperature range without illumination cassettes

Temperature range with 100% illumination

Temperature uniformity dependent on set value

Temperature uniformity at -80°C

Temperature uniformity with 100% illumination

Temperature uniformity without illumination cassettes

Temperature uniformity at 37°C

Temperature uniformity at 100°C

Temperature uniformity at 150°C

Temperature fluctuation dependent on set value

Temperature fluctuation at -80°C

Temperature fluctuation at 37°C

Temperature fluctuation with 100% illumination

Temperature fluctuation without illumination cassettes

Temperature fluctuation at 100°C

Temperature fluctuation at 150°C

Heating up time to 100°C

Heating up time to 150°C

Heating up time to 37°C

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

Cooling down time from 110°C to -40°C

Cooling down time from 180°C to -40°C

Cooling down time from 180°C to -70°C

Cooling down time from 22°C to -80°C

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

Max. heat compensation at 37°C

Max. heat compensation at 40°C

Max. heat compensation at 40°C with illumination

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

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

Temperature range with humidity and without illumination cassettes

Temperature range with humidity and 100% illumination

Temperature range with humidity

Humidity range

Humidity range without illumination cassettes

Humidity range with 100% illumination

Temperature uniformity at 25°C and 60% RH

Temperature uniformity at 40°C and 75% RH

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

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

Temperature uniformity with humidity dependent on set value

Temperature fluctuation at 25°C and 60% RH

Temperature fluctuation at 40°C and 75% RH

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

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

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

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

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

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

CO₂ range

CO₂ measuring technology

CO₂ recovery time after door was opened for 30 s at 5 vol. % CO₂

Standard O₂ control range

O₂ control ranges with option: O₂ range

O₂ recovery time after door was opened for 30 s at 5 vol. % O₂

ICH compliant illumination for photo stability testing

ICH compliant illumination for photo stability testing

Daylight tubes

Daylight tubes

Fluora® growth lamps

Arabidopsis lamps

Air circulation (approx.)

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

Air change rate at 100°C

Air change rate at 150°C

Permitted end vacuum

Leckrate

Highest permitted solvent quantity (at T=180°C, M=100g/mol, U=40g/m³, K=0,5)

Rated Voltage

Power frequency

Nominal power

Unit fuse

Phase (Nominal voltage)

Vacuum connection with small flange

Measuring access port with small flange

Inert gas connection with flow limiter (RP*)

Compressed air connection for pressure-encapsulation

Interior volume

Net weight of the unit (empty)

Load per rack

Permitted load

Wall clearance back

Wall clearance sidewise

Width net

Height net

Depth net

Interior width

Interior height

Interior depth

Viewing window width

Viewing window height

Inner doors

Unit doors

Sound-pressure level

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

Energy consumption at 25°C and 60% RH

Energy consumption at 100°C

Energy consumption at 150°C

Energy consumption at 20°C

Energy consumption at 37°C

Energy consumption at 37°C and 75% RH

Energy consumption at 37°C and with illumination

Energy consumption at 40°C and 75% RH

Energy consumption at 85°C and 85% RH

Energieverbrauch bei Sollwert -80 °C und $T_u = 20\text{ °C}$

Number of shelves (std./max.)

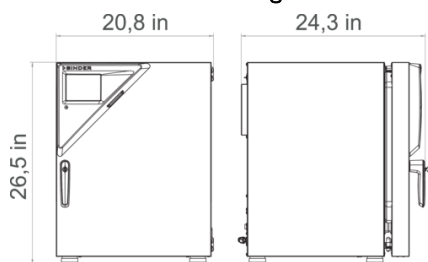
Number of illumination cassettes (std./max.)

Freezer racks per compartment

Cryoboxes, 50 mm

All technical data is specified for unloaded units with standard equipment at an ambient temperature of $+22\text{ °C} \pm 3\text{ °C}$ 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 ₂ 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 ₂ | for temperature and CO ₂ , temperature measurement in center of chamber, CO ₂ measurement performed using test gas at 37 °C and 5 % CO ₂ | • | - | 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 | convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. | | | |
| | version 4, PROFESSIONAL edition | • | – | 9053-0040 |
| | for simple logging and documentation requirements with up to 5 networked units. | | | |
| | version 4, BASIC edition | • | – | 9053-0039 |
| | 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 |
| Base | the base equipped with casters is used for the secure positioning and leveling of a BINDER CO ₂ incubator | • | - | 9051-0043 |
| Gas cylinder connection set | for CO ₂ , 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 ₂ , N ₂ or O ₂), 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 ₂ , O ₂ – or pressure, depending on unit | | | |
| | Digital in PDF format | • | - | 7057-0005 |
| | Hard copy inside folder | • | - | 7007-0005 |
| | 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 ₂ , O ₂ , pressure, depending on unit | | | |
| | Digital in PDF format | • | - | 7057-0001 |
| | Hard copy inside folder | • | - | 7007-0001 |
| Rubber pads | set anti-slip feet | • | - | 8012-0702 |
| Shelf, perforated | Stainless steel | • | - | 8012-2166 |
| | 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 ₂ incubators | • | - | 9051-0038 |

SERVICES

| Designation | Description | * | Art.-No. |
|--|---|---|-----------|
| Calibration services | | | |
| CO ₂ calibration | CO ₂ calibration at a specified value, measurements are taken with analyzed test gas at 5%, including certificate. Travel to be quoted separate. | - | DL30-0401 |
| Temperature calibration | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate. | - | DL30-0140 |
| | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate Travel to be quoted separate. | - | DL30-0102 |
| Temperature measurement, 9 measuring points | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required. | - | DL30-0109 |
| Temperature measurement, 18 measuring points | Temperature measurement with 18 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 2 shelves are required. | - | DL30-0118 |
| Temperature measurement, 27 measuring points | Temperature measurement with 27 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required. | - | DL30-0127 |
| Installation services | | | |
| Unit installation | 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) Travel to be quoted as separate. | - | DL10-0110 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming. Travel to be quoted as separate Limited to 3 hours. | - | DL10-0510 |
| Maintenance services | | | |
| BRONZE 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate. 10% Discount on Spare Parts and Labor for any additional Services needed Wear + tear parts to be purchased or billed to customer. Travel to be quoted as separate. | - | DL20-0710 |
| GOLD 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate of Temperature. 25% Discount on Spare Parts and Labor for any additional Services needed. One additional courtesy visit per year can be used for service visit or operator. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate. | - | DL20-0975 |
| Preventive maintenance | One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Checking a test temperature specified by the user in center of usable space without certificate. Wear + tear parts need to be purchased or billed to customer. Travel to be quoted as separate. | - | DL20-0608 |
| SILVER 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate 15% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator training. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate. | - | DL20-0875 |

| Designation | Description | * | Art-No. |
|----------------------------|--|---|-----------|
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate. | – | DL41-0200 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate. | – | DL44-0500 |
| Warranty service | | | |
| 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.

BINDER GmbH

Tuttlingen, Germany
TEL +49 7462 2005 0
info@binder-world.com
www.binder-world.com

BINDER Inc.

Bohemia, NY, USA
TEL +1 631 224 4340
usa@binder-world.com
www.binder-world.us

BINDER Environmental Testing Equipment (Shanghai) Co., Ltd.

Shanghai, P.R. China
TEL +86 21 685 808 25
china@binder-world.com
www.binder-world.com

BINDER Asia Pacific (Hong Kong) Ltd.

Kowloon, Hong Kong, P.R. China
TEL +852 39070500
asia@binder-world.com
www.binder-world.com