

# Model CB 170 | CO<sub>2</sub> incubators with hot air sterilization and heat sterilizable CO<sub>2</sub> sensor

The BINDER CB series CO<sub>2</sub> incubator is the premium class among the CO<sub>2</sub> incubators. It is suitable for all sensitive incubation applications and ensures optimal cell growth. A BINDER CO<sub>2</sub> incubator of the CB series is up to even complex cultivation experiments or individual environments.

## BENEFITS

- Maximum usable space with minimal footprint and excellent ease of use
- Minimum risk of contamination thanks to uncompromising hot-air sterilization
- Fanless, easy-to-clean hygienic interior
- Stable pH values thanks to drift-free CO<sub>2</sub> IR sensor technology
- Low evaporation of the medium due to high levels of humidity and quick recovery time



Model CB 170



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## MAIN FEATURES

- Temperature range: ambient temperature plus 4 °C to 60 °C
- Humidity range: 90 to 95% RH
- CO<sub>2</sub> control range: 0 to 20 vol% CO<sub>2</sub>
- O<sub>2</sub> control range: 0.2 to 20 vol% O<sub>2</sub> for versions with O<sub>2</sub> control
- Alternative O<sub>2</sub> control range: 10 to 95 vol% O<sub>2</sub>, option for versions with O<sub>2</sub> control
- Humidity control range: 50–95% relative humidity for model variants with active humidification
- 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
- CO<sub>2</sub> gas-mixing jet with Venturi effect
- Intuitive touchscreen controller
- Internal data recording, can be read out in open format via USB interface
- Optimized double-pan humidification system with condensation protection
- 170 liters of extra space in the interior while maintaining the same footprint
- Stacking height of just 1.80 m for easy use of the top unit
- Fail-safe CO<sub>2</sub> automatic diagnosis system for protecting the pH of cell cultures
- DuoDoor™ system: Unit door and glass door can be opened with one handle
- Lockable door handle
- Computer interface: Ethernet
- Zero-voltage alarm contact
- Tightly sealed inner door made of tempered safety glass
- 3 perforated shelves, stainless steel
- Units are stackable with stacking adapter

## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
170	200...240 V 1~ ph 50/60 Hz	Standard	CB170-230V	9040-0131
		with O <sub>2</sub> control	CB170-230V-O	9040-0132
		with active humidification	CB170-230V-F	9040-0133
		with O <sub>2</sub> control 0.2–20% and active humidification	CB170-230V-OF	9040-0134
	100...120 V 1~ ph 50/60 Hz	Standard	CB170UL-120V	9040-0139
		with O <sub>2</sub> control	CB170UL-120V-O	9040-0140
		with active humidification	CB170UL-120V-F	9040-0141
		with O <sub>2</sub> control 0.2–20% and active humidification	CB170UL-120V-OF	9040-0142

## TECHNICAL DATA (Version 1-4 from 8)

Description	CB170-230V <sup>1</sup>	CB170-230V-O <sup>1</sup>	CB170-230V-F <sup>1</sup>	CB170-230V-OF <sup>1</sup>
Article Number	9040-0131	9040-0132	9040-0133	9040-0134
<b>Performance Data Temperature</b>				
Temperature range 4 °C above ambient temperature to	60			
Temperature range 6 °C above ambient temperature to		60	60	60
Temperature variation at 37 °C [± K]	0.3	0.4	0.4	0.4
Temperature fluctuation at 37 °C [± K]	0.1	0.1	0.1	0.1
Recovery time after 30 seconds door open at 37 °C [min]	6	6	6	6
<b>Performance Data Climate</b>				
Humidity range [% RH]	90...95	90...95	90...95	90...95
Humidity range with active humidification [% RH]			50...95	50...95
<b>CO<sub>2</sub>-Data</b>				
CO <sub>2</sub> range [Vol.-% CO <sub>2</sub> ]	0...20	0...20	0...20	0...20
CO <sub>2</sub> measurement	IR	IR	IR	IR
CO <sub>2</sub> Recovery time after 30 seconds door open at 5 Vol.-% CO <sub>2</sub> [min]	5	5	5	5
<b>O<sub>2</sub>-Data</b>				
Standard O <sub>2</sub> control ranges: O <sub>2</sub> range [Vol.-% O <sub>2</sub> ]		0.2...20		0.2...20
O <sub>2</sub> control ranges with option: O <sub>2</sub> range [Vol.-% O <sub>2</sub> ]		10...95		10...95
O <sub>2</sub> Recovery time after 30 seconds door open at 5 Vol.-% O <sub>2</sub> [min]		10		12
<b>Electrical data</b>				
Rated Voltage [V]	200...240	200...240	200...240	200...240
Power frequency [Hz]	50/60	50/60	50/60	50/60
Nominal power [kW]	1.4	1.4	1.4	1.4
Unit fuse [A]	10	10	10	10
Phase (Nominal voltage)	1~	1~	1~	1~

<sup>1</sup> All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±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.

Description	CB170-230V <sup>1</sup>	CB170-230V-O <sup>1</sup>	CB170-230V-F <sup>1</sup>	CB170-230V-OF <sup>1</sup>
Article Number	9040-0131	9040-0132	9040-0133	9040-0134
<b>Measures</b>				
Interior volume [L]	170	170	170	170
Net weight of the unit (empty) [kg]	98	98	95	95
Permitted load [kg]	30	30	30	30
Load per rack [kg]	10	10	10	10
Wall clearance back [mm]	100	100	100	100
Wall clearance sidewise [mm]	50	50	50	50
<b>Internal Dimensions</b>				
Width [mm]	560	560	560	560
Height [mm]	600	600	600	600
Depth [mm]	505	505	505	505
<b>Doors</b>				
Inner doors	1	1	1	1
Unit doors	1	1	1	1
<b>Housing dimensions not incl. fittings and connections</b>				
Width net [mm]	680	680	680	680
Height net [mm]	870	870	870	870
Depth net [mm]	715	715	715	715
<b>Environment-specific data</b>				
Energy consumption at 37 °C [Wh/h]	55	55	55	55
Sound-pressure level [dB(A)]	41	41	41	41
<b>Fixtures</b>				
Number of shelves (std./max.)	3/6	3/6	3/6	3/6

1 All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±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.

## TECHNICAL DATA (Version 5-8 from 8)

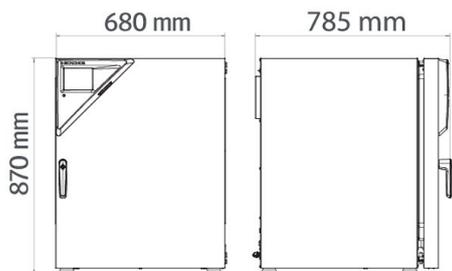
Description	CB170UL-120V <sup>1</sup>	CB170UL-120V-O <sup>1</sup>	CB170UL-120V-F <sup>1</sup>	CB170UL-120V-OF <sup>1</sup>
Article Number	9040-0139	9040-0140	9040-0141	9040-0142
<b>Performance Data Temperature</b>				
Temperature range 4 °C above ambient temperature to	60			
Temperature range 6 °C above ambient temperature to		60	60	60
Temperature variation at 37 °C [± K]	0.3	0.4	0.4	0.4
Temperature fluctuation at 37 °C [± K]	0.1	0.1	0.1	0.1
Recovery time after 30 seconds door open at 37 °C [min]	6	6	6	6
<b>Performance Data Climate</b>				
Humidity range [% RH]	90...95	90...95	90...95	90...95
Humidity range with active humidification [% RH]			50...95	50...95

1 All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±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.

Description	CB170UL-120V <sup>1</sup>	CB170UL-120V-O <sup>1</sup>	CB170UL-120V-F <sup>1</sup>	CB170UL-120V-OF <sup>1</sup>
Article Number	9040-0139	9040-0140	9040-0141	9040-0142
<b>CO<sub>2</sub>-Data</b>				
CO <sub>2</sub> range [Vol.-% CO <sub>2</sub> ]	0...20	0...20	0...20	0...20
CO <sub>2</sub> measurement	IR	IR	IR	IR
CO <sub>2</sub> Recovery time after 30 seconds door open at 5 Vol.-% CO <sub>2</sub> [min]	5	5	5	5
<b>O<sub>2</sub>-Data</b>				
Standard O <sub>2</sub> control ranges: O <sub>2</sub> range [Vol.-% O <sub>2</sub> ]		0.2...20		0.2...20
O <sub>2</sub> control ranges with option: O <sub>2</sub> range [Vol.-% O <sub>2</sub> ]		10...95		10...95
O <sub>2</sub> Recovery time after 30 seconds door open at 5 Vol.-% O <sub>2</sub> [min]		10		12
<b>Electrical data</b>				
Rated Voltage [V]	100...120	100...120	100...120	100...120
Power frequency [Hz]	50/60	50/60	50/60	50/60
Nominal power [kW]	1.4	1.4	1.4	1.4
Unit fuse [A]	16	16	16	16
Phase (Nominal voltage)	1~	1~	1~	1~
<b>Measures</b>				
Interior volume [L]	170	170	170	170
Net weight of the unit (empty) [kg]	98	98	95	95
Permitted load [kg]	30	30	30	30
Load per rack [kg]	10	10	10	10
Wall clearance back [mm]	100	100	100	100
Wall clearance sidewise [mm]	50	50	50	50
<b>Internal Dimensions</b>				
Width [mm]	560	560	560	560
Height [mm]	600	600	600	600
Depth [mm]	505	505	505	505
<b>Doors</b>				
Inner doors	1	1	1	1
Unit doors	1	1	1	1
<b>Housing dimensions not incl. fittings and connections</b>				
Width net [mm]	680	680	680	680
Height net [mm]	870	870	870	870
Depth net [mm]	715	715	715	715
<b>Environment-specific data</b>				
Energy consumption at 37 °C [Wh/h]	55	55	55	55
Sound-pressure level [dB(A)]	41	41	41	41
<b>Fixtures</b>				
Number of shelves (std./max.)	3/6	3/6	3/6	3/6

1 All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±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	*	Art.-No.
Access port with silicone plug	back 30 mm	01	8012-1390
	left 30 mm	01	8012-1391
	right 30 mm	01	8012-1392
Analog output 4-20 mA	for temperature and CO <sub>2</sub> values (outputs not adjustable)	02	8012-1839
	for temperature and CO <sub>2</sub> values (outputs not adjustable), for versions with O <sub>2</sub> control	02	8012-1840
Calibration certificate O <sub>2</sub>	for versions with O <sub>2</sub> control; a measuring point in center of chamber at a specified O <sub>2</sub> percentage value	-	8012-0229
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1113
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	-	8012-1132
	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1592
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1571
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1550
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
CELLROLL Set	modular, expandable roller bottle system for cell cultivation, 4 roller bottles	-	8012-1885
Door hinged on the left	Unit door and standard glass inner door with door hinged on the left	-	8012-1881
Electric access port	8-pin, for low voltage with LEMO socket (coverable) and LEMO plug (max. 24 V – 2 A)	-	8012-1848
Inner door, divided	Internal door divided into 6 parts		
	door hinged on the left (incl. option door hinged on the left), 120 V option model	-	8012-1889
	door hinged on the left (incl. option door hinged on the left), 230 V option model	-	8012-1880
	door hinged on the right	-	8012-1844
O <sub>2</sub> control range	alternative to the standard range, for controlling O <sub>2</sub> concentrations between 10 and 95 vol. %, only in conjunction with option models with O <sub>2</sub> control	-	9418-0207
	viewing window (13 x 25 cm) in the inner door for quick access		
	door hinged on the left (incl. option door hinged on the left), 120 V option model	-	8012-1890
	door hinged on the left (incl. option door hinged on the left), 230 V option model	-	8012-1884
Quick sample access	door hinged on the right	-	8012-1883
	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor		
	115 V option model	-	8012-0599
RS 485 / RS 422 interface converter	230 V option model	-	8012-0589

\* Notes › See last page

## ACCESSORIES

Designation	Description	*	Art.-No.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition	19	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	19	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	19	9053-0040
Base	the base equipped with casters is used for the secure positioning and leveling of a BINDER CO <sub>2</sub> incubator	-	9051-0028
Copper interior fittings	Set consisting of 3 shelves (all-copper) and a water pan (copper-plated), more information.	-	8012-1918
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
	for N <sub>2</sub> , consisting of a gas tank pressure regulator with connection parts and 5-meter hose	-	8012-0016
	for O <sub>2</sub> , consisting of a gas tank pressure regulator with connection parts and 5-meter hose	-	8012-0015
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	-	8012-0408
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
Qualification documents	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
	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	set anti-slip feet	-	8012-0702
Shaker „Professional“	Shaker and controller equipped with LEMO connectors, exclusively for CB with electric access port, 100 – 240 V, 50/60 Hz	-	8012-1772
Shaker „Universal“	Shaker and controller connected via ribbon cable, universally applicable, 100 – 240 V, 50/60 Hz	-	8012-1771
	Stainless steel	-	6004-0137
Shelf, perforated	for divided inner door		
	Stainless steel, divided	-	8012-1888
Stacking adapter	for the thermally isolated stacking of two BINDER CO <sub>2</sub> incubators	-	9051-0035
Stacking frame	stable, vibration-free stacking frame on casters with stop brake for safe stacking of two CB series units	-	9051-0040
Water supply	Set consisting of 10 bottles, each with 1,000 ml of sterile humidification water, including peristaltic tubing, connectors, and fine gas filters		
	For versions with active humidification	-	8009-1104
	Set consisting of 12 empty, refillable tubular bags including peristaltic tubing, connectors, and fine gas filters		
	For versions with active humidification	-	8009-1058
	Set consisting of 3 empty, refillable tubular bags including peristaltic tubing, connectors, and fine gas filters		
	For versions with active humidification	-	8009-1083

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Unit installation	Unpacking and setting up of unit, connecting to existing connections, and checking function	13, 18	DL10-0100
Unit instructions	Unit function instructions for operation and programming of the controller	18	DL10-0500
<b>Preventive maintenance</b>			
Maintenance	Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule	14, 18	DL20-0400

\* Notes › See last page

Designation	Description	*	Art.-No.
<b>Calibration services</b>			
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	14, 16, 17, 18	DL30-0401
O <sub>2</sub> calibration	O <sub>2</sub> calibration with 1 measuring point in center of chamber at a specified O <sub>2</sub> percentage value, including certificate	14, 16, 17, 18	DL30-0402
Temperature calibration	Expansion – including certificate, each additional measuring point in center of chamber at specified test temperature	14, 16, 17, 18	DL30-0102
	Temperature calibration with 1 measuring point in center of chamber at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0101
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0127
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0109
<b>Validation services</b>			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	15, 18	DL41-0200
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
<b>Warranty service</b>			
Warranty extension from 2 to 3 years	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	–	DL02-1041
Warranty extension from 2 to 5 years	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	–	DL02-1042

\* Notes › See last page

## 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.
- 03 Heat resistant only to max. 200 °C.
- 04 Only available on units rated for 230 V.
- 07 The additional heat input may affect the temperature behavior.
- 09 Not in conjunction with the optional access port, door with window and interior lighting.
- 10 Not available on 23-liter units.
- 11 Not available on 23- or 53-liter units.
- 12 Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- 16 Sensor calibration is performed in an accredited calibration laboratory.
- 17 Calibration is performed according to the BINDER factory standard.
- 18 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).
- 19 For additional accessories, refer to the Process documentation chapter.

BINDER GmbH  
Tuttlingen, Germany  
TEL +49 7462 2005 0  
FAX +49 7462 2005 100  
info@binder-world.com  
www.binder-world.com

BINDER Asia Pacific (Hong Kong) Ltd.  
Kowloon, Hong Kong, P.R. China  
TEL +852 39070500  
FAX +852 39070507  
asia@binder-world.com  
www.binder-world.com

Representative Office for CIS  
Moscow, Russia  
TEL +7 495 988 15 16  
FAX +7 495 988 15 17  
russia@binder-world.com  
www.binder-world.com

BINDER Environmental Testing  
Equipment (Shanghai) Co., Ltd.  
Shanghai, P.R. China  
TEL +86 21 685 808 25  
FAX +86 21 685 808 29  
china@binder-world.com  
www.binder-world.com

BINDER Inc.  
Bohemia, NY, USA  
TEL +1 631 224 4340  
FAX +1 631 224 4354  
usa@binder-world.com  
www.binder-world.us