

Model BD 400 | Standard-Incubators with natural convection

The BINDER incubator of the BD series with natural convection is the specialist in long-term and stable continuous operation. This incubator is specially designed for gentle incubation of organisms, as well as conditioning of heat-sensitive media or microbiological heating.

BENEFITS

- · Safe and reproducible incubation even under high batch throughputs in long-term operation
- Disinfection routine at 100 °C
- Stable atmosphere by inner glass door



Model 400



Model 400

MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +100 °C
- APT.line™ preheating chamber technology
- natural convection
- Adjustable exhaust air flap
- Controller with timer functions
- Inner door made of tempered safety glass
- 2 chrome-plated racks
- Class 3.1 independent temperature safety device (DIN 12880) with visual temperature alarm
- Computer interface: RS 422

ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	ArtNo.
400	230 V 1~ ph 50/60 Hz	Standard	BD400-230V	9010-0073
400	120 V 1~ ph 60 Hz	Standard	BD400UL-120V	9010-0176

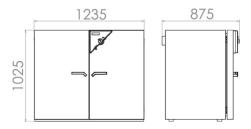


TECHNICAL DATA

Temperature variation at 37 °C [± K] 0.5 0.5 Temperature fluctuation at 37 °C [± K] 0.1 0.1 Heating-up time to 37 °C [min] 120 120 Recovery time after 30 seconds door open at 37 °C [min] 10 10 Electrical data 230 120 Power frequency [Hz] 50/60 60 Nominal power [kW] 0.85 0.85 Unit fuse [A] 12.5 12.5 Phase (Nominal voltage) 1~ 2 Measures Interior volume [L] 400 400 Net weight of the unit (empty) [kg] 135 135 Permitted load [kg] 90 90	Description	BD400-230V1	BD400UL-120V ¹
Temperature range +ş °C above ambient temperature lo °C 100 .5 Temperature variation at 37 °C [a K] 0.5 .5 Temperature fluctuation at 37 °C [a K] 0.1 .1 Recovery time after 30 seconds door open at 37 °C [min] 10 10 Electrical data Power frequency [Hz] 0.65 0.85 Nominal power [kW] 0.85 0.89 Unit fuse [A] 12.5 2.5 Phase (Rominal voltage) 12.5 2.5 Phase (Rominal voltage) 400 400 Net weight of the unit (empty) [kg] 335 135 Permitted load [kg] 90 90 Load per rack [kg] 360 90 Wall clearance sidewise [mm] 100 100 Wall clearance sidewise [mm] 800 800 Wilth [mm] 800 800 Beight [mm] 800 800 Beight [mm] 800 800 Beight [mm] 90 2 Brown [mm] 125 2	Article Number	9010-0073	9010-0176
Temperature variation at 3° °C [± K] 0.5 0.5 Temperature fluctuation at 3° °C [± K] 0.1 0.1 Heating-up time to 3° °C [min] 120 120 Recovery time after 30 seconds door open at 37° °C [min] 120 120 Electrical data ************************************	Performance Data Temperature		
Temperature fluctuation at 37 °C [s k] 0.1 0.1 Heating-up time to 37 °C [min] 120 120 Recovery time after 30 seconds door open at 37 °C [min] 10 10 Electrical data ************************************	Temperature range +5 °C above ambient temperature to [°C]	100	100
Recovery time after 30 seconds door open at 37 °C [min] 120 120 Recovery time after 30 seconds door open at 37 °C [min] 10 10 Electrical data	Temperature variation at 37 °C [± K]	0.5	0.5
Recovery time after 30 seconds door open at 37 °C [min] 10 10 Electrical data 230 120 Power frequency [Hz] 50/60 60 Nominal power [kW] 0.85 0.85 Unit fuse [A] 12.5 12.5 Phase (Wominal voltage) 1- 1- Measures 1 400 400 Net weight of the unit (empty) [kg] 335 135 135 Permitted load [kg] 90 90 100	Temperature fluctuation at 37 °C [± K]	0.1	0.1
Electrical data Rated Voltage [V] 230 120 Power frequency [Hz] 50/60 60 Nominal power [kW] 0.85 0.85 Unit fuse [A] 12.5 12.5 Phase (Nominal voltage) 1- " Measures " " Interior volume [L] 400 400 Net weight of the unit (empty) [kg] 335 135 Permitted load [kg] 90 90 Uad per rack [kg] 35 35 Wall clearance sake (mm] 160 160 Wall clearance sidewise [mm] 100 100 Height [mm] 800 800 Depth [mm] 800 50 Height [mm] 800 50 Doors 100 50 Unit doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width ne [mm] 1025 765 Environment-specific data 56 56 Environment-specific dat	Heating-up time to 37 °C [min]	120	120
Rated Voltage [V] 230 120 Power frequency [ktz] 50/60 60 Nominal power [kW] 0.85 0.85 Unit fuse [A] 12.5 12.5 Phase (Nominal voltage) w 40 Measures ************************************	Recovery time after 30 seconds door open at 37 °C [min]	10	10
Power frequency [Hz] 50/60 60 Nominal power [kW] 0.85 0.85 Unit fuse [A] 12.5 12.5 Phase (Nominal voltage) 1~ 4 Measures ************************************	Electrical data		
Nominal power [kW] 0.85 0.85 Unit fuse [A] 12.5 12.5 Phase (Nominal voltage) 1- 1- Measures Interior volume [L] 400 400 Net weight of the unit (empty) [kg] 135 135 Permitted load [kg] 90 90 Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions 800 800 Well [mm] 800 800 Depth [mm] 500 50 Doors 2 2 Unit doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width net [mm] 1025 1025 Beight net [mm] 765 765 Environment-specific data 56 56 Environment-specific data 100 50	Rated Voltage [V]	230	120
Unit fuse [A] 12.5 12.5 Phase (Nominal voltage) 1~ 1~ Measures 400 400 Net work volume [L] 400 400 400 Net weight of the unit (empty) [kg] 135 35 35 Permitted load [kg] 90 90 400 Load per rack [kg] 35 35 35 Wall clearance back [mm] 160 100 400 Wall clearance sidewise [mm] 100 100 400 Wall clearance back [mm] 1000 1000 400 Height [mm] 800 800 800 Depth [mm] 500 500 500 Doors 2 2 120 120 Wolth doors 2 2 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1245 1245 1245 1245 1245 1245 1245 1245 <td>Power frequency [Hz]</td> <td>50/60</td> <td>60</td>	Power frequency [Hz]	50/60	60
Phase (Nominal voltage) 1~ 1~ Measures 400 400 Net weight of the unit (empty) [kg] 135 135 Permitted load [kg] 90 90 Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 1000 1000 Internal Dimensions V V Width [mm] 800 800 Depth [mm] 500 500 Doors V V Unit doors 2 2 Housing dimensions not incl. fittings and connections 2 2 Width net [mm] 1235 1235 Height net [mm] 1025 1025 Depth net [mm] 765 56 Environment-specific data 56 56 Environment-specific data 56 56 Environment-specific data 56 56	Nominal power [kW]	0.85	0.85
Measures Interior volume [L] 400 400 Net weight of the unit (empty) [kg] 135 135 Permitted load [kg] 90 90 Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions 1000 1000 Height [mm] 800 800 Depth [mm] 500 50 Doors 2 2 Unit doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 66 Environment-specific data 56 66 Fixtures 400 400 400	Unit fuse [A]	12.5	12.5
Interior volume [L] 400 400 Net weight of the unit (empty) [kg] 135 135 Permitted load [kg] 90 90 Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions Width [mm] 1000 1000 Height [mm] 800 800 800 Depth [mm] 500 500 500 Doors Unit doors 2 2 400 Housing dimensions not incl. fittings and connections 2 2 400 Width net [mm] 1235 1235 1235 Height net [mm] 1025 765 500 Environment-specific data 56 56 Ervironment-specific data 56 56 Fixtures	Phase (Nominal voltage)	1~	1~
Net weight of the unit (empty) [kg] 135 135 Permitted load [kg] 90 90 Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions Width [mm] 1000 1000 Height [mm] 800 800 Depth [mm] 500 500 Doors 2 2 Housing dimensions not incl. fittings and connections 2 2 Width net [mm] 1235 1235 Height net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Ervironment-specific data 56 56 Fixtures 56 56	Measures		
Permitted load [kg] 90 90 Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions 1000 1000 Height [mm] 800 800 Depth [mm] 500 500 Doors Unit doors 2 2 Housing dimensions not incl. fittings and connections 235 235 Width net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures 56 56	Interior volume [L]	400	400
Load per rack [kg] 35 35 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions ************************************	Net weight of the unit (empty) [kg]	135	135
Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions 1000 1000 Height [mm] 800 800 Depth [mm] 500 500 Doors 2 2 Unit doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures 56 56	Permitted load [kg]	90	90
Wall clearance sidewise [mm] 100 100 Internal Dimensions 1000 1000 Width [mm] 800 800 Beight [mm] 500 500 Doors V V Unit doors 2 2 Housing dimensions not incl. fittings and connections V 1235 1235 Height net [mm] 1025 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures	Load per rack [kg]	35	35
Internal Dimensions Internal Dimensions Width [mm] 1000 1000 Height [mm] 800 800 Depth [mm] 500 500 Doors Unit doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data Energy consumption at 37 °C [Wh/h] 56 56 Fixtures 56 56	Wall clearance back [mm]	160	160
Width [mm] 1000 1000 Height [mm] 800 800 Depth [mm] 500 500 Doors Unit doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures	Wall clearance sidewise [mm]	100	100
Height [mm] 800 800 Depth [mm] 500 500 Doors Unit doors 2 2 Housing dimensions not incl. fittings and connections Width net [mm] 1235 1235 Height net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures 56 56	Internal Dimensions		
Depth [mm] 500 500 Doors 2 2 Housing dimensions not incl. fittings and connections 1235 1235 Width net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures 56 56	Width [mm]	1000	1000
Doors Unit doors 2 2 Housing dimensions not incl. fittings and connections Width net [mm] 1235 1235 Height net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data Energy consumption at 37 °C [Wh/h] 56 56 Fixtures	Height [mm]	800	800
Unit doors 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Depth [mm]	500	500
Housing dimensions not incl. fittings and connections Width net [mm] 1235 1235 Height net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data Energy consumption at 37 °C [Wh/h] 56 56 Fixtures	Doors		
Width net [mm] 1235 1235 Height net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data 56 56 Fixtures 56 56	Unit doors	2	2
Height net [mm] 1025 1025 Depth net [mm] 765 765 Environment-specific data Energy consumption at 37 °C [Wh/h] 56 56 Fixtures Fixtures	Housing dimensions not incl. fittings and connections		
Depth net [mm] 765 765 Environment-specific data Energy consumption at 37 °C [Wh/h] 56 56 Fixtures	Width net [mm]	1235	1235
Environment-specific data Energy consumption at 37 °C [Wh/h] 56 56 Fixtures	Height net [mm]	1025	1025
Energy consumption at 37 °C [Wh/h] 56 56 Fixtures	Depth net [mm]	765	765
Fixtures	Environment-specific data		
	Energy consumption at 37 °C [Wh/h]	56	56
Number of shelves (std./max.) 2/9 2/9	Fixtures		
	Number of shelves (std./max.)	2/9	2/9

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 in accordance 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	*	ArtNo.
	back		
	10 mm	01	8012-0390
	30 mm	01	8012-0397
	50 mm	01	8012-0399
	left		
	10 mm	01	8012-0388
	30 mm	01	8012-0047
	50 mm	01	8012-0051
Access port with silicone blug	right		
<u>s</u>	10 mm	01	8012-038
	30 mm	01	8012-004
	50 mm	01	8012-0050
	top		
	10 mm	01	8012-038
	30 mm	01	8012-004
	50 mm	01	8012-004
	100 mm	01	8012-005
	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device		
Alarm function for overheating	120 V option model	-	8012-0470
overneating	230 V option model	-	8012-046
Analog output 4-20 mA	for temperature values (output not adjustable)	-	8012-043
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1110
	for temperature, measurement in center of chamber at specified temperature	-	8012-1129
Calibration certificate,	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-092
temperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-0918
	temperature measurement incl. certificate, 9 measuring points at specified temperature	=	8012-091
Door lock	lockable door handle	_	8012-031
nner chamber, reinforced	including 2 reinforced racks	-	8012-1731
Pt 100 temperature sensor	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	-	8012-0115
* Notes > See last page	additional nexible Pt 100, interior, with external connection inct. LEMO connector (3-pin)		

^{*} Notes > See last page

ACCESSORIES

Designation	Description	*	ArtNo.
APT-COM™ 4 BASIC-	for simple logging and documentation requirements with up to 5 networked units.		
Edition	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	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.		
PROFESSIONAL-Edition	version 4, PROFESSIONAL edition	-	9053-0040
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016

^{*} Notes > See last page



Designation	Description	*	ArtNo.
	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
Qualification documents	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_2 , O_2 – or pressure, depending on unit		
	Digital in PDF format	-	7057-0005
	Hard copy inside folder	-	7007-0005
Rack	chrome plated	-	8012-2036
	stainless steel	-	6004-0011
Rubber pads	set anti-slip feet	-	8012-2030
Shelf, perforated	Stainless steel	-	6004-0032
Table on castors	stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm	-	9051-0019

^{*} Notes > See last page

SERVICES

Designation	Description	*	ArtNo.
Installation services			
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)	05	DL10-0100
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0500
Maintenance contracts			
Maintenance services			
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	05	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	05	DL20-0910
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	05	DL20-0200
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	05	DL20-0810
Calibration services			
Calibration cortificate temporature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	03, 04, 05	DL30-0101
Calibration certificate, temperature	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	03, 04, 05	DL30-0102
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0127
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0109
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	05	DL40-0100
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	_	DL50-0010

^{*} Notes > See last page



NOTES

- Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge. UL mark is not granted when this option is used.
- 02
- Sensor calibration is performed in an accredited calibration laboratory. 03
- Calibration is performed according to the BINDER factory standard.
- 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).

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