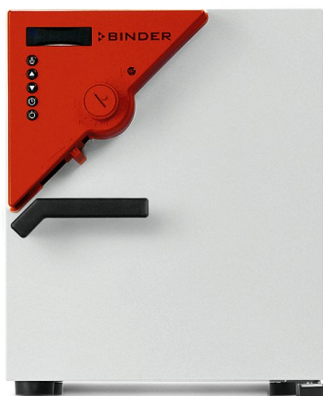


## Model BD 23 | Standard-Incubators with gravity convection

The BINDER incubator of the BD series with gravity 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 23

### MAIN FEATURES

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

### ORDERING INFORMATION

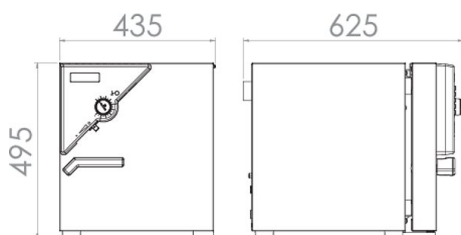
Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
Model BD 23				
0.7	230 V 1~ 50/60 Hz	Standard	BD023-230V	9010-0187
	120 V 1~ 60 Hz	Standard	BD023UL-120V	9010-0189

## TECHNICAL DATA

Description	BD023-230V <sup>1</sup>	BD023UL-120V <sup>1</sup>
Article Number	9010-0187	9010-0189
<b>Performance Data Temperature</b>		
Temperature range 5 °C above ambient temperature to [°C]	100	100
Temperature variation at 37 °C [± K]	0.5	0.5
Temperature fluctuation at 37 °C [± K]	0.2	0.2
Heating-up time to 37 °C [min]	59	59
Recovery time after 30 seconds door open at 37 °C [min]	20	20
<b>Electrical data</b>		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	0.2	0.2
Unit fuse [A]	12.5	12.5
Phase (Nominal voltage)	1~	1~
<b>Outer dimensions</b>		
Width net [in]	17.14	17.14
Height net [in]	19.5	19.5
Depth net [in]	20.49	20.49
Wall clearance back [in]	6.3	6.3
Wall clearance sidewise [in]	3.94	3.94
<b>Doors</b>		
Unit doors	1	1
<b>Internal Dimensions</b>		
Width [in]	8.75	8.75
Height [in]	13	13
Depth [in]	10.91	10.91
<b>Measures</b>		
Interior volume [cu.ft.]	0.7	0.7
Net weight of the unit (empty) [lbs]	60	60
permitted load [lbs]	55	55
Load per rack [lbs]	26	26
<b>Environment-specific data</b>		
Energy consumption at 37 °C [Wh/h]	11	11
<b>Fixtures</b>		
Number of shelves (std./max.)	2/4	2/4

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 AND ACCESSORIES

Designation	Description	*	Art.-No.
Access port with silicone plug	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
	right		
	10 mm	01	8012-0387
	30 mm	01	8012-0046
	50 mm	01	8012-0050
	top		
	10 mm	01	8012-0386
	30 mm	01	8012-0045
	50 mm	01	8012-0049
100 mm	01, 10	8012-0053	
Alarm function for overheating	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device		
	120 V, 208 V option model	-	8012-0470
	230 V, 400 V option model	-	8012-0469
Analog output 4-20 mA	for temperature values (output not adjustable)	-	8012-0432
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
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	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-0921
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-0918
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-0915
		-	
Data Logger Kit	T 220: For continuous temperature logging from -90 °C to 220 °C. The kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit	19	8012-0715
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
Door lock	lockable door handle	-	8012-0318
Interface converter	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0557
	230 V, 50/60 Hz option model	-	8012-0556
	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0405
	230 V, 50/60 Hz option model	-	8012-0380
Interface converter, USB / RS422	RS 422 cable set and RS 422 / USB interface converter for connection to 10-way plug distributor or for connection to a unit (USB-powered converter)	-	8012-0665
Interior socket	Waterproof, switched flush-mounting box (CA3GD) for nominal voltage in unit interior, with cover and corresponding plug (nominal voltage; max. 500 W; max. 90 °C; protection class IP67)	07	8012-0077
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016

\* Notes › See last page

Designation	Description	*	Art.-No.
Pt 100 temperature sensor	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	-	8012-0115
Rack	chrome plated	-	6004-0050
	stainless steel	-	6004-0051
RS 422 interface	modular plug distributor for 10 RS 422 interfaces	-	8012-0295
RS 422 interface, cable (15 m)	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	-	5023-0036
RS 422 interface, cable (50 m)	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	-	5023-0117
Rubber pads	set anti-slip feet	-	8012-1887
Shelf, perforated	Stainless steel	-	6004-0052
Table on castors	stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm	-	9051-0018

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Installation	and set up of unit at operating location, connect to existing connections	13, 18	DL10-0100
Instruction	unit function instructions for operation and programming of the controller	18	DL10-0500
<b>Preventive maintenance</b>			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0200
<b>Calibration services</b>			
Calibration temperature incl. certificate	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL30-0101
Temperature measurement 18 measuring points	including certificate, 18 measuring points at specified temperature	14, 16, 17, 18	DL30-0118
Temperature measurement 27 measuring points	including certificate, 27 measuring points at specified temperature	14, 16, 17, 18	DL30-0127
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL30-0109
<b>Validation services</b>			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL40-0100
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL44-0500
Qualification folder IQ/OQ	supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001	15, 18, 20	8012-0870
Qualification folder IQ/OQ/PQ	supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ	15, 18, 20	8012-0958
<b>Warranty service</b>			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL01-6041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	-	DL01-6042

\* 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.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 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.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ folder.  
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.

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