BINDER

Model KB 23 | Refrigerated incubators with compressor technology

The most versatile among the refrigerated incubators for microorganisms: The BINDER KB series refrigerated incubator controls temperature ranges of -5 °C to 100 °C. With its comprehensive program functions, this refrigerated incubator offers a wide range of capabilities and delivers reproducible test results.

BENEFITS

- Safe, reproducible incubation, even at high ambient temperatures
- Disinfection routine at 100 °C
- Up to 30% lower energy consumption compared to the previous model

Model 23

Model 23

MAIN FEATURES

- Temperature range (Model 23): 0 °C to 100 °C
- Temperature range (Models 53, 115, 240, 400, 720): -5 °C to 100 °C
- APT.line™ preheating chamber technology
- Refrigeration with compressor refrigerated unit
- Door heating system from 240 liters
- Adjustable fan speed
- Controller with time-segment and real-time programming
- Elapsed time indicator

- Inner door made of tempered safety glass
- 2 stainless steel racks
- Units up to 115 liters are stackable
- Access port with silicone plug from 240 liters
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
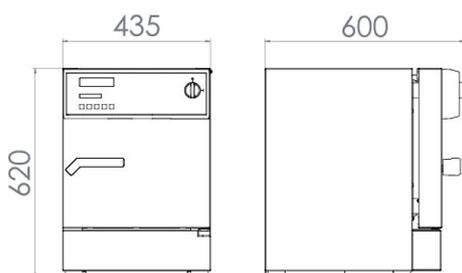- Computer interface: RS 422

ORDERING INFORMATION

Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
Model KB 23				
0.7	230 V 1~ 50/60 Hz	Standard	KB023-230V	9020-0112
	120 V 1~ 60 Hz	Standard	KB023UL-120V	9020-0113

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TECHNICAL DATA

Description	KB023-230V[1]	KB023UL-120V[1]
Article Number	9020-0112	9020-0113
Performance Data Temperature		
Temperature range [°C]	0…100	0…100
Temperature variation at 37 °C [± K]	0.3	0.3
Temperature fluctuation at 37 °C [± K]	0.1	0.1
Heating-up time to 37 °C [min]	11	11
Recovery time after 30 seconds door open at 37 °C [min]	2	2
Electrical data		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	0.3	0.3
Unit fuse [A]	10	12.5
Phase (Nominal voltage)	1~	1~
Outer dimensions		
Width net [in]	17.14	17.14
Height net [in]	24.43	24.43
Depth net [in]	20.49	20.49
Wall clearance back [in]	3.94	3.94
Wall clearance sidewise [in]	3.94	3.94
Doors		
Inner doors	1	1
Unit doors	1	1
Internal Dimensions		
Width [in]	8.75	8.75
Height [in]	13	13
Depth [in]	10.91	10.91
Measures		
Interior volume [cu.ft.]	0.7	0.7
Net weight of the unit (empty) [lbs]	97	97
permitted load [lbs]	55	55
Load per rack [lbs]	22	22
Environment-specific data		
Energy consumption at 40 °C [Wh/h]	60	60
Sound-pressure level [dB(A)]	47	47
Fixtures		
Number of shelves (std./max.)	2/3	2/3

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. Technical data refers to 100 % fan speed. 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]

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OPTIONS AND ACCESSORIES

Designation	Description	*	Art.-No.
	back		
	10 mm	01	8012-0395
	30 mm	01	8012-1292
	50 mm	01	8012-1294
	left		
	10 mm	01	8012-0393
	30 mm	01	8012-1157
Access port with silicone plug	**right**		
	10 mm	01	8012-0392
	30 mm	01	8012-1154
	top		
	10 mm	01	8012-0391
	30 mm	01	8012-1151
	50 mm	01	8012-1160
	100 mm	01, 10	8012-1167
Analog output 4-20 mA	for temperature values (output not adjustable)	02	8012-0434
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	–	8012-1120
	for temperature, measurement in center of chamber at specified temperature	–	8012-1139
Calibration certificate, temperature	temperature measurement incl. certificate and 27 measuring points at specified temperature	–	8012-1598
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	–	8012-1577
	temperature measurement incl. certificate, 9 measuring points at specified temperature	–	8012-1556
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	–	8012-1250
	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
Interface converter	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	8012-1171
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	–	1002-0016
Pt 100 temperature sensor	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	–	8012-1177
Rack accessories	Rack accessories – fasteners (1 set of 4) for additional security of racks	–	8012-0531
Racks	stainless steel	–	6004-0051
	modular plug distributor for 10 RS 422 interfaces	–	8012-0295
RS 422 interface, accessories	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	–	5023-0036
	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	–	5023-0117
Shelf, perforated	Stainless steel	–	6004-0052

* Notes › See last page

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Designation	Description	*	Art.-No.
	APT-COM™ communications software		
	version 2 to 3, GLP edition	19	9053-0016
	version 3, BASIC edition	19	9053-0014
Software	version 3, GLP edition	19	9053-0015
	version 3, STANDARD edition	19	9053-0013
	APT-COM™ communications software, price: for free		
	version 3, GLP DEMO Edition	19	9053-0008
Zero voltage relay contacts	for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. 24 V - 2.5 A)		
	230 V option model	–	8012-0473

* Notes › See last page

SERVICES

Designation	Description	*	Art.-No.
Installation services			
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
Preventive maintenance			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0300
Calibration services			
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
Validation services			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL41-0200
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	8012-0873
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	8012-0960
Warranty service			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	–	DL01-8041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	–	DL01-8042

* Notes › See last page

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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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