

Model FD 23 | Drying and heating chambers with forced convection

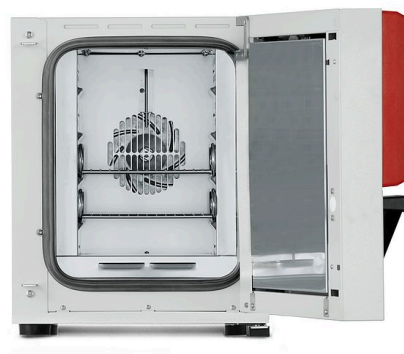
A BINDER FD series heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.

BENEFITS

- Uniform drying conditions thanks to APT.line™ technology
- Identical test conditions throughout the chamber interior independent of sample size and quantity
- Outstanding thermal insulation saves operation costs



Model 23



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MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +300 °C
- APT.line™ preheating chamber technology
- Forced convection
- Adjustable exhaust air flap
- Controller with timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm

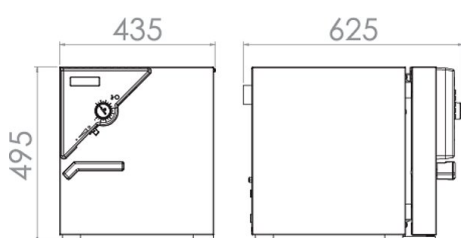
ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
20	230 V 1~ ph 50/60 Hz	Standard	FD023-230V	9010-0194
	120 V 1~ ph 60 Hz	Standard	FD023UL-120V	9010-0196

TECHNICAL DATA

Description	FD023-230V ¹	FD023UL-120V ¹
Article Number	9010-0194	9010-0196
Performance Data Temperature		
Temperature range +5 °C above ambient temperature to [°C]	300	300
Temperature variation at 150 °C [± K]	2.5	2.5
Temperature fluctuation at 150 °C [± K]	0.3	0.3
Heating-up time to 150 °C [min]	25	25
Recovery time after 30 seconds door open at 150 °C [min]	6	6
Air change data		
Air change (approx.) at 150 °C [x/h]	64	64
Electrical data		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	0.8	0.8
Unit fuse [A]	10	12.5
Phase (Nominal voltage)	1~	1~
Measures		
Interior volume [L]	20	20
Net weight of the unit (empty) [kg]	27	27
Permitted load [kg]	25	25
Load per rack [kg]	12	12
Wall clearance back [mm]	160	160
Wall clearance sidewise [mm]	100	100
Internal Dimensions		
Width [mm]	222	222
Height [mm]	330	330
Depth [mm]	300	300
Doors		
Unit doors	1	1
Housing dimensions not incl. fittings and connections		
Width net [mm]	435	435
Height net [mm]	495	495
Depth net [mm]	520	520
Environment-specific data		
Energy consumption at 150 °C [Wh/h]	300	300
Fixtures		
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. 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]

OPTIONS

Designation	Description	*	Art.-No.
	back		
	10 mm	01	8012-1283
	left		
	10 mm	01	8012-1276
	30 mm	01	8012-1359
	50 mm	01	8012-1376
Access port with silicone plug	right		
	10 mm	01	8012-1269
	30 mm	01	8012-1354
	50 mm	01	8012-1372
	top		
	10 mm	01	8012-1263
	30 mm	01	8012-1364
	50 mm	01	8012-1380
Alarm function for overheating	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device		
	120 V option model	-	8012-1304
	230 V option model	-	8012-1300
Analog output 4-20 mA	for temperature values (output not adjustable)	02	8012-0431
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1116
	for temperature, measurement in center of chamber at specified temperature	-	8012-1135
Calibration certificate, temperature	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1594
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1573
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1552
Class 3.1 independent temperature safety device	with visual alarm (DIN 12880)	-	8012-1147
Door gasket	made of FKM, silicone-free	-	8012-1306
Door lock	lockable door handle	-	8012-1247
Measurement of air exchange rate	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-1195
Pt 100 temperature sensor	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	-	8012-1174
Viewing window and interior lighting	viewing window in door, 180 x 180 mm, and 15 W interior lighting		
	120 V option model	-	8012-1260
	230 V option model	-	8012-1259

* Notes › See last page

ACCESSORIES

Designation	Description	*	Art.-No.
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
	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

* Notes › See last page

Designation	Description	*	Art.-No.
Rack	chrome plated	-	8012-2031
	stainless steel	-	8012-2046
Rack accessories	fasteners (1 set of 4) for additional security of racks	-	8012-0531
Shelf, perforated	Stainless steel	-	6004-0052

* Notes › See last page

SERVICES

Designation	Description	*	Art.-No.
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 certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	03, 04, 05	DL30-0101
	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
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	03, 04, 05	DL33-0000
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

- 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 Sensor calibration is performed in an accredited calibration laboratory.
- 04 Calibration is performed according to the BINDER factory standard.
- 05 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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