Model FD 23 | Drying and heating chambers with forced convection

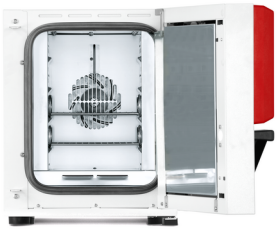
A BINDER FD series heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.

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



Model 23

IMPORTANT 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]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
Model FD 23					
20	230 V 1~ 50/60 Hz -10,0 A	CEE 7/7	Standard	FD023-230V	9010-0194
	120 V 1~ 60 Hz -12,5 A	NEMA 5-15	Standard	FD023UL-120V	9010-0196

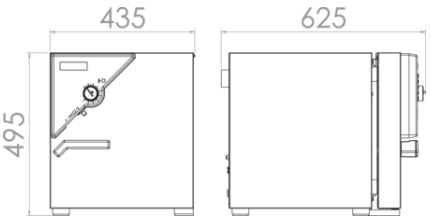
TECHNICAL DATA

Data		
Article Number	9010-0194	9010-0196
Designation	FD023-230V	FD023UL-120V
Option model	Standard	Standard
Performance Data Temperature		
Temperature range	+5 °C above ambient temperature to 300 °C	+5 °C above ambient temperature to 300 °C
Temperature uniformity at 150°C	2.5 ± K	2.5 ± K
Temperature fluctuation at 150°C	0.3 ± K	0.3 ± K
Heating up time to 150°C	25 min	25 min
Recovery time after door was opened for 30 s at 150°C	6 min	6 min
Air change data		
Air change rate at 150°C	64 x/h	64 x/h
Electrical data		
Rated Voltage	230 V	120 V
Power frequency	50/60 Hz	60 Hz
Nominal power	0,8 kW	0,8 kW
Unit fuse	10,0 A	12,5 A
Phase (Nominal voltage)	1~	1~
Dimensions and weights		
Interior volume	20 L	20 L
Net weight of the unit (empty)	27 kg	27 kg
Load per rack	12 kg	12 kg
Permitted load	25 kg	25 kg
Wall clearance back	100 mm	100 mm
Wall clearance sidewise	50 mm	50 mm
Housing dimensions not incl. fittings and connections		
Width net	435 mm	435 mm
Height net	495 mm	495 mm
Depth net	520 mm	520 mm
Internal Dimensions		

Interior width	222 mm	222 mm
Interior height	330 mm	330 mm
Interior depth	300 mm	300 mm
Unit doors	1	1
Environment-specific data		
Energy consumption at 150°C	300 Wh/h	300 Wh/h
Fixtures		
Number of shelves (std./max.)	2/4	2/4

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	FD 23	*	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

Designation	Description	FD 23	*	Art.-No.
	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
	switchable acoustic alarm, with adjustable limit value on the independent temperature safety device. Not in combination with the following option: Door with window			
	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
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	•	-	8012-1135
	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	-	8012-1552
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-1573
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	-	8012-1594
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 180 x 180 mm in the door and interior lighting 15 W. Not in combination with the following option: Alarm function for overheating			
	230 V option model	•	-	8012-1259

ACCESSORIES

Designation	Description	FD 23	*	Art.-No.
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
Qualification documents	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

Designation	Description	FD 23	*	Art.-No.
	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
	Hard copy inside folder	•	-	7007-0001
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	•	-	8012-2164

SERVICES

Designation	Description	*	Art.-No.
Calibration services			
Calibration certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	05	DL30-0120
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	05	DL30-0102
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	05	DL33-0000
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	05	DL30-0109
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	05	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	05	DL30-0127
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	DL10-0160
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0540
Maintenance contracts			
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	DL20-0720
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
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	05	DL20-0810

Designation	Description	*	Art.-No.
	parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate		
Maintenance services			
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	DL20-0602
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	05	DL50-0010

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.

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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