

Model FD 23 | Drying and heating chambers with forced convection

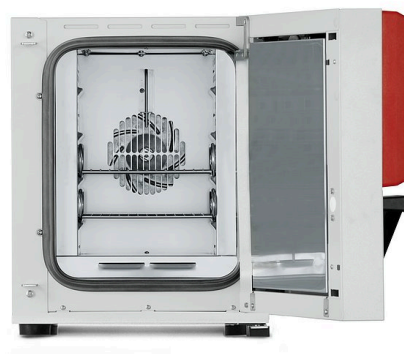
A BINDER FD series heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.

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: room temperature plus 5 °C 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 [cu.ft.]	Voltage	Option model	Version	Art.-No.
0.7	230 V 1~ 50/60 Hz	Standard	FD023-230V	9010-0194
	120 V 1~ 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	300 °C	300 °C
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 [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
Wall clearance back [in]	6.3	6.3
Wall clearance sidewise [in]	3.94	3.94
Internal Dimensions		
Width [in]	8.75	8.75
Height [in]	13	13
Depth [in]	11.82	11.82
Doors		
Unit doors	1	1
Housing dimensions not incl. fittings and connections		
Width net [in]	17.14	17.14
Height net [in]	19.5	19.5
Depth net [in]	20.49	20.49
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.
Calibration certificate, temperature	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1594
	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	-	8012-1174
	back		
	10 mm	01	8012-1283
	for temperature values (output not adjustable)	02	8012-0431
	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1116
	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-1195
	left		
	10 mm	01	8012-1276
	30 mm	01	8012-1359
	50 mm	01	8012-1376
	lockable door handle	-	8012-1247
	made of FKM, silicone-free	03	8012-1306
	Measurement in center of chamber at specified temperature	-	8012-1135
	right		
	10 mm	01	8012-1269
	30 mm	01	8012-1354
	50 mm	01	8012-1372
	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device		
	120 V option model	-	8012-1304
	120/208 V option model	-	8012-1300
	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
top			
10 mm	01	8012-1263	
30 mm	01	8012-1364	
50 mm	01	8012-1380	
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	
with visual alarm (DIN 12880)	04, 12	8012-1147	

* Notes › See last page

ACCESSORIES

Designation	Description	*	Art.-No.
	chrome plated	-	6004-0050
	Stainless steel	-	6004-0052
	stainless steel	-	6004-0051
	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
	fasteners (1 set of 4) for additional security of racks	-	8012-0531
Options/Accessories	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
	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
	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
	T 350: For continuous temperature logging from 0 °C to 350 °C; kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit	19	8012-0714
	with lid made from 18/8 stainless steel, stackable, dimensions: 230 x 133 x 45 mm	-	4022-0123
	with lid made from 18/8 stainless steel, stackable, dimensions: 315 x 215 x 60 mm	-	4022-0124

* Notes › See last page

SERVICES

Designation	Description	*	Art.-No.
Installation services			
Services	Unit function instructions for operation and programming of the controller	18	DL10-0500
	Unpacking and setting up of unit, connecting to existing connections, and checking function	13, 18	DL10-0100
Preventive maintenance			
Services	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0200
Calibration services			
Services	Expansion – including certificate, each additional measuring point in center of chamber at specified test temperature	14, 16, 17, 18	DL30-0102
	including certificate (in accordance with ASTM D5374)	14, 16, 17, 18	DL33-0000
	Temperature calibration with 1 measuring point in center of chamber at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0101
	Temperature measurement with 18 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0118
	Temperature measurement with 27 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0127
	Temperature measurement with 9 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0109
Validation services			
Services	Execution of IQ/OQ in accordance with qualification folder	15, 18	DL40-0100
	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
Warranty service			
Services	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	-	DL00-3041
	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	-	DL00-3042

* 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.
- 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.

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