

# Model FD 56 | Drying and heating chambers with forced convection

A BINDER FD series Avantgarde.Line 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

- Best energy efficiency on the market
- Excellent temporal and spatial temperature accuracy
- USB connection for recording data
- Temperature range up to +300 °C



Model 56



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## MAIN FEATURES

- Temperature range: +10 °C above ambient temperature to +300 °C
- Up to 30% lower energy consumption compared to conventional units on the market
- High temperature accuracy thanks to APT.line™ technology
- Forced convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Stackable
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm
- Ergonomic handle design
- USB port for recording data

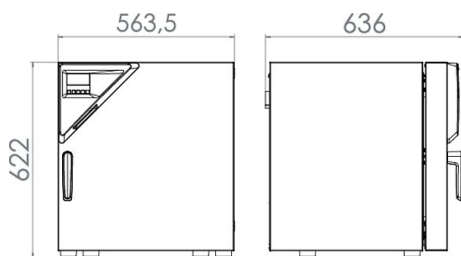
## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
60	230 V 1~ ph 50/60 Hz	Standard	FD056-230V	9010-0303
	120 V 1~ ph 60 Hz	Standard	FD056UL-120V	9010-0304

**TECHNICAL DATA**

Description	FD056-230V <sup>1</sup>	FD056UL-120V <sup>1</sup>
<b>Article Number</b>	<b>9010-0303</b>	<b>9010-0304</b>
<b>Performance Data Temperature</b>		
Temperature range +10 °C above ambient temperature to [°C]	300	300
Temperature variation at 150 °C [± K]	1.7	1.7
Temperature fluctuation at 150 °C [± K]	0.3	0.3
Heating-up time to 150 °C [min]	15	15
Recovery time after 30 seconds door open at 150 °C [min]	4	4
<b>Air change data</b>		
Air change (approx.) at 100 °C [x/h]	80	80
<b>Electrical data</b>		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	1.1	1.2
Unit fuse [A]	6.3	12.5
Phase (Nominal voltage)	1~	1~
<b>Measures</b>		
Interior volume [L]	60	60
Net weight of the unit (empty) [kg]	41	41
Permitted load [kg]	70	70
Load per rack [kg]	30	30
Wall clearance back [mm]	160	160
Wall clearance sidewise [mm]	100	100
<b>Internal Dimensions</b>		
Width [mm]	400	400
Height [mm]	440	440
Depth [mm]	345	345
<b>Doors</b>		
Unit doors	1	1
<b>Housing dimensions not incl. fittings and connections</b>		
Width net [mm]	560	560
Height net [mm]	625	625
Depth net [mm]	565	565
<b>Environment-specific data</b>		
Energy consumption at 150 °C [Wh/h]	290	290
Sound-pressure level [dB(A)]	43	43
<b>Fixtures</b>		
Number of shelves (std./max.)	2/4	2/4

<sup>1</sup> 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 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.
<b>Access port with silicone plug</b>	left		
	10 mm	01	8012-1276
	30 mm	01	8012-1016
	50 mm	01	8012-1020
	right		
	10 mm	01	8012-1269
	30 mm	01	8012-1015
	50 mm	01	8012-1019
	top		
	10 mm	01	8012-1263
	30 mm	01	8012-1364
	50 mm	01	8012-1380
	100 mm	01	8012-1671
<b>Alarm function for overheating</b>	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device	-	8012-1636
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	02	8012-1624
<b>Calibration certificate, expanded</b>	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1116
<b>Calibration certificate, temperature</b>	for temperature, measurement in center of chamber at specified temperature	-	8012-1135
	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
<b>Class 3.1 independent temperature safety device</b>	with visual alarm (DIN 12880)	-	8012-1643
<b>Clock</b>	battery-backed	-	8012-1641
<b>Door gasket</b>	made of FKM, silicone-free	-	8012-1648
<b>Door lock</b>	lockable door handle	-	8012-1665
<b>Ethernet interface</b>	for Multi Management Software APT-COM™	-	8012-0988
<b>Gas-tight option model</b>	Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	-	8012-1683
<b>Heating output, reinforced</b>	for faster heating up time and improved recovery time; max. 300 °C		
	120/230 V option model	-	8012-1056
<b>HEPA air filter</b>	On fresh air supply for unit; filter classification H14 (acc. to EN 1822-1:2009, > 99.995% at 0.3 µm)	-	8012-1050
<b>Inert gas connection</b>	With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	-	8012-1689
<b>Inner chamber, reinforced</b>	max. total load 85 kg	-	8012-1053
	with 15 W light bulb		
<b>Interior lighting</b>	120 V option model	-	8012-1632
	230/240 V option model	-	8012-1628

\* Notes › See last page

Designation	Description	*	Art.-No.
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, for displaying the temperature on the unit display	-	8012-1620
Viewing window and interior lighting	viewing window (triple insulating glass) in door, 240 x 240 mm, and 15 W interior		
	120 V option model	-	8012-1702
	230 V option model	-	8012-1700

\* Notes › See last page

## ACCESSORIES

Designation	Description	*	Art.-No.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition	-	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	-	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	-	9053-0040
Data Logger Kit	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	-	8012-0714
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	-	8012-0821
Instrument tray	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
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
Qualification documents	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 <sub>2</sub> , O <sub>2</sub> , 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 <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit		
	Digital in PDF format	-	7057-0005
	Hard copy inside folder	-	7007-0005
Rack	chrome plated	-	6004-0166
	stainless steel	-	6004-0150
Rack, heavy load	Stainless steel, max. load per rack 50 kg	-	6004-0198
		-	6004-0252
Rubber pads	set anti-slip feet	-	8012-1887
Shelf, perforated	Stainless steel	-	6004-0182
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>			
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
<b>Maintenance services</b>			
Maintenance	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 chamber without certificate	05	DL20-0200
<b>Calibration services</b>			
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
<b>Validation services</b>			
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
<b>Warranty service</b>			
Warranty extension from 2 to 3 years	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	-	DL00-3041
Warranty extension from 2 to 5 years	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 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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