

# Model FD 115 | 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 115

## 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

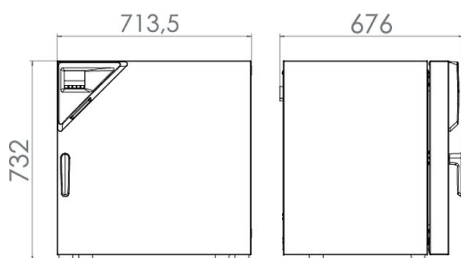
## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
116	230 V 1~ ph 50/60 Hz	Standard	FD115-230V	9010-0305
			FD115-230V-RU	9010-0354
	120 V 1~ ph 60 Hz	Standard	FD115UL-120V	9010-0306

**TECHNICAL DATA**

Description	FD115-230V <sup>1</sup>	FD115-230V-RU <sup>1</sup>	FD115UL-120V <sup>1</sup>
Article Number	9010-0305	9010-0354	9010-0306
<b>Performance Data Temperature</b>			
Temperature range +10 °C above ambient temperature to [°C]	300	300	300
Temperature variation at 150 °C [± K]	1.7	1.7	1.7
Temperature fluctuation at 150 °C [± K]	0.3	0.3	0.3
Heating-up time to 150 °C [min]	18	18	18
Recovery time after 30 seconds door open at 150 °C [min]	4	4	4
<b>Air change data</b>			
Air change (approx.) at 100 °C [x/h]	32	32	32
<b>Electrical data</b>			
Rated Voltage [V]	230	230	120
Power frequency [Hz]	50/60	50/60	60
Nominal power [kW]	1.3	1.3	1.4
Unit fuse [A]	6.3	6.3	12.5
Phase (Nominal voltage)	1~	1~	1~
<b>Measures</b>			
Interior volume [L]	116	116	116
Net weight of the unit (empty) [kg]	57	57	57
Permitted load [kg]	150	150	150
Load per rack [kg]	30	30	30
Wall clearance back [mm]	160	160	160
Wall clearance sidewise [mm]	100	100	100
<b>Internal Dimensions</b>			
Width [mm]	550	550	550
Height [mm]	550	550	550
Depth [mm]	385	385	385
<b>Doors</b>			
Unit doors	1	1	1
<b>Housing dimensions not incl. fittings and connections</b>			
Width net [mm]	710	710	710
Height net [mm]	735	735	735
Depth net [mm]	605	605	605
<b>Environment-specific data</b>			
Energy consumption at 150 °C [Wh/h]	340	340	340
Sound-pressure level [dB(A)]	43	43	43
<b>Fixtures</b>			
Number of shelves (std./max.)	2/5	2/5	2/5

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 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
	100 mm	01	8012-1027
	right		
	10 mm	01	8012-1269
	30 mm	01	8012-1015
	50 mm	01	8012-1019
	100 mm	01	8012-1028
	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	-	8012-1650
<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	-	8012-1685
<b>Heating output, reinforced</b>	for faster heating up time and improved recovery time; max. 300 °C 120/230 V option model	-	8012-1057
<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)	-	8012-1051
<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	-	8012-1691
<b>Inner chamber, reinforced</b>	max. total load 170 kg	-	8012-1054

\* Notes › See last page

Designation	Description	*	Art.-No.
<b>Interior lighting</b>	with 15 W light bulb		
	120 V option model	-	8012-1632
	230/240 V option model	-	8012-1628
<b>Measurement of air exchange rate</b>	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-1195
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1620
<b>Viewing window and interior lighting</b>	viewing window (triple insulating glass) in door, 370 x 370 mm, and 15 W interior		
	120 V option model	-	8012-1706
	230 V option model	-	8012-1704

\* Notes › See last page

## ACCESSORIES

Designation	Description	*	Art.-No.
<b>APT-COM™ 4 BASIC-Edition</b>	for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition	-	9053-0039
<b>APT-COM™ 4 GLP-Edition</b>	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
<b>APT-COM™ 4 PROFESSIONAL-Edition</b>	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. version 4, PROFESSIONAL edition	-	9053-0040
<b>Data Logger Kit</b>	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
<b>Data Logger Software</b>	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	-	8012-0821
<b>pH-neutral detergent</b>	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
<b>Qualification documents</b>	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	-	7057-0001
		-	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	-	7057-0005
		-	7007-0005
		-	6004-0167
<b>Rack</b>	chrome plated	-	6004-0151
	stainless steel	-	8012-1887
<b>Rubber pads</b>	set anti-slip feet	-	6004-0183
<b>Shelf, perforated</b>	Stainless steel	-	9051-0018
<b>Table on castors</b>	stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm	-	

\* 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 contracts</b>			
<b>Maintenance services</b>			
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
<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>			
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).

**BINDER GmbH**

Tuttlingen, Germany  
TEL +49 7462 2005 0  
FAX +49 7462 2005 100  
info@binder-world.com  
www.binder-world.com

**BINDER Asia Pacific (Hong Kong) Ltd.**

Kowloon, Hong Kong, P.R. China  
TEL +852 39070500  
FAX +852 39070507  
asia@binder-world.com  
www.binder-world.com

**Representative Office for CIS**

Moscow, Russia  
TEL +7 495 988 15 16  
FAX +7 495 988 15 17  
russia@binder-world.com  
www.binder-world.com

**BINDER Environmental Testing  
Equipment (Shanghai) Co., Ltd.**

Shanghai, P.R. China  
TEL +86 21 685 808 25  
FAX +86 21 685 808 29  
china@binder-world.com  
www.binder-world.com

**BINDER Inc.**

Bohemia, NY, USA  
TEL +1 631 224 4340  
FAX +1 631 224 4354  
usa@binder-world.com  
www.binder-world.us