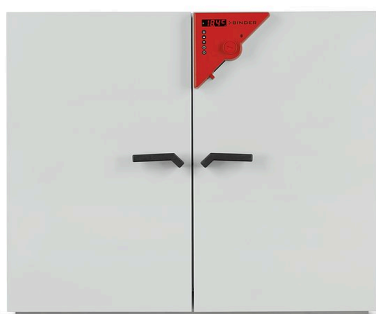


# Model FED 400 | Drying and heating chambers with forced convection and enhanced timer functions

BINDER heating chambers of the FED series provide almost unlimited capacity and are particularly adaptable. With advanced timing functions and a adjustable fan, temperature and convection conditions are easily controlled.

## 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 400

## MAIN FEATURES

- Temperature range: +5 °C above ambient temperature to +300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Adjustable exhaust air flap
- Controller with expanded timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

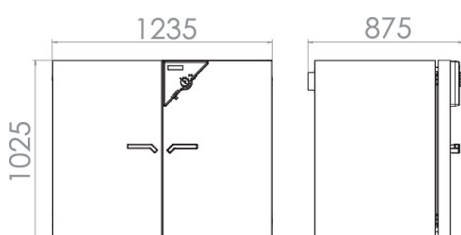
## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
400	400 V 3~ ph 50/60 Hz	Standard	FED400-400V	9010-0216
	208 V 3~ ph 60 Hz	Standard	FED400UL-208V	9010-0217

**TECHNICAL DATA**

Description	FED400-400V <sup>1</sup>	FED400UL-208V <sup>1</sup>
<b>Article Number</b>	<b>9010-0216</b>	<b>9010-0217</b>
<b>Performance Data Temperature</b>		
Temperature range +5 °C above ambient temperature to [°C]	300	300
Temperature variation at 150 °C [± K]	3.8	3.8
Temperature fluctuation at 150 °C [± K]	0.7	0.7
Heating-up time to 150 °C [min]	29	29
Recovery time after 30 seconds door open at 150 °C [min]	6	6
<b>Air change data</b>		
Air change (approx.) at 150 °C [x/h]	18	18
<b>Electrical data</b>		
Rated Voltage [V]	400	208
Power frequency [Hz]	50/60	60
Nominal power [kW]	3.4	3.4
Unit fuse [A]	3 x 16	3 x 16
Phase (Nominal voltage)	3~	3~
<b>Measures</b>		
Interior volume [L]	400	400
Net weight of the unit (empty) [kg]	145	145
Permitted load [kg]	90	90
Load per rack [kg]	35	35
Wall clearance back [mm]	160	160
Wall clearance sidewise [mm]	100	100
<b>Internal Dimensions</b>		
Width [mm]	1000	1000
Height [mm]	800	800
Depth [mm]	510	510
<b>Doors</b>		
Unit doors	2	2
<b>Housing dimensions not incl. fittings and connections</b>		
Width net [mm]	1235	1235
Height net [mm]	1025	1025
Depth net [mm]	765	765
<b>Environment-specific data</b>		
Energy consumption at 150 °C [Wh/h]	1200	1200
<b>Fixtures</b>		
Number of shelves (std./max.)	2/10	2/10

<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 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	8012-1285
	30 mm	01	8012-1369
	50 mm	01	8012-1385
	left		
	10 mm	01	8012-1278
	30 mm	01	8012-1361
	50 mm	01	8012-1377
	100 mm	01	8012-1509
<b>Access port with silicone plug</b>	right		
	10 mm	01	8012-1271
	30 mm	01	8012-1356
	50 mm	01	8012-1373
	100 mm	01	8012-1506
	top		
	10 mm	01	8012-1264
	30 mm	01	8012-1365
	50 mm	01	8012-1381
	100 mm	01	8012-1388
<b>Alarm function for overheating</b>	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device		
	208 V option model	-	8012-1305
	400 V option model	-	8012-1301
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	02	8012-0433
<b>Calibration certificate, expanded</b>	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1118
	for temperature, measurement in center of chamber at specified temperature	-	8012-1137
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1596
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1575
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1554
<b>Class 3.1 independent temperature safety device</b>	with visual alarm (DIN 12880)	-	8012-1148
<b>Door gasket</b>	made of FKM, silicone-free	-	8012-1310
<b>Door lock</b>	lockable door handle	-	8012-1254
<b>Fan, reinforced</b>	to increase air change rates		
	400 V option model	-	8012-0200
<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)	-	8012-0076
<b>Inner chamber, reinforced</b>	including 2 reinforced racks	-	8012-0339
<b>Measurement of air exchange rate</b>	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-1197
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	-	8012-1176
<b>Viewing window and interior lighting</b>	viewing window in each door, 290 x 470 mm, and 30 W interior lighting		
	208 V option model	-	8012-1241
	400 V option model	-	8012-1239

\* 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>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 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
<b>Rack</b>	chrome plated	-	8012-2036
	stainless steel	-	6004-0011
<b>Rack accessories</b>	fasteners (1 set of 4) for additional security of racks	-	8012-0531
<b>Rack, reinforced</b>	stainless steel, with fasteners (1 set of 4)	-	8012-0346
<b>Shelf, perforated</b>	Stainless steel	-	6004-0032
<b>Table on castors</b>	stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm	-	9051-0019

\* 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

\* Notes › See last page

Designation	Description	*	Art.-No.
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