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: room temperature plus 5 °C 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

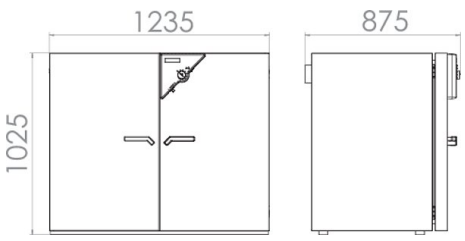
Interior volume [L]	Voltage	Option model	Version	Art.-No.
400	400 V 3~ ph 50/60 Hz	Standard	FED400-400V	9010-0216
	208 V 3~ ph 60 Hz	Standard	FED400UL-208V	9010-0217

TECHNICAL DATA

Description	FED400-400V[1]	FED400UL-208V[1]
Article Number	9010-0216	9010-0217
Performance Data Temperature		
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
Air change data		
Air change (approx.) at 150 °C [x/h]	18	18
Electrical data		
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~
Measures		
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
Internal Dimensions		
Width [mm]	1000	1000
Height [mm]	800	800
Depth [mm]	510	510
Doors		
Unit doors	2	2
Housing dimensions not incl. fittings and connections		
Width net [mm]	1235	1235
Height net [mm]	1025	1025
Depth net [mm]	765	765
Environment-specific data		
Energy consumption at 150 °C [Wh/h]	1200	1200
Fixtures		
Number of shelves (std./max.)	2/10	2/10

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.
Access port with silicone plug	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, 11	8012-1509
	right		
	10 mm	01	8012-1271
	30 mm	01	8012-1356
	50 mm	01	8012-1373
	100 mm	01, 11	8012-1506
	top		
	10 mm	01	8012-1264
	30 mm	01	8012-1365
	50 mm	01	8012-1381
	100 mm	01, 10	8012-1388
Alarm function for overheating	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
Analog output 4-20 mA	for temperature values (output not adjustable)	02	8012-0433
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	–	8012-1118
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	–	8012-1137
	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
Class 3.1 independent temperature safety device	with visual alarm (DIN 12880)	04, 12	8012-1148
Door gasket	made of FKM, silicone-free	03	8012-1310
Door lock	lockable door handle	–	8012-1254
Fan, reinforced	to increase air change rates		
	400 V option model	–	8012-0200
HEPA air filter	On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm)	–	8012-0076
Inner chamber, reinforced	including 2 reinforced racks	–	8012-0339
Measurement of air exchange rate	in accordance with ASTM D5374, definition and protocol according to ambient temperature	–	8012-1197
Pt 100 temperature sensor	additional flexible Pt 100, interior, with external connection incl. LEMO connector (3-pin)	–	8012-1176
Viewing window and interior lighting	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.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units.		
	version 4, BASIC edition	19	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	19	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	19	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	19	8012-0714
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	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_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
Rack	chrome plated	–	6004-0005
	stainless steel	–	6004-0011
Rack accessories	fasteners (1 set of 4) for additional security of racks	–	8012-0531
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	–	8012-0346
Shelf, perforated	Stainless steel	–	6004-0032
Table on castors	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.
Installation services			
Unit installation	Unpacking and setting up of unit, connecting to existing connections, and checking function	13, 18	DL10-0100
Unit instructions	Unit function instructions for operation and programming of the controller	18	DL10-0500
Preventive maintenance			
Maintenance	Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule	14, 18	DL20-0200
Calibration services			
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	14, 16, 17, 18	DL33-0000
Temperature calibration	Expansion – including certificate, each additional measuring point in center of chamber at specified test temperature	14, 16, 17, 18	DL30-0102
	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, 18 measuring points	Temperature measurement with 18 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0127
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0109

* Notes › See last page

Designation	Description	*	Art.-No.
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	15, 18	DL40-0100
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
Warranty service			
Warranty extension from 2 to 3 years	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	–	DL00-4041
Warranty extension from 2 to 5 years	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	–	DL00-4042

* 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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