

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

IMPORTANT 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		Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
[L]	[L]					
Model FED 400						
400	400	400 V 3~ 50/60 Hz -16,0 A	CEE 16 / 6 H plug 5-pin	Standard	FED400-400V	9010-0216
		208 V 3~ 60 Hz -16,0 A	NEMA L21-20	Standard	FED400UL-208V	9010-0217

TECHNICAL DATA

Data		
Designation	FED400-400V	FED400UL-208V
Article Number	9010-0216	9010-0217
Option model	Standard	Standard
Performance Data Temperature		
Temperature range	+5 °C above ambient temperature to 300 °C	+5 °C above ambient temperature to 300 °C
Temperature uniformity at 150°C	3,8 ± K	3,8 ± K
Temperature fluctuation at 150°C	0,7 ± K	0,7 ± K
Heating up time to 150°C	29 min	29 min
Recovery time after door was opened for 30 s at 150°C	6 min	6 min
Air change data		
Air change rate at 150°C	18 x/h	18 x/h
Electrical data		
Rated Voltage	400 V	208 V
Power frequency	50/60 Hz	60 Hz
Nominal power	3,4 kW	3,4 kW
Unit fuse	16,0 A	16,0 A
Phase (Nominal voltage)	3~	3~
Measures		
Interior volume	400 L	400 L
Net weight of the unit (empty)	145 kg	145 kg
Load per rack	35 kg	35 kg
Permitted load	90 kg	90 kg
Wall clearance back	160 mm	160 mm
Wall clearance sidewise	100 mm	100 mm
Housing dimensions not incl. fittings and connections		
Width net	1,235 mm	1,235 mm
Height net	1,025 mm	1,025 mm
Depth net	765 mm	765 mm
Internal Dimensions		

Interior width	1,000 mm	1,000 mm
Interior height	800 mm	800 mm
Interior depth	510 mm	510 mm
Unit doors	2	2

Environment-specific data

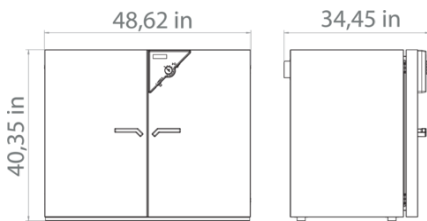
Energy consumption at 150°C	1,200 Wh/h	1,200 Wh/h
-----------------------------	------------	------------

Fixtures

Number of shelves (std./max.)	2/10	2/10
-------------------------------	------	------

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	FED 400	*	Art.-No.
	back			
	10 mm	•	01	8012-1285
	30 mm	•	01	8012-1369
	50 mm	•	01	8012-1385
	left			
	10 mm	•	01	8012-1278
Access port with silicone plug	30 mm	•	01	8012-1361
	50 mm	•	01	8012-1377
	100 mm	•	01	8012-1509
	right			
	10 mm	•	01	8012-1271
	30 mm	•	01	8012-1356

Designation	Description	FED 400	*	Art.-No.
	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
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, 9 measuring points at specified temperature	•	-	8012-1554
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-1575
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	-	8012-1596
Class 3.1 independent temperature safety device	with visual alarm (DIN 12880)	•	-	8012-1148
Door gasket	made of FKM, silicone-free	•	-	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); not in conjunction with reinforced heating output, reinforced fan	•	-	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

Designation	Description	FED 400	*	Art.-No.
Viewing window and interior lighting	viewing window in each door, 290 x 470 mm, and 30 W interior lighting			
	400 V option model	•	-	8012-1239

ACCESSORIES

Designation	Description	FED 400	*	Art.-No.
APT-COM™ 4	Multi Management Software APT-COM™			
	version 4, BASIC edition	•	-	9053-0039
	version 4, GLP edition	•	-	9053-0042
	version 4, PROFESSIONAL edition	•	-	9053-0040
Qualification documents	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
	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
Rack	chrome plated	•	-	8012-2036
	stainless steel	•	-	8012-2159
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	•	-	8012-0346
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	-	8012-0531
Shelf, perforated	Stainless steel	•	-	8012-2162
Table on castors	stable cart, casters with locking brakes, dimensions: W 1,300 x D 800 x H 780 mm	•	-	9051-0019
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250

SERVICES

Designation	Description	*	Art.-No.
Calibration services			
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	-	DL33-0000

Designation	Description	*	Art.-No.
Temperature calibration	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.	–	DL30-0101
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate Travel to be quoted separate.	–	DL30-0102
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required.	–	DL30-0109
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 2 shelves are required.	–	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required.	–	DL30-0127
Installation services			
Unit installation	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) Travel to be quoted as separate.	–	DL10-0100
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming. Travel to be quoted as separate Limited to 3 hours.	–	DL10-0500
Maintenance services			
BRONZE 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate. 10% Discount on Spare Parts and Labor for any additional Services needed Wear + tear parts to be purchased or billed to customer. Travel to be quoted as separate.	–	DL20-0710
GOLD 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate of Temperature. 25% Discount on Spare Parts and Labor for any additional Services needed. One additional courtesy visit per year can be used for service visit or operator. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate.	–	DL20-0910
Preventive maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Checking a test temperature specified by the user in center of usable space without certificate. Wear + tear parts need to be purchased or billed to customer. Travel to be quoted as separate.	–	DL20-0200
SILVER 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate 15% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator training. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate.	–	DL20-0810
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.	–	DL40-0100
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.	–	DL44-0500
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	–	DL50-0010

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.

BINDER GmbH

Tuttlingen, Germany
TEL +49 7462 2005 0
FAX +49 7462 2005 100
info@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

**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 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