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



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.
[cu.ft.]	[L]					
Model FED 400						
14	400	400 V 3~/N/PE 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

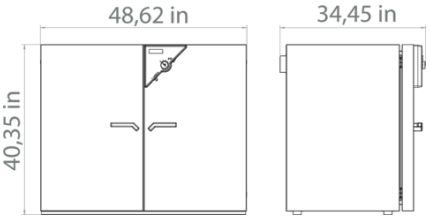
TECHNICAL DATA

Data		
Article Number	9010-0216	9010-0217
Designation	FED400-400V	FED400UL-208V
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~/N/PE	3~
Dimensions and weights		
Interior volume	14 cu.ft.	14 cu.ft.
Net weight of the unit (empty)	320 lbs	320 lbs
Load per rack	77 lbs	77 lbs
Permitted load	198 lbs	198 lbs
Wall clearance back	6,3 in	6,3 in
Wall clearance sidewise	3,94 in	3,94 in
Housing dimensions not incl. fittings and connections		
Width net	48.62 in	48.62 in
Height net	40.35 in	40.35 in
Depth net	30.12 in	30.12 in
Internal Dimensions		

Interior width	39.37 in	39.37 in
Interior height	31.5 in	31.5 in
Interior depth	20.08 in	20.08 in
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.
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	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
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
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

ACCESSORIES

Designation	Description	FED 400	*	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
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
Qualification documents IQ/OQ	IQ/OQ documents digital in PDF format – supporting documents for validation consisting of: IQ/OQ checklists, comprehensive unit documentation covering: temperature. Excluded: Document execution is separate			
	temperature. Excluded: Document execution is separate	•	-	7057-0010
Qualification documents IQ/OQ/PQ	IQ/OQ/PQ documents digital in PDF format – supporting documents for validation customizied to customer requirements, PQ section added to the qualification folder IQ/OQ; supporting documents for validation consisting of: IQ/OQ checklists, comprehensive unit documentation covering: temperature values. Excluded: Document execution is separate			
	temperature values. Excluded: Document execution is separate	•	-	7057-0016
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

SERVICES

Designation	Description	*	Art.-No.
Calibration services			
Temperature calibration	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.	05	DL30-0120
	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.	05	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.	05	DL30-0109

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. Travel to be quoted separate. A total of 2 shelves are required.	05	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.	05	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.	05	DL10-0160
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.	05	DL10-0540
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.	05	DL20-0720
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.	05	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.	05	DL20-0602
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.	05	DL20-0810
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.	05	DL40-0100
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.	05	DL44-0500
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	05	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.

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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