

# Model FP 400 | Drying and heating chambers Classic.Line with forced convection and program functions

## 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
- Advanced programming options



Model 400



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## 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 time-segment and real-time programming
- 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.
Model FP 400				
400	400 V 3~ 50/60 Hz	Standard	FP400-400V	9010-0265
	208 V 3~ 60 Hz	Standard	FP400UL-208V	9010-0266

## TECHNICAL DATA

Description	FP400-400V	FP400UL-208V
Article Number	9010-0265	9010-0266
Performance Data Temperature		
Temperature range 5 °C above ambient temperature to [°C]	300	300
Temperature uniformity at 150 °C [± K]	2.5	2.5
Temperature fluctuation at 150 °C [± K]	0.3	0.3
Heating-up time to 150 °C [min]	35	35

## Data Sheet Model FP 400

Description	FP400-400V	FP400UL-208V
<b>Article Number</b>	<b>9010-0265</b>	<b>9010-0266</b>
Recovery time after 30 seconds door open at 150 °C [min]	17	17
<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
Unit fuse [A]	3 x 16	3 x 16
Phase (Nominal voltage)	3~	3~
<b>Measures - Outer dimensions</b>		
Width net [mm]	1235	1235
Height net [mm]	1025	1025
Depth net [mm]	765	765
Wall clearance back [mm]	160	160
Wall clearance sidewise [mm]	100	100
<b>Measures - Internal Dimensions</b>		
Width [mm]	1000	1000
Height [mm]	800	800
Depth [mm]	510	510
<b>Measures</b>		
Interior volume [L]	400	400
Net weight of the unit (empty) [kg]	145	145
Load per rack [kg]	35	35
<b>Environment-specific data</b>		
Energy consumption at 150 °C	1200 Wh/h	1200 Wh/h

## OPTIONS AND ACCESSORIES

Designation	Description	*	Art.-No.
<b>Access port with silicone plug</b>	10 mm, back	01	8012-0390
	10 mm, left	01	8012-0388
	10 mm, right	01	8012-0387
	10 mm, top	01	8012-0386
	30 mm, back	01	8012-0540
	30 mm, left	01	8012-0537
	30 mm, right	01	8012-0536
	30 mm, top	01	8012-0539
	50 mm, back	01	8012-0546
	50 mm, left	01	8012-0542
	50 mm, right	01	8012-0541
	50 mm, top	01	8012-0545
	100 mm, left	01, 11	8012-0722
	100 mm, right	01, 11	8012-0721
100 mm, top	01, 10	8012-0547	
<b>Analog output, 4 – 20 mA</b>	for temperature values (output not adjustable)	02	8012-0481
<b>Calibration certificate, expanded</b>	each measurement at additional measuring point or testing temperature	–	8012-0022

\* Notes > See last page

**Data Sheet Model FP 400**

Designation	Description	*	Art.-No.
<b>Calibration certificate, temperature</b>	for temperature, measurement in center of chamber at specified temperature	-	8012-0030
	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-0921
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-0918
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-0915
<b>Cart</b>	stable cart, casters with locking brakes	-	9051-0019
<b>Class 3.1 independent temperature safety device</b>	with visual alarm (DIN 12880)	04, 12	8012-0032
<b>Data Logger Kit</b>	T 350: temperature logging from 0 °C to 350 °C	19	8012-0714
<b>Data Logger Kit, software</b>	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
<b>Door gasket</b>	made of FKM, silicone-free	03	8012-0497
<b>Door lock</b>	lockable door handle	-	8012-0319
	to increase air exchange rate		
<b>Fan, reinforced</b>	208 V option model	-	8012-0245
	400 V option model	-	8012-0200
<b>HEPA air filter</b>	class H14 filter (according to EN 1822, min. 99.995 %)	-	8012-0076
<b>Inner chamber, reinforced</b>	including 2 reinforced racks (max. total load 250 kg, max. load per rack 70 kg)	-	8012-0339
<b>Instrument tray</b>	large	-	4022-0124
	small	-	4022-0123
<b>Interface converter</b>	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0557
	230 V, 50/60 Hz option model	-	8012-0556
	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit		
<b>Interface converter, USB / RS422</b>	120 V, 60 Hz option model	-	8012-0405
	230 V, 50/60 Hz option model	-	8012-0380
<b>Interface converter, USB / RS422</b>	RS 422 cable set and RS 422 / USB interface converter for connection to 10-way plug distributor or for connection to a unit (USB-powered converter)	-	8012-0665
<b>Magnetic Pouch (A4)</b>	insert pouch with magnetic strip	-	1007-0065
<b>Measurement of air exchange rate</b>	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-0195
<b>Measuring channel for digital display of specimen temperature</b>	with additional Pt 100 temperature sensor, measured data recorded via RS 422 interface	-	8012-0504
<b>pH-neutral detergent</b>	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
<b>Rack</b>	chrome plated	-	6004-0005
	stainless steel	-	6004-0011
<b>Rack, accessories</b>	set of 4 fasteners for additional security	-	8012-0531
<b>Rack, reinforced</b>	stainless steel, with 1 set of 4 fasteners, max. load 70 kg	-	8012-0346
<b>RS 422 interface</b>	modular plug distributor for 10 RS 422 interfaces	-	8012-0295
<b>RS 422 interface, cable (15 m)</b>	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	-	5023-0036
<b>RS 422 interface, cable (50 m)</b>	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	-	5023-0117
<b>Shelf, perforated</b>	stainless steel	-	6004-0029
		-	6004-0032

\* Notes › See last page

## Data Sheet Model FP 400

Designation	Description	*	Art.-No.
<b>Software</b>	APT-COM™ communications software version 2 to 3, GLP edition	19	9053-0016
	version 3, BASIC edition	19	9053-0014
	version 3, GLP edition	19	9053-0015
	version 3, STANDARD edition	19	9053-0013
	APT-COM™ communications software, price: for free version 3, GLP DEMO Edition	19	9053-0008
<b>Viewing window and interior lighting</b>	viewing window in each door, 470 x 290 mm, and 30 W interior lighting		
	120 V option model	–	8012-0240
	230 V option model	–	8012-0060
<b>Zero voltage relay contacts</b>	for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. 24 V - 2.5 A)		
	120 V option model	–	8012-0471 8012-0472

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Installation	and set up of unit at operating location, connect to existing connections	13, 18	DL100100
Instruction	unit function instructions for operation and programming of the controller	18	DL100500
<b>Preventive maintenance</b>			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL200200
<b>Calibration services</b>			
Calibration temperature	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL300101
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	14, 16, 17, 18	DL330000
Temperature measurement 18 measuring points	including certificate, 18 measuring points at specified temperature	14, 16, 17, 18	DL300118
Temperature measurement 27 measuring points	including certificate, 27 measuring points at specified temperature	14, 16, 17, 18	DL300127
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL300109
<b>Validation services</b>			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL410200
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL440500
Qualification folder IQ/OQ	supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001	15, 18, 20	8012-0856
Qualification folder IQ/OQ/PQ	supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ	15, 18	8012-0945
<b>Warranty service</b>			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	–	DL005041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	–	DL005042

\* 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.
- 05 Attention: The pump is delivered separately. The electric connection for the pump (230 V/1~/50 Hz) must be carried out by an authorized electrician.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 07 The additional heat input may affect the temperature behavior.
- 08 The pump (packaged separately) is ready for connection.
- 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 (see the chapter on BINDER Service) 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.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for both items.  
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.
- 21 ATEX conformity:  
Pumping chamber (pumped gases): II 2G IIC T3 X  
Environment with inert purge gas: II 2G IIB T4 X  
Environment without inert purge gas: II 3G IIB T4 X  
Motor: II 2G Ex d IIB T4 Gb

**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.ru

**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