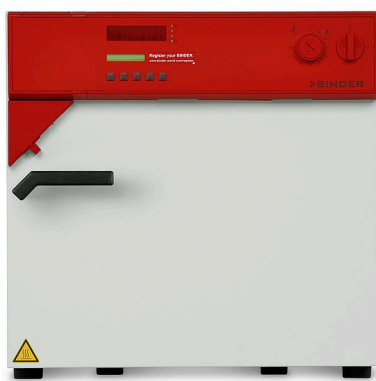


# Model FP 53 | Drying and heating chambers with forced convection and program functions

A BINDER material test chamber with mechanical convection of the FP series provides reliably short drying times and particularly fast heating – even for chambers under full loads.

## 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 53

## 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

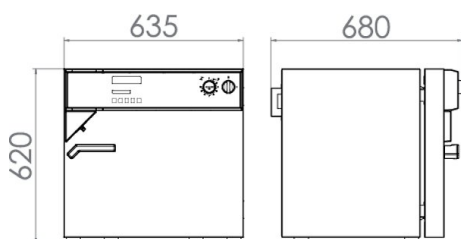
## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
53	230 V 1~ ph 50/60 Hz	Standard	FP053-230V	9010-0153
	120 V 1~ ph 60 Hz	Standard	FP053UL-120V	9010-0175

**TECHNICAL DATA**

Description	FP053-230V <sup>1</sup>	FP053UL-120V <sup>1</sup>
<b>Article Number</b>	<b>9010-0153</b>	<b>9010-0175</b>
<b>Performance Data Temperature</b>		
Temperature range +5 °C above ambient temperature to	300 °C	300 °C
Temperature variation at 150 °C [± K]	2	2
Temperature fluctuation at 150 °C [± K]	0.3	0.3
Heating-up time to 150 °C [min]	24	24
Recovery time after 30 seconds door open at 150 °C [min]	5	5
<b>Air change data</b>		
Air change (approx.) at 150 °C [x/h]	64	64
<b>Electrical data</b>		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	1.2	1.2
Unit fuse [A]	10	16
Phase (Nominal voltage)	1~	1~
<b>Measures</b>		
Interior volume [L]	53	53
Net weight of the unit (empty) [kg]	44	44
Permitted load [kg]	40	40
Load per rack [kg]	15	15
Wall clearance back [mm]	160	160
Wall clearance sidewise [mm]	100	100
<b>Internal Dimensions</b>		
Width [mm]	400	400
Height [mm]	400	400
Depth [mm]	340	340
<b>Housing dimensions not incl. fittings and connections</b>		
Width net [mm]	635	635
Height net [mm]	620	620
Depth net [mm]	575	575
<b>Environment-specific data</b>		
Energy consumption at 150 °C [Wh/h]	300	300
<b>Fixtures</b>		
Number of shelves (std./max.)	2/5	2/5

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.
<b>Access port with silicone plug</b>	back		
	10 mm	01	8012-1286
	30 mm	01	8012-1370
	50 mm	01	8012-1386
	left		
	10 mm	01	8012-1279
	30 mm	01	8012-1362
	50 mm	01	8012-1378
	100 mm	01, 11	8012-1510
	right		
	10 mm	01	8012-1272
	30 mm	01	8012-1357
	50 mm	01	8012-1374
	100 mm	01, 11	8012-1507
	top		
	10 mm	01	8012-1265
30 mm	01	8012-1366	
50 mm	01	8012-1382	
100 mm	01, 10	8012-1389	
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	02	8012-0481
<b>Calibration certificate, expanded</b>	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1119
<b>Calibration certificate, temperature</b>	for temperature, measurement in center of chamber at specified temperature	-	8012-1138
	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1597
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1576
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1555
<b>Class 3.1 independent temperature safety device</b>	with visual alarm (DIN 12880)	04, 12	8012-1149
<b>Door gasket</b>	made of FKM, silicone-free	03	8012-0494
<b>Door lock</b>	lockable door handle	-	8012-1249
<b>Fan, reinforced</b>	to increase air change rates		
	230 V option model	-	8012-0197
<b>Gas-tight option model</b>	Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	09	8012-0182
<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)	-	8012-1169
<b>Inert gas connection</b>	with gas inlet and outlet, Ø 10 mm, incl. additional measures to provide the greatest possible impermeability to gas	-	8012-0841
<b>Measurement of air exchange rate</b>	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-1198
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-0504
<b>Viewing window and interior lighting</b>	viewing window in door, 230 x 230 mm, and 15 W interior lighting		
	120 V option model	-	8012-0237
	230 V option model	-	8012-0054
<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)		
	120/208 V option model	-	8012-0472
	230/400 V option model	-	8012-0471

\* Notes &gt; 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	19	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	19	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	19	9053-0040
<b>Data Logger Kit</b>	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
<b>Data Logger Software</b>	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
<b>Instrument tray</b>	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
<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	-	6004-0002
	stainless steel	-	6004-0007
<b>Rack accessories</b>	fasteners (1 set of 4) for additional security of racks	-	8012-0531
<b>Rubber pads</b>	set anti-slip feet	-	8012-1887
<b>Shelf, perforated</b>	Stainless steel	-	6004-0029
<b>Table on castors</b>	stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm	-	9051-0018

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
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
<b>Preventive maintenance</b>			
Maintenance	Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule	14, 18	DL20-0200
<b>Calibration services</b>			
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

<b>Designation</b>	<b>Description</b>	<b>*</b>	<b>Art.-No.</b>
<b>Validation services</b>			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	15, 18	DL41-0200
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
<b>Warranty service</b>			
Warranty extension from 2 to 3 years	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	-	DLo0-5041
Warranty extension from 2 to 5 years	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	-	DLo0-5042

\* 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.

**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