

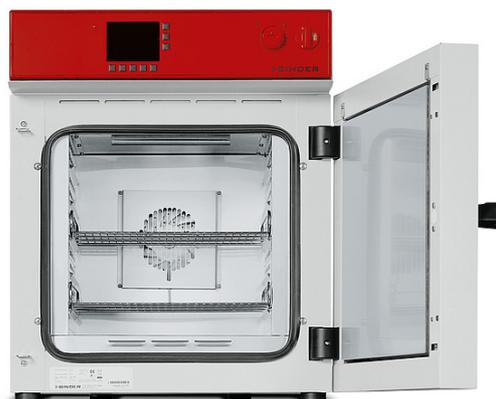
# Model M 53 | Drying and heating chambers Classic.Line with forced convection and advanced program functions

## 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 53



Model 53

## MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Program-controlled ventilation flap
- Color LCD controller with time-segment 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 M 53				
53	230 V 1~ 50/60 Hz	Standard	M053-230V	9010-0201

## TECHNICAL DATA

Description	M053-230V
Article Number	9010-0201
Performance Data Temperature	
Temperature range 5 °C above ambient temperature to [°C]	300
Temperature uniformity at 150 °C [± K]	1.3
Temperature fluctuation at 150 °C [± K]	0.3
Heating-up time to 150 °C [min]	15

## Data Sheet Model M 53

Description	M053-230V
<b>Article Number</b>	<b>9010-0201</b>
Recovery time after 30 seconds door open at 150 °C [min]	3
<b>Air change data</b>	
Air change (approx.) at 150 °C [x/h]	192
<b>Electrical data</b>	
Rated Voltage [V]	230
Power frequency [Hz]	50/60
Phase (Nominal voltage)	1~
<b>Measures - Outer dimensions</b>	
Width net [mm]	635
Height net [mm]	780
Depth net [mm]	575
Wall clearance back [mm]	160
Wall clearance sidewise [mm]	100
<b>Measures - Internal Dimensions</b>	
Width [mm]	400
Height [mm]	400
Depth [mm]	340
<b>Measures</b>	
Interior volume [L]	53
Net weight of the unit (empty) [kg]	61
Load per rack [kg]	15
<b>Environment-specific data</b>	
Energy consumption at 150 °C	300 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
	<b>Analog output, 4 – 20 mA</b>	for temperature values (output not adjustable)	–
<b>Calibration certificate, expanded</b>	each measurement at additional measuring point or testing temperature	–	8012-0022
<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	–	9051-0018
<b>Data Logger Kit</b>	T 350: temperature logging from 0 °C to 350 °C	19	8012-0714

\* Notes > See last page

**Data Sheet Model M 53**

Designation	Description	*	Art.-No.
<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	8012-0494
<b>Door lock</b>	lockable door handle	-	8012-0318
<b>Gas-tight option model</b>	incl. additional measures for gas containment	09	8012-0181
<b>HEPA air filter</b>	class H14 filter (according to EN 1822, min. 99.995 %)	-	8012-0222
<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>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>Lockable controller keyboard</b>	Lockable controller keyboard with key-operated switch	-	8012-0529
<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	-	8012-0334
<b>pH-neutral detergent</b>	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
<b>Pt 100 temperature sensor</b>	additional Pt 100, with flexible cable installed with external connection, incl. LEMO connector (3-pin)	-	8012-0115
<b>Rack</b>	chrome plated	-	6004-0002
	stainless steel	-	6004-0007
<b>Rack, accessories</b>	set of 4 fasteners for additional security	-	8012-0531
<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>Rubber pads</b>	set of 4 anti-slip feet, for safe stacking of unit	10	8012-0001
<b>Shelf, perforated</b>	stainless steel	-	6004-0029
	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
<b>Software</b>	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 door, 230 x 230 mm, 230 V option model	-	8012-0055

\* 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	DL100600
<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	8012-0862
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	8012-0950
<b>Warranty service</b>			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL010041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	-	DL010042

\* 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

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