

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

With a maximum of 300 °C and various programming options the M series material test chambers are ideal for material and aging tests. With a high air flow, the powerful fans ensure rapid heating.

## 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

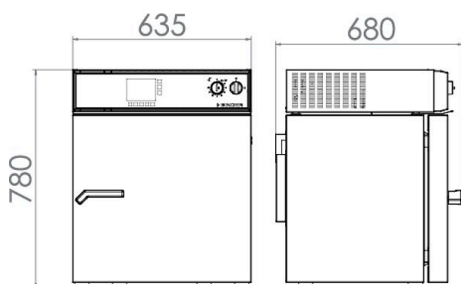
## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
53	230 V 1~ ph 50/60 Hz	Standard	M053-230V	9010-0201

**TECHNICAL DATA**

Description	M053-230V <sup>1</sup>
<b>Article Number</b>	<b>9010-0201</b>
<b>Performance Data Temperature</b>	
Temperature range +5 °C above ambient temperature to	300 °C
Temperature variation at 150 °C [± K]	1.3
Temperature fluctuation at 150 °C [± K]	0.3
Heating-up time to 150 °C [min]	15
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
Nominal power [kW]	1.2
Phase (Nominal voltage)	1~
<b>Measures</b>	
Interior volume [L]	53
Net weight of the unit (empty) [kg]	61
Permitted load [kg]	40
Load per rack [kg]	15
Wall clearance back [mm]	160
Wall clearance sidewise [mm]	100
<b>Internal Dimensions</b>	
Width [mm]	400
Height [mm]	400
Depth [mm]	340
<b>Housing dimensions not incl. fittings and connections</b>	
Width net [mm]	635
Height net [mm]	780
Depth net [mm]	575
<b>Environment-specific data</b>	
Energy consumption at 150 °C [Wh/h]	300
<b>Fixtures</b>	
Number of shelves (std./max.)	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.
	back		
	10 mm	01	8012-1287
	30 mm	01	8012-1371
	50 mm	01	8012-1387
	left		
	10 mm	01	8012-1280
	30 mm	01	8012-1363
	50 mm	01	8012-1379
<b>Access port with silicone plug</b>	100 mm	01, 11	8012-1511
	right		
	10 mm	01	8012-1273
	30 mm	01	8012-1358
	50 mm	01	8012-1375
	100 mm	01, 11	8012-1508
	top		
	10 mm	01	8012-1266
	30 mm	01	8012-1367
	50 mm	01	8012-1383
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	-	8012-0480
<b>Calibration certificate, expanded</b>	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1123
	for temperature, measurement in center of chamber at specified temperature	-	8012-1142
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1601
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1580
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1559
<b>Door gasket</b>	made of FKM, silicone-free	03	8012-1307
<b>Door lock</b>	lockable door handle	-	8012-1251
<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	8012-0181
<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)	-	8012-0222
<b>Inert gas connection</b>	with gas inlet and outlet, Ø 10 mm, incl. additional measures to provide the greatest possible impermeability to gas	-	8012-1545
<b>Lockable controller keyboard</b>	Lockable controller keyboard with key-operated switch	-	8012-0529
<b>Measurement of air exchange rate</b>	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-1199
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-0334
<b>Viewing window and interior lighting</b>	viewing window in door, 230 x 230 mm, and 15 W interior lighting 230 V option model	-	8012-0055

\* Notes › 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

\* Notes › See last page

Designation	Description	*	Art.-No.
<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>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		
<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
<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	–	DL01-0041
Warranty extension from 2 to 5 years	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	–	DL01-0042

\* 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