

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

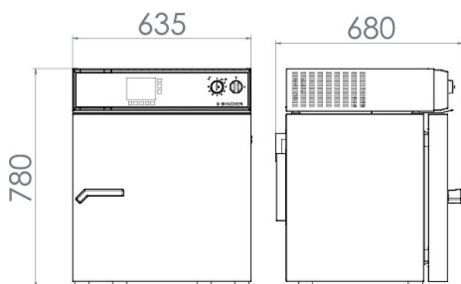
| Interior volume [cu.ft.] | Voltage | Option model | Version | Art.-No. |
|--------------------------|-------------------|--------------|-----------|-----------|
| 1.9 | 230 V 1~ 50/60 Hz | Standard | M053-230V | 9010-0201 |

TECHNICAL DATA

| | |
|--|------------------------|
| Description | M053-230V ¹ |
| Article Number | 9010-0201 |
| Performance Data Temperature | |
| Temperature range 5 °C above ambient temperature to [°C] | 300 |
| 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 |
| Air change data | |
| Air change (approx.) at 150 °C [x/h] | 192 |
| Electrical data | |
| Rated Voltage [V] | 230 |
| Power frequency [Hz] | 50/60 |
| Nominal power [kW] | 1.2 |
| Phase (Nominal voltage) | 1~ |
| Measures | |
| Interior volume [cu.ft.] | 1.9 |
| Net weight of the unit (empty) [lbs] | 134 |
| Permitted load [lbs] | 88 |
| Load per rack [lbs] | 33 |
| Wall clearance back [in] | 6.3 |
| Wall clearance sidewise [in] | 3.94 |
| Internal Dimensions | |
| Width [in] | 15.76 |
| Height [in] | 15.76 |
| Depth [in] | 13.4 |
| Housing dimensions not incl. fittings and connections | |
| Width net [in] | 25.02 |
| Height net [in] | 30.73 |
| Depth net [in] | 22.65 |
| Environment-specific data | |
| Energy consumption at 150 °C [Wh/h] | 300 |
| Fixtures | |
| 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 |
| Access port with silicone plug | 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 |
| Analog output 4-20 mA | for temperature values (output not adjustable) | - | 8012-0480 |
| Calibration certificate, expanded | 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 |
| Calibration certificate, temperature | 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 |
| Door gasket | made of FKM, silicone-free | 03 | 8012-1307 |
| Door lock | lockable door handle | - | 8012-1251 |
| Gas-tight option model | Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | 09 | 8012-0181 |
| HEPA air filter | On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm) | - | 8012-0222 |
| Inert gas connection | with gas inlet and outlet, Ø 10 mm, incl. additional measures to provide the greatest possible impermeability to gas | - | 8012-1545 |
| Lockable controller keyboard | Lockable controller keyboard with key-operated switch | - | 8012-0529 |
| Measurement of air exchange rate | in accordance with ASTM D5374, definition and protocol according to ambient temperature | - | 8012-1199 |
| Pt 100 temperature sensor | additional flexible Pt 100, interior, for displaying the temperature on the unit display | - | 8012-0334 |
| Viewing window and interior lighting | 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. |
|---------------------------------|---|----|-----------|
| APT-COM™ 4 BASIC-Edition | for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition | 19 | 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 | 19 | 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 | 19 | 9053-0040 |

* Notes › See last page

| Designation | Description | * | Art.-No. |
|-------------------------|---|----|-----------|
| Data Logger Kit | 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 |
| Data Logger Software | LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable) | 19 | 8012-0821 |
| pH-neutral detergent | concentrated, for gentle remove of residual contaminants; 1 kg | - | 1002-0016 |
| Qualification documents | 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 ₂ , O ₂ , 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 ₂ , O ₂ – or pressure, depending on unit | | |
| | Digital in PDF format | - | 7057-0005 |
| | Hard copy inside folder | - | 7007-0005 |
| Rack | chrome plated | - | 6004-0002 |
| | stainless steel | - | 6004-0007 |
| Rack accessories | fasteners (1 set of 4) for additional security of racks | - | 8012-0531 |
| Rubber pads | set anti-slip feet | - | 8012-1887 |
| Shelf, perforated | Stainless steel | - | 6004-0029 |
| Table on castors | 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. |
|--|--|----------------|-----------|
| Installation services | | | |
| 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 |
| Preventive maintenance | | | |
| Maintenance | Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule | 14, 18 | DL20-0200 |
| Calibration services | | | |
| 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 |
| Validation services | | | |
| 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 |
| Warranty service | | | |
| 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