# Model M 56 | 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 56



Model 56

## IMPORTANT FEATURES

- Temperature range: +23°C above ambient temperature to +300°C
- High temperature accuracy thanks to APT.line™ technology with increased heating output
- Reinforced fan with adjustable speed
- Electromechanical control of the exhaust air flap
- Intuitive touchscreen controller with time-segment and real-time programming
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) and class 3.1 independent temperature safety device (DIN 12880) with visual/ acoustic alarm available for selection on the controller
- Failsafe function – backup sensor Pt 100
- Computer interface: Ethernet
- Internal data logger, measured values can be read out in open format via USB

## ORDERING INFORMATION

| Interior volume | | Power supply - unit fuse | Plug* | Version | Model version | Art.-No. |
|---|---|---|---|---|---|---|
| [cu.ft.] | [L] | | | | | |
| **Model M 56** | | | | | | |
| 2 | 59 | 230 V 1~ 50/60 Hz -10,0 A | CEE 7/7 | Standard | M056-230V | 9010-0371 |

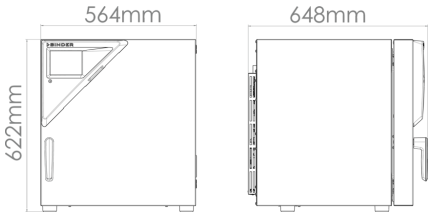
## TECHNICAL DATA

| | |
|---|---|
| **Data** | |
| Article Number | 9010-0371 |
| Designation | M056-230V |
| Option model | Standard |
| **Performance Data Temperature** | |
| Temperature range | +23 °C above ambient temperature to 300 °C |
| Temperature uniformity at 150°C | 1.4 ± K |
| Temperature fluctuation at 150°C | 0.2 ± K |
| Heating up time to 150°C | 9 min |
| Recovery time after door was opened for 30 s at 150°C | 4 min |
| **Air change data** | |
| Air change rate at 100°C | 175 x/h |
| **Electrical data** | |
| Rated Voltage | 230 V |
| Power frequency | 50/60 Hz |
| Nominal power | 2 kW |
| Unit fuse | 10,0 A |
| Phase (Nominal voltage) | 1~ |
| **Dimensions and weights** | |
| Interior volume | 2 cu.ft. |
| Net weight of the unit (empty) | 95 lbs |
| Load per rack | 66 lbs |
| Permitted load | 154 lbs |
| Wall clearance back | 6,3 in |
| Wall clearance sidewise | 3,94 in |
| **Housing dimensions not incl. fittings and connections** | |
| Width net | 22.05 in |
| Height net | 24.49 in |
| Depth net | 23.46 in |
| **Internal Dimensions** | |

| | |
|---|---|
| Interior width | 15.75 in |
| Interior height | 17.32 in |
| Interior depth | 13.19 in |
| Unit doors | 1 |
| **Environment-specific data** | |
| Sound-pressure level | 46 dB(A) |
| Energy consumption at 100°C | 210 Wh/h |
| Energy consumption at 150°C | 330 Wh/h |
| **Fixtures** | |
| Number of shelves (std./max.) | 2/4 |

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. |
|---|---|---|---|
| | left | | |
| | 10 mm | 01 | 8012-2296 |
| | 30 mm | 01 | 8012-2302 |
| | 50 mm | 01 | 8012-2305 |
| | right | | |
| Access port with silicone plug | 10 mm | 01 | 8012-2298 |
| | 30 mm | 01 | 8012-2304 |
| | 50 mm | 01 | 8012-2307 |
| | top | | |
| | 10 mm | 01 | 8012-2297 |
| | 30 mm | 01 | 8012-2303 |

| Designation | Description | * | Art.-No. |
|---|---|---|---|
| | 50 mm | 01 | 8012-2306 |
| | 100 mm | 01 | 8012-2300 |
| Analog output 4-20 mA | for temperature values (output not adjustable) | 02 | 8012-2295 |
| Calibration certificate, expanded | for temperature; for extending the measurement in center of chamber to include another test temperature | - | 8012-2328 |
| Calibration certificate, temperature | for temperature, measurement in center of chamber at specified temperature | - | 8012-2324 |
| | temperature measurement incl. certificate, 9 measuring points at specified temperature | - | 8012-2327 |
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | - | 8012-2325 |
| | temperature measurement incl. certificate and 27 measuring points at specified temperature | - | 8012-2326 |
| Door gasket | made of FKM, silicone-free | - | 8012-2331 |
| Door lock | lockable door handle | - | 8012-2335 |
| Gas-tight option model | Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | - | 8012-2308 |
| HEPA air filter | On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm) | - | 8012-2311 |
| Inert gas connection | With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option | - | 8012-2315 |
| Inner chamber, reinforced | max. total load 85 kg | - | 8012-2320 |
| Interior lighting | with 27 W light bulb | | |
| | 230/240 V option model | - | 8012-2318 |
| Measurement of air exchange rate | in accordance with ASTM D5374, definition and protocol according to ambient temperature | - | 8012-2329 |
| Pt 100 temperature sensor | additional flexible Pt 100, interior, for displaying the temperature on the unit display | - | 8012-2330 |
| Specimen temperature control | With additional specimen temperature sensor. Standard function 2 zero-voltage relay contacts not applicable. | - | 8012-2343 |

## 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 | - | 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 | - | 9053-0042 |

| Designation | Description | * | Art.-No. |
|---|---|---|---|
| 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 | - | 9053-0040 |
| pH-neutral detergent | concentrated, for gentle remove of residual contaminants; 1 kg | - | 8012-2250 |
| Qualification documents IQ/OQ | IQ/OQ documents digital in PDF format – supporting documents for validation consisting of: IQ/OQ checklists, comprehensive unit documentation covering: temperature. Excluded: Document execution is separate | | |
| | temperature. Excluded: Document execution is separate | - | 7057-0010 |
| Qualification documents IQ/OQ/PQ | IQ/OQ/PQ documents digital in PDF format – supporting documents for validation customizied to customer requirements, PQ section added to the qualification folder IQ/OQ; supporting documents for validation consisting of: IQ/OQ checklists, comprehensive unit documentation covering: temperature values. Excluded: Document execution is separate | | |
| | temperature values. Excluded: Document execution is separate | - | 7057-0016 |
| Rack | max. load per rack 30 kg | | |
| | chrome plated | - | 8012-2038 |
| | stainless steel | - | 8012-2085 |
| Rubber pads | set anti-slip feet | - | 8012-2030 |
| Shelf, perforated | max. load per rack 30 kg | | |
| | Stainless steel | - | 8012-2175 |
| Table on castors | stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm | - | 9051-0018 |

## SERVICES

| Designation | Description | * | Art.-No. |
|---|---|---|---|
| **Calibration services** | | | |
| Temperature calibration | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate. | 05 | DL30-0120 |
| | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate Travel to be quoted separate. | 05 | DL30-0102 |
| Temperature measurement, 9 measuring points | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required. | 05 | DL30-0109 |
| Temperature measurement, 18 measuring points | Temperature measurement with 18 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 2 shelves are required. | 05 | DL30-0118 |
| Temperature measurement, 27 measuring points | Temperature measurement with 27 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required. | 05 | DL30-0127 |

| Designation | Description | * | Art.-No. |
|---|---|---|---|
| **Installation services** | | | |
| Unit installation | Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work) Travel to be quoted as separate. | 05 | DL10-0160 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming. Travel to be quoted as separate Limited to 3 hours. | 05 | DL10-0550 |
| **Maintenance services** | | | |
| BRONZE 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate. 10% Discount on Spare Parts and Labor for any additional Services needed Wear + tear parts to be purchased or billed to customer. Travel to be quoted as separate. | 05 | DL20-0720 |
| GOLD 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate of Temperature. 25% Discount on Spare Parts and Labor for any additional Services needed. One additional courtesy visit per year can be used for service visit or operator. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate. | 05 | DL20-0910 |
| Preventive maintenance | One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Checking a test temperature specified by the user in center of usable space without certificate. Wear + tear parts need to be purchased or billed to customer. Travel to be quoted as separate. | 05 | DL20-0602 |
| SILVER 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate 15% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator training. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate. | 05 | DL20-0810 |
| **Validation services** | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate. | 05 | DL41-0200 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate. | 05 | DL44-0500 |
| **Warranty service** | | | |
| 1-year warranty extension | The warranty is extended by 1 year from the delivery date, wear parts are excluded | 05 | DL50-0010 |

## 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.

05 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).

**BINDER GmbH**
Tuttlingen, Germany
TEL +49 7462 2005 0
info@binder-world.com
www.binder-world.com

**BINDER Inc.**
Bohemia, NY, USA
TEL +1 631 224 4340
usa@binder-world.com
www.binder-world.us

**BINDER Environmental Testing Equipment (Shanghai) Co., Ltd.**
Shanghai, P.R. China
TEL +86 21 685 808 25
china@binder-world.com
www.binder-world.com