

Model MK 56 | Dynamic climate chambers for rapid temperature changes

The BINDER MK series chamber is suitable for all heat and cold tests between -40 °C and 180 °C. The MK is a clever alternative to complex individual solutions for cyclical temperature tests.

BENEFITS

- Homogeneous climate conditions thanks to APT.line™ technology
- Comprehensive programming and data acquisition
- Large heated viewing window



Model 56



Model 56

MAIN FEATURES

- Temperature range: -40 °C to +180 °C
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- BINDER Multi Management Software APT-COM™ Basic Edition
- Troubleshooting system with visual and audible alarms
- Intuitive touchscreen controller with time-segment and real-time programming
- Internal data logger, measured values can be read out in open format via USB
- Unit self-test for comprehensive status analysis
- Access port with silicone plug, 50 mm, left
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- 4 castors, two with brakes
- Computer interface: Ethernet
- Adjustable ramp function
- Integrated chart recorder
- Real-time clock
- 1 stainless steel rack
- Inner chamber made of stainless steel
- CFC-free refrigerant R-452A
- Cooling with compressor cooling unit

OPTIONAL EQUIPMENT

- APT-COM Multi Management Software – for managing, recording, and documenting unit parameters
- Racks – option of stainless steel racks, depending on test requirements
- Compressed air supply system
- Services – wide range of services to ensure that the unit functions correctly

ORDERING INFORMATION

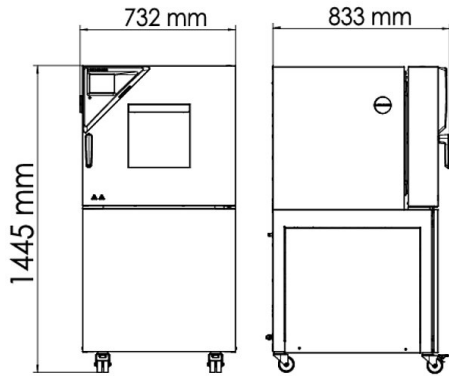
| Interior volume [L] | Voltage | Option model | Version | Art.-No. |
|---------------------|-------------------|--------------|------------|-----------|
| 60 | 230 V 1~ ph 50 Hz | Standard | MK056-230V | 9020-0374 |
| | 240 V 1~ ph 60 Hz | Standard | MK056-240V | 9020-0388 |

TECHNICAL DATA

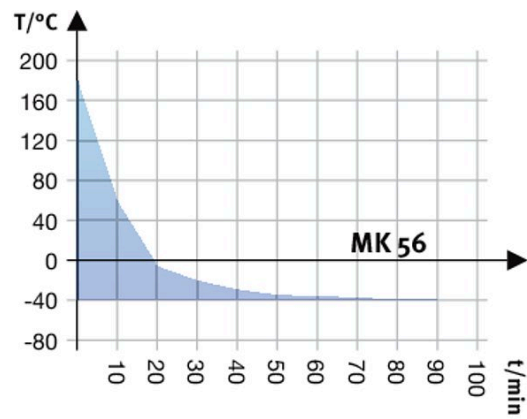
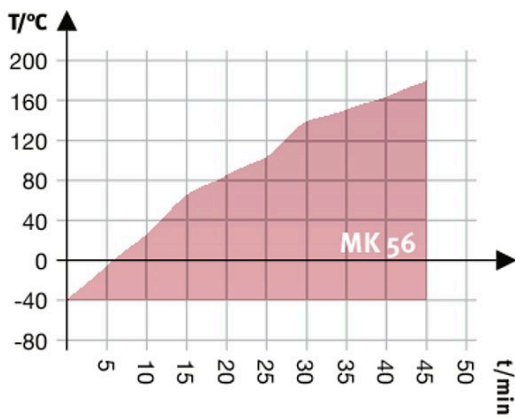
| Description | MK056-230V ¹ | MK056-240V ¹ |
|--|-------------------------|-------------------------|
| Article Number | 9020-0374 | 9020-0388 |
| Performance Data Temperature | | |
| Temperature range | -40...180 | -40...180 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...0.5 | 0.1...0.5 |
| Average heating-up rate according to IEC 60068-3-5 [K/min] | 5 | 5 |
| Cooling down time from 180 °C to -40 °C [min] | 90 | 90 |
| Average cooling down time according to IEC 60068-3-5 [K/min] | 5 | 5 |
| Max. heat compensation at 25 °C [W] | 800 | 800 |
| Electrical data | | |
| Rated Voltage [V] | 230 | 240 |
| Power frequency [Hz] | 50 | 60 |
| Nominal power [kW] | 2.8 | 2.8 |
| Unit fuse [A] | 16 | 16 |
| Phase (Nominal voltage) | 1~ | 1~ |
| Measures | | |
| Interior volume [L] | 60 | 60 |
| Net weight of the unit (empty) [kg] | 165 | 165 |
| Permitted load [kg] | 60 | 60 |
| Load per rack [kg] | 15 | 15 |
| Viewing window width [mm] | 288 | 288 |
| Viewing window height [mm] | 255 | 255 |
| Wall clearance back [mm] | 300 | 300 |
| Wall clearance sidewise [mm] | 200 | 200 |
| Internal Dimensions | | |
| Width [mm] | 400 | 400 |
| Height [mm] | 420 | 420 |
| Depth [mm] | 350 | 350 |
| Doors | | |
| Unit doors | 1 | 1 |
| Housing dimensions not incl. fittings and connections | | |
| Width net [mm] | 720 | 720 |
| Height net [mm] | 1445 | 1445 |
| Depth net [mm] | 778 | 778 |
| Environment-specific data | | |
| Energy consumption at 20 °C | 600 W | 600 W |
| Sound-pressure level [dB(A)] | 59 | 59 |
| Fixtures | | |
| Number of shelves (std./max.) | 1/4 | 1/4 |

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.

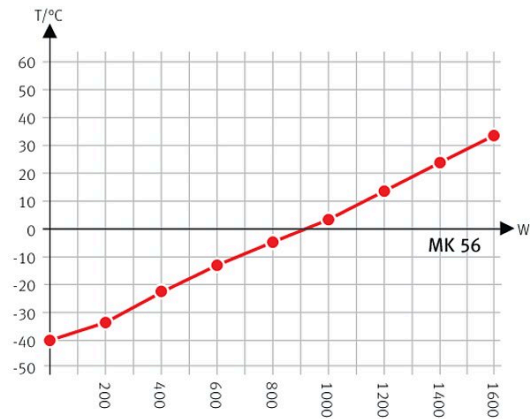
DIMENSIONS incl. fittings and connections [mm]



CHARTS



Heating up rate



Heat compensation with a set value of -40°C

Heat compensation chart

Cooling down rate

OPTIONS

| Designation | Description | * | Art.-No. |
|---|--|----|-----------|
| | left | | |
| | 30 mm | 01 | 8012-1322 |
| | 50 mm | 01 | 8012-1328 |
| | 80 mm | 01 | 8012-1334 |
| Access port with silicone plug | right | | |
| | 30 mm | 01 | 8012-1319 |
| | 50 mm | 01 | 8012-1325 |
| | 80 mm | 01 | 8012-1331 |
| | top | | |
| | 80 mm | 01 | 8012-1536 |
| Analog output 4-20 mA | for temperature values (output not adjustable) | - | 8012-1084 |
| Calibration certificate, expanded | for temperature; for extending the measurement in center of chamber to include another test temperature | - | 8012-1124 |
| | for temperature, measurement in center of chamber at specified temperature | - | 8012-1143 |
| Calibration certificate, temperature | temperature measurement incl. certificate and 27 measuring points at specified temperature | - | 8012-1602 |
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | - | 8012-1581 |
| | temperature measurement incl. certificate, 9 measuring points at specified temperature | - | 8012-1560 |
| Compressed air connection | for the connection to an existing pressurized air network | - | 8012-1795 |
| Door lock | lockable door handle | - | 8012-1782 |
| Dry-air purge | uncontrolled, incl. connection; for preventing condensation | - | 8012-1806 |
| Pt 100 temperature sensor | additional flexible Pt 100, interior, for displaying the temperature on the unit display | - | 8012-1093 |
| RS 485 interface, 2-wire | Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™ | - | 8012-1768 |
| Temperature safety device class 2 | with visual alarm (DIN 12880) | - | 8012-1792 |
| Water cooling | for reduced heat loss to ambient air | - | 8012-1815 |
| Zero voltage relay contacts | for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. 24 V - 2.5 A) | - | 8012-1095 |

* Notes › See last page

ACCESSORIES

| Designation | Description | * | Art.-No. |
|--|---|---|-----------|
| 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 |
| 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 | - | 1002-0016 |
| | 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 |
| Qualification documents | 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 | stainless steel | - | 8012-2085 |
| Rack accessories | fasteners (1 set of 4) for additional security of racks | - | 8012-0620 |
| Rack, reinforced | stainless steel, with fasteners (1 set of 4) | - | 8012-1091 |

* Notes › See last page

| Designation | Description | * | Art.-No. |
|-------------------------------------|--|---|-----------|
| RS 485 / RS 422 interface converter | RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor | | |
| | 115 V option model | - | 8012-0599 |
| | 230 V option model | - | 8012-0589 |
| Shelf, perforated | Stainless steel | - | 6004-0182 |
| WLAN kit | The kit contains a client bridge that establishes a wireless connection between BINDER units and APT-COM4, LIMS, or customer-specific software via an Ethernet interface. It provides an alternative solution in situations where units need to be positioned in locations without an on-site Ethernet connection. In secured networks, installation and configuration must be performed by the customer's IT service. | - | 8500-0164 |

* Notes › See last page

SERVICES

| Designation | Description | * | Art.-No. |
|--|--|------------|-----------|
| Installation services | | | |
| Unit commissioning | 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) | 05 | DL10-0300 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming | 05 | DL10-0700 |
| Maintenance contracts | | | |
| Maintenance services | | | |
| BRONZE 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts | 05 | DL20-0710 |
| GOLD 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one temperature and CO ₂ value, including certificate | 05 | DL20-0940 |
| Leakage test | Testing and logging of the leak-tightness of systems containing hydrofluorocarbons in accordance with Regulation EC842/2006, incl. test book | 05 | DL00-0034 |
| Maintenance | One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate | 05 | DL20-0500 |
| SILVER 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate | 05 | DL20-0830 |
| Calibration services | | | |
| Calibration certificate, temperature | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate | 03, 04, 05 | DL30-0101 |
| | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate | 03, 04, 05 | DL30-0102 |
| Temperature measurement, 18 measuring points | Temperature measurement with 18 measuring points with a set value specified by the user, including certificate | 03, 04, 05 | DL30-0118 |
| Temperature measurement, 27 measuring points | Temperature measurement with 27 measuring points with a set value specified by the user, including certificate | 03, 04, 05 | DL30-0127 |
| Temperature measurement, 9 measuring points | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate | 03, 04, 05 | DL30-0109 |
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder | 05 | DL41-0200 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | 05 | DL44-0500 |
| Warranty service | | | |
| 1-year warranty extension | The warranty is extended by 1 year from the delivery date, wear parts are excluded | - | DL50-0040 |

* 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 Sensor calibration is performed in an accredited calibration laboratory.
- 04 Calibration is performed according to the BINDER factory standard.
- 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).

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