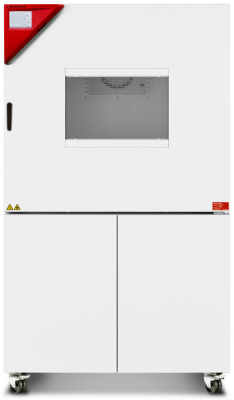
# Model MKT 240 | Dynamic climate chambers for rapid temperature changes with extended low temperature range

**Temperature ranges between -70 °C and 180 °C, with the added benefit of natural simulation, are what make the BINDER MKT series so unique. At the same time, this environmental simulation chamber fulfills the very highest precision and performance requirements for cyclical temperature tests.**

## BENEFITS

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



Model 240



Model 240

## IMPORTANT FEATURES

- Temperature range: -70 °C to +180 °C
- 4 zero-voltage relay contacts
- 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
- 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
- Door heating
- 1 stainless steel rack
- Inner chamber made of stainless steel
- CFC-free refrigerants R-452A and R-23
- Cooling with cascade compressor cooling unit

## ORDERING INFORMATION

| Interior volume [L] | Power supply - unit fuse | Plug* | Version | Model version | Art.-No. |
|---|---|---|---|---|---|
| **Model MKT 240** | | | | | |
| 228 | 400 V 3~/N/PE 50 Hz -16,0 A | CEE 16 / 6 H plug 5-pin | Standard | MKT240-400V | 9020-0386 |
| | 480 V 3~ 60 Hz -16,0 A | CEE 16 / 6 H plug 5-pin | with voltage and frequency converter | MKT240-480V-C | 9020-0364 |

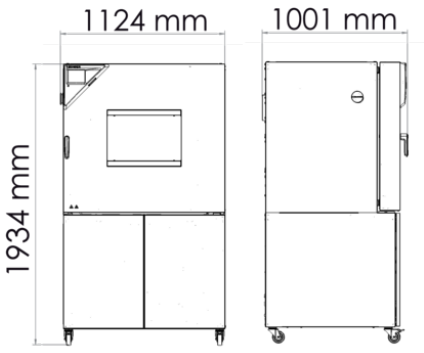
## TECHNICAL DATA

| | | |
|---|---|---|
| **Data** | | |
| Article Number | 9020-0386 | 9020-0364 |
| Designation | MKT240-400V | MKT240-480V-C |
| Option model | Standard | with voltage and frequency converter |
| **Performance Data Temperature** | | |
| Temperature range | -70...180 °C | -70...180 °C |
| Temperature uniformity dependent on set value | 0.1...1.0 ± K | 0.1...1.0 ± K |
| Temperature fluctuation dependent on set value | 0.1...0.4 ± K | 0.1...0.4 ± K |
| Average heating-up rate according to IEC 60068-3-5 between -40°C and 180°C | 5.0 K/min | 5.0 K/min |
| Cooling down time from 180°C to -70°C | 95 min | 95 min |
| Average cooling down time according to IEC 60068-3-5 between 180°C and -40°C | 4.2 K/min | 4.2 K/min |
| **Electrical data** | | |
| Rated Voltage | 400 V | 480 V |
| Power frequency | 50 Hz | 60 Hz |
| Nominal power | 6,5 kW | 6,5 kW |
| Unit fuse | 16,0 A | 16,0 A |
| Phase (Nominal voltage) | 3~/N/PE | 3~ |
| **Dimensions and weights** | | |
| Interior volume | 228 L | 228 L |
| Net weight of the unit (empty) | 380 kg | 380 kg |
| Load per rack | 30 kg | 30 kg |
| Permitted load | 70 kg | 70 kg |
| Wall clearance back | 300 mm | 300 mm |
| Wall clearance sidewise | 200 mm | 200 mm |
| **Housing dimensions not incl. fittings and connections** | | |
| Width net | 1,115 mm | 1,115 mm |
| Height net | 1,935 mm | 1,935 mm |
| Depth net | 925 mm | 925 mm |
| **Internal Dimensions** | | |

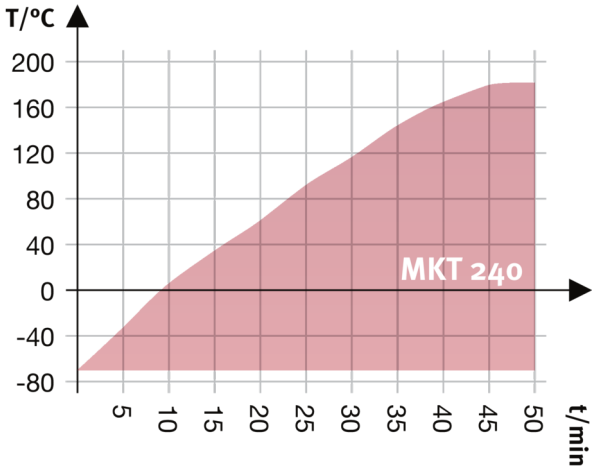
| | | |
|---|---|---|
| Interior width | 735 mm | 735 mm |
| Interior height | 700 mm | 700 mm |
| Interior depth | 443 mm | 443 mm |
| Unit doors | 1 | 1 |
| **Environment-specific data** | | |
| Sound-pressure level | 64 dB(A) | 67 dB(A) |
| **Fixtures** | | |
| Number of shelves (std./max.) | 1/6 | 1/6 |

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.

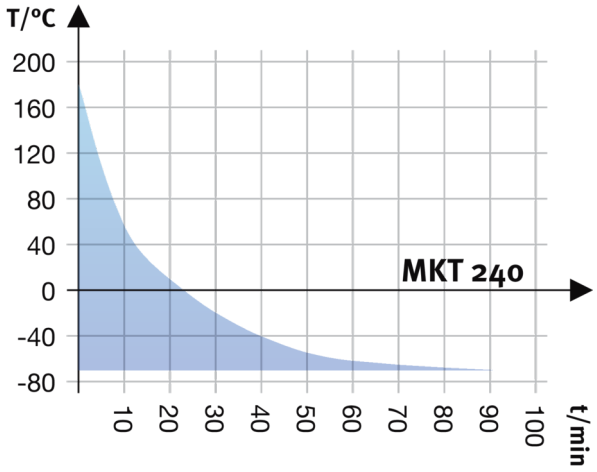
## DIMENSIONS Incl. fittings and connections [mm]



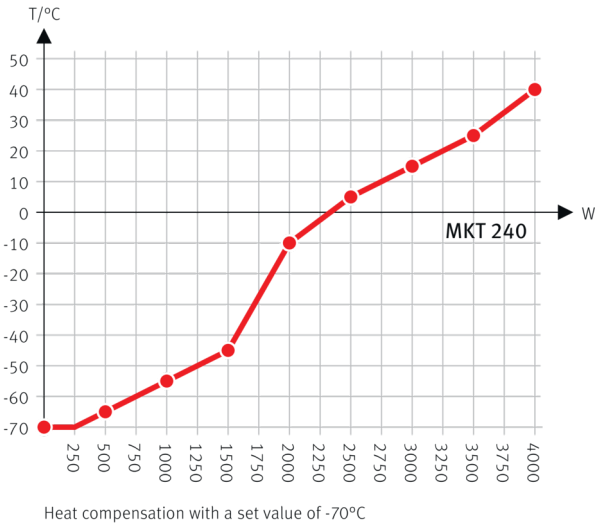
## DIAGRAMS




Heating up rate




Cooling down rate




Heat compensation with a set value of -70°C

Heat compensation chart

## OPTIONS

| Designation | Description | MKT 240 | * | Art.-No. |
|---|---|---|---|---|
| Access port with silicone plug | left | | | |
| | 30 mm | • | 01 | 8012-1324 |
| | 50 mm | • | 01 | 8012-1330 |
| | 80 mm | • | 01 | 8012-1336 |
| | 100 mm | • | 01 | 8012-1544 |
| | 125 mm | • | 01 | 8012-1353 |
| | right | | | |
| | 30 mm | • | 01 | 8012-1321 |

| Designation | Description | MKT 240 | * | Art.-No. |
|---|---|---|---|---|
| | 50 mm | • | 01 | 8012-1327 |
| | 80 mm | • | 01 | 8012-1333 |
| | 100 mm | • | 01 | 8012-1541 |
| | 125 mm | • | 01 | 8012-1350 |
| | top | | | |
| | 80 mm | • | 01 | 8012-1538 |
| | 100 mm | • | 01 | 8012-1532 |
| | 125 mm | • | 01 | 8012-1535 |
| Analog output 4-20 mA | for temperature values (output not adjustable) | • | - | 8012-1785 |
| Calibration certificate, expanded | for temperature; for extending the measurement in center of chamber to include another test temperature | • | - | 8012-1125 |
| Calibration certificate, temperature | for temperature, measurement in center of chamber at specified temperature | • | - | 8012-1144 |
| | temperature measurement incl. certificate, 9 measuring points at specified temperature | • | - | 8012-1561 |
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | • | - | 8012-1582 |
| | temperature measurement incl. certificate and 27 measuring points at specified temperature | • | - | 8012-1603 |
| Compressed air connection | for the connection to an existing pressurized air network | • | - | 8012-1788 |
| Door lock | lockable door handle | • | - | 8012-1784 |
| Dry-air purge | uncontrolled, incl. connection; for preventing condensation | • | - | 8012-1867 |
| Notch-type access port | notch-type access port in door, 100 x 35 mm | • | - | 8012-1855 |
| Pt 100 temperature sensor | additional flexible Pt 100, interior, for displaying the temperature on the unit display | • | - | 8012-1790 |
| RS 485 interface, 2-wire | Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™ | • | - | 8012-1770 |
| Temperature safety device class 2 | with visual alarm (DIN 12880) | • | - | 8012-1794 |

## ACCESSORIES

| Designation | Description | MKT 240 | * | 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 |

| Designation | Description | MKT 240 | * | 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/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 |
| | 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 |
| Rack | stainless steel | • | - | 8012-2053 |
| Rack, reinforced | stainless steel, with fasteners (1 set of 4) | • | - | 8012-0605 |
| Rack accessories | fasteners (1 set of 4) for additional security of racks | • | - | 8012-2280 |
| 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 | • | - | 8012-2251 |

## SERVICES

| Designation | Description | * | Art.-No. |
|---|---|---|---|
| **Calibration services** | | | |
| Calibration certificate, temperature | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate | 05 | DL30-0130 |
| | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate | 05 | DL30-0102 |
| Temperature measurement, 9 measuring points | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate | 05 | DL30-0109 |
| Temperature measurement, 18 measuring points | Temperature measurement with 18 measuring points with a set value specified by the user, including certificate | 05 | DL30-0118 |
| Temperature measurement, 27 measuring points | Temperature measurement with 27 measuring points with a set value specified by the user, including certificate | 05 | DL30-0127 |

| 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 | DL10-0170 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming | 05 | DL10-0560 |
| **Maintenance contracts** | | | |
| 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/humidity/pressure value, including certificate | 05 | DL20-0930 |
| 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 |
| **Maintenance services** | | | |
| 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 | DL20-0607 |
| **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 | 05 | DL50-0040 |

## NOTES

01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.

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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