

## Model MK 720 | 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 720



Model 720

### IMPORTANT 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
- 2 access ports with silicone plugs, 80 mm, left and right
- 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 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     | Power supply - unit fuse | Plug*                  | Version                 | Model version | Art.-No.             |
|---------------------|--------------------------|------------------------|-------------------------|---------------|----------------------|
| [L]                 | [L]                      |                        |                         |               |                      |
| <b>Model MK 720</b> |                          |                        |                         |               |                      |
| 734                 | 734                      | 400 V 3~ 50 Hz -16,0 A | CEE 16 / 6 H plug 5-pin | Standard      | MK720-400V 9020-0377 |

| Interior volume |     | Power supply - unit fuse | Plug*                   | Version  | Model version | Art.-No.  |
|-----------------|-----|--------------------------|-------------------------|----------|---------------|-----------|
| [L]             | [L] |                          |                         |          |               |           |
|                 |     | 480 V 3~ 60 Hz -16,0 A   | CEE 16 / 6 H plug 5-pin | Standard | MK720-480V-C  | 9020-0356 |

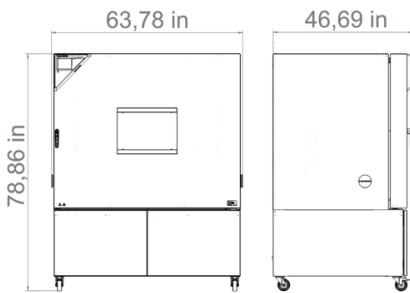
## TECHNICAL DATA

| Data  |               |               |
|---|---------------|---------------|
| Designation   | MK720-400V    | MK720-480V-C  |
| Article Number  | 9020-0377     | 9020-0356     |
| Option model  | Standard      | Standard      |
| Performance Data Temperature                          |               |               |
| Temperature range                                     | -40...180 °C  | -40...180 °C  |
| Temperature uniformity dependent on set value         | 0.3...2.0 ± K | 0.3...2.0 ± K |
| Temperature fluctuation dependent on set value        | 0.1...0.5 ± K | 0.1...0.5 ± K |
| Average heating-up rate according to IEC 60068-3-5    | 4.0 K/min     | 4.0 K/min     |
| Cooling down time from 180°C to -40°C                 | 100 min       | 100 min       |
| Average cooling down time according to IEC 60068-3-5  | 4.5 K/min     | 4.5 K/min     |
| Electrical data                                       |               |               |
| Rated Voltage   | 400 V         | 480 V         |
| Power frequency                                       | 50 Hz         | 60 Hz         |
| Nominal power   | 8,7 kW        | 8,7 kW        |
| Unit fuse   | 16,0 A        | 16,0 A        |
| Phase (Nominal voltage)                               | 3~            | 3~            |
| Measures  |               |               |
| Interior volume                                       | 734 L         | 734 L         |
| Net weight of the unit (empty)                        | 570 kg        | 570 kg        |
| Load per rack   | 40 kg         | 40 kg         |
| Permitted load  | 160 kg        | 160 kg        |
| Wall clearance back                                   | 300 mm        | 300 mm        |
| Wall clearance sidewise                               | 200 mm        | 200 mm        |
| Housing dimensions not incl. fittings and connections |               |               |
| Width net   | 1,580 mm      | 1,580 mm      |
| Height net  | 2,005 mm      | 2,005 mm      |
| Depth net   | 1,140 mm      | 1,140 mm      |
| Internal Dimensions                                   |               |               |
| Interior width  | 1,200 mm      | 1,200 mm      |

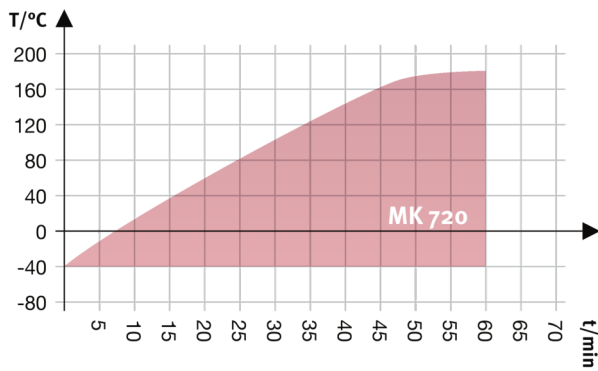
|                                  |            |            |
|----------------------------------|------------|------------|
| Interior height                  | 1,020 mm   | 1,020 mm   |
| Interior depth                   | 600 mm     | 600 mm     |
| Unit doors                       | 1          | 1          |
| <b>Environment-specific data</b> |            |            |
| Sound-pressure level             | 65 dB(A)   | 67 dB(A)   |
| Energy consumption at 20°C       | 1,900 Wh/h | 1,900 Wh/h |
| <b>Fixtures</b>                  |            |            |
| Number of shelves (std./max.)    | 1/11       | 1/11       |

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.

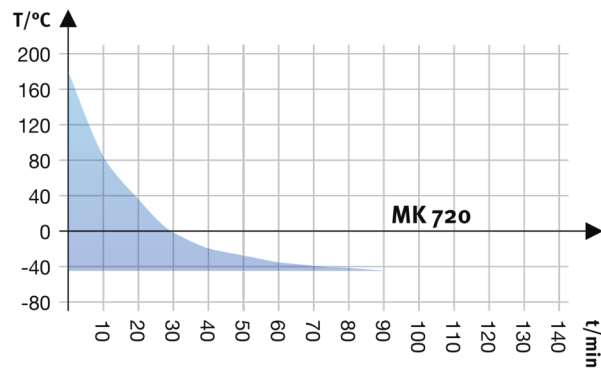
**DIMENSIONS Incl. fittings and connections [mm]**



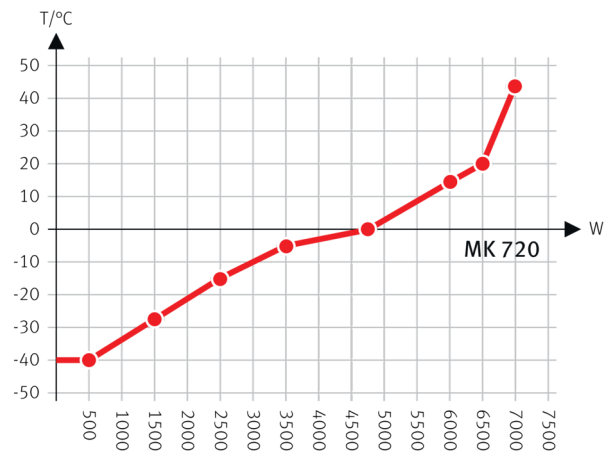
**DIAGRAMS**



Heating up rate



Cooling down rate



Heat compensation with a set value of -40°C

Heat compensation chart

## OPTIONS

| Designation           | Description                                    | MK 720 | *  | Art.-No.  |
|-----------------------|--|--------|----|-----------|
|                       | left   |        |    |           |
|                       | 30 mm  | •      | 01 | 8012-1322 |
|                       | 50 mm  | •      | 01 | 8012-1328 |
|                       | 80 mm  | •      | 01 | 8012-1334 |
|                       | 100 mm   | •      | 01 | 8012-1542 |
|                       | 125 mm   | •      | 01 | 8012-1351 |
|                       | right  |        |    |           |
|                       | 30 mm  | •      | 01 | 8012-1319 |
|                       | 50 mm  | •      | 01 | 8012-1325 |
|                       | 80 mm  | •      | 01 | 8012-1331 |
|                       | 100 mm   | •      | 01 | 8012-1539 |
|                       | 125 mm   | •      | 01 | 8012-1348 |
|                       | top  |        |    |           |
|                       | 80 mm  | •      | 01 | 8012-1536 |
|                       | 100 mm   | •      | 01 | 8012-1530 |
|                       | 125 mm   | •      | 01 | 8012-1533 |
| Analog output 4-20 mA | for temperature values (output not adjustable) | •      | -  | 8012-1084 |

| Designation                          | Description  | MK 720 | * | Art.-No.  |
|--------------------------------------|--|--------|---|-----------|
| 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, 9 measuring points at specified temperature                       | •      | - | 8012-1560 |
|                                      | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature                  | •      | - | 8012-1581 |
|                                      | temperature measurement incl. certificate and 27 measuring points at specified temperature                   | •      | - | 8012-1602 |
| Compressed air connection            | for the connection to an existing pressurized air network  | •      | - | 8012-1797 |
| Door lock                            | lockable door handle   | •      | - | 8012-1861 |
| Dry-air purge                        | uncontrolled, incl. connection; for preventing condensation  | •      | - | 8012-1866 |
| Notch-type access port               | notch-type access port in door, 100 x 35 mm  | •      | - | 8012-1851 |
| 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 |
| Shelf, perforated                    | Stainless steel  | •      | - | 8012-2253 |
| Temperature safety device class 2    | with visual alarm (DIN 12880)  | •      | - | 8012-1792 |
| 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 |

## ACCESSORIES

| Designation             | Description   | MK 720 | * | Art.-No.  |
|-------------------------|---|--------|---|-----------|
| APT-COM™ 4              | Multi Management Software APT-COM™  |        |   |           |
|                         | version 4, GLP edition  | •      | - | 9053-0042 |
|                         | version 4, PROFESSIONAL edition   | •      | - | 9053-0040 |
| 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 <sub>2</sub> , O <sub>2</sub> – 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 <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit |        |   |           |
|                         | Digital in PDF format   | •      | - | 7057-0001 |

| Designation                         | Description  | MK 720 | * | Art.-No.  |
|-------------------------------------|--|--------|---|-----------|
|                                     | Hard copy inside folder  | •      | - | 7007-0001 |
| 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 |
| Rack                                | stainless steel  | •      | - | 8012-2054 |
| Rack, reinforced                    | stainless steel, with fasteners (1 set of 4)   | •      | - | 8012-0684 |
| Rack accessories                    | fasteners (1 set of 4) for additional security of racks  | •      | - | 8012-2280 |
| Shelf, perforated                   | Stainless steel  | •      | - | 8012-2253 |
| 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. | •      | - | 8012-2262 |
| pH-neutral detergent                | concentrated, for gentle remove of residual contaminants; 1 kg   | •      | - | 8012-2250 |

## SERVICES

| Designation                                  | Description   | * | Art.-No.  |
|--|---|---|-----------|
| <b>Calibration services</b>                  |   |   |           |
| Temperature calibration                      | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.   | – | DL30-0101 |
|  | 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.  | – | 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.   | – | 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.  | – | 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.  | – | DL30-0127 |
| <b>Installation services</b>                 |   |   |           |
| 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. | – | DL10-0300 |
| 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.  | – | DL10-0700 |
| <b>Maintenance services</b>                  |   |   |           |

| Designation                        | Description   | * | Art.-No.  |
|------------------------------------|---|---|-----------|
| 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.   | – | 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 <sub>2</sub> value, including certificate  | – | DL20-0940 |
| Leakage test                       | 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   | – | DL00-0034 |
| 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. | – | DL20-0500 |
| 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.              | – | DL20-0830 |
| <b>Validation services</b>         |   |   |           |
| Execution of IQ/OQ                 | Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.   | – | DL41-0200 |
| Execution of IQ/OQ/PQ              | Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.  | – | DL44-0500 |
| <b>Warranty service</b>            |   |   |           |
| 1-year warranty extension          | The warranty is extended by 1 year from the delivery date, wear parts are excluded  | – | 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.

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