

# 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 1 stainless steel rack
- Internal data logger, measured values can be read out in open format via USB Inner chamber made of stainless steel
- 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

- 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 volu | me  | Power supply - unit fuse | Plug*                       | Version  | Model version | ArtNo.    |
|---------------|-----|--------------------------|-----------------------------|----------|---------------|-----------|
| [L]           | [L] |                          |                             |          |               |           |
| Model MK 7:   | 20  |                          |                             |          |               |           |
| 734           | 734 | 400 V 3~ 50 Hz -16,0 A   | CEE 16 / 6 H plug 5-<br>pin | Standard | MK720-400V    | 9020-0377 |



| Interior volum | ne  | Power supply - unit fuse | Plug*                       | Version  | Model version | ArtNo.    |
|----------------|-----|--------------------------|-----------------------------|----------|---------------|-----------|
| [L]            | [L] |                          |                             |          |               |           |
|                |     | 480 V 3~ 60 Hz -16,0 A   | CEE 16 / 6 H plug 5-<br>pin | Standard | MK720-480V-C  | 9020-0356 |



# TECHNICAL DATA

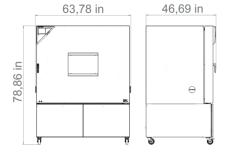
| Data  |                  |              |  |  |
|---|------------------|--------------|--|--|
| Designation   | MK720-400V       | MK720-480V-C |  |  |
| Article Number  | 9020-0377        | 9020-0356    |  |  |
| Option model  | Standard         | Standard     |  |  |
| Performance Data Temperature                          |                  |              |  |  |
| Temperature range                                     | -40180 °C        | -40180 °C    |  |  |
| Temperature uniformity dependent on set value         | 0.32 ± K         | 0.32 ± K     |  |  |
| Temperature fluctuation dependent on set value        | 0.10.5 ± K       | 0.10.5 ± 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 <sup>L</sup> | 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     |  |  |



| 1,020 mm   | 1,020 mm                                |
|------------|---|
| 600 mm     | 600 mm                                  |
| 508 mm     | 508 mm                                  |
| 300 mm     | 300 mm                                  |
| 1          | 1                                       |
|            |   |
| 65 dB(A)   | 67 dB(A)                                |
| 1,900 Wh/h | 1,900 Wh/h                              |
|            |   |
| 1/11       | 1/11                                    |
|            | 600 mm  508 mm  1  65 dB(A)  1,900 Wh/h |

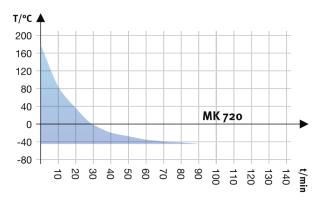
All technical data is specified for unloaded units with standard equipment at an ambient temperature of  $\pm 20^{\circ}$  C  $\pm 3^{\circ}$ C and a power supply voltage fluctuation of  $\pm 10^{\circ}$  %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, 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**

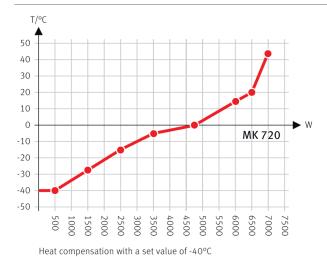




Heating up rate

Cooling down rate





Heat compensation chart

# **OPTIONS**

| Designation                    | Description                                    | MK 720 | *  | ArtNo.    |
|--------------------------------|--|--------|----|-----------|
|                                | left   |        |    |           |
|                                | 30 mm  | •      | 01 | 8012-1322 |
|                                | 50 mm  | •      | 01 | 8012-1328 |
|                                | 8o mm  | •      | 01 | 8012-1334 |
|                                | 100 mm   | •      | 01 | 8012-1542 |
|                                | 125 mm   | •      | 01 | 8012-1351 |
|                                | right  |        |    |           |
| Aaaaa martuith ailiaana mhua   | 30 mm  | •      | 01 | 8012-1319 |
| Access port with silicone plug | 50 mm  | •      | 01 | 8012-1325 |
|                                | 8o mm  | •      | 01 | 8012-1331 |
|                                | 100 mm   | •      | 01 | 8012-1539 |
|                                | 125 mm   | •      | 01 | 8012-1348 |
|                                | top  |        |    |           |
|                                | 8o 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 | * | ArtNo.    |
|--------------------------------------|--|--------|---|-----------|
| 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 measurement incl. certificate, 9 measuring points at specified temperature                               | •      | - | 8012-1560 |
| temperature                          | 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<br>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. $24\ V \cdot 2.5\ A)$ | •      | - | 8012-1095 |

# **ACCESSORIES**

| Designation             | Description   | MK 720 | * | ArtNo.    |
|-------------------------|---|--------|---|-----------|
|                         | Multi Management Software APT-COM™  |        |   |           |
| APT-COM™ 4              | version 4, GLP edition  | •      | - | 9053-0042 |
|                         | version 4, PROFESSIONAL edition   | •      | - | 9053-0040 |
|                         | 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 |
| Qualification documents | 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 | * | ArtNo.    |
|--|--|--------|---|-----------|
|  | Hard copy inside folder  | •      | - | 7007-0001 |
|  | RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor   |        |   |           |
| RS 485 / RS 422 interface<br>converter | 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   | *  | ArtNo.    |
|--|---|----|-----------|
| Calibration services                         |   |    |           |
|  | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.   | -  | DL30-0101 |
| Temperature calibration                      | 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 |
| 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. | -  | 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.  | 05 | DL10-0700 |
| Maintenance services                         |   |    |           |



| Designation                        | Description   | * | ArtNo.    |
|------------------------------------|---|---|-----------|
| BRONZE 3-year maintenance contract | Annual Device Inspection Includes Preventive Maintenance with Calibration<br>Certificate. 10% Discount on Spare Parts and Labor for any additional Services<br>needed Wear + tear parts to be purchased or billed to customer. Travel to be<br>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 $\mathrm{CO}_2$ 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 |
| Validation services                |   |   |           |
| 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 |
| Warranty service                   |   |   |           |
| 1-year warranty extension          | The warranty is extended by 1 year from the delivery date, wear parts are excluded  | _ | DL50-0040 |



#### **NOTES**

- O1 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
- Of 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
FAX +49 7462 2005 100
info@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 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 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