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BINDER
Best conditions for your success

Dynamic climate chambers



MK | MKF | MKT | MKFT series



Dynamic climate chambers

| | |
|-------------------------|---------|
| Series MK | Page 6 |
| Series MKF | Page 9 |
| Series MKT | Page 13 |
| Series MKFT | Page 16 |
| Options and Accessories | Page 19 |

BINDER environmental chambers are perfectly suited to material testing under dynamic conditions. The standard rapid alternation speeds of around 5 K/min make standard-compliant testing possible. An environmental simulation chamber of the MK and MKT Series is suitable for complex temperature profiles in the range of -40 °C or -70 °C to 180 °C. MKF and MKFT Series of dynamic climate chambers not only make material testing in this temperature range possible, but can also regulate humidity in the range of 10 % to 98 % RH.

PRODUCT SELECTION DYNAMIC CLIMATE CHAMBERS

| Features | MK › Page 6 | MKF › Page 9 | MKT › Page 13 | MKFT › Page 16 |
|--|-------------------------------|-------------------------------|-------------------|-------------------|
| Model | | | | |
| Model 56 | – | • | – | – |
| Model 115 | • | • | • | • |
| Model 240 | • | • | • | • |
| Model 720 | • | • | • | • |
| General data | | | | |
| Temperature range [°C] | -40...180 | -40...180 | -70...180 | -70...180 |
| Humidity range [% RH] | – | 10...98 | – | 10...98 |
| Ethernet interface | • | • | • | • |
| Forced convection | • | • | • | • |
| Controller and timer functions | | | | |
| Controller display | TFT touch / LCD color display | TFT touch / LCD color display | LCD color display | LCD color display |
| Ramp function | • | • | • | • |
| Time delayed ON | • | • | • | • |
| Programming option | • | • | • | • |
| Real-time clock | • | • | • | • |
| Class 1 temperature safety device | • | • | • | • |
| Class 2 independent adjustable temperature safety device | • | • | • | • |
| Temperature alarm, acoustic | • | • | • | • |
| Temperature alarm, visual | • | • | • | • |

•Standard equipment

ADVANTAGES AT A GLANCE



HOMOGENEOUS TEMPERATURE DISTRIBUTION

Series MK, MKF, MKT, MKFT

BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



FLEXIBLE WATER SUPPLY

Series MKF, MKFT

The flexible water supply is easy to handle and can be operated independently of the water supply and water quality.



CONVENIENT WORK ENVIRONMENT

Series MK, MKF, MKT, MKFT

With our high level of standard equipment, such as the heated viewing window with LED illumination and a large access area for easy assembly a convenient work environment can be established.



PROGRAMMING AND DATA COLLECTION

Series MK, MKF, MKT, MKFT

Data collection and programming can be created via the program controller featuring an color display and our APT.COM™ software for remotely through a PC.



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Series MK | 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.



MK 56 model

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 APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Intuitive touchscreen controller with time-segment and real-time programming with internal data recording (Model 56)
- Access port with silicone plug (Models 56, 115, 240), 50 mm, left
- 2 access ports with silicone plugs (Model 720), 80 mm, left and right
- 4 castors, two with brakes

AVAILABLE SIZES

| Model | Interior volume [L] |
|--------|---------------------|
| MK 56 | 60 |
| MK 115 | 115 |
| MK 240 | 228 |
| MK 720 | 734 |

TECHNICAL DATA

| Description | MK 56 | MK 115 | MK 240 | MK 720 |
|--|-----------|-----------|-----------|-----------|
| Outer dimensions | | | | |
| Width net [mm] | 740 | 980 | 1115 | 1580 |
| Height net [mm] | 1445 | 1725 | 1715 | 2005 |
| Depth net [mm] | 780 | 865 | 925 | 1140 |
| Internal Dimensions | | | | |
| Width [mm] | 400 | 600 | 735 | 1200 |
| Height [mm] | 420 | 480 | 700 | 1020 |
| Depth [mm] | 348 | 400 | 443 | 600 |
| Measures | | | | |
| Interior volume [L] | 60 | 115 | 228 | 734 |
| Net weight of the unit (empty) [kg] | 165 | 260 | 340 | 570 |
| permitted load [kg] | 60 | 60 | 70 | 160 |
| Load per rack [kg] | 15 | 30 | 30 | 40 |
| Performance Data Temperature | | | | |
| Temperature range [°C] | -40...180 | -40...180 | -40...180 | -40...180 |
| Temperature variation depending on setpoint [± K] | 0.5...1.5 | 0.1...2 | 0.1...1.2 | 0.3...2 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...0.5 | 0.1...0.5 | 0.1...0.5 | 0.1...0.5 |
| Average heating-up rate according to IEC 60068-3-5 [K/min] | 5.5 | 5.3 | 5 | 4 |
| Average cooling down time according to IEC 60068-3-5 [K/min] | 5.5 | 5 | 4.5 | 4.5 |
| Electrical data | | | | |
| Nominal power (version 230 V) [kW] | 2.8 | - | - | - |
| Nominal power (version 240 V) [kW] | 2.8 | - | - | - |
| Nominal power (version 400 V) [kW] | - | 3.5 | 4.2 | 7.2 |
| Fixtures | | | | |
| Number of shelves (std./max.) | 1/4 | 1/4 | 1/6 | 1/11 |

ORDERING INFORMATION [Art. No.]

Further details: Go to www.binder-world.com > Search > Enter Article Number

| Voltage | Option model | MK 56 | MK 115 | MK 240 | MK 720 |
|---------------------|--------------------------------------|-----------|-----------|-----------|-----------|
| 480 V 3 60 Hz | with voltage and frequency converter | - | 9020-0290 | 9020-0294 | 9020-0298 |
| 400 V 3 50 Hz | Standard | - | 9020-0175 | 9020-0181 | 9020-0197 |
| 200...230 V 1 50 Hz | Standard | 9020-0316 | - | - | - |
| 200...240 V 1 60 Hz | Standard | 9020-0395 | - | - | - |

► You will find a selection of options, accessories and services suitable for each product on page 19

EXTRACT OF FULLFILLED STANDARDS

- DIN EN 60068-3-5:2002-12
- MIL STD 810:2000-01



Address

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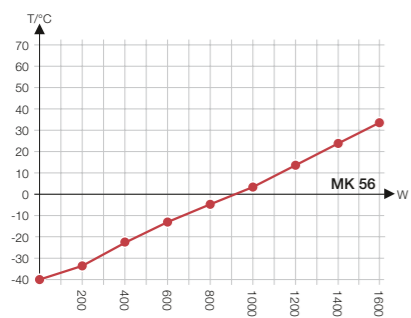
Contact

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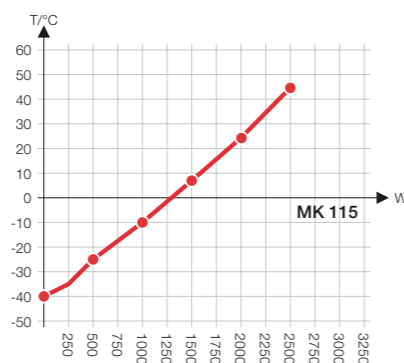
www.instruments4engineers.com

HEAT COMPENSATION

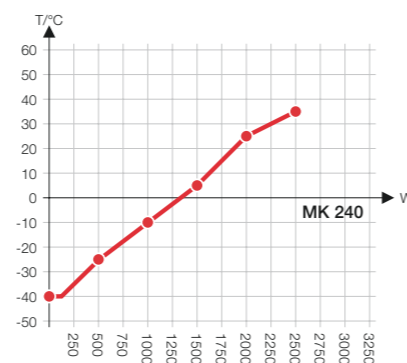
MK 56



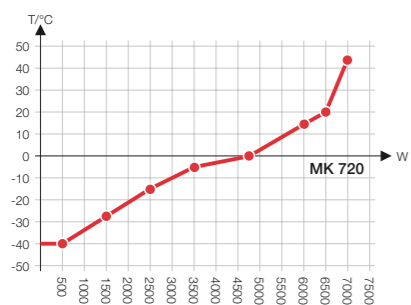
MK 115



MK 240



MK 720



Series MKF | for rapid temperature changes with humidity control

A BINDER MKF series environmental simulation chamber is ideally suited for any cold and heat testing based on current temperature and climate testing methods according to DIN and IEC standards. The comprehensive standard equipment for this environmental simulation chamber ensures ease of operation.

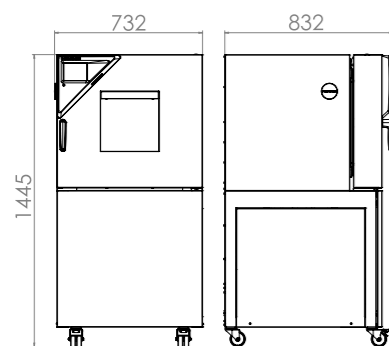


MKF 56 model

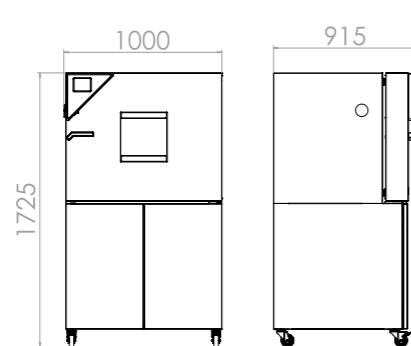


DIMENSIONS incl. fittings and connections [mm]

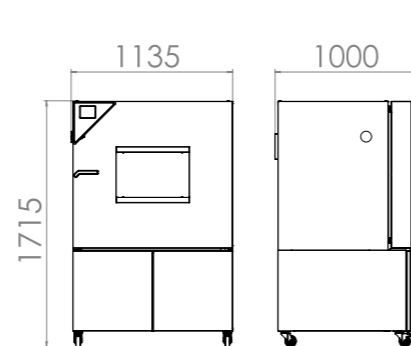
MK 56



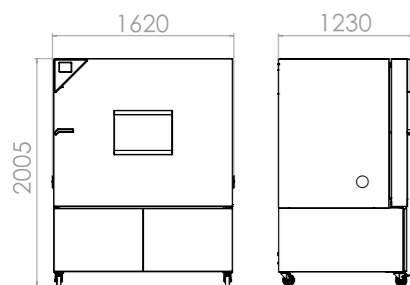
MK 115



MK 240



MK 720



MAIN FEATURES

- Temperature range: -40 °C to 180 °C
- Humidity range: 10 % to 98 % RH
- Integrated water-storage tank, 20 liters (Models 115, 240, 720)
- 4 zero-voltage relay contacts that can be activated via MCS controller
- 1 stainless steel rack
- APT.line™ preheating chamber technology
- Intuitive touchscreen controller with time-segment and real-time programming with internal data recording (Model 56)
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- Humidity regulation with capacitive humidity sensor and vapor humidification

AVAILABLE SIZES

| Model | Interior volume [L] |
|---------|---------------------|
| MKF 56 | 60 |
| MKF 115 | 115 |
| MKF 240 | 228 |
| MKF 720 | 734 |



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TECHNICAL DATA

| Description | MKF 56 | MKF 115 | MKF 240 | MKF 720 |
|--|-----------|-----------|-----------|-----------|
| Outer dimensions | | | | |
| Width net [mm] | 980 | 980 | 1115 | 1580 |
| Height net [mm] | 1725 | 1725 | 1715 | 2005 |
| Depth net [mm] | 865 | 865 | 925 | 1140 |
| Internal Dimensions | | | | |
| Width [mm] | 400 | 600 | 735 | 1200 |
| Height [mm] | 420 | 480 | 700 | 1020 |
| Depth [mm] | 348 | 400 | 443 | 600 |
| Measures | | | | |
| Interior volume [L] | 60 | 115 | 228 | 734 |
| Net weight of the unit (empty) [kg] | 280 | 280 | 360 | 590 |
| permitted load [kg] | 60 | 60 | 70 | 160 |
| Load per rack [kg] | 15 | 30 | 30 | 40 |
| Performance Data Temperature | | | | |
| Temperature range [°C] | -40...180 | -40...180 | -40...180 | -40...180 |
| Temperature variation depending on setpoint [± K] | 0.1...1.5 | 0.1...1.3 | 0.1...1.5 | 0.1...1.8 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...0.5 | 0.1...0.6 | 0.1...0.5 | 0.1...0.5 |
| Average heating-up rate according to IEC 60068-3-5 [K/min] | 5 | 5.5 | 5 | 4.8 |
| Average cooling down time according to IEC 60068-3-5 [K/min] | 5 | 4.5 | 5 | 4.8 |
| Performance Data Climate | | | | |
| Temperature range [°C] | 10...95 | 10...95 | 10...95 | 10...95 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...1.3 | 0.1...1.3 | 0.1...1.3 | 0.2...1.5 |
| Humidity range [% RH] | 10...98 | 10...98 | 10...98 | 10...98 |
| Humidity fluctuation depending on setpoint [± % RH] | ±2,5 | ±2,5 | ±2,5 | ±2,5 |
| Electrical data | | | | |
| Nominal power (version 230 V) [kW] | 2.8 | - | - | - |
| Nominal power (version 240 V) [kW] | 2.8 | - | - | - |
| Nominal power (version 400 V) [kW] | - | 4.8 | 6.8 | 11 |
| Fixtures | | | | |
| Number of shelves (std./max.) | 1/4 | 1/4 | 1/6 | 1/11 |

ORDERING INFORMATION [Art. No.]

Further details: Go to www.binder-world.com > Search > Enter Article Number

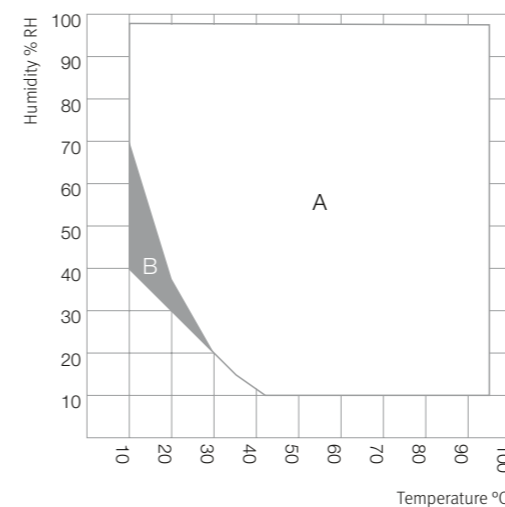
| Voltage | Option model | MKF 56 | MKF 115 | MKF 240 | MKF 720 |
|---------------------|--------------------------------------|-----------|-----------|-----------|-----------|
| 480 V 3 60 Hz | with voltage and frequency converter | - | 9020-0291 | 9020-0295 | 9020-0299 |
| 400 V 3 50 Hz | Standard | - | 9020-0283 | 9020-0285 | 9020-0287 |
| 200...230 V 1 50 Hz | with voltage and frequency converter | 9020-0317 | - | - | - |
| 200...240 V 1 60 Hz | Standard | 9020-0396 | - | - | - |

► You will find a selection of options, accessories and services suitable for each product on page 19

EXTRACT OF FULLFILLED STANDARDS

- DIN EN 60068-2-30: 2006-06
- DIN EN 60068-2-38: 2010-06
- DIN EN 60068-3-5:2002-12
- MIL STD 810:2000-01

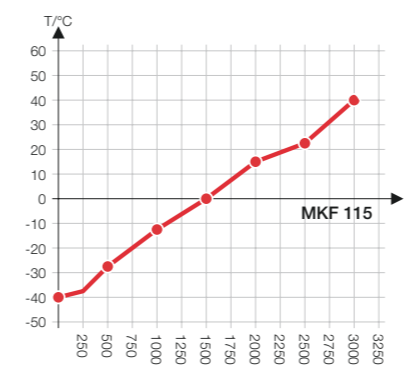
TEMPERATURE-HUMIDITY CHART



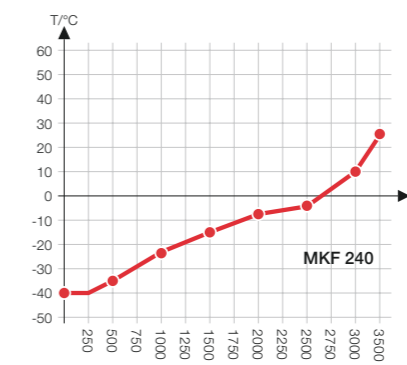
A: Standard Climate range
B: Time-limited operation (max. 24 hours)

HEAT COMPENSATION

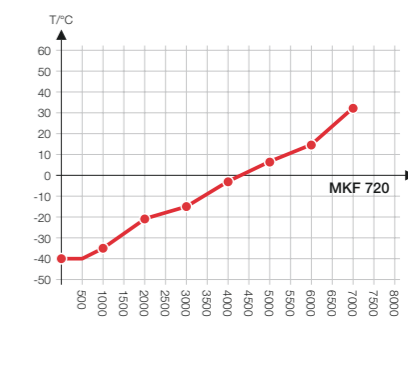
MKF 115



MKF 240



MKF 720



Address

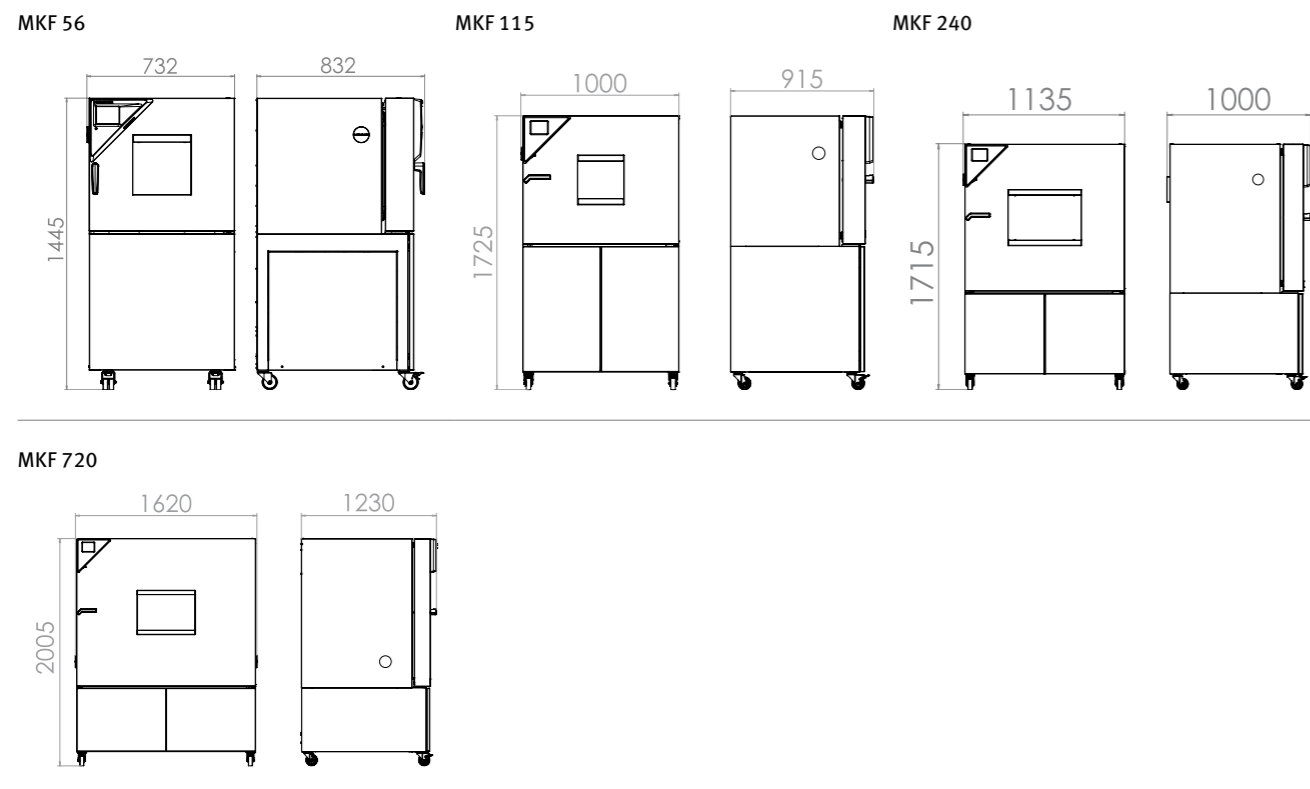
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DIMENSIONS incl. fittings and connections [mm]



Series MKT | 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.



MKT 240 model

MAIN FEATURES

- Temperature range: -70 °C to 180 °C
- 4 zero-voltage relay contacts that can be activated via MCS controller
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- BINDER APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Controller with time-segment programming
- Access port with silicone plug (Models 115, 240: 50 mm, left)
- 2 access ports with silicone plugs (Model 720: 80 mm, left and right)

AVAILABLE SIZES

| Model | Interior volume [L] |
|---------|---------------------|
| MKT 115 | 115 |
| MKT 240 | 228 |
| MKT 720 | 734 |



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TECHNICAL DATA

| Description | MKT 115 | MKT 240 | MKT 720 |
|--|-----------|-----------|-----------|
| Outer dimensions | | | |
| Width net [mm] | 980 | 1115 | 1580 |
| Height net [mm] | 1725 | 1940 | 2005 |
| Depth net [mm] | 865 | 925 | 1140 |
| Internal Dimensions | | | |
| Width [mm] | 600 | 735 | 1200 |
| Height [mm] | 480 | 700 | 1020 |
| Depth [mm] | 400 | 443 | 600 |
| Measures | | | |
| Interior volume [L] | 115 | 228 | 734 |
| Net weight of the unit (empty) [kg] | 305 | 380 | 610 |
| permitted load [kg] | 60 | 70 | 160 |
| Load per rack [kg] | 30 | 30 | 40 |
| Performance Data Temperature | | | |
| Temperature range [°C] | -70...180 | -70...180 | -70...180 |
| Temperature variation depending on setpoint [± K] | 0.2...1.8 | 0.1...1.0 | 0.3...2 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...0.6 | 0.1...0.4 | 0.1...0.5 |
| Average heating-up rate according to IEC 60068-3-5 [K/min] | 5.3 | 5 | 4.5 |
| Average cooling down time according to IEC 60068-3-5 [K/min] | 4.2 | 4.2 | 4.2 |
| Electrical data | | | |
| Nominal power (version 400 V) [kW] | 5.5 | 6.5 | 13 |
| Fixtures | | | |
| Number of shelves (std./max.) | 1/4 | 1/6 | 1/11 |

ORDERING INFORMATION [Art. No.]

Further details: Go to www.binder-world.com > Search > Enter Article Number

| Voltage | Option model | MKT 115 | MKT 240 | MKT 720 |
|---------------|--------------------------------------|-----------|-----------|-----------|
| 480 V 3 60 Hz | with voltage and frequency converter | 9020-0292 | 9020-0296 | 9020-0300 |
| 400 V 3 50 Hz | Standard | 9020-0151 | 9020-0196 | 9020-0082 |

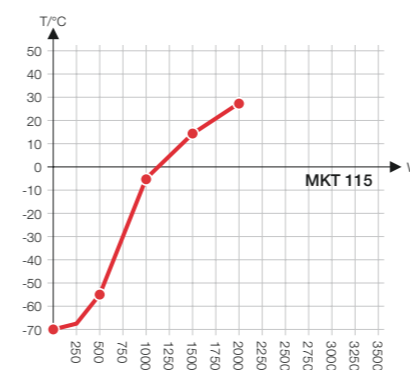
► You will find a selection of options, accessories and services suitable for each product on page 19

EXTRACT OF FULLFILLED STANDARDS

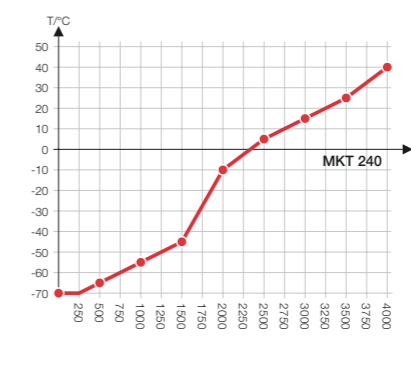
- DIN EN 60068-2-1: 2008-01
- DIN EN 60068-3-5:2002-12
- MIL STD 810:2000-01

HEAT COMPENSATION

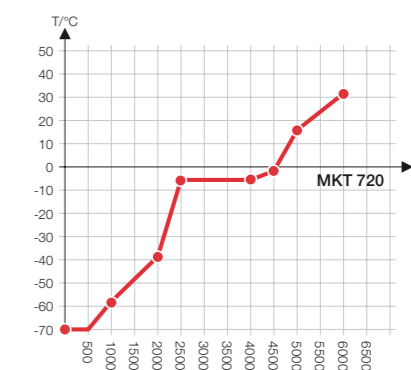
MKT 115



MKT 240

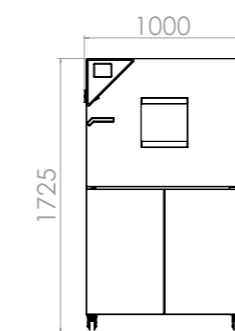


MKT 720

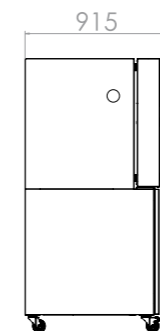


DIMENSIONS incl. fittings and connections [mm]

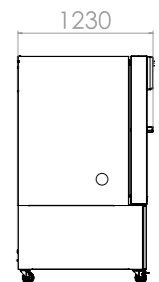
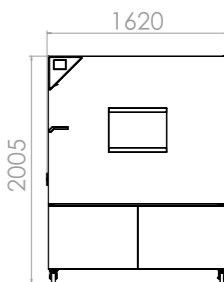
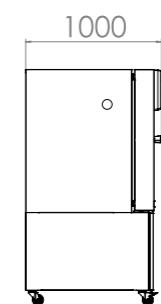
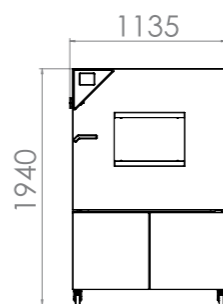
MKT 115



MKT 240



MKT 720



Series MKFT | for rapid temperature changes with humidity control and extended low temperature range

The BINDER MKFT series environmental simulation chamber for low temperature alternating climate profiles is the specialist for dynamic alternating climate change between -70 °C and 180 °C. Large performance reserves and rapid cooling make the MKFT environmental simulation chamber the high-end product for complex standards-based climate tests.



MKFT 240 model

MAIN FEATURES

- Temperature range: -70 °C to 180 °C
- Humidity range: 10 % to 98 % RH
- Integrated water-storage tank, 20 liters
- 4 zero-voltage relay contacts that can be activated via MCS controller
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- Humidity regulation with capacitive humidity sensor and vapor humidification
- BINDER APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms

AVAILABLE SIZES

| Model | Interior volume [L] |
|----------|---------------------|
| MKFT 115 | 115 |
| MKFT 240 | 228 |
| MKFT 720 | 734 |

TECHNICAL DATA

| Description | MKFT 115 | MKFT 240 | MKFT 720 |
|--|-----------|-----------|-----------|
| Outer dimensions | | | |
| Width net [mm] | 980 | 1115 | 1580 |
| Height net [mm] | 1725 | 1940 | 2005 |
| Depth net [mm] | 865 | 925 | 1140 |
| Internal Dimensions | | | |
| Width [mm] | 600 | 735 | 1200 |
| Height [mm] | 480 | 700 | 1020 |
| Depth [mm] | 400 | 443 | 600 |
| Measures | | | |
| Interior volume [L] | 115 | 228 | 734 |
| Net weight of the unit (empty) [kg] | 330 | 415 | 635 |
| permitted load [kg] | 60 | 70 | 160 |
| Load per rack [kg] | 30 | 30 | 40 |
| Performance Data Temperature | | | |
| Temperature range [°C] | -70...180 | -70...180 | -70...180 |
| Temperature variation depending on setpoint [± K] | 0.1...1.3 | 0.2...1.8 | 0.3...2 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...0.5 | 0.1...0.5 | 0.1...0.5 |
| Average heating-up rate according to IEC 60068-3-5 [K/min] | 5.5 | 5 | 4.8 |
| Average cooling down time according to IEC 60068-3-5 [K/min] | 4.2 | 4.2 | 4 |
| Performance Data Climate | | | |
| Temperature range [°C] | 10...95 | 10...95 | 10...95 |
| Temperature fluctuation depending on setpoint [± K] | 0.1...1 | 0.1...1.5 | 0.1...1 |
| Humidity range [% RH] | 10...98 | 10...98 | 10...98 |
| Humidity fluctuation depending on setpoint [± % RH] | ≤2,5 | ≤2,5 | ≤2,5 |
| Electrical data | | | |
| Nominal power (version 400 V) [kW] | 5.5 | 6.5 | 13 |
| Fixtures | | | |
| Number of shelves (std./max.) | 1/4 | 1/6 | 1/11 |

ORDERING INFORMATION [Art. No.]

Further details: Go to www.binder-world.com > Search > Enter Article Number

| Voltage | Option model | MKFT 115 | MKFT 240 | MKFT 720 |
|---------------|--------------------------------------|-----------|-----------|-----------|
| 480 V 3 60 Hz | with voltage and frequency converter | 9020-0293 | 9020-0297 | 9020-0301 |
| 400 V 3 50 Hz | Standard | 9020-0284 | 9020-0286 | 9020-0288 |

► You will find a selection of options, accessories and services suitable for each product on page 19

EXTRACT OF FULLFILLED STANDARDS

- DIN EN 60068-2-30: 2006-06
- DIN EN 60068-2-38: 2010-06
- DIN EN 60068-2-1: 2008-01
- DIN EN 60068-3-5:2002-12
- MIL STD 331:2005-01
- MIL STD 810:2000-01



Address

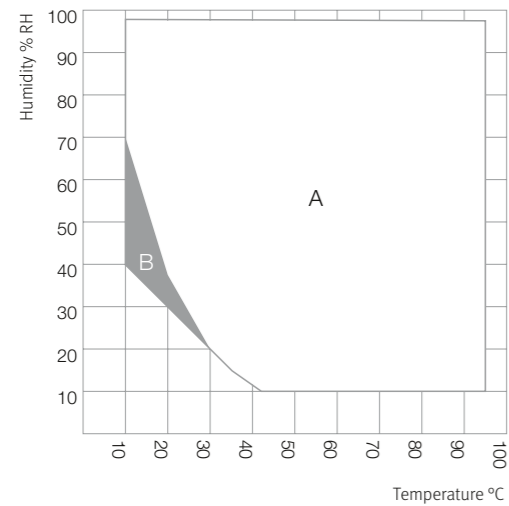
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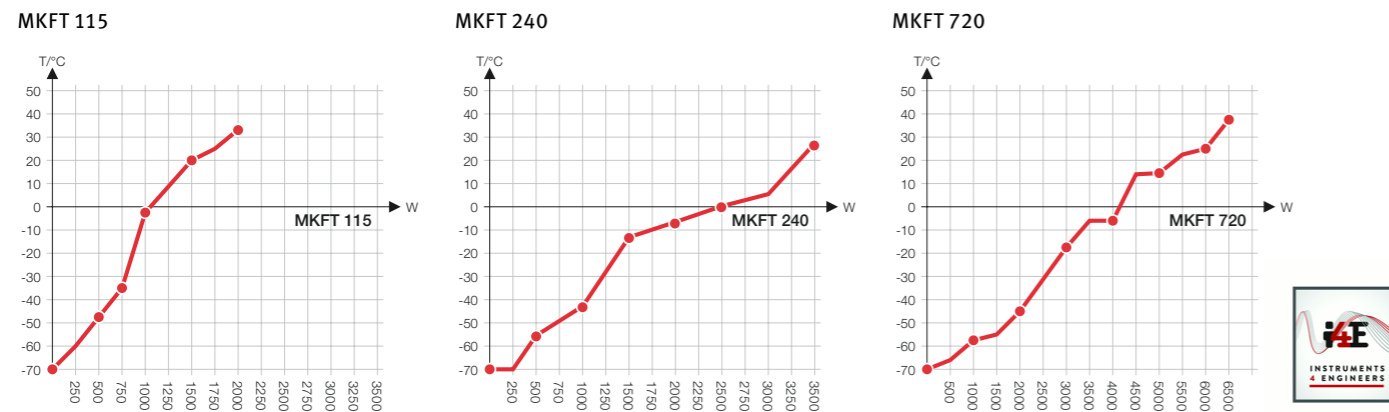
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TEMPERATURE-HUMIDITY CHART

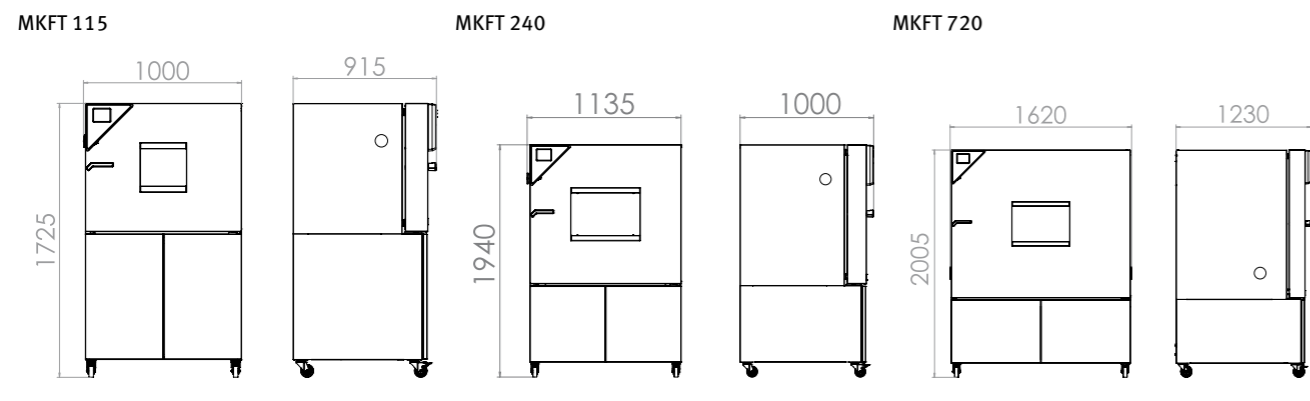


A: Standard Climate range
B: Time-limited operation (max. 24 hours)

HEAT COMPENSATION



DIMENSIONS incl. fittings and connections [mm]



Address
Instruments 4 Engineers Ltd
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Stockport SK5 7DL, United Kingdom

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Tel: +44 (0) 161 871 7450
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EXCERPT FROM OPTIONS AND ACCESSORIES

- Access port with silicone plug**
For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)
Series MK, MKF, MKT, MKFT

- BINDER PURE AQUA Service**
System for preparation or complete desalination of tap water, containing single-use cartridge, hoses and measuring device.
Series MK, MKF, MKT, MKFT

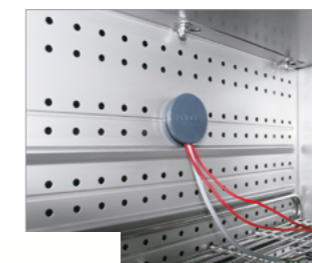
- Dry-air purge**
Suitable for simulating a dry, cold climate. In the MKF and MKFT series with controlled humidity, the temperature-humidity chart is significantly expanded, while the option of simulating current automobile industry standards, such as PV 2005; PV 1200; PR 308.2, is also available.
Series MK, MKF, MKT, MKFT

- Services**
You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.
Series MK, MKF, MKT, MKFT

- BINDER INDIVIDUAL**
Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.
Series MK, MKF, MKT, MKFT

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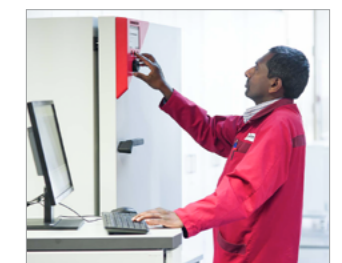
Access port with silicone plug



BINDER PURE AQUA Service



Dry-air purge



Services

BINDER products

CO₂ incubators

Incubators

Cooling incubators

Growth chambers

Ultralow temperature freezers

Drying and heating chambers

Safety drying chambers

Vacuum drying chambers

Constant climate chambers

Dynamic climate chambers



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