

MKF series

Environmental simulation chambers for complex alternating climatic profiles

The MKF series is ideally suited for all tests in accordance with current temperature and climatic test standards based on DIN and IEC standards. The required temperature and humidity values can be attained rapidly and maintained accurately, even under extreme conditions. The unparalleled ease of operation as well as extensive standard features provide that 'little extra' in handling.



Leistungsmerkmale/Ausstattung:

- Temperature range without humidity -40 °C to 180 °C (-40 °F to 356 °F), with humidity +10 °C to 95 °C (50 °F to 203 °F)
- Humidity range 10 % r.H. to 98 % r.H.
- MCS controller with 25 storable programs of 100 sections each for a maximum of 500 program segments
 - User-friendly LCD screen
 - Easy-to-read menu guide
 - Integrated electronic chart recorder
 - Variety of options for the graphic display of process parameters
 - Real-time clock
- Electronically controlled humidification and dehumidification system with capacitive humidity sensor
- Integrated water reservoir for demineralized water
- Heated viewing window with interior lighting
- Variable adjustable high-performance fan
- Programmable condensation protection for test material
- Adjustable ramp functions via program editor
- Environmentally friendly refrigerant R 404a
- 230 V power socket on the right-side operating panel
- Independent adjustable temperature safety device, Class 2 (DIN 12880)
- 4 potential-free relay outputs that can be activated via MCS controller
- RS 422 interface for communication software APT-COM™ DataControlSystem (MKF 720)
- Ethernet for communication software APT-COM™ Data Control System (MKF 240)
- Access port, Ø 80 mm, right and left sides (MKF 720), Ø 50 mm, left side (MKF 240)
- 2 stainless steel racks
- BINDER test certificate

	MKF 240	MKF 720
Exterior dimensions		
Width (mm/inch)	1130 / 44.5	1613 / 63.5
Height (incl. feet / castors) (mm/inch)	1713 / 67.4	2005 / 78.9
Depth, excl. 53 mm (2 inch) for door handle (mm/inch)	946 / 37.2	1173 / 46.2
Wall clearance rear (mm/inch)	100 / 3.9	100 / 3.9
Wall clearance side (mm/inch)	160 / 6.3	160 / 6.3
Viewing window width (mm/inch)	508 / 20.0	508 / 20.0
Viewing window height (mm/inch)	300 / 11.8	300 / 11.8
Number of doors	1	1
Interior dimensions		
Width (mm/inch)	735 / 28.9	1200 / 47.2
Height (mm/inch)	700 / 27.6	1020 / 40.2
Depth (mm/inch)	443 / 17.4	600 / 23.6
Interior volume (l/cu.ft.)	228 / 8.1	734 / 25.9
Racks (number standard/max.)	1 / 6	1 / 11
Load per rack (kg/lbs.)	30 / 66	40 / 88
Permitted total load (kg/lbs.)	70 / 155	160 / 353
Weight (empty) (kg/lbs.)	360 / 773	590 / 1301
Temperature data (without humidity)		
Temperature range (°C / °F)	-40 to 180 / -40 to 356	-40 to 180 / -40 to 356
Temperature fluctuation without humidity (± °C)2)	0.1 to 0.5	0.1 to 0.5
Temperature variation without humidity (± °C)2)	0.5 to 2.0	0.5 to 2.0
Average heating rate acc. IEC 60068-3-5 (K/min.)2)	5	4.5
Average cooling rate acc. IEC 60068-3-5 (K/min.)2)	5.0	5.0
Heating up time from -40 °C up to 180 °C (Min.)2)	45	58
Cooling down time from 180 °C up to -40 °C (Min.)2)	98	75
Heat compensation, max. (W)4) 5)	2800	6500
Climatical data		
Temperature range (°C/°F)	10 to 95 / 50 to 203	10 to 95 / 50 to 203
Humidity range (% RH)	10 to 98	10 to 98
Humidity fluctuation (± % RH)3)	0.5 to 3.0	0.5 to 2.5
Dew point temperature range (°C)	5 to 94	5 to 94
Heat compensation, max. (W)4) 5)	300	1000
Electrical data		
Housing protection acc. to EN 60529	IP 20	IP 20
Nominal voltage 50/60 Hz (± 10%) (V)	400 (3N)	400 (3N)
Nominal power (W)	5100	9400
Noise level (ca. dB(A))	62	65
Individually tested in compliance with VDE 0113	true	true

- 2) dependend upon set value
- 3) up to 98% of the set value
- 4) upon door opening > 1,5% RH, recovery time approx. 20 min. (for MKF 720)
- 5) Temperature range 25°C to 95°C (77°F to 203°F) and < 90% RH

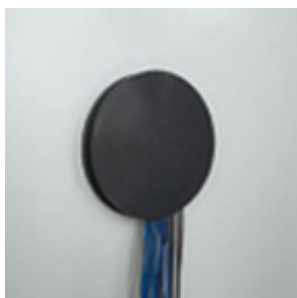
MKF 240:

- 1 We recommend the BINDER Pure Aqua Service for longer maintenance intervals, regardless of water quality
- 2 Demineralized or deionized water available at the customer's location.

MKF 720:

Demineralized or deionized water available at the customer's location.

All technical specification are specified for units with standard equipment at an ambient temperature of 25 °C (77 °F) and a voltage fluctuation of ± 10 %. The temperature data are determinated in accordance to factory standard following DIN 12880, respecting the recommended wall clearances of 10 % of the height, width and depth of the inner chamber. All indications are average values, typical for units produced in series. We reserve the right to alter technical specifications at all times.

**Access port**

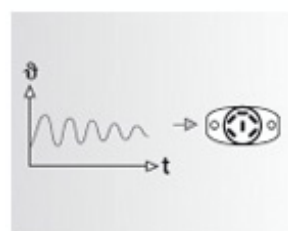
With silicon plugs for inserting external measuring devices into the chamber. Access ports with 30, 50, 80, 100 and 125 mm (1.2, 2, 3.1, 4 and 4.9 inches) diameter.

**Notch-type access port in door**

Provide easy connection of cables to test specimens and facilitate loading and unloading of the chamber. Doors have access ports measuring 100 x 35 mm (4 x 1.4 inches), which can be sealed with the included silicon plugs.

**Reinforced shelf**

To ensure safe and stable storage of heavy test specimens.

**Analogue output**

Analogue output for temperature or temperature and humidity 4 to 20 mA with DIN bushing 6 poles (Output not adjustable).

**Specimen temperature measurement**

Additional flexible PT 100 temperature sensor for precise temperature measurement of the specimen with digital temperature display. Recording of measured data possible via RS 422 interface.



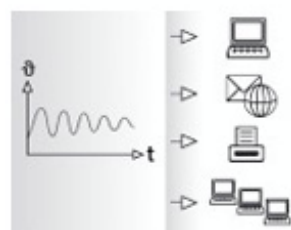
BINDER Pure Aqua Service

Our efficient, flexible purification system delivers top water quality and extends the maintenance period. Special feature: Our system uses a disposable purification cartridge and also has a water quality indicator.



Calibration certificates and validation

Measurement in the center at specified values. Additional measuring points or test values according to your specification.



APT-COM™ DataControlSystem STANDARD Edition

Software for easy control, programming, and documentation.

	MKF 240	MKF 720
Access port with silicone plug	O	O
Notch-type access port in the door, 100 x 35 mm (3.9 x 1.4 inch)	O	O
Vertically adjustable castors	O	O
Safety kit for water connection. Pre-mounted assembly of reflux prevention device and horse burst reflection device.	O	O
Rack, stainless steel	O	O
Preforated rack, stainless steel	O	O
Reinforced shelf, stainless steel, with 1 set of shelf securings (4 pieces) (Max. load 70 kg / 154 lbs.)	O	O
One set of shelf secures (4 pieces) for additional fixation of the perforated shelves	O	O
Locking of controller keyboard	O	O
Lockable door	O	O
Safety device for over and under temperature (DIN 12880)	O**	O**
Analog outputs 4 to 20 mA for temp. 1) and humidity 2) (actual and set values) with two DIN bushing 6 poles	O	O
Additional measuring channel for specimen temperature display with flexible PT 100 sensor. Documentation of measuring data through Ethernet / interface RS 422	O	O
BINDER Pure Aqua Service	O	O
Exchange cartridge for BINDER Pure Aqua Service	O	O
Temperature measurement acc. to DIN 12880-2 and 9 point humidity measurement/factory standard with measuring protocol and certificate at 25 °C/60% r.H. 1) or at 150 °C 2) or at specified values	O*	O*
Qualification folder. Supporting documents for the validation at customer's site, consisting of: IQ/OQ check list, unit wiring and refrigeration circuit diagrams, QM certificate acc. to ISO 9001, maintenance recommendation	O	O
Calibration certificate for temperature and humidity.	O*	O*
Extension for calibration certificate (additional values)	O	O

O Option - not available

Technical specifications subject to change

BINDER GmbH Postfach 102 D-78502 Tuttlingen **Direction:** Im Mittleren Ösch 5 D-78532 Tuttlingen

Contact: Phone: +49 (0) 74 62/2005-0 | Fax: +49 (0) 74 62/2005-100 | info@binder-world.com | www.binder-world.com