

## Dynamic climate chambers







MK | MKF | MKT | MKFT series

# Dynamic climate chambers

Series MK	Page 6
Series MKF	Page 13
Series MKT	Page 21
Series MKFT	Page 27

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	Series MK  Page 6	Series MKF  Page 13	Series MKT  Page 21	Series MKFT  > Page 27
Model				
Model 56	•	•	-	-
Model 115	•	•	•	•
Model 240	•	•	•	•
Model 400	•	•	-	-
Model 720	•	•	•	•
Model 1020	•	•	-	-
General data				
Temperature range [°C]	-40180	-40180	-70180	-70180
Humidity range	-	1098	-	1098
Ethernet interface	•	•	•	•
USB interface	•	•	•	•
Forced convection	•	•	•	•
Controller and timer functions				
Controller display		TFT t	ouch	
Ramp function	•	•	•	•
Time delayed ON	•	•	•	•
Programming option	•	•	•	•
Class 1 temperature safety device	•	•	•	•
Class 2 independent adjustable temperature safety device	•	•	•	•
Temperature alarm, acoustic	•	•	•	•
Temperature alarm, visual	•	•	•	•

<sup>•</sup>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

with the program controller featuring a color display and Multi Management Software APT-COM™ for remote programming through a PC.

## **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.







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



## MAIN FEATURES

- Temperature range: -40 °C to +180 °C
- APT.line $^{TM}$  preheating chamber technology
- Intuitive touchscreen controller with time-segment and real-time programming
- Internal data logger, measured values can be read out in open format via USB
- BINDER Multi Management Software APT-COM™ Basic Edition
- Programmable condensation protection for test material
- Troubleshooting system with visual and audible alarms
- CFC-free refrigerant R-452A
- 1 stainless steel rack
- Access port with silicone plug (models 56, 115, 240, 400), 50 mm, left

## **AVAILABLE SIZES**

Model	Interior	Online data sheets
	volume [L]	
MK 56	60	po2binder.com/en-MK56
MK 115	115	ogo2binder.com/en-MK115
MK 240	228	ogo2binder.com/en-MK240
MK 400	417	ogo2binder.com/en-MK400
MK 720	734	ogo2binder.com/en-MK720
MK 1020	991	po2binder.com/en-MK1020



Find all details online: go2binder.com/en-MK

## **OPTIONAL EQUIPMENT**

Access port with
silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)



## BINDER PURE AQUA Service

System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts.



## 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.



## 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.



## **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.



<sup>►</sup> All extras online go2binder.com/en-options

## TECHNICAL DATA

escription	MK 56	MK 115	MK 240	MK 400	MK 720	MK 1020
<b>N</b> easures						
nterior volume [L]	60	115	228	417	734	991
et weight of the unit (empty) [kg]	165	260	340	413	570	621
ermitted load [kg]	60	60	70	150	160	200
oad per rack [kg]	15	30	30	30	40	40
Vall clearance back [mm]	300	300	300	500	300	300
Vall clearance sidewise [mm]	200	200	200	300	200	200
nternal Dimensions						
/idth [mm]	400	600	735	735	1200	1200
eight [mm]	420	480	700	700	1020	1020
epth [mm]	350	400	443	810	600	810
ousing dimensions not incl. fittings and connections						
/idth net [mm]	720	980	1115	1115	1580	1580
eight net [mm]	1445	1725	1710	1710	2005	2005
epth net [mm]	778	865	925	1400	1140	1480
erformance Data Temperature						
emperature range [°C]	-40180	-40180	-40180	-40180	-40180	-40180
emperature variation depending on setpoint [± K]	0.51.5	0.12	0.11.2	0.11.2	0.32	0.11.8
emperature fluctuation depending on setpoint [± K]	0.10.5	0.10.5	0.10.5	0.10.5	0.10.5	0.10.5
eating-up time from -40 °C to 180 °C [min]	-	_	-	55	-	60
verage heating-up rate according to IEC 60068-3-5 [K/min]	5	5.3	5	5	4	5.5
verage cooling down time according to IEC 60068-3-5 C/min]	5	5	4.5	5	4.5	5
lectrical data						
ominal power (version 400V) [kW]	-	_	-	7	_	11.5
ominal power (version 480V) [kW]	-	_	-	-	-	11.5
ominal power (version 230 V) [kW]	2.8	-	-	=	=	-
ominal power (version 240 V) [kW]	2.8	_	_	_	_	-
ominal power (version 400 V) [kW]	-	3.5	5.6	_	8.7	-
ominal power (version 480 V) [kW]	-	3.5	5.6	_	8.7	-
nvironment-specific data						
nergy consumption at 20 °C	600 Wh/h	650 Wh/h	1300 Wh/h	1400 Wh/h	1900 Wh/h	1500 Wh/
ixtures						

## ORDERING INFORMATION [Art. No.]

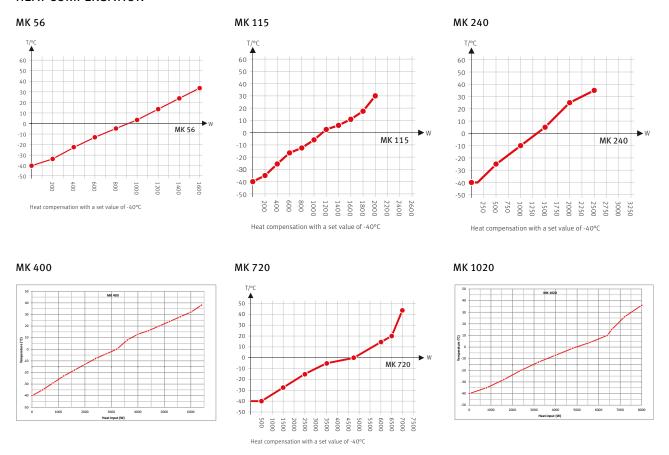
Further details: Go to www.binder-world.com > Search > Enter Article Number

Voltage	Option model	MK 56	MK 115	MK 240	MK 400	MK 720	MK 1020
480 V 2 . 40 H -	OV 3~ 60 Hz with voltage and frequency converter		9020-0303	9020-0355	-	9020-0356	-
480 V 3~ 60 HZ		_	-	-	9020-0445	-	9020-0447
400 V 3~ 50 Hz	Standard	_	9020-0375	9020-0376	9020-0406	9020-0377	9020-0407
240 V 1~ 60 Hz	Standard	9020-0388	-	-	-	-	-
230 V 1~ 50 Hz	Standard	9020-0374	-	-	-	_	-

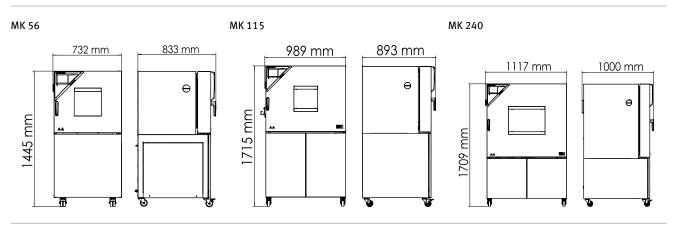
## **EXTRACT OF FULLFILLED STANDARDS**

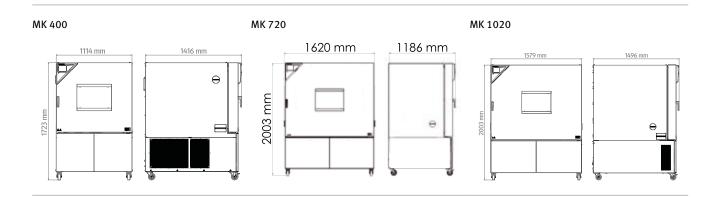
- MIL STD 810:2000-01
- DIN EN 60068-2-14

## **HEAT COMPENSATION**



## DIMENSIONS incl. fittings and connections [mm]





## ORDERING INFORMATION OPTIONS

Bezeichnung	Beschreibung	MK 56	MK 115	MK 240	MK 400	MK 720	MK 1020	ArtNr.
	left							
	30 mm	•	•	•	•	•	•	8012-1322
	50 mm	•	•	•	•	•	•	8012-1328
	80 mm	•	•	•	•	•	•	8012-1334
	100 mm	-	•	•	•	•	•	8012-1542
	125 mm	-	•	•	•	•	•	8012-1351
	right							
Access port with	30 mm	•	•	•	•	•	•	8012-1319
silicone plug	50 mm	•	•	•	•	•	•	8012-132
	80 mm	•	•	•	•	•	•	8012-1333
	100 mm	-	•	•	•	•	•	8012-1539
	125 mm	_	•	•	•	•	•	8012-1348
	top							
	80 mm	•	•	•	•	•	•	8012-153
	100 mm	_	•	•	•	•	•	8012-1530
	125 mm	_	•	•	•	•	•	8012-1533
Analog output 4-20 mA	for temperature values (output not adjustable)	•	•	•	•	•	•	8012-108
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	•	•	•	•	•	•	8012-112
	for temperature, measurement in center of chamber at specified temperature	•	•	•	•	•	•	8012-114
Calibration certificate,	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	•	•	•	•	•	8012-160
temperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	•	•	•	•	•	8012-158
	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	•	•	•	•	•	8012-156
		•	_	-	-	-	-	8012-179
Compressed air connection	for the connection to an existing pressurized air	_	•	-	-	-	-	8012-180
	network	_	-	•	•	-	-	8012-108
		-	-	-	-	•	•	8012-179
		•	-	-	-	-	-	8012-178
Door lock	lockable door handle	_	•	•	•	•	•	8012-186

Bezeichnung	Beschreibung	MK 56	MK 115	MK 240	MK 400	MK 720	MK 1020	ArtNr.
		•	_	_	_	_	_	8012-1806
	uncontrolled, incl. connection; for preventing	-	•	_	-	-	-	8012-1087
Dry-air purge	condensation	_	_	•	_	-	_	8012-1865
		_	_	_	_	•	-	8012-1866
	notch-type access port in door, 100 x 35 mm	-	•	-	-	-	-	8012-1849
Notch-type access port		-	-	•	•	-	-	8012-1850
		-	-	_	_	•	•	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
Temperature safety device class 2	with visual alarm (DIN 12880)	•	•	•	•	•	•	8012-1792
Water cooling	for reduced heat loss to ambient air	•	-	-	-	-	_	8012-1815
Zero voltage relay contacts	for controlling 3 relay contacts via program regula- tors, accessible via 6-pin DIN socket (max. 24 V - 2.5 A)	•	•	•	•	•	•	8012-1095

## ORDERING INFORMATION ACCESSORIES

Bezeichnung	Beschreibung	MK 56	MK 115	MK 240	MK 400	MK 720	MK 1020	ArtNr.
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
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	•	•	•	•	•	•	1002-0016
	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
Qualification	Hard copy inside folder	•	•	•	•	•	•	7007-0003
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	•	•	•	•	•	•	7057-000
	Hard copy inside folder	•	•	•	•	•	•	7007-000
		•	_	-	_	-	_	8012-2085
		_	•	-	-	-	-	8012-2048
		_	-	•	-	_	-	8012-2053
Rack	stainless steel	_	-	_	•	_	_	8012-2123
		_	_	_	_	•	-	8012-2054
		_	_	_	_	_	•	8012-2124
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	•	•	•	•	•	8012-0620

Bezeichnung	Beschreibung	MK 56	MK 115	MK 240	MK 400	MK 720	MK 1020	ArtNr.
		•	_	_	-	_	_	8012-1091
		_	•	_	-	-	_	8012-0709
D 1 1 1 1		_	_	•	-	_	_	8012-0605
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	_	_	-	•	_	-	8012-2104
		_	-	-	-	•	-	8012-0684
		_	_	_	-	_	•	8012-2105
RS 485 / RS 422 interfa-	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor							
ce converter	115 V option model	•	•	•	•	•	•	8012-0599
	230 V option model	•	•	•	•	•	•	8012-0589
		•	_	-	-	_	_	6004-0182
		-	•	-	-	_	-	6004-0030
	Stainless steel	_	-	•	-	_	-	8009-0447
Shelf, perforated		_	_	_	•	_	_	8009-1182
		_	-	_	_	•	-	8009-0511
		_	_	_	_	_	•	8009-1183
Water supply set	consisting of fresh- and waste-water containers (20 liters each), cabling and pump							
	external, free-standing	•	-	-	-	_	-	8012-1846
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.	•	•	•	•	•	•	8500-0164

## **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

## **BENEFITS**

- Homogeneous climate conditions thanks to APT.line™ technology
- Automatic water and wastewater management
- Pressure humidification with fast response times
- Comprehensive programming and data acquisition
- Large heated viewing window

## MAIN FEATURES

- Temperature range: -40 °C to +180 °C
- Humidity range: 10% to 98% RH
- Humidity regulation with capacitive humidity sensor and steam humidification
- $\bullet \quad \mathsf{APT.line^{TM}} \ \mathsf{preheating} \ \mathsf{chamber} \ \mathsf{technology}$
- Intuitive touchscreen controller with time-segment and real-time programming
- CFC-free refrigerant R-452A
- Integrated water-storage tank, 20 L
- 1 stainless steel rack
- Access port with silicone plug (models 56, 115, 240, 400), 50 mm, left
- 2 access ports with silicone plugs (models 720, 1020), 80 mm, left and right

## **AVAILABLE SIZES**

Model	Interior volume [L]	Online data sheets
MKF 56	60	go2binder.com/en-MKF56
MKF 115	115	go2binder.com/en-MKF115
MKF 240	228	po2binder.com/en-MKF240
MKF 400	417	go2binder.com/en-MKF400
MKF 720	734	po2binder.com/en-MKF720
MKF 1020	991	> go2binder.com/en-MKF1020



Find all details online: go2binder.com/en-MKF

## OPTIONAL EQUIPMENT

Access port with silicone plug	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)	A Part of State of St
BINDER PURE AQUA Service	System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts.	
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.	
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.	
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.	-

<sup>►</sup> All extras online go2binder.com/en-options

## TECHNICAL DATA

Description	MKF 56	MKF 115	MKF 240	MKF 400	MKF 720	MKF 1020
Measures						
Interior volume [L]	60	115	228	417	734	991
Net weight of the unit (empty) [kg]	175	280	360	432	590	636
Permitted load [kg]	60	60	70	150	160	200
Load per rack [kg]	15	30	30	30	40	40
Wall clearance back [mm]	300	300	300	500	300	300
Wall clearance sidewise [mm]	200	200	200	300	200	200
Internal Dimensions						
Width [mm]	400	600	735	735	1200	1200
Height [mm]	420	480	700	700	1020	1020
Depth [mm]	348	400	443	810	600	810
Housing dimensions not incl. fittings and connections						
Width net [mm]	720	980	1115	1115	1580	1580
Height net [mm]	1445	1725	1715	1710	2005	2005
Depth net [mm]	780	865	925	1400	1140	1480
Performance Data Temperature						
Temperature range [°C]	-40180	-40180	-40180	-40180	-40180	-40180
Temperature variation depending on setpoint [± K]	0.51.5	0.11.3	0.11.5	0.11.2	0.11.8	0.11.8
Temperature fluctuation depending on setpoint [± K]	0.10.5	0.10.6	0.10.5	0.10.5	0.10.5	0.10.5
Heating-up time from -40 °C to 180 °C [min]	_	_	_	55	_	60
Average heating-up rate according to IEC 60068-3-5 [K/min]	5	5.5	5	5	4.8	5.5
Average cooling down time according to IEC 60068-3-5 [K/min]	5	4.5	5	5	4.8	5
Performance Data Climate						
Temperature range [°C]	1095	1095	1095	1095	1095	1095
Temperature variation [± K]	_	_	_	0.11.5	_	0.12
Temperature fluctuation [± K]	_	_	_	0.11.3	_	0.11.5
Temperature fluctuation depending on setpoint [± K]	0.10.5	0.11.3	0.11.3	-	0.21.5	-
Humidity range	1098	1098	1098	1098	1098	1098
Humidity fluctuation depending on setpoint [± % RH]	≤2,5	≤2,5	≤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	8	11	12.5
Nominal power (version 480 V) [kW]	_	4.8	6.8	8	11	12.5
Environment-specific data						
Energy consumption at 25 °C and 60 % RH	_	-	-	1900 Wh/h	_	2200 W
Fixtures						
Number of shelves (std./max.)	1/4	1/4	1/6	1/6	1/11	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 400	MKF 720	MKF 1020
/00 V 0 / 0 U	with voltage and frequency		9020-0357	9020-0358	-	9020-0359	_
480 V 3~ 60 Hz	converter	_	_	-	9020-0446	-	9020-0448
400 V 3~ 50 Hz	Standard	_	9020-0379	9020-0380	9020-0408	9020-0381	9020-0409

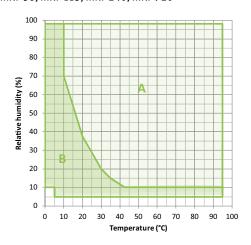
Voltage	Option model	MKF 56	MKF 115	MKF 240	MKF 400	MKF 720	MKF 1020
200230 V 1~ 50 Hz	Standard	9020-0378	-	-	-	-	_
200240 V 1~ 60 Hz	Standard	9020-0389	-	-	-	_	_

## **EXTRACT OF FULLFILLED STANDARDS**

- DIN EN 60068-2-30: 2006-06
- DIN EN 60068-2-38: 2010-06
- MIL STD 810:2000-01
- DIN EN 60068-2-66

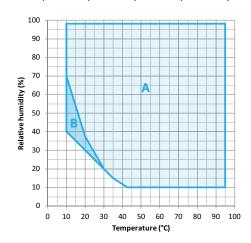
## TEMPERATURE-HUMIDITY CHART

## MKF 56, MKF 115, MKF 240, MKF 720



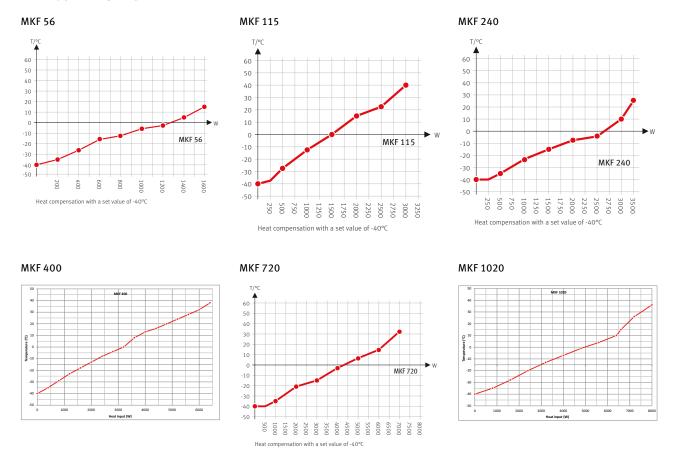
A: Standard Climate range B: Expanded range with controlled dry-air purge

## MKF 56, MKF 115, MKF 240, MKF 720, MKF 400, MKF 1020

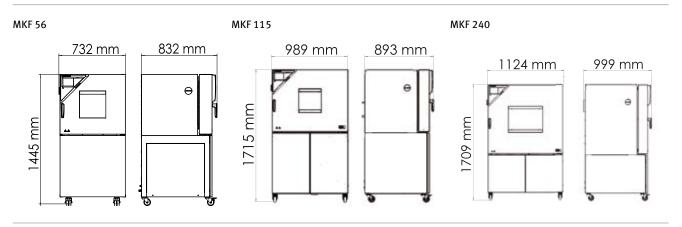


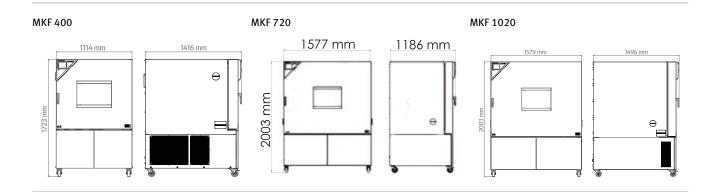
- A: Standard Climate range B: Time-limited operation (max. 24 hours)

## **HEAT COMPENSATION**



## DIMENSIONS incl. fittings and connections [mm]





## ORDERING INFORMATION OPTIONS

Bezeichnung	Beschreibung	MKF 56	MKF 115	MKF 240	MKF 400	MKF 720	MKF 1020	ArtNr.
	left							
	30 mm	•	•	•	•	•	•	8012-1323
	50 mm	•	•	•	•	•	•	8012-1329
	80 mm	•	•	•	•	•	•	8012-1335
	100 mm	_	•	•	•	•	•	8012-1543
	125 mm	_	•	•	•	•	•	8012-1352
	right							
Access port with	30 mm	•	•	•	•	•	•	8012-1320
silicone plug	50 mm	•	•	•	•	•	•	8012-1326
	80 mm	•	•	•	•	•	•	8012-1332
	100 mm	_	•	•	•	•	•	8012-1540
	125 mm	_	•	•	•	•	•	8012-1349
	top							
	80 mm	•	•	•	•	•	•	8012-1537
	100 mm	_	•	•	•	•	•	8012-1531
	125 mm	_	•	•	•	•	•	8012-1534
Analog output 4-20 mA	for temperature and humidity values (output not adjustable)	•	•	•	•	•	•	8012-108
Calibration certificate, expanded	for temperature and humidity; for extending the measurement in center of chamber to include another test value	•	•	•	•	•	•	8012-1194
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	•	•	•	•	•	8012-1609
Calibration certificate, emperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	•	•	•	•	•	8012-1589
	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	•	•	•	•	•	8012-156
	Measurement in center of chamber at 25 °C / 60% RH or at specified test values	•	•	•	•	•	•	8012-118
Calibration certificate, temperature and humidity	temperature (according to DIN12880) and humidity measurement incl. certificate, 27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values	•	•	•	•	•	•	8012-161
		•	_	_	_	_	-	8012-1796
Compressed air	for the connection to an existing pressurized air	_	•	-	-	-	-	8012-1802
onnection	network	_	-	•	•	_	_	8012-178
		_	_	_	_	•	•	8012-179
		•	_	_	_	_	_	8012-109
Ooor lock	lockable door handle	_	•	•	•	•	•	8012-186

Beschreibung	MKF 56	MKF 115	MKF 240	MKF 400	MKF 720	MKF 1020	ArtNr.
	•	-		_	_	_	8012-1088
controlled, incl. connection; suitable for the	-	•	_	_	_	_	8012-1863
simulation of current automobile industry standards	-	_	•	_	_	_	8012-1869
	_	_	_	_	•	-	8012-1870
	-	•			-	_	8012-1853
notch-type access port in door, 100 x 35 mm	-	-	•	•	-	_	8012-1856
	-	_	_	-	•	•	8012-1859
additional flexible Pt 100, interior, for displaying the temperature on the unit display	•	•	•	•	•	•	8012-1094
Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	•	•	•	•	•	•	8012-1769
	•	_			-	_	8012-1097
with visual alarm (DIN 12880)	-	•	•	•	•	•	8012-1864
allows condensed water to be reused	-	•	•	•	•	•	8012-1512
	•	-	_	_	_	_	8012-1098
	_	•	_	-	-	_	8012-0843
for reduced heat loss to ambient air	_	-	•	_	_	_	8012-0842
					•		8012-0804
	controlled, incl. connection; suitable for the simulation of current automobile industry standards  notch-type access port in door, 100 x 35 mm  additional flexible Pt 100, interior, for displaying the temperature on the unit display  Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™  with visual alarm (DIN 12880)	controlled, incl. connection; suitable for the simulation of current automobile industry standards	controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection of current automobil	controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection; suitable for the simulation of current automobile industry standards  controlled, incl. connection of current automobil	controlled, incl. connection; suitable for the simulation of current automobile industry standards	controlled, incl. connection; suitable for the simulation of current automobile industry standards  notch-type access port in door, 100 x 35 mm  notch-type access port in door, 100 x 35 mm  additional flexible Pt 100, interior, for displaying the temperature on the unit display  Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-  COMTM  with visual alarm (DIN 12880)  allows condensed water to be reused  - • • • • • • • • • • • • • • • • • •	115   240   400   720   1020

## ORDERING INFORMATION ACCESSORIES

Bezeichnung	Beschreibung	MKF 56	MKF 115	MKF 240	MKF 400	MKF 720	MKF 1020	ArtNr.
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
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
BINDER PURE AQUA SERVICE	System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts	•	•	•	•	•	•	8012-0759
BINDER PURE AQUA SERVICE, accessories	Single-use, replacement cartridge for BINDER PURE AQUA System	•	•	•	•	•	•	6011-016
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	•	•	•	•	•	1002-001
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature and humidity values							
	Digital in PDF format	•	•	•	•	•	•	7057-0002
Qualification	Hard copy inside folder	•	•	•	•	•	•	7007-0002
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 and humidity values							
	Digital in PDF format	•	•	•	•	•	•	7057-0006
	Hard copy inside folder	•	•	•	•	•	•	7007-0006

Bezeichnung	Beschreibung	MKF 56	MKF 115	MKF 240	MKF 400	MKF 720	MKF 1020	ArtNr.
		•	-	_	-	-	-	8012-2085
		_	•	-	-	-	_	8012-2048
D. d.	-tatelana akad	_	-	•	-	-	_	8012-2053
Rack	stainless steel	_	-	-	•	-	-	8012-2123
		_	-	-	-	•	_	8012-2054
		_	_	_	_	-	•	8012-2124
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	•	•	•	•	•	8012-0620
		•	-	-	-	-	-	8012-1091
		_	•	-	-	-	_	8012-0709
Rack, reinforced		-	-	•	-	-	-	8012-060
	stainless steel, with fasteners (1 set of 4)	-	-	-	•	-	-	8012-2104
		-	-	-	-	•	-	8012-068
		_	-	-	-	-	•	8012-2105
RS 485 / RS 422 interfa-	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor							
ce converter	115 V option model	•	•	•	•	•	•	8012-0599
	230 V option model	•	•	•	•	•	•	8012-0589
		•	-	-	-	-	-	6004-0182
		-	•	-	-	-	_	6004-0030
Shelf, perforated	Stainless steel	-	-	•	-	-	_	8009-044
		-	-	-	-	•	_	8009-0511
		-	-	-	-	-	•	8009-1183
Water supply set	consisting of fresh- and waste-water containers (20 liters each), cabling and pump							
,	external, free-standing	•	-	-	-	-	-	8012-1846
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.	•	•	•	•	•	•	8500-0164

## **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.





Model MKT 240

## **BENEFITS**

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

## MAIN 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 (Models 115, 240: 50 mm, left)

## **AVAILABLE SIZES**

Model	Interior volume [L]	Online data sheets
MKT 115	115	→ go2binder.com/en-MKT115
MKT 240	228	ogo2binder.com/en-MKT240
MKT 720	734	› go2binder.com/en-MKT720

## OPTIONAL EQUIPMENT

Access port with silicone plug	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)	
BINDER PURE AQUA Service	System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts.	
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.	Bezail
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.	
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	

<sup>►</sup> All extras online go2binder.com/en-options

services chapter.

## **TECHNICAL DATA**

Description	MKT 115	MKT 240	MKT 720
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
Wall clearance back [mm]	300	300	300
Wall clearance sidewise [mm]	200	200	200
Internal Dimensions			
Width [mm]	600	735	1200
Height [mm]	480	700	1020
Depth [mm]	400	443	600
Housing dimensions not incl. fittings and connections			
Width net [mm]	980	1115	1580
Height net [mm]	1725	1935	2005
Depth net [mm]	865	925	1140
Performance Data Temperature			
Temperature range [°C]	-70180	-70180	-70180
Temperature variation depending on setpoint [± K]	0.21.8	0.11.0	0.32
Temperature fluctuation depending on setpoint [± K]	0.10.6	0.10.4	0.10.5
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
Electrical data			
Nominal power (version 400 V) [kW]	5.5	6.5	13
Nominal power (version 480 V) [kW]	5.5	6.5	13
Fixtures			
Number of shelves (std./max.)	1/4	1/6	1/11

## ORDERING INFORMATION [Art. No.]

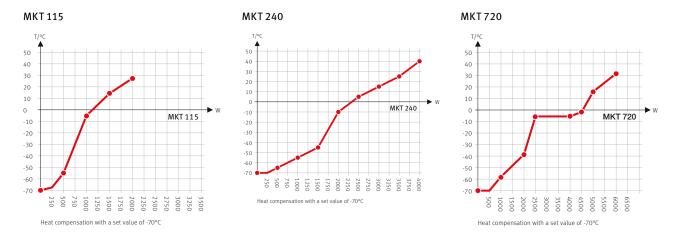
**Further details:** Go to www.binder-world.com > Search > Enter Article Number

Voltage	Option model	MKT 115	MKT 240	MKT 720
480 V 3~ 60 Hz	with voltage and frequency converter	9020-0363	9020-0364	9020-0365
400 V 3~ 50 Hz	Standard	9020-0385	9020-0386	9020-0387

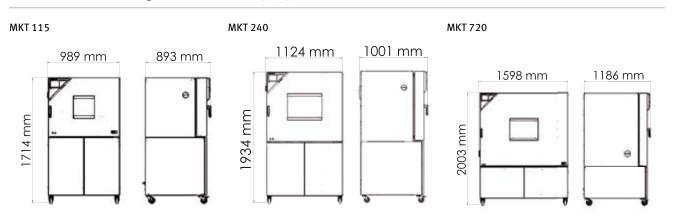
## **EXTRACT OF FULLFILLED STANDARDS**

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

## **HEAT COMPENSATION**



## DIMENSIONS incl. fittings and connections [mm]



## ORDERING INFORMATION OPTIONS

Bezeichnung	Beschreibung		ИКТ 115	MKT 240	MKT 720	ArtNr.
	left					
	30 mm	•		•	•	8012-1324
	50 mm	•		•	•	8012-1330
	80 mm	•		•	•	8012-1336
	100 mm	•		•	•	8012-1544
	125 mm	•		•	•	8012-1353
	right					
Access port with	30 mm	•		•	•	8012-1321
silicone plug	50 mm	•		•	•	8012-1327
	80 mm	•		•	•	8012-1333
	100 mm	•		•	•	8012-1541
	125 mm	•		•	•	8012-1350
	top					
	80 mm	•		•	•	8012-1538
	100 mm	•		•	•	8012-1532
	125 mm	•		•	•	8012-1535

Bezeichnung	Beschreibung	MKT 115	MKT 240	MKT 720	ArtNr.
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
	for temperature, measurement in center of chamber at specified temperature	•	•	•	8012-1144
C-11h	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	•	•	8012-1603
Calibration certificate, temperature	temperature measurement incl. certificate, 15-18 measuring points at specified temperature	•	•	•	8012-1582
	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	•	•	8012-1561
Compressed air connection	for the connection to an existing pressurized air network	•	-	-	8012-1804
		-	•	_	8012-1788
		_	-	•	8012-1800
Door lock	lockable door handle	•	•	•	8012-1784
		•	-	-	8012-1805
Dry-air purge	uncontrolled, incl. connection; for preventing condensation	-	•	-	8012-1867
		-	_	•	8012-1868
		•	-	-	8012-1852
Notch-type access port	notch-type access port in door, 100 x 35 mm	-	•	-	8012-1855
		-	-	•	8012-1858
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

## ORDERING INFORMATION ACCESSORIES

Bezeichnung	Beschreibung	MKT 115	MKT 240	MKT 720	ArtNr.
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.				
GLF-Edition	version 4, GLP edition	•	•	•	9053-0042
APT-COM™ 4	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.				
PROFESSIONAL-Edition	version 4, PROFESSIONAL edition	•	•	•	9053-0040
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	•	•	1002-0016
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, $\mathrm{CO_2}$ , $\mathrm{O_2}$ , pressure, depending on unit				
	Digital in PDF format	•	•	•	7057-0001
Qualification	Hard copy inside folder	•	•	•	7007-0001
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
		•	-	-	8012-2048
Rack	stainless steel	-	•	-	8012-2053
		_	_	•	8012-2054

Bezeichnung	Beschreibung	MKT 115	MKT 240	MKT 720	ArtNr.
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	•	•	8012-0620
		•	-	-	8012-0709
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	_	•	-	8012-0605
		_	-	•	8012-0684
RS 485 / RS 422 interfa-	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor				
ce converter	115 V option model	•	•	•	8012-0599
	230 V option model	•	•	•	8012-0589
		•	-	-	6004-0030
Shelf, perforated	Stainless steel	-	•	_	8009-0447
		-	-	•	8009-0511
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.	•	•	•	8500-0164

## **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.





Model MKFT 240

## **BENEFITS**

- · Homogeneous climate conditions thanks to
- APT.line™ technology
- Automatic water and wastewater management
- Pressure humidification with fast response times
- Comprehensive programming and data acquisition
- · Large heated viewing window

## 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
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Intuitive touchscreen controller with time-segment and real-time programming
- Internal data logger, measured values can be read out in open format via USB
- · Heated viewing window with LED interior lighting
- Humidity regulation with capacitative humidity sensor and vapor humidification

## **AVAILABLE SIZES**

Model	Interior volume [L]	Online data sheets
MKFT 115	115	> go2binder.com/en-MKFT115
MKFT 240	228	> go2binder.com/en-MKFT240
MKFT 720	734	po2binder.com/en-MKFT720



## **OPTIONAL EQUIPMENT**

## Access port with For introducing external measuring instruments. Large selection of different diameters silicone plug and positions (left, right, or top) System for preparation or complete desalination of tap water, complete set containing **BINDER PURE AQUA** PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting **Service** parts. 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 Dry-air purge simulating current automobile industry standards, such as PV 2005; PV 1200; PR 308.2, is also available. You can access our installation, maintenance, calibration, validation, or warranty services **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. 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 **BINDER INDIVIDUAL** functional guarantee and warranty. More information is available in the accessories and services chapter.

<sup>►</sup> All extras online go2binder.com/en-options

## **TECHNICAL DATA**

Measures           Interior volume [L]         115         228         734           Nét weight of the unit (empty [kg]         494         579         887           Permitted load [kg]         60         70         160           Load per rack [kg]         30         30         40           Wall clearance back [mm]         300         30         30           Wall clearance sidewise [mm]         200         20         20           Width [mm]         600         735         1200           Height [mm]         480         70         102           Width [mm]         480         70         102           Depth [mm]         480         70         102           Width [mm]         980         115         158           Height net [mm]         86         25         140           Popth net [mm]         86         25         140           Performance Data Temperature         -70180         -70180         -70180           Performance Data Temperature ange [°C]         -70180         -70180         -70180           Temperature fluctation depending on setpoint [ k ]         1.00         1.01         1.01           Tempera	Description	MKFT 115	MKFT 240	MKFT 720
Netweight of the unit (empty) [kg]         494         579         887           Permitted load [kg]         60         70         160           Load per rack [kg]         30         90         40           Wall clearance back [mm]         300         300         300           Wall clearance sidewise [mm]         600         735         1200           Internal Dimensions         480         700         1020           Height [mm]         480         700         1020           Popth [mm]         480         700         1020           Housing dimensions not incl. fittings and connections         ****         ****           Width net [mm]         880         1115         1580           Height net [mm]         880         1115         1580           Depth net [mm]         865         25         1140           Performance Data Temperature         70180         70180         70180           Temperature quage [°C]         70180         70180         70180           Temperature fluctuation depending on setpoint [ k ]         0.10.1         0.10.5         10.1           Reverage heating-up rate according to IEC 60068-3-5 [K/min]         5.         4.         4. <td>Measures</td> <td></td> <td></td> <td></td>	Measures			
Permitted load [kg]         60         70         160           Load per rack [kg]         30         30         40           Wall clearance back [mm]         200         200         200           Wall clearance sidewise [mm]         600         735         1200           Internal Dimensions         V         1200           Width [mm]         600         735         1200           Pepth [mm]         400         433         600           Height [mm]         980         1115         1580           Height net [mm]         980         1115         1580           Performance Data Temperature         225         140           Temperature range [*C]         70180         70180         70180           Temperature variation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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]         1095         1095         1095           Temperature frange [*C]         1095         1095         1095         1095           Temperature frange [*C]         100         101 <th< td=""><td>Interior volume [L]</td><td>115</td><td>228</td><td>734</td></th<>	Interior volume [L]	115	228	734
Load per rack [kg]         30         30         40           Wall clearance back [mm]         300         300         300           Wall clearance sidewise [mm]         200         200         200           Internal Dimensions         Well clearance sidewise [mm]         600         735         1200           Width [mm]         480         700         1020           Beight [mm]         400         43         60           Housing dimensions not incl. fittings and connections         Well         1115         1580           Width net [mm]         880         1115         1580           Beight net [mm]         70         1940         2005           Petromance Data Temperature         70         1940         2005           Temperature range [°C]         70         180         70         30         70           Temperature fluctuation depending on setpoint [£ K]         0.1         0.2         1.         0.         30         2.           Average cooling down time according to IEC 60068-3-5 [K/min]         5.5         5         4.         2.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1. <td>Net weight of the unit (empty) [kg]</td> <td>494</td> <td>579</td> <td>887</td>	Net weight of the unit (empty) [kg]	494	579	887
Wall clearance back [mm]         300         300         300           Wall clearance sidewise [mm]         200         200         200           Internal Dimensions         Wall clearance sidewise [mm]         200         200         200           Width [mm]         600         735         1200         200           Beight [mm]         480         700         1020         200           Depth [mm]         400         433         600         200           Housing dimensions not incl. fittings and connections         WW         1115         1580         500         200         100         400         403         200<	Permitted load [kg]	60	70	160
Wall clearance sidewise [mm]         200         200         200           Internal Dimensions         Urbitable [mm]         600         735         1200           Height [mm]         480         700         1020           Depth [mm]         400         443         600           Housing dimensions not incl. fittings and connections         ************************************	Load per rack [kg]	30	30	40
Internal Dimensions           Width [mm]         600         735         1200           Height [mm]         480         700         1020           Depth [mm]         400         443         600           Housing dimensions not incl. fittings and connections         ************************************	Wall clearance back [mm]	300	300	300
Width [mm]         600         735         1200           Height [mm]         480         700         1020           Depth [mm]         400         443         600           Housing dimensions not incl. fittings and connections         ************************************	Wall clearance sidewise [mm]	200	200	200
Height [mm]         480         700         1020           Depth [mm]         400         443         600           Housing dimensions not incl. fittings and connections         ************************************	Internal Dimensions			
Depth [mm]         400         443         600           Housing dimensions not incl. fittings and connections         1115         1580           Width net [mm]         980         1115         1580           Height net [mm]         1725         1940         2005           Depth net [mm]         865         925         1140           Performance Data Temperature         ************************************	Width [mm]	600	735	1200
Housing dimensions not incl. fittings and connections         880         1115         1580           Width net [mm]         1725         1940         2005           Depth net [mm]         865         925         1140           Performance Data Temperature           Temperature range [°C]         -70180         -70180         -70180           Temperature variation depending on setpoint [± K]         0.10.1         0.21.8         0.32.0           Temperature fluctuation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity fluctuation depending on setpoint [± K] Hl         2.2,5         2.5         2.5           Electrical data           Nominal power (version 400 V) [kW]         5         6	Height [mm]	480	700	1020
Width net [mm]         980         1115         1580           Height net [mm]         1725         1940         2005           Depth net [mm]         865         925         1140           Performance Data Temperature           Temperature range [°C]         -70180         -70180         -70180           Temperature variation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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         1095         1095         1095           Temperature range [°C]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098           Humidity fluctuation depending on setpoint [± K] RH]         2.2,5         2.5         2.5           Electrical data         1098         1098         1098           Nominal power (version 400 V) [kW]         5         6         11	Depth [mm]	400	443	600
Height net [mm]         1725         1940         2005           Depth net [mm]         865         925         1140           Performance Data Temperature           Temperature range [°C]         -70180         -70180         -70180           Temperature variation depending on setpoint [± K]         0.11.3         0.21.8         0.32.0           Temperature fluctuation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098           Humidity fluctuation depending on setpoint [± K] RH]         5.7         € 2.5         \$2.5           Electrical data           Nominal power (version 400 V) [kW]         5         6	Housing dimensions not incl. fittings and connections			
Depth net [mm]         865         925         1140           Performance Data Temperature           Temperature range [°C]         -70180         -70180         -70180           Temperature variation depending on setpoint [± K]         0.10.1         0.21.8         0.32.0           Temperature fluctuation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098           Humidity fluctuation depending on setpoint [± K] RH]         ±2,5         ±2,5         ±2,5           Electrical data           Nominal power (version 400 V) [kW]         5         6         11           Nominal power (version 480 V) [kW]         5	Width net [mm]	980	1115	1580
Performance Data Temperature           Temperature range [°C]         -70180         -70180         -70180           Temperature variation depending on setpoint [± K]         0.10.3         0.21.8         0.32.0           Temperature fluctuation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098           Humidity fluctuation depending on setpoint [± % RH]         ±2,5         ±2,5         ±2,5           Electrical data         Nominal power (version 480 V) [kW]         5         6         11           Nominal power (version 480 V) [kW]         5         6         11	Height net [mm]	1725	1940	2005
Temperature range [°C]         -70180         -70180         -70180           Temperature variation depending on setpoint [± K]         0.10.1         0.21.8         0.32.0           Temperature fluctuation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098           Humidity fluctuation depending on setpoint [± RH]         \$2,5         \$2,5         \$2,5           Electrical data	Depth net [mm]	865	925	1140
Temperature variation depending on setpoint [± K]         0.11.3         0.21.8         0.32.0           Temperature fluctuation depending on setpoint [± K]         0.10.1         0.10.5         0.10.1           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         1095         1095         1095           Temperature range [°C]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098         1098           Humidity fluctuation depending on setpoint [± % RH]         ±2,5         ±2,5         ±2,5           Electrical data         1098         1098         11           Nominal power (version 480 V) [kW]         5         6         11           Nominal power (version 480 V) [kW]         5         6         11	Performance Data Temperature			
Temperature fluctuation depending on setpoint [± K]       0.10.1       0.10.5       0.10.1         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]       1095       1095       1095       1095         Temperature fluctuation depending on setpoint [± K]       0.11       0.11.5       0.11         Humidity range       1098       1098       1098         Humidity fluctuation depending on setpoint [± % RH]       ±2,5       ±2,5       ±2,5         Electrical data         Nominal power (version 400 V) [kW]       5       6       11         Nominal power (version 480 V) [kW]       5       6       11         Fixtures	Temperature range [°C]	-70180	-70180	-70180
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] 4.2 4.2 4.2 4.2  Performance Data Climate  Temperature range [°C] 1095 1095 1095 1095  Temperature fluctuation depending on setpoint [± K] 0.11 0.11.5 0.11  Humidity range 1098 1098 1098 1098  Humidity fluctuation depending on setpoint [± % RH] ±2,5 ±2,5 ±2,5 ±2,5  Electrical data  Nominal power (version 400 V) [kW] 5 6 6 11  Nominal power (version 480 V) [kW] 5 6 6 11	Temperature variation depending on setpoint [± K]	0.11.3	0.21.8	0.32.0
Average cooling down time according to IEC 60068-3-5 [K/min]       4.2       4.2       4         Performance Data Climate         Temperature range [°C]       1095       1095       1095         Temperature fluctuation depending on setpoint [± K]       0.11       0.11.5       0.11         Humidity range       1098       1098       1098         Humidity fluctuation depending on setpoint [± % RH]       ≤2,5       ≤2,5       ≤2,5         Electrical data	Temperature fluctuation depending on setpoint [± K]	0.10.1	0.10.5	0.10.1
Performance Data Climate           Temperature range [°C]         1095         1095         1095           Temperature fluctuation depending on setpoint [± K]         0.11         0.11.5         0.11           Humidity range         1098         1098         1098           Humidity fluctuation depending on setpoint [± % RH]         ≤2,5         ≤2,5         ≤2,5           Electrical data         Nominal power (version 400 V) [kW]         5         6         11           Nominal power (version 480 V) [kW]         5         6         11           Fixtures         11         11         11	Average heating-up rate according to IEC 60068-3-5 [K/min]	5.5	5	4.8
Temperature range [°C]       1095       1095       1095         Temperature fluctuation depending on setpoint [± K]       0.11       0.11.5       0.11         Humidity range       1098       1098       1098         Humidity fluctuation depending on setpoint [± % RH]       ≤2,5       ≤2,5       ≤2,5         Electrical data	Average cooling down time according to IEC 60068-3-5 [K/min]	4.2	4.2	4
Temperature fluctuation depending on setpoint [± K]       0.11       0.11.5       0.11.5         Humidity range       1098       1098       1098         Humidity fluctuation depending on setpoint [± % RH]       ≤2,5       ≤2,5       ≤2,5         Electrical data	Performance Data Climate			
Humidity range       1098       1098       1098         Humidity fluctuation depending on setpoint [± % RH]       ≤2,5       ≤2,5       ≤2,5         Electrical data       5       6       11         Nominal power (version 480 V) [kW]       5       6       11         Fixtures       5       6       11	Temperature range [°C]	1095	1095	1095
Humidity fluctuation depending on setpoint [± % RH] ≤2,5 ≤2,5 ≤2,5 Electrical data  Nominal power (version 400 V) [kW] 5 6 11  Nominal power (version 480 V) [kW] 5 6 11  Fixtures	Temperature fluctuation depending on setpoint [± K]	0.11	0.11.5	0.11
Electrical data  Nominal power (version 400 V) [kW] 5 6 11  Nominal power (version 480 V) [kW] 5 6 11  Fixtures	Humidity range	1098	1098	1098
Nominal power (version 400 V) [kW] 5 6 11  Nominal power (version 480 V) [kW] 5 6 11  Fixtures	Humidity fluctuation depending on setpoint [± % RH]	≤2,5	≤2,5	≤2,5
Nominal power (version 480 V) [kW] 5 6 11 Fixtures	Electrical data			
Fixtures	Nominal power (version 400 V) [kW]	5	6	11
	Nominal power (version 480 V) [kW]	5	6	11
Number of shelves (std./max.) 1/4 1/6 1/11	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	9020-0362	9020-0361	9020-0360
400 V 3~ 50 Hz	Standard	9020-0382	9020-0383	9020-0384

## **EXTRACT OF FULLFILLED STANDARDS**

• DIN EN 60068-2-30: 2006-06

• DIN EN 60068-2-38: 2010-06

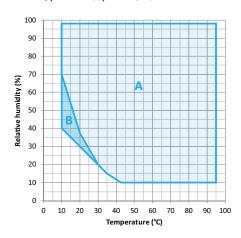
• DIN EN 60068-2-1: 2008-01

• MIL STD 331:2005-01

• DIN EN 60068-3-6:2002-12

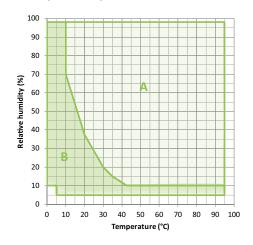
## TEMPERATURE-HUMIDITY CHART

## MKFT 115, MKFT 240, MKFT 720



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

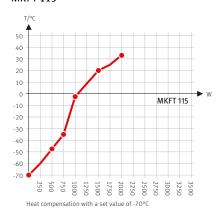
## MKFT 115, MKFT 240, MKFT 720



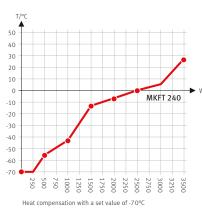
- A: Standard Climate range
- B: Expanded range with controlled dry-air purge

## **HEAT COMPENSATION**

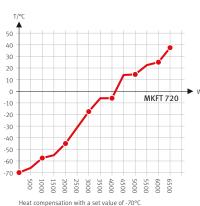
MKFT 115



MKFT 240

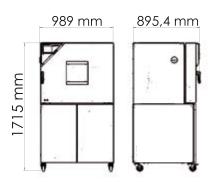


MKFT 720

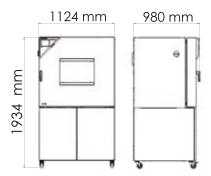


## DIMENSIONS incl. fittings and connections [mm]

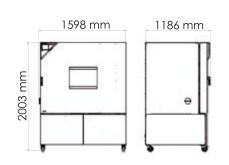
## MKFT 115



## MKFT 240



## MKFT 720



## ORDERING INFORMATION OPTIONS

Bezeichnung	Beschreibung	MKFT 115	MKFT 240	MKFT 720	ArtNr.
	left				
	30 mm	•	•	•	8012-0509
	50 mm	•	•	•	8012-0511
	80 mm	•	•	•	8012-0513
	100 mm	•	•	•	8012-0836
	125 mm	•	•	•	8012-0533
	right				
Access port with sili-	30 mm	•	•	•	8012-0508
one plug	50 mm	•	•	•	8012-0510
	80 mm	•	•	•	8012-0512
	100 mm	•	•	•	8012-083
	125 mm	•	•	•	8012-053
	top				
	80 mm	•	•	•	8012-083
	100 mm	•	•	•	8012-083
	125 mm	•	•	•	8012-083
Analog output 4-20 mA	for temperature and humidity values (output not adjustable)	•	•	•	8012-178
Calibration certificate,	for temperature and humidity; for extending the measurement in center of chamber to include another test value	•	•	•	8012-119
•	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	•	•	8012-160
Calibration certificate, emperature	temperature measurement incl. certificate, 15-18 measuring points at specified temperature	•	•	•	8012-158
	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	•	•	8012-1567
	Measurement in center of chamber at 25 °C / 60% RH or at specified test values	•	•	•	8012-1187
Calibration certificate, emperature and numidity	temperature (according to DIN12880) and humidity measurement incl. certificate, 27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values	•	•	•	8012-161
		•	_	_	8012-1803
ompressed air	for the connection to an existing pressurized air network	_	•	_	8012-109
onnection	•	_	_	•	8012-179
oor lock	lockable door handle	•	•	•	8012-178
		•	_	_	8012-178
ry-air purge	controlled, incl. connection; suitable for the simulation of current automobile	_	•	_	8012-187
, , 0	industry standards	_	_	•	8012-187
		•	_	_	8012-1854
lotch-type access port	notch-type access port in door, 100 x 35 mm		•	_	8012-1857
ottii-type access port	notch-type access port in door, 100 x 33 min			•	8012-186
Ot 100 tomporature	additional florible Dt 100 interior for displaying the temperature on the unit				8012-160
et 100 temperature ensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	•	•	•	8012-179
RS 485 interface, 2-wire	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM $^{TM}$	•	•	•	8012-176
emperature safety evice class 2	with visual alarm (DIN 12880)	•	•	•	8012-1793
Vater circuit	allows condensed water to be reused	•	•	•	8012-078
Vater cooling	for reduced heat loss to ambient air		_	•	8012-075

## ORDERING INFORMATION ACCESSORIES

Bezeichnung	Beschreibung	MKFT 115	MKFT 240	MKFT 720	ArtNr.
APT-COM™ 4	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.				
GLP-Edition	version 4, GLP edition	•	•	•	9053-0042
APT-COM™ 4	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.				
PROFESSIONAL-Edition	version 4, PROFESSIONAL edition	•	•	•	9053-0040
BINDER PURE AQUA SERVICE	System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts		•	•	8012-0759
BINDER PURE AQUA Single-use, replacement cartridge for BINDER PURE AQUA System		•	•	•	6011-0165
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	•	•	1002-0016
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature and humidity values				
	Digital in PDF format	•	•	•	7057-0002
Oualification	Hard copy inside folder	•	•	•	7007-0002
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 and humidity values				
	Digital in PDF format	•	•	•	7057-0006
	Hard copy inside folder	•	•	•	7007-0006
		•	-	-	8012-2048
Rack	stainless steel	_	•	_	8012-2053
		_	_	•	8012-2054
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	•	•	8012-0620
		•	_	_	8012-0709
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	_	•	_	8012-0605
		_	_	•	8012-0684
DC 405 / DC 422	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor				
RS 485 / RS 422 interface converter	115 V option model	•	•	•	8012-0599
	230 V option model	•	•	•	8012-0589
		•	-	_	6004-0030
Shelf, perforated	Stainless steel	_	•	_	8009-0447
••		_	_	•	8009-0511
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.	•	•	•	8500-0164

Dynamic climate chambers | **Series MKFT** 

## **BINDER** products

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
Battery test chambers
Multi Management Software



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