

# Model MKFT 240 | Dynamic climate chambers 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.

## 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



Model 240



Model 240

## 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 capacitive humidity sensor and vapor humidification
- BINDER Multi Management Software APT-COM™ Basic Edition
- Troubleshooting system with visual and audible alarms
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Access port with silicone plug (Models 115, 240: 50 mm, left)
- 2 access ports with silicone plugs (Model 720: 80 mm, left and right)
- 4 castors, two with brakes
- Computer interface: Ethernet
- 230 V power socket on the right-side control panel
- Adjustable ramp function
- Integrated chart recorder
- Real-time clock
- Door heating
- Alarm notification in the event of insufficient water in fresh water tank
- 1 stainless steel rack
- Complete safety connection kit for water supply and drainage, up to 1 m in height
- Inner chamber made of stainless steel
- CFC-free refrigerants R-452A and R-23
- Cooling with cascade compressor cooling unit

## ORDERING INFORMATION

Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
8	400 V 3~ 50 Hz	Standard	MKFT240-400V	9020-0383
	480 V 3~ 60 Hz	Standard	MKFT240-480V-C	9020-0361

## TECHNICAL DATA

Description	MKFT240-400V <sup>1</sup>	MKFT240-480V-C <sup>1</sup>
Article Number	9020-0383	9020-0361
Performance Data Temperature		
Temperature range	-70...180	-70...180
Temperature variation depending on setpoint [± K]	0.2...1.8	0.2...1.8
Temperature fluctuation depending on setpoint [± K]	0.1...0.5	0.1...0.5
Average heating-up rate according to IEC 60068-3-5 [K/min]	5	5
Average cooling down time according to IEC 60068-3-5 [K/min]	4.2	4.2
Max. heat compensation at 25 °C [W]	3000	3000
Performance Data Climate		
Temperature range [°C]	10...95	10...95
Temperature fluctuation depending on setpoint [± K]	0.1...1.5	0.1...1.5
Humidity range [% RH]	10...98	10...98
Humidity fluctuation depending on setpoint	±2,5 ± % RH	±2,5 ± % RH
Dew point temperature range [°C]	5...94	5...94
Electrical data		
Rated Voltage [V]	400	480
Power frequency [Hz]	50	60
Nominal power [kW]	6	6
Unit fuse [A]	16	16
Phase (Nominal voltage)	3~	3~
Measures		
Interior volume [cu.ft.]	8	8
Net weight of the unit (empty) [lbs]	915	1276
Permitted load [lbs]	154	154
Load per rack [lbs]	66	66
Viewing window width [in]	20.02	20.02
Viewing window height [in]	11.82	11.82
Wall clearance back [in]	11.82	11.82
Wall clearance sideways [in]	7.88	7.88
Internal Dimensions		
Width [in]	28.96	28.96
Height [in]	27.58	27.58
Depth [in]	17.45	17.45
Doors		
Unit doors	1	1
Housing dimensions not incl. fittings and connections		
Width net [in]	43.9	43.9
Height net [in]	76.4	76.4
Depth net [in]	36.45	36.45

- <sup>1</sup> All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

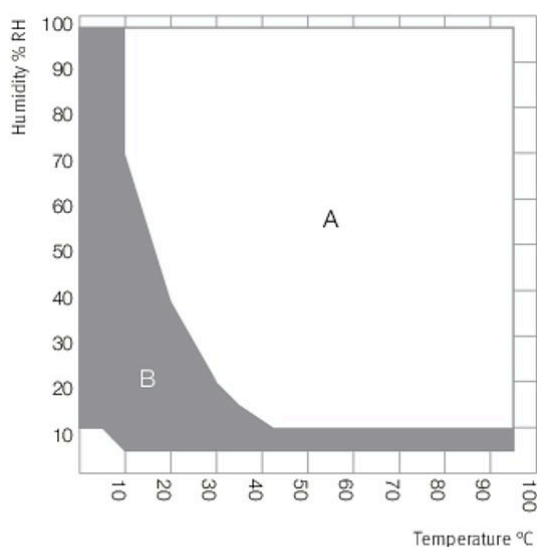
Description	MKFT240-400V <sup>1</sup>	MKFT240-480V-C <sup>1</sup>
Article Number	9020-0383	9020-0361
Environment-specific data		
Sound-pressure level [dB(A)]	67	70
Fixtures		
Number of shelves (std./max.)	1/6	1/6

- <sup>1</sup> All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

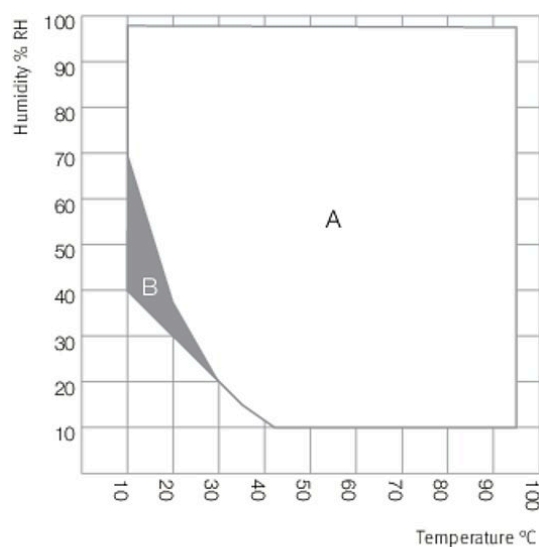


## CHARTS



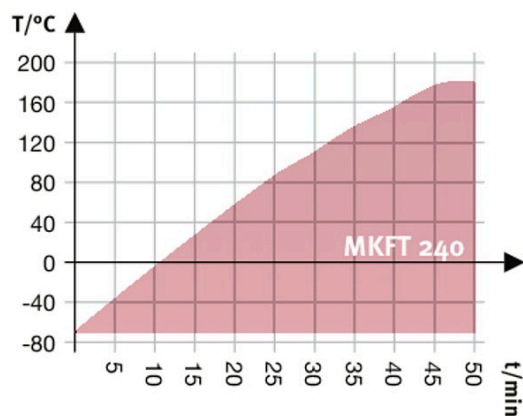
A: Standard Climate range  
B: Extended range with dry-air purge

Climate chart

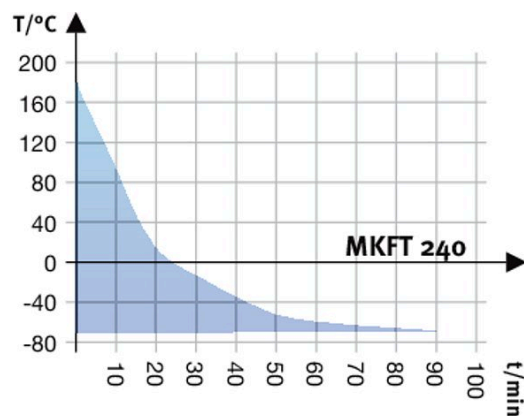


A: Standard Climate range  
B: Time-limited operation (max. 24 hours)

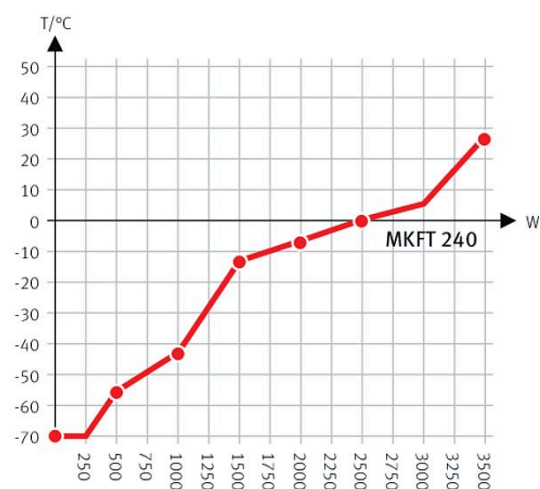
Climate chart



Heating up rate



Cooling down rate



Heat compensation with a set value of -70°C

Heat compensation chart

## OPTIONS

Designation	Description	*	Art.-No.
Access port with silicone plug	left		
	30 mm	01	8012-0509
	50 mm	01	8012-0511
	80 mm	01	8012-0513
	100 mm	01	8012-0836
	125 mm	01	8012-0533
	right		
	30 mm	01	8012-0508
	50 mm	01	8012-0510
	80 mm	01	8012-0512
	100 mm	01	8012-0835
	125 mm	01	8012-0532
	top		
	80 mm	01	8012-0834
	100 mm	01	8012-0832
	125 mm	01	8012-0833
<b>Analog output 4-20 mA</b>	for temperature and humidity values (output not adjustable)	–	8012-1786
<b>Calibration certificate, expanded</b>	for temperature and humidity; for extending the measurement in center of chamber to include another test value	–	8012-1193

\* Notes › See last page

Designation	Description	*	Art.-No.
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	–	8012-1608
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	–	8012-1588
	temperature measurement incl. certificate, 9 measuring points at specified temperature	–	8012-1567
<b>Calibration certificate, temperature and humidity</b>	Measurement in center of chamber at 25 °C / 60% RH or at specified test values	–	8012-1187
	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	–	8012-1614
<b>Compressed air connection</b>	for the connection to an existing pressurized air network	–	8012-1090
<b>Door lock</b>	lockable door handle	–	8012-1783
<b>Dry-air purge</b>	controlled, incl. connection; suitable for the simulation of current automobile industry standards	–	8012-1871
<b>Notch-type access port</b>	notch-type access port in door, 100 x 35 mm	–	8012-1857
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, for displaying the temperature on the unit display	–	8012-1791
<b>RS 485 interface, 2-wire</b>	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	–	8012-1767
<b>Temperature safety device class 2</b>	with visual alarm (DIN 12880)	–	8012-1793
<b>Water circuit</b>	allows condensed water to be reused	–	8012-0785

\* Notes › See last page

## ACCESSORIES

Designation	Description	*	Art.-No.
<b>BINDER PURE AQUA SERVICE</b>	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
<b>BINDER PURE AQUA SERVICE, accessories</b>	Single-use, replacement cartridge for BINDER PURE AQUA System	–	6011-0165
<b>Data Logger Kit</b>	T 220: For continuous temperature logging from -90 °C to 220 °C. The kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit	–	8012-0715
<b>Multi Management Software</b>	Multi Management Software APT-COM™		
	version 4, GLP edition	–	9053-0042
	version 4, PROFESSIONAL edition	–	9053-0040
<b>pH-neutral detergent</b>	concentrated, for gentle remove of residual contaminants; 1 kg	–	1002-0016
<b>Qualification documents</b>	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
	Hard copy inside folder	–	7007-0002
	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
<b>Rack</b>	stainless steel	–	6004-0097
<b>Rack accessories</b>	fasteners (1 set of 4) for additional security of racks	–	8012-0620
<b>Rack, reinforced</b>	stainless steel, with fasteners (1 set of 4)	–	8012-0605
<b>RS 485 / RS 422 interface converter</b>	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor		
	115 V option model	–	8012-0599
	230 V option model	–	8012-0589
<b>Shelf, perforated</b>	Stainless steel	–	8009-0447

\* Notes › See last page

**SERVICES**

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Unit installation	Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work)	05	DL10-0300
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0700
<b>Maintenance services</b>			
BRONZE 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	05	DL20-0710
GOLD 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one temperature/humidity value, including certificate	05	DL20-0920
Leakage test	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	05	DL00-0034
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	05	DL20-0500
SILVER 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate	05	DL20-0830
<b>Calibration services</b>			
Temperature and humidity calibration	Expansion – Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate	03, 04, 05	DL30-0302
	Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate	03, 04, 05	DL30-0301
Temperature and humidity measurement according to DIN12880	Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	03, 04, 05	DL30-0427
Temperature measurement, 18 temperature measuring points and 1 humidity measuring point	Temperature measurement with 18 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	03, 04, 05	DL30-0318
Temperature measurement, 27 temperature measuring points and 1 humidity measuring point	Temperature measurement with 27 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	03, 04, 05	DL30-0327
Temperature measurement, 9 temperature measuring points and 1 humidity measuring point	Temperature measurement with 9 temperature measuring points and 1 humidity measuring point in center of chamber with a pair of values specified by the user, including certificate	03, 04, 05	DL30-0309
<b>Validation services</b>			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	05	DL42-0300
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500
<b>Warranty service</b>			
Warranty extension from 2 to 3 years	The warranty is extended by 1 year from the delivery date, wear parts are excluded	–	DL50-0040

\* Notes › See last page

**NOTES**

- 01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.  
02 UL mark is not granted when this option is used.  
03 Sensor calibration is performed in an accredited calibration laboratory.  
04 Calibration is performed according to the BINDER factory standard.  
05 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).

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