

# Model MKFT 115 | 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 115



Model 115

## 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.
4.1	400 V 3~ 50 Hz	Standard	MKFT115-400V	9020-0382
	480 V 3~ 60 Hz	Standard	MKFT115-480V-C	9020-0362

**TECHNICAL DATA**

Description	MKFT115-400V <sup>1</sup>	MKFT115-480V-C <sup>1</sup>
Article Number	9020-0382	9020-0362
<b>Performance Data Temperature</b>		
Temperature range	-70...180	-70...180
Temperature variation depending on setpoint [± K]	0.1...1.3	0.1...1.3
Temperature fluctuation depending on setpoint [± K]	0.1...0.1	0.1...0.1
Average heating-up rate according to IEC 60068-3-5 [K/min]	5.5	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]	1500	1500
<b>Performance Data Climate</b>		
Temperature range [°C]	10...95	10...95
Temperature fluctuation depending on setpoint [± K]	0.1...1	0.1...1
Humidity range [% RH]	10...98	10...98
Humidity fluctuation depending on setpoint	±2,5 % RH	±2,5 % RH
Dew point temperature range [°C]	50...94	50...94
<b>Electrical data</b>		
Rated Voltage [V]	400	480
Power frequency [Hz]	50	60
Nominal power [kW]	5	5
Unit fuse [A]	16	16
Phase (Nominal voltage)	3~	3~
<b>Measures</b>		
Interior volume [cu.ft.]	4.1	4.1
Net weight of the unit (empty) [lbs]	728	1089
Permitted load [lbs]	132	132
Load per rack [lbs]	66	66
Viewing window width [in]	11.35	11.35
Viewing window height [in]	8.75	8.75
Wall clearance back [in]	11.82	11.82
Wall clearance sidewise [in]	7.88	7.88
<b>Internal Dimensions</b>		
Width [in]	23.64	23.64
Height [in]	18.91	18.91
Depth [in]	15.76	15.76
<b>Doors</b>		
Unit doors	1	1
<b>Housing dimensions not incl. fittings and connections</b>		
Width net [in]	38.61	38.61
Height net [in]	68	68
Depth net [in]	34.08	34.08

1 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.

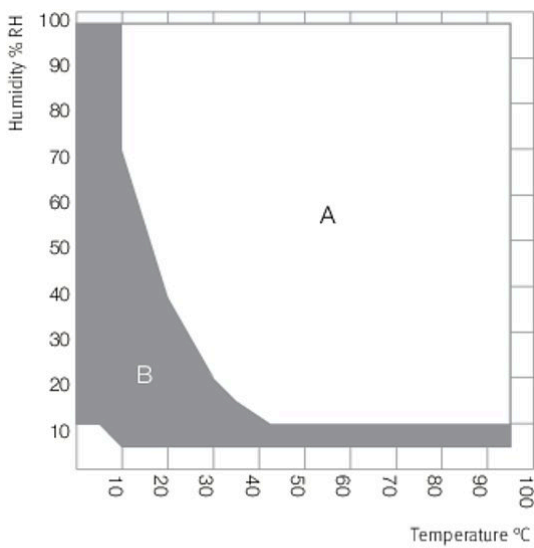
Description	MKFT115-400V <sup>1</sup>	MKFT115-480V-C <sup>1</sup>
Article Number	9020-0382	9020-0362
Environment-specific data		
Sound-pressure level [dB(A)]	64	67
Fixtures		
Number of shelves (std./max.)	1/4	1/4

1 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]**

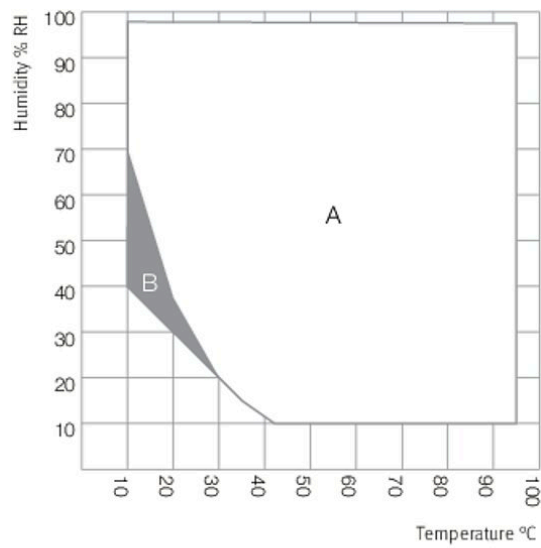


**CHARTS**



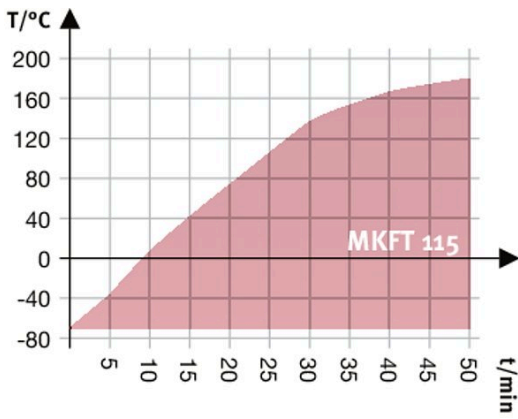
A: Standard Climate range  
 B: Extended range with dry-air purge

Climate chart

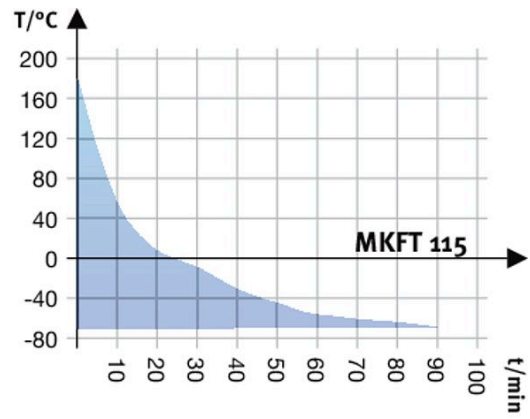


A: Standard Climate range  
 B: Time-limited operation (max. 24 hours)

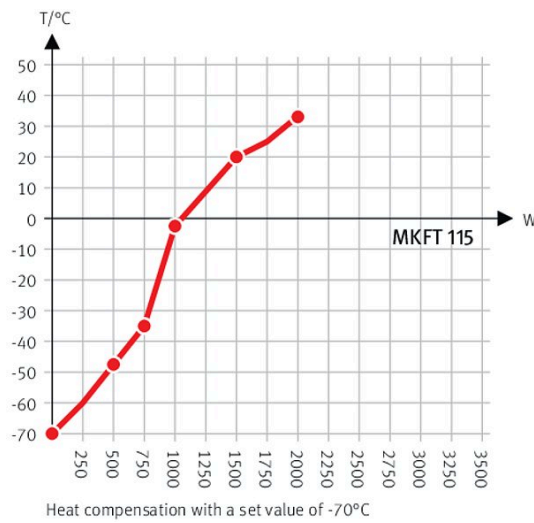
Climate chart



Heating up rate



Cooling down rate



Heat compensation chart

**OPTIONS**

Designation	Description	*	Art.-No.
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1608
	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1791
<b>Options/Accessories</b>	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	-	8012-1767
	allows condensed water to be reused	-	8012-0785
	controlled, incl. connection; suitable for the simulation of current automobile industry standards	-	8012-1789
	for temperature and humidity values (output not adjustable)	-	8012-1786
	for temperature and humidity; for extending the measurement in center of chamber to include another test value	-	8012-1193
	for the connection to an existing pressurized air network	-	8012-1803
	left		
	30 mm	01	8012-0509
	50 mm	01	8012-0511
	80 mm	01	8012-0513
	100 mm	01, 11	8012-0836
	125 mm	01, 11	8012-0533
	lockable door handle	-	8012-1783
	Measurement in center of chamber at 25 °C / 60% RH or at specified test values	-	8012-1187
	notch-type access port in door, 100 x 35 mm	-	8012-1854
	right		
	30 mm	01	8012-0508
	50 mm	01	8012-0510
	80 mm	01	8012-0512
	100 mm	01, 11	8012-0835
125 mm	01, 11	8012-0532	
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	
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	
top			
80 mm	01	8012-0834	
100 mm	01, 11	8012-0832	
125 mm	01, 11	8012-0833	
with visual alarm (DIN 12880)	-	8012-1793	

\* Notes › See last page

**ACCESSORIES**

Designation	Description	*	Art.-No.
<b>Multi Management Software</b>	Multi Management Software APT-COM™		
	version 4, GLP edition	19	9053-0042
	version 4, PROFESSIONAL edition	19	9053-0040

\* Notes › See last page

Designation	Description	*	Art.-No.
	Stainless steel	-	6004-0030
	stainless steel	-	6004-0008
	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
	fasteners (1 set of 4) for additional security of racks	-	8012-0620
	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>Options/Accessories</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
	Single-use, replacement cartridge for BINDER PURE AQUA System	-	6011-0165
	stainless steel, with fasteners (1 set of 4)	-	8012-0709
	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
	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	19	8012-0715
	TH 100/70: For continuous temperature and humidity logging from -40 °C to 100 °C / 0% to 100% RH and additional logging of ambient conditions. Kit includes 1 data logger, 2 attachable combined humidity/temperature sensors, 2 m extension cable and 1 fixture for mounting to the BINDER unit	19	8012-1838
	TH 100: For continuous temperature and humidity logging from -50 °C to 100 °C; 0% to 100% RH. Kit includes 1 data logger, Pt 100 sensor with 2 m extension cable, and 1 magnetic fixture for mounting to the BINDER unit	19	8012-1837

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Services	Unit function instructions for operation and programming of the controller	18	DL10-0700
	Unpacking and setting up of unit, connecting to existing connections, and checking function	13, 18	DL10-0300
<b>Preventive maintenance</b>			
Services	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0500
<b>Calibration services</b>			
Services	Expansion – including certificate, each additional measuring point in center of chamber at 25 °C / 60% RH or at specified values	14, 16, 17, 18	DL30-0302
	Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate	14, 16, 17, 18	DL30-0301
	Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate	14, 16, 17, 18	DL30-0427
	Temperature measurement with 18 temperature measuring points and 1 humidity measuring point in center of chamber with 1 specified pair of values, including certificate	14, 16, 17, 18	DL30-0318
	Temperature measurement with 27 temperature measuring points and 1 humidity measuring point in center of chamber with 1 specified pair of values, including certificate	14, 16, 17, 18	DL30-0327
	Temperature measurement with 9 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate	14, 16, 17, 18	DL30-0309
<b>Validation services</b>			
Services	Execution of IQ/OQ in accordance with qualification folder	15, 18	DL42-0300
	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
<b>Warranty service</b>			
Services	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	-	DL02-9041
	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	-	DL02-9042

\* 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 Heat resistant only to max. 200 °C.
- 04 Only available on units rated for 230 V.
- 07 The additional heat input may affect the temperature behavior.
- 09 Not in conjunction with the optional access port, door with window and interior lighting.
- 10 Not available on 23-liter units.
- 11 Not available on 23- or 53-liter units.
- 12 Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- 16 Sensor calibration is performed in an accredited calibration laboratory.
- 17 Calibration is performed according to the BINDER factory standard.
- 18 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).
- 19 For additional accessories, refer to the Process documentation chapter.

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