

# Model MKT 115 | Dynamic climate chambers 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.

## BENEFITS

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



Model



Model

## 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: 50 mm, left
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- 4 castors, two with brakes
- Computer interface: Ethernet
- Adjustable ramp function
- Integrated chart recorder
- Real-time clock
- Door heating
- 1 stainless steel rack
- Inner chamber made of stainless steel
- CFC-free refrigerants R-452A and R-23
- Cooling with cascade compressor cooling unit

## ORDERING INFORMATION

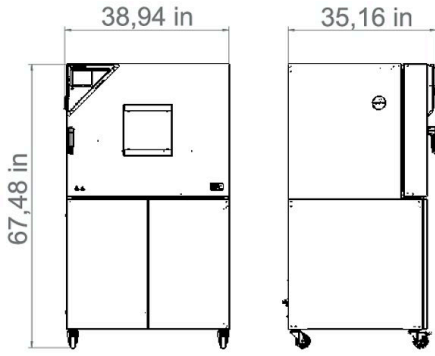
Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
4.1	400 V 3~ 50 Hz	Standard	MKT115-400V	9020-0385
	480 V 3~ 60 Hz	Standard	MKT115-480V-C	9020-0363

**TECHNICAL DATA**

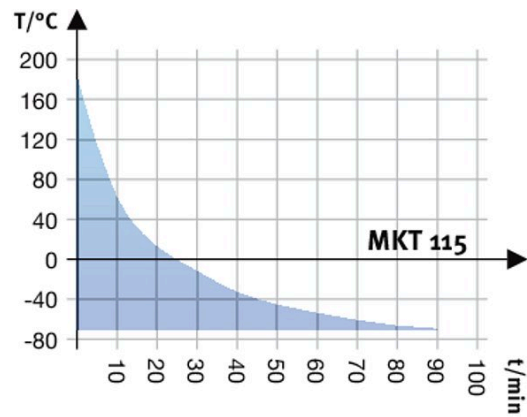
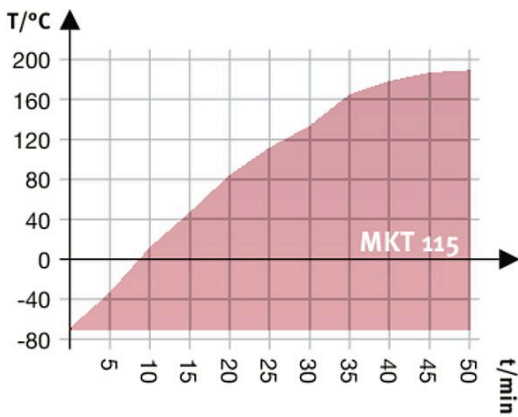
Description	MKT115-400V <sup>1</sup>	MKT115-480V-C <sup>1</sup>
<b>Article Number</b>	<b>9020-0385</b>	<b>9020-0363</b>
<b>Performance Data Temperature</b>		
Temperature range	-70...180	-70...180
Temperature variation depending on setpoint [± K]	0.2...1.8	0.2...1.8
Temperature fluctuation depending on setpoint [± K]	0.1...0.6	0.1...0.6
Average heating-up rate according to IEC 60068-3-5 [K/min]	5.3	5.3
Cooling down time from 180 °C to -70 °C [min]	110	110
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>Electrical data</b>		
Rated Voltage [V]	400	480
Power frequency [Hz]	50	60
Nominal power [kW]	5.5	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]	672	492
Permitted load [lbs]	132	132
Load per rack [lbs]	66	66
Viewing window width [in]	8.98	8.98
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
<b>Environment-specific data</b>		
Sound-pressure level [dB(A)]	64	67
<b>Fixtures</b>		
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]**

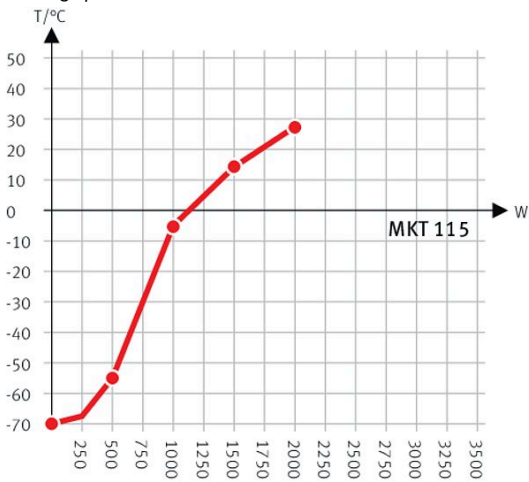


**CHARTS**



Heating up rate

Cooling down rate



Heat compensation with a set value of -70°C

Heat compensation chart

## OPTIONS

Designation	Description	*	Art.-No.
	left		
	30 mm	01	8012-1324
	50 mm	01	8012-1330
	80 mm	01	8012-1336
	100 mm	01	8012-1544
	125 mm	01	8012-1353
	right		
<b>Access port with silicone plug</b>	30 mm	01	8012-1321
	50 mm	01	8012-1327
	80 mm	01	8012-1333
	100 mm	01	8012-1541
	125 mm	01	8012-1350
	top		
	80 mm	01	8012-1538
	100 mm	01	8012-1532
	125 mm	01	8012-1535
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	-	8012-1785
<b>Calibration certificate, expanded</b>	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
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1603
	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
<b>Compressed air connection</b>	for the connection to an existing pressurized air network	-	8012-1804
<b>Door lock</b>	lockable door handle	-	8012-1784
<b>Dry-air purge</b>	uncontrolled, incl. connection; for preventing condensation	-	8012-1805
<b>Notch-type access port</b>	notch-type access port in door, 100 x 35 mm	-	8012-1852
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1790
<b>RS 485 interface, 2-wire</b>	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	-	8012-1770
<b>Temperature safety device class 2</b>	with visual alarm (DIN 12880)	-	8012-1794

\* Notes › See last page

## ACCESSORIES

Designation	Description	*	Art.-No.
<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
	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 <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit		
	Digital in PDF format	-	7057-0001
	Hard copy inside folder	-	7007-0001
<b>Qualification documents</b>	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 <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit		
	Digital in PDF format	-	7057-0005
	Hard copy inside folder	-	7007-0005

\* Notes › See last page

Designation	Description	*	Art.-No.
<b>Rack</b>	stainless steel	-	8012-2048
<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)	-	8012-0709
<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	-	6004-0030
<b>WLAN kit</b>	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

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
<b>Unit installation</b>	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
<b>Unit instructions</b>	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0700
<b>Maintenance services</b>			
<b>BRONZE 3-year maintenance contract</b>	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	05	DL20-0710
<b>GOLD 3-year maintenance contract</b>	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 and CO <sub>2</sub> value, including certificate	05	DL20-0940
<b>Leakage test</b>	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
<b>Maintenance</b>	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
<b>SILVER 3-year maintenance contract</b>	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>			
<b>Temperature calibration</b>	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	03, 04, 05	DL30-0101
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	03, 04, 05	DL30-0102
<b>Temperature measurement, 18 measuring points</b>	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0118
<b>Temperature measurement, 27 measuring points</b>	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0127
<b>Temperature measurement, 9 measuring points</b>	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0109
<b>Validation services</b>			
<b>Execution of IQ/OQ</b>	Execution of IQ/OQ in accordance with qualification folder	05	DL41-0200
<b>Execution of IQ/OQ/PQ</b>	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500
<b>Warranty service</b>			
<b>Warranty extension from 2 to 3 years</b>	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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