

# Model MK 115 | Dynamic climate chambers 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.

## BENEFITS

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



Model 115



Model 115

## MAIN FEATURES

- Temperature range: -40 °C to +180 °C
- 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 56, 115, 240), 50 mm, left
- 2 access ports with silicone plugs (Model 720), 80 mm, left and right
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- 4 castors, two with brakes
- Computer interface: Ethernet
- 230 V power socket on the right-side control panel (Models 115, 240, 720)
- Adjustable ramp function
- Integrated chart recorder
- Real-time clock
- Door heating
- 1 stainless steel rack
- Inner chamber made of stainless steel
- CFC-free refrigerant R-452A
- Cooling with compressor cooling unit

## ORDERING INFORMATION

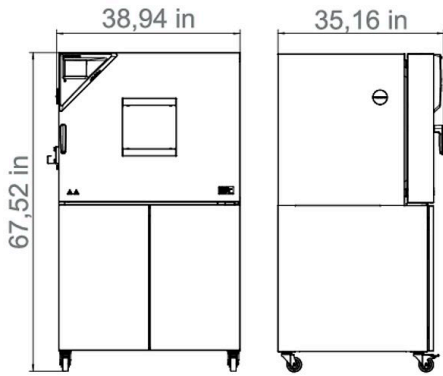
Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
4.1	400 V 3~ 50 Hz	Standard	MK115-400V	9020-0375
	480 V 3~ 60 Hz	Standard	MK115-480V-C	9020-0303

**TECHNICAL DATA**

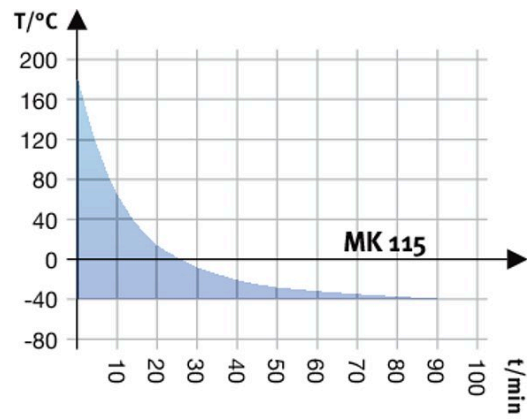
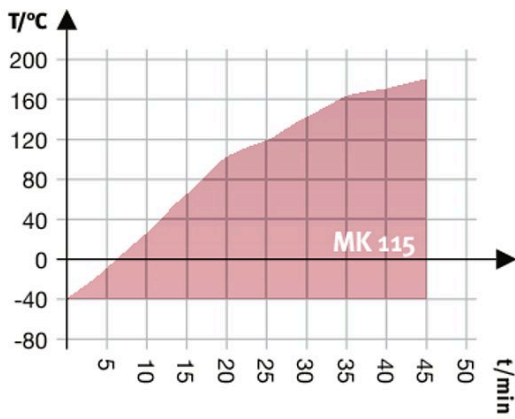
Description	MK115-400V <sup>1</sup>	MK115-480V-C <sup>1</sup>
<b>Article Number</b>	<b>9020-0375</b>	<b>9020-0303</b>
<b>Performance Data Temperature</b>		
Temperature range	-40...180	-40...180
Temperature variation depending on setpoint [± K]	0.1...2	0.1...2
Temperature fluctuation depending on setpoint [± K]	0.1...0.5	0.1...0.5
Average heating-up rate according to IEC 60068-3-5 [K/min]	5.3	5.3
Cooling down time from 180 °C to -40 °C [min]	90	90
Average cooling down time according to IEC 60068-3-5 [K/min]	5	5
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]	3.5	3.5
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]	573	430
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
<b>Environment-specific data</b>		
Sound-pressure level [dB(A)]	62	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]**

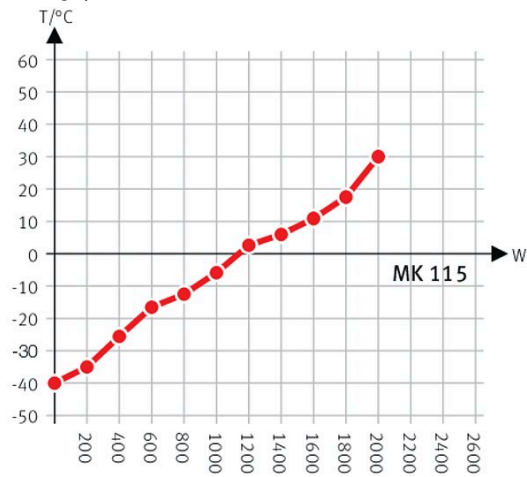


**CHARTS**



Heating up rate

Cooling down rate



Heat compensation with a set value of  $-40^\circ\text{C}$

Heat compensation chart

**OPTIONS**

Designation	Description	*	Art.-No.
	left		
	30 mm	01	8012-1322
	50 mm	01	8012-1328
	80 mm	01	8012-1334
	100 mm	01, 11	8012-1542
	125 mm	01, 11	8012-1351
	right		
<b>Access port with silicone plug</b>	30 mm	01	8012-1319
	50 mm	01	8012-1325
	80 mm	01	8012-1331
	100 mm	01, 11	8012-1539
	125 mm	01, 11	8012-1348
	top		
	80 mm	01	8012-1536
	100 mm	01, 11	8012-1530
	125 mm	01, 11	8012-1533
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	-	8012-1084
<b>Calibration certificate, expanded</b>	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1124
	for temperature, measurement in center of chamber at specified temperature	-	8012-1143
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1602
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1581
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1560
<b>Door lock</b>	lockable door handle	-	8012-1861
<b>Dry-air purge</b>	uncontrolled, incl. connection; for preventing condensation	-	8012-1087
<b>Dry-air purge, connection</b>	for the connection to an existing pressurized air network	-	8012-1801
<b>Notch-type access port</b>	notch-type access port in door, 100 x 35 mm	-	8012-1849
<b>Pt 100 temperature sensor</b>	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1093
<b>RS 485 interface, 2-wire</b>	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	-	8012-1768
<b>Temperature safety device class 2</b>	with visual alarm (DIN 12880)	-	8012-1792
<b>Zero voltage relay contacts</b>	for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. 24 V - 2.5 A)	-	8012-1095

\* Notes › See last page

**ACCESSORIES**

Designation	Description	*	Art.-No.
<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	19	8012-0715
<b>Data Logger Software</b>	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
	Multi Management Software APT-COM™		
<b>Multi Management Software</b>	version 4, GLP edition	19	9053-0042
	version 4, PROFESSIONAL edition	19	9053-0040
<b>pH-neutral detergent</b>	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016

\* Notes › See last page

Designation	Description	*	Art.-No.
<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, CO <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit		
	Digital in PDF format	–	7057-0001
	Hard copy inside folder	–	7007-0001
	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
<b>Rack</b>	stainless steel	–	6004-0008
<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

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Unit installation	Unpacking and setting up of unit, connecting to existing connections, and checking function	13, 18	DL10-0300
Unit instructions	Unit function instructions for operation and programming of the controller	18	DL10-0700
<b>Calibration services</b>			
Temperature calibration	Expansion – including certificate, each additional measuring point in center of chamber at specified test temperature	14, 16, 17, 18	DL30-0102
	Temperature calibration with 1 measuring point in center of chamber at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0101
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0127
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points at a specified test temperature, including certificate	14, 16, 17, 18	DL30-0109
<b>Validation services</b>			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	15, 18	DL41-0200
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
<b>Warranty service</b>			
Warranty extension from 2 to 3 years	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	–	DL01-1041
Warranty extension from 2 to 5 years	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	–	DL01-1042

\* 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.

**BINDER GmbH**

Tuttlingen, Germany  
TEL +49 7462 2005 0  
FAX +49 7462 2005 100  
info@binder-world.com  
www.binder-world.com

**BINDER Asia Pacific (Hong Kong) Ltd.**

Kowloon, Hong Kong, P.R. China  
TEL +852 39070500  
FAX +852 39070507  
asia@binder-world.com  
www.binder-world.com

**Representative Office for CIS**

Moscow, Russia  
TEL +7 495 988 15 16  
FAX +7 495 988 15 17  
russia@binder-world.com  
www.binder-world.com

**BINDER Environmental Testing  
Equipment (Shanghai) Co., Ltd.**

Shanghai, P.R. China  
TEL +86 21 685 808 25  
FAX +86 21 685 808 29  
china@binder-world.com  
www.binder-world.com

**BINDER Inc.**

Bohemia, NY, USA  
TEL +1 631 224 4340  
FAX +1 631 224 4354  
usa@binder-world.com  
www.binder-world.us