

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 APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Controller with time-segment programming
- Access port with silicone plug, 50 mm, left
- 4 castors, two with brakes
- Computer interface: Ethernet
- 230 V power socket on the right-side control panel
- Display via color LCD monitor
- Adjustable ramp function
- Integrated chart recorder
- Real-time clock
- Door heating
- 1 stainless steel rack
- BINDER test confirmation
- Inner chamber made of stainless steel
- Pt 100 temperature sensor
- Thermal insulation using PUR foam
- CFC-free refrigerant R-404A
- Cooling with compressor cooling unit
- Fin evaporator

ORDERING INFORMATION

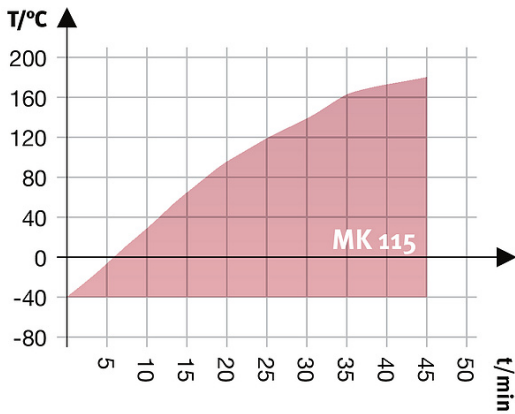
Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
Model MK 115				
4.1	400 V 3 ph 50 Hz	Standard	MK115-400V	9020-0175
	480 V 3 ph 60 Hz	with voltage and frequency converter	MK115-400V-C	9020-0290

TECHNICAL DATA

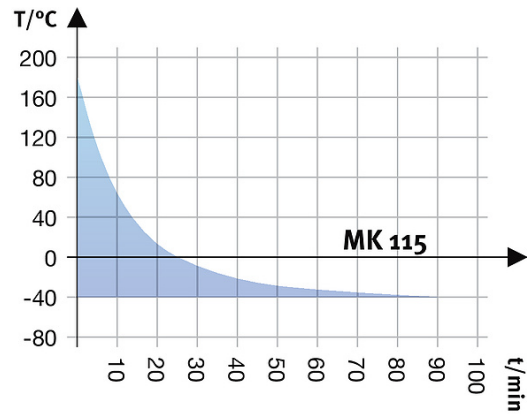
Description	MK115-400V ¹	MK115-400V-C ¹
Article Number	9020-0175	9020-0290
Performance Data Temperature		
Temperature range [°C]	-40...180	-40...180
Temperature variation depending on setpoint [± K]	0.1...2	0.1...2
Temperature fluctuation depending on setpoint [± K]	0.1...0.5	0.1...0.5
Average heating-up 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]	2000	2000
Electrical data		
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) [ph]	3	3
Outer dimensions		
Width net [mm]	980	980
Height net [mm]	1725	1725
Depth net [mm]	865	865
Wall clearance back [mm]	210	210
Wall clearance sidewise [mm]	300	300
Viewing window width [mm]	288	288
Viewing window height [mm]	222	222
Doors		
Unit doors	1	1
Internal Dimensions		
Width [mm]	600	600
Height [mm]	480	480
Depth [mm]	400	400
Measures		
Interior volume [L]	115	115
Net weight of the unit (empty) [kg]	260	260
permitted load [kg]	60	60
Load per rack [kg]	30	30
Environment-specific data		
Sound-pressure level [dB(A)]	62	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.

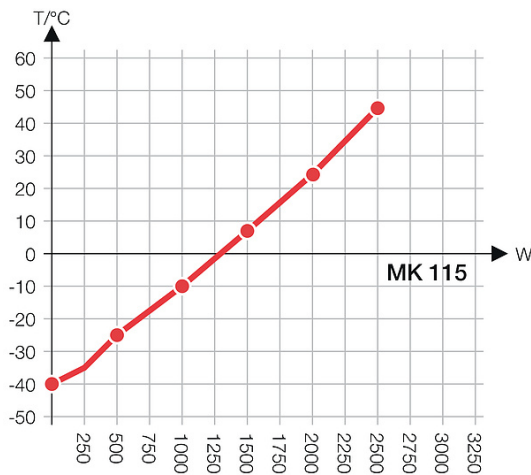
CHARTS



Heating up rate



Cooling down rate



Heat compensation chart

OPTIONS AND ACCESSORIES

Designation	Description	*	Art.-No.
Access port	notch-type access port in door, 100 x 35 mm	-	8012-1503
	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		
Access port with silicone plug	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

* Notes › See last page

Designation	Description	*	Art.-No.
Analog output, 4 – 20 mA	for temperature values (output not adjustable)	–	8012-0517
Calibration certificate, expanded	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
Calibration certificate, temperature	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
Converter, voltage and frequency	to operate the device at a nominal voltage of 480 V 3 ph 60 Hz, 16 A	–	8009-0858
Data Logger Kit	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
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
Door lock	lockable door handle	–	8012-1405
Dry-air purge	uncontrolled, incl. connection; for preventing condensation	–	8012-0853
Dry-air purge, connection	for the connection to an existing pressurized air network	–	8012-0937
Interface converter	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	–	8012-0557
	230 V, 50/60 Hz option model	–	8012-0556
	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	–	8012-0405
	230 V, 50/60 Hz option model	–	8012-0380
Interface converter, USB / RS422	RS 422 cable set and RS 422 / USB interface converter for connection to 10-way plug distributor or for connection to a unit (USB-powered converter)	–	8012-0665
Lockable controller keyboard	Lockable controller keyboard with key-operated switch	–	8012-1345
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	–	1002-0016
Pt 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	–	8012-1295
Rack	stainless steel	–	6004-0008
Rack accessories	Rack accessories – fasteners (1 set of 4) for additional security of racks	–	8012-0620
Rack, reinforced	stainless steel, with 1 set of 4 fasteners, max. load 70 kg	–	8012-0709
RS 422 interface	in place of Ethernet, for communication software	–	8012-1513
	modular plug distributor for 10 RS 422 interfaces	–	8012-0295
RS 422 interface, cable (15 m)	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	–	5023-0036
RS 422 interface, cable (50 m)	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	–	5023-0117
Shelf, perforated	stainless steel	–	6004-0030
Software	APT-COM™ communications software		
	version 2 to 3, GLP edition	19	9053-0016
	version 3, BASIC edition	19	9053-0014
	version 3, GLP edition	19	9053-0015
	version 3, STANDARD edition	19	9053-0013
	APT-COM™ communications software, price: for free		
	version 3, GLP DEMO Edition	19	9053-0008
Temperature safety device class 2	with visual alarm (DIN 12880)	–	8012-1243
Zero voltage relay contacts	for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. 24 V - 2.5 A)	–	8012-0660

* Notes › See last page

SERVICES

Designation	Description	*	Art.-No.
Installation services			
Data Logger Kit installation service	unit function instructions for operation and programming of the controller	18	DL100600
Installation	and set up of unit at operating location, connect to existing connections	13, 18	DL100100
Preventive maintenance			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL200300
Calibration services			
Data Logger Kit calibration service	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL300101
Temperature measurement 18 measuring points	including certificate, 18 measuring points at specified temperature	14, 16, 17, 18	DL300118
Temperature measurement 27 measuring points	including certificate, 27 measuring points at specified temperature	14, 16, 17, 18	DL300127
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL300109
Validation services			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL410200
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL440500
Qualification folder IQ/OQ	supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001	15, 18, 20	8012-0863
Qualification folder IQ/OQ/PQ	supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ	15, 18	8012-0951
Warranty service			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL011041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	-	DL011042

* 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.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 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 (see the chapter on BINDER Service) 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.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for both items.
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.