

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

IMPORTANT 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 Door heating
- Internal data logger, measured values can be read out in open format via USB 1 stainless steel rack
- 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
- 230 V power socket on the right-side control panel
- Adjustable ramp function
- Integrated chart recorder
- Real-time clock

- Inner chamber made of stainless steel
- CFC-free refrigerant R-452A
- Cooling with compressor cooling unit

OPTIONAL EQUIPMENT

- APT-COM Multi Management Software for managing, recording, and documenting unit parameters
- Racks option of stainless steel racks, depending on test requirements
- · Compressed air supply system
- Services wide range of services to ensure that the unit functions correctly

ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	ArtNo.
Model MK 115					
	400 V 3~/N/PE 50 Hz -16,0 A	CEE 16 / 6 H plug 5- pin	Standard	MK115-400V	9020-0375
115	480 V 3~ 60 Hz -16,0 A	CEE 16 / 6 H plug 5- pin	with voltage and frequency converter	MK115-480V-C	3oV-C 9020-0303



TECHNICAL DATA

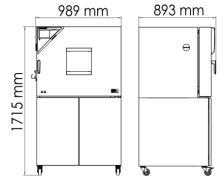
Designation Manageable Manageable At Cle Munitari 5000-000 3000-000 Dosco model 5000-000 3000-000 Professionate Data Temperature Professionate Data Temperature Temperature range 400-400 °C 400-400 °C Temperature range 400-400 °C 400-400 °C Responsation function described 400-400 °C 400-400 °C Responsation function described 400-400 °C 400-400 °C Responsation function described and secondary for the describe	Data			
Performance Data Temperature Standard with veltage and frequency converter Performance Data Temperature 400-850 °C 400-850 °C Temperature auriformity dependent on set value 0.12.0 a K 0.12.0 a K Average hearing up rate according to EE door89 as 5 a K/min 5.3 K/min 5.3 K/min Cooling down time from 180°C to 40°C 50 min 5.0 K/min Power feeduring 400 °V 400 °V Reserving 5.0 K/min 5.0 K/min Power feeduring 5.0 K/min 5.0 K/min Power feeduring 400 °V 400 °V Reserving 5.0 K/min 5.0 K/min Power feeduring 5.0 K/min 5.0 K/min Power feeduring 400 °V 400 °V Reserving 5.0 K/min 5.0 K/min Power feeduring 5.0 K/min 5.0 K/min P	Designation	MK115-400V	MK115-480V-C	
Profrontace Basia Temperature 40-180 °C 40-180 °C Temperature langen 40-180 °C 40-180 °C Temperature uniformity dependent on servature 61-20 °K 01-20 °K Average hearing un mit excording to EC Scooks 3 so Sk Finin 53 Krinin 53 Krinin Creding drivent time from skrift to synth 90 min 50 Krinin Proventing drivent time scording to EC Scooks 3 so Sk Finin 50 Krinin 50 Krinin Retrief de Mottage 400 V 480 V 400 V Permet frequency 50 Kr 50 Kr 50 Kr North flore 150 A 30 A 400 V Phase (Normial votage) 57 Kr 50 Kr 50 A Phase (Normial votage) 57 Kr 50 A 50 A Distriction of the unit (empty) 59 kg 50 kg 50 kg Permitted load 50 kg 50 kg 50 kg Valid determine back 30 kg 50 kg 50 kg Valid determine back 30 kg 50 kg 50 kg Valid determine back 20 kg 50 kg 50 kg	Article Number	9020-0375	9020-0303	
Temperature lange 4080 °C 4020 °C Temperature uniformity dependent on set value 0.05 °K 0.15 °K Temperature fluctuation dependent on set value 0.15 °K 0.15 °K Cooling down time from 180°C to 40°C 50 min 50 Kmin Cooling down time from 180°C to 40°C 50 min 50 Kmin Placed Vallage 400 V 460 V Remark frequency 50 Mz 50 Km Nominal power 150 A 50 A Phase (Mominal voltage) 3-N/NPE 3- Phase (Mominal voltage) 3-N/NPE 3- Directions and verights 151 L 151 L Net overglit of the unit (empty) 25 kg 25 kg Load serrack 30 kg 30 kg Wall clearance back 300 min 300 min Wall clearance sidewise 200 min 200 min Hosping dimensions not incl fittings and connections 2725 min 2725 min Hospin net 865 min 865 min	Option model	Standard	with voltage and frequency converter	
Interpretative uniformity dependent on set value n.1o.g. x n.1o.g. x Temperature fluctuation dependent on set value n.1o.g. x n.1o.g. x Average heating-up rate according to IEC 60068-ys s.5 K/min sp rim Cooling down time from \$80°C to rup*C sp rim sp rim Average cooling down time according to IEC 60068-ys sp K/min sp rim Blectival data 400 V 400 V Rever frequency sp Nz 60 Nz Nominal power 35 KW 35 KW Unit fuse 35 AW 35 KW Phase (Nominal voltage) 37-NVPE 37- Directions and weights 135 L 135 L Not weight of the unit (entropy) 255 kg 255 kg Load per rack 30 kg 30 kg Permitted load 60 kg 30 kg Wall clearance scleeke 300 mm 300 mm Wall clearance scleeke 200 mm 200 mm Hought net 4225 mm 4225 mm Begin rare 4225 mm 4275 mm	Performance Data Temperature			
Temperature fluctuation dependent on set value 0.1.0.5 s K Oct. 0.5 s K Average heating-up rate according to IFC 6006R-35 \$3 k7min \$3 k7min Cooling down time from 180°C to -qx°C 90 min \$0 k7min Average cooling down time according to EC 6006R-35 \$0 k7min \$0 k7min Extract dista Extract Voltage 400 V 480 V Power frequency 50 Hz 60 Hz Nominal power 3.5 kW 35 kW Unit fisse 3-7k/PE 3- Dimensions and weights 15 L 15 L Under rowspan="2">Under rowspan="2">Extraction the unit (empty) 25 kg 25 kg 25 kg Load per rack 30 kg 30 kg 30 kg Valid clearnine back 300 mm 300 mm Wall clearnine back 300 mm 300 mm Wall clearnine sidevise 250 mm 250 mm Housing dimensions not incl. fittings and connections 4725 mm 4725 mm 4725 mm Bepth net 865 mm 865 mm 865 mm 865 mm	Temperature range	-40180 °C	-40180 °C	
Average heating-up rate according to IEC 60068-35 53 K/min 53 K/min Cooling down time from 380°C to -40°C 90 min 50 K/min Average cooling down time according to IEC 60068-35 50 K/min 50 K/min Bettrical data Exterical data Rated Voltage 400 V 480 V Power frequency 50 Hz 60 Hz Nominal power 35 KW 35 KW Unit fuse 16,0 A 16,0 A Place (Nominal voltage) 37 K/PE 32 K Netweight of the unit (empty) 15 L 15 L Netweight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Wall clearance sack 300 mm 300 mm Wall clearance sack 300 mm 980 mm Height net 4,75 mm 4,75 mm Permet 4,25 mm 4,25 mm Begin treet 4,275 mm 4,275 mm	Temperature uniformity dependent on set value	0.12.0 ± K	0.12.0 ± K	
Cooling down time from 180°C to 10°C to	Temperature fluctuation dependent on set value	0.10.5 ± K	0.10.5 ± K	
Average cooling down time according to IEC 60068-35 \$0. K/min \$0.0 K/min Exettrical data Warrange cooling down time according to IEC 60068-35 \$0.0 V 480 V Power frequency \$0.0 Hz 60.0 Hz Nominal power \$3.5 kW 3.5 kW Until fuse \$6.0 A 4.0 A Phase (Wominal voltage) \$7.0 PE 3- Dimensions and weights \$15 L \$15 L Net weight of the unit (empty) \$25 kg \$255 kg Load per rock \$0.0 kg \$0.0 kg Wall clearance back \$3.00 mm \$3.00 mm Wall clearance sidewise \$0.00 mm \$9.00 mm Woulsing dimensions not not. fittings and connections \$9.00 mm Height net \$1,725 mm \$1,725 mm Depth net \$6.5 mm \$6.5 mm	Average heating-up rate according to IEC 60068-3-5	5.3 K/min	5.3 K/min	
Electrical data Rated Voltage 400 V 480 V Power frequency 50 Hz 60 Hz Nominal power 3.5 kW 3.5 kW Uttir fuse 16.0 A 16.0 A Phase (Nominal voltage) 3 - //V/PE 3 - Interior voltame 115 L 115 L Net weight of the unit (empty) 255 k8 255 k8 Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections 400 mm 980 mm Height net 2,725 mm 1,725 mm Internal Dimensions 865 mm 865 mm	Cooling down time from 180°C to -40°C	90 min	90 min	
Reted Voltage 400 V 480 V Power frequency 50 Hz 60 Hz Nominal power 3.5 kW 3.5 kW Unit fuse 16.0 A 16.0 A Phase (Nominal voltage) 3-/N/PE 3- Dimensions and weights 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Pemitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections 980 mm 980 mm Height net 1,725 mm 1,725 mm 1,725 mm Depth net 865 mm 865 mm 865 mm	Average cooling down time according to IEC 60068-3-5	5.0 K/min	5.0 K/min	
Power frequency 50 Hz 60 Hz Nominal power 3.5 kW 3.5 kW Unit fuse 16.0 A 16.0 A Phase (Nominal voltage) 3-/N/PE 3- Dimensions and weights Interior volume 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Wall clearance back 300 mm 300 mm Wall clearance back 300 mm 300 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Electrical data			
Nominal power 3.5 kW 3.5 kW Unit fuse 16.0 A 16.0 A Phase (Nominal voltage) 3-/N/PE 3- Dimensions and weights Interior volume 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Permitted load 60 kg 60 kg Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Depth net 865 mm 865 mm	Rated Voltage	400 V	480 V	
Unit fuse 16,0 A 16,0 A Phase (Nominal voltage) 3-/N/PE 3- Dimensions and weights Interior volume 115 L 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Power frequency	50 Hz	60 Hz	
Phase (Nominal voltage) 3-/N/PE 3- Dimensions and weights Interior volume 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Depth net 865 mm 865 mm	Nominal power	3,5 kW	3,5 kW	
Interior volume 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 300 kg 300 kg Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm L725 mm 1,725 mm L725 mm 865 mm	Unit fuse	16,0 A	16,0 A	
Interior volume 115 L 115 L Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Depth net 865 mm 865 mm Internal Dimensions	Phase (Nominal voltage)	3~/N/PE	3~	
Net weight of the unit (empty) 255 kg 255 kg Load per rack 30 kg 30 kg Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Housing dimensions not incl. fittings and connections 200 mm 200 mm Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Dimensions and weights			
Load per rack 30 kg 30 kg Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Light net 1,725 mm Depth net 865 mm 865 mm	Interior volume	115 L	115 L	
Permitted load 60 kg 60 kg Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Leight net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Net weight of the unit (empty)	255 kg	255 kg	
Wall clearance back 300 mm 300 mm Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Light net 1,725 mm 1,725 mm Internal Dimensions	Load per rack	30 kg	30 kg	
Wall clearance sidewise 200 mm 200 mm Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Permitted load	60 kg	60 kg	
Housing dimensions not incl. fittings and connections Width net 980 mm 980 mm Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Wall clearance back	300 mm	300 mm	
Width net 980 mm 980 mm Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Wall clearance sidewise	200 mm	200 mm	
Height net 1,725 mm 1,725 mm Depth net 865 mm 865 mm	Housing dimensions not incl. fittings and connections			
Depth net 865 mm 865 mm Internal Dimensions	Width net	980 mm	980 mm	
Internal Dimensions	Height net	1,725 mm	1,725 mm	
	Depth net	865 mm	865 mm	
Interior width 600 mm 600 mm	Internal Dimensions			
	Interior width	600 mm	600 mm	



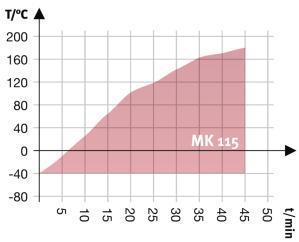
Interior height	480 mm	480 mm
Interior depth	400 mm	400 mm
Unit doors	1	1
Environment-specific data		
Sound-pressure level	62 dB(A)	67 dB(A)
Energy consumption at 20°C	650 Wh/h	650 Wh/h
Fixtures		
Number of shelves (std./max.)	1/4	1/4

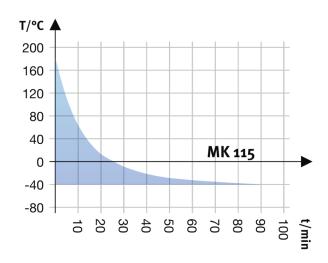
All technical data is specified for unloaded units with standard equipment at an ambient temperature of $\pm 20^{\circ}$ C $\pm 3^{\circ}$ C and a power supply voltage fluctuation of $\pm 10^{\circ}$ W. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing 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]



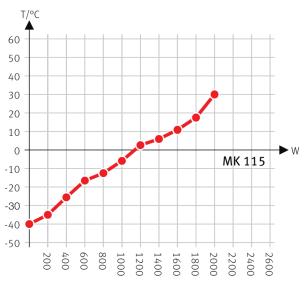






Heating up rate

Cooling down rate



Heat compensation with a set value of -40°C

Heat compensation chart

OPTIONS

Designation	Description	MK 115	*	ArtNo.
	left			
	30 mm	•	01	8012-1322
Access port with silicone plug	50 mm	•	01	8012-1328
	80 mm	•	01	8012-1334
	100 mm	•	01	8012-1542
	125 mm	•	01	8012-1351
	right			



Designation	Description	MK 115	*	ArtNo.
	30 mm	•	01	8012-1319
	50 mm	•	01	8012-1325
	80 mm	•	01	8012-1331
	100 mm	•	01	8012-1539
	125 mm	•	01	8012-1348
	top			
	80 mm	•	01	8012-1536
	100 mm	•	01	8012-1530
	125 mm	•	01	8012-1533
Analog output 4-20 mA	for temperature values (output not adjustable)	•	-	8012-1084
Calibration certificate,	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, 9 measuring points at specified temperature	•	-	8012-1560
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-1581
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	-	8012-1602
Compressed air connection	for the connection to an existing pressurized air network	•	-	8012-1801
Door lock	lockable door handle	•	-	8012-1861
Dry-air purge	uncontrolled, incl. connection; for preventing condensation	•	-	8012-1087
Notch-type access port	notch-type access port in door, 100 x 35 mm	•	-	8012-1849
Pt 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	•	-	8012-1093
RS 485 interface, 2-wire	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	•	-	8012-1768
Temperature safety device class 2	with visual alarm (DIN 12880)	•	-	8012-1792
Zero voltage relay contacts	for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. $24V$ - $2.5A$)	•	-	8012-1095



ACCESSORIES

Designation	Description	MK 115	*	ArtNo.
APT-COM™ 4 GLP-Edition	for working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11.			
·	version 4, GLP edition	•	-	9053-0042
APT-COM™ 4 PROFESSIONAL- Edition	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.			
Luition	version 4, PROFESSIONAL edition	•	-	9053-0040
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
	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, $\mathrm{CO_2}$, $\mathrm{O_2}$ – or pressure, depending on unit			
	Digital in PDF format	•	-	7057-0005
Ouglification de consents	Hard copy inside folder	•	-	7007-0005
Qualification documents	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, $\mathrm{CO_2}$, $\mathrm{O_2}$, pressure, depending on unit			
	Digital in PDF format	•	-	7057-0001
	Hard copy inside folder	•	-	7007-0001
Rack	stainless steel	•	-	8012-2048
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	•	-	8012-0709
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	-	8012-2280
RS 485 / RS 422 interface converter	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
Shelf, perforated	Stainless steel	•	-	8012-2161

SERVICES

Designation	Description	*	ArtNo.
Calibration services			
Calibration autificate townseature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	-	DL30-0130
Calibration certificate, temperature	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	-	DL30-0102
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	-	DL30-0109



Designation	Description	*	ArtNo.
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	-	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	-	DL30-0127
Installation services			
Unit commissioning	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)	-	DL10-0300
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	-	DL10-0700
Maintenance contracts			
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	-	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/pressure value, including certificate	-	DL20-0930
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	-	DL20-0830
Maintenance services			
Leakage test	Testing and logging of the leak-tightness of systems containing hydrofluorocarbons in accordance with Regulation EC842/2006, incl. test book	-	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	-	DL20-0607
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	-	DL41-0200
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	_	DL44-0500
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	_	DL50-0040

BINDER Best conditions for your success

NOTES

O1 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.

BINDER GmbH

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