

# Model MK 240 | 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 240



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#### 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 1 stainless steel rack
- Internal data logger, measured values can be read out in open format via USB Inner chamber made of stainless steel
- 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

- 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		Power supply - unit fuse	Plug*	Version	Model version	ArtNo.
[L]	[L]					
Model MK 24	ю.					
228	228	400 V 3~ 50 Hz -16,0 A	CEE 16 / 6 H plug 5- pin	Standard	MK240-400V	9020-0376



Interior volume		Power supply - unit fuse	Plug*	Version	Model version	ArtNo.
[L]	[L]					
		480 V 3~ 60 Hz -16,0 A	CEE 16 / 6 H plug 5- pin	Standard	MK240-480V-C	9020-0355



# TECHNICAL DATA

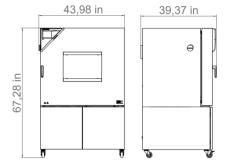
Data					
Designation	MK240-400V	MK240-480V-C			
Article Number	9020-0376	9020-0355			
Option model	Standard	Standard			
Performance Data Temperature					
Temperature range	-40180 °C	-40180 °C			
Temperature uniformity dependent on set value	0.11.2 ± K	0.11.2 ± K			
Temperature fluctuation dependent on set value	0.10.5 ± K	0.10.5 ± K			
Average heating-up rate according to IEC 60068-3-5	5.0 K/min	5.0 K/min			
Cooling down time from 180°C to -40°C	110 min	110 min			
Average cooling down time according to IEC 60068-3-5	4-5 K/min	4.5 K/min			
Electrical data					
Rated Voltage	400 V	480 V			
Power frequency	50 Hz	60 Hz			
Nominal power	5,6 kW	5,6 kW			
Unit fuse	16,0 A	16,0 A			
Phase (Nominal voltage)	3~	3~			
Measures					
Interior volume	228 L	228 L			
Net weight of the unit (empty)	321 kg	321 kg			
Load per rack	30 kg	30 kg			
Permitted load	70 kg	70 kg			
Wall clearance back	300 mm	300 mm			
Wall clearance sidewise	200 mm	200 mm			
Housing dimensions not incl. fittings and connections					
Width net	1,115 mm	1,115 mm			
Height net	1,710 mm	1,710 mm			
Depth net	925 mm	925 mm			
Internal Dimensions					
Interior width	735 mm	735 mm			



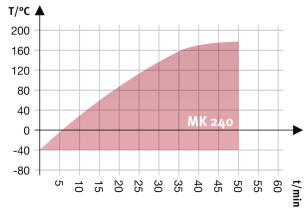
Interior height	700 mm	700 mm			
Interior depth	443 mm	443 mm			
Viewing window width	508 mm	508 mm			
Viewing window height	300 mm	300 mm			
Unit doors	1	1			
Environment-specific data					
Sound-pressure level	62 dB(A)	67 dB(A)			
Energy consumption at 20°C	1,300 Wh/h	1,300 Wh/h			
Fixtures	Fixtures				
Number of shelves (std./max.)	1/6	1/6			

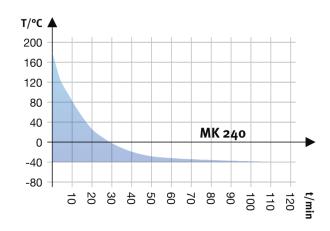
All technical data is specified for unloaded units with standard equipment at an ambient temperature of  $\pm 20^{\circ}$  C  $\pm 3^{\circ}$ C and a power supply voltage fluctuation of  $\pm 10^{\circ}$  %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880,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



# **DIAGRAMS**

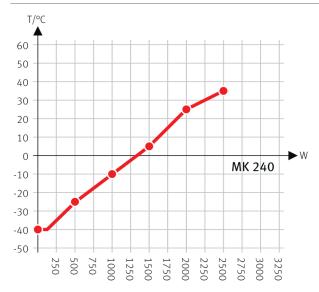




Heating up rate

Cooling down rate





Heat compensation with a set value of -40°C

Heat compensation chart

# **OPTIONS**

esignation	Description	MK 240	*	ArtNo.
	left			
	30 mm	•	01	8012-1322
	50 mm	•	01	8012-1328
	80 mm	•	01	8012-1334
	100 mm	•	01	8012-1542
	125 mm	•	01	8012-1351
	right			
cess port with silicone plug	30 mm	•	01	8012-1319
ccess port with shicone plug	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



Designation	Description	MK 240	*	ArtNo.
Analog output 4-20 mA	for temperature values (output not adjustable)	•	-	8012-1084
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 measurement incl. certificate, 9 measuring points at specified temperature	•	-	8012-1560
temperature	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	•	-	8012-1089
Door lock	lockable door handle	•	-	8012-1861
Dry-air purge	uncontrolled, incl. connection; for preventing condensation	•	-	8012-1865
Notch-type access port	notch-type access port in door, 100 x 35 mm	•	-	8012-1850
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. 24 V - 2.5 A)	•	-	8012-1095

# **ACCESSORIES**

Designation	Description	MK 240	*	ArtNo.
	Multi Management Software APT-COM™			
APT-COM™ 4	version 4, GLP edition	•	-	9053-0042
	version 4, PROFESSIONAL edition	•	-	9053-0040
	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, $CO_2$ , $O_2$ – or pressure, depending on unit			
	Digital in PDF format	•	-	7057-0005
Qualification documents	Hard copy inside folder	•	-	7007-0005
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, $CO_2$ , $O_2$ , pressure, depending on unit			
	Digital in PDF format	•	-	7057-0001



Designation	Description	MK 240	*	ArtNo.
	Hard copy inside folder	•	-	7007-0001
	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor			
RS 485 / RS 422 interface converter	115 V option model	•	-	8012-0599
	230 V option model	•	-	8012-0589
Rack	stainless steel	•	-	8012-2053
	stainless steel, with fasteners (1 set of 4)	•	-	8012-0605
Rack, reinforced		•	-	8012-2104
Rack accessories	fasteners (1 set of 4) for additional security of racks	•	-	8012-2280
Shelf, perforated	Stainless steel	•	-	8012-2251
WLAN kit	The kit contains a client bridge that establishes a wireless connection between BINDER units and APT-COM4, LIM5, 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.	•	-	8012-2262
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250

# **SERVICES**

Designation	Description	*	ArtNo.			
Calibration services						
	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.	-	DL30-0101			
Temperature calibration	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate Travel to be quoted separate.	-	DL30-0102			
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required.	-	DL30-0109			
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 2 shelves are required.	-	DL30-0118			
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required.	-	DL30-0127			
Installation services						
Unit installation	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) Travel to be quoted as separate.		DL10-0300			



Designation	Description	*	ArtNo.
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming. Travel to be quoted as separate Limited to 3 hours.	05	DL10-0700
Maintenance services			
BRONZE 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate. 10% Discount on Spare Parts and Labor for any additional Services needed Wear + tear parts to be purchased or billed to customer. Travel to be quoted as separate.	-	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 and $\mathrm{CO_2}$ value, including certificate	-	DL20-0940
Leakage test	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	-	DL00-0034
Preventive maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Checking a test temperature specified by the user in center of usable space without certificate. Wear + tear parts need to be purchased or billed to customer. Travel to be quoted as separate.	-	DL20-0500
SILVER 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate 15% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator training. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate.	-	DL20-0830
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.	-	DL41-0200
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.	-	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



#### **NOTES**

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