

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

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, 50 mm, left
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- 4 castors, two with brakes



Model 240

- · Computer interface: Ethernet
- · 230 V power socket on the right-side control panel
- · 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 [L]	Voltage	Option model	Version	ArtNo.
Model MK 240				
220	400 V 3~ ph 50 Hz	Standard	MK240-400V	9020-0376
228	480 V 3~ ph 60 Hz	with voltage and frequency converter	MK240-480V-C	9020-0355



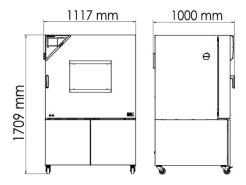
TECHNICAL DATA

Anticle Number 920-03376 9020-03355 Performace Data Temperature Vericance Data Temperature (PCL) 40180 40180 Temperature variation depending on selpoint (£ K) 0.112 0.105 0.105 Coding down time from 180 °C to -40 °C [min] 110 110 110 Average bending or selpoint (£ K) 4.5 6.0 Coding down time according to 18C 00088-36 [K/min] 4.5 4.5 Average colling down time according to 18C 00088-36 [K/min] 4.5 4.0 Reservation of Using (£ K) 200 200 200 Electrical data 4.0 4.0 4.0 Reservations (£ K) 5.0 6.0 6.0 4.0 Normal Power (£ K) 5.0 5.0 6.0 6.0 4.0 <	Description	MK240-400V ¹	MK240-480V-C ¹
Temperature variation depending on selpoint [st N] 40180 40120 Temperature function depending on selpoint [st N] 0105 0105 Average heating-up rate according to IcC 60068-35 [Krim] 10 110 Average heating-up rate according to IcC 60068-35 [Krim] 110 110 Average cooling down time from 180 °C to 40 °C [min] 110 100 Average cooling down time according to IcC 60068-35 [Krim] 200 200 Max. heat compensation at 25 °C [W] 200 200 Bowlet for Usage [V] 400 400 Power frequency [V4] 56 5 Nominal power [W] 56 6 Nominal power [W] 60 6 Nominal power [W] 40 40 Nominal power [W] 56 6 Nominal power [W] 44 43 White [M] 70 70 White [M] 70 70 White [M] 70 70 White [M] 70 70 White [M] 71 115 White [M	Article Number	9020-0376	9020-0355
Temperature variation depending on setpoint [± K] 0.12 0.125 0.105 Average heating-up rate according to IEC 60068-3-5 [K/min] 5 5 Cooling down time from 180°C to -40°C [min] 10 10 Average cooling down time according to IEC 60068-3-5 [K/min] 4.5 4.5 Max. heat compensation at 25°C [M] 2000 2000 Electrical data 480 480 Power frequency [t-2] 60 60 Nominal power [kW] 5.6 5.6 Phase (Nominal vottage) 6 6 Phase (Nominal vottage) 443 43 Phase (Nominal vottage) 70 3 Power frequency [t-2] 443 43 Phase (Nominal vottage) 443 43 Phase (Nominal vottage) 70 70 Phase (Nominal vottage) 443 43 Height (Irm] 70 70 Width (Irm) 70 70 Width (Irm) 70 70 Housing (Irm) 115 115 Height (Performance Data Temperature		
Temperature fluctuation depending on setpoint [£ K] 0.10.5 0.10.5 Average heating-up rate according to IEC 60088-3 [K/min] 5 5 Cooling down time from 180° Ct 0-40° (C [min]) 110 10 Max. head compensation at 25° (C [W]) 2000 2000 Blectical data ************************************	Temperature range [°C]	-40180	-40180
Average heating-up rate according to IEC 60084-5 [K/min] 5 10 10 10 10 10 10 10 10 10 10 10 10 10	Temperature variation depending on setpoint [± K]	0.11.2	0.11.2
Cooling down time from 180 °C to -40 °C (min) 110 10 Average cooling down time according to IEC 60068-3-5 [K/min] 4.5 4.5 Max. heat compensation at 25 °C [VI] 2000 2000 Electrical data Rated Voltage [V] 400 480 Power frequency [Hz] 5.6 6.6 Nominal power [kW] 5.6 5.6 Unit fuse [A] 16 16 Phase (Normial voltage) 3- 3- Internal Dimensions 70 Depth [mm] 443 443 Height [mm] 735 735 Housing dimensions not incl. fittings and connections Width [mm] 1115 1115 Height net [mm] 1710 70 Depth net [mm] 26 925 Measures 58 Viewing window width [mm] 508 58 Viewing window width [mm] 300 30 Vall clearance sidewise [mm] 20 20 Unit do	Temperature fluctuation depending on setpoint [± K]	0.10.5	0.10.5
Average cooling down time according to IEC 60088-3 [K/min] 4.5 4.5 Max. heat compensation at 25 °C [M] 2000 2000 Electrical data ************************************	Average heating-up rate according to IEC 60068-3-5 [K/min]	5	5
Max. heat compensation at 25 °C [W] 2000 2000 Electrical date Temper fequency [Hz] 400 480 Nominal power [KW] 5.6 5.6 5.6 Nominal power [KW] 16 16 16 Phase (Nominal voltage) 3- 3- 18 Phase (Nominal voltage) 443 443 445 Height [mm] 700 700 10 Width [mm] 70 70 115 Housing dimensions to incl. fittings and connections 45 115 Width net [mm] 1115 115 115 Height net [mm] 1710 1710 1710 Depth net [mm] 50 56 8 Westing window width [mm] 50 56 8 Westing window width [mm] 300 30 30 Westing window height [mm] 300 30 30 Well clearance sidewise [mm] 20 22 28 Well velagation of the unit (empty) [kg] 30 70 70	Cooling down time from 180 °C to -40 °C [min]	110	110
Electrical data Rated Voltage [V] 400 480 Power frequency [Hz] 50 60 Nominal power [kW] 5.6 5.6 Unit fuse [A] 16 16 Phase (Nominal voltage) 3- 3- Internal Dimensions W 443 Beight [mm] 700 70 Width [mm] 735 735 Housing dimensions not incl. fittings and connections 735 735 Housing there [mm] 1115 1115 Height [mm] 1710 1710 Depth net [mm] 508 50 Depth net [mm] 508 50 Viewing window width [mm] 508 50 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 300 30 Interior volume [L] 228 22 Net weight of the unit (empty) [kg] 340 30 be weight of the unit (empty) [kg] 300 30	Average cooling down time according to IEC 60068-3-5 [K/min]	4.5	4.5
Rated Voltage [V] 400 480 Power frequency [Hz] 50 60 Nominal power [kV] 5.6 5.6 Unit fuse [A] 16 6 Phase (Nomial voltage) 3- 3- Internal Dimensions W 43 Height [mm] 403 43 Height [mm] 700 70 Width [mm] 75 70 Housing dimensions not incl. fittings and connections 1115 1115 Height net [mm] 1710 1710 Depth net [mm] 92 95 Wessures 92 95 Wessures 90 90 Viewing window width [mm] 90 90 Viewing window width [mm] 90 90 Viel clearance idewise [mm] 200 200 Wall clearance idewise [mm] 40 30 Wall clearance idewise [mm] 20 20 Net weight of the unit (empty [kg] 40 30 Net weight of the unit (empty [kg] 30	Max. heat compensation at 25 °C [W]	2000	2000
Power frequency [Hz] 50 60 Nominal power [kW] 5.8 5.8 Unit fuse [A] 16 16 Phase (Nominal voltage) 3- 3- Phase (Nominal voltage) 43 43 Height [mm] 40 70 Phish [mm] 70 70 Width [mm] 115 115 Height [mm] 110 115 Height net [mm] 22 28 Height net [mm] 508 58 Path net [mm] 508 58 Put met [mm] 508 508 Put met [mm] 508 508 Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 20 22 Net weight of the unit (empty) [kg] 28 28 Net weight of the unit (empty) [kg] 30 30 Door 1 2 28 Loud per rack [kg] 50 4 4	Electrical data		
Nominal power [kV] 5.6 5.6 Unit fuse [A] 16 16 Phase (Nominal voltage) 3- 3- Internal Dimensions	Rated Voltage [V]	400	480
Unit fuse [A] 16 16 Phase (Nominal voltage) 3- 3- Internal Dimensions ************************************	Power frequency [Hz]	50	60
Phase (Nominal voltage) 3~ 3~ Internal Dimensions 443 444 443 444 443 444 444 443 444 443 444 443 444 443 444 443 444 443 444 443 444 443 444 444 443 444 444 444 444 444 444 444	Nominal power [kW]	5.6	5.6
Internal Dimensions Depth [mm] 443 443 Height [mm] 700 700 Width [mm] 735 735 Housing dimensions not incl. fittings and connections ************************************	Unit fuse [A]	16	16
Depth [mm] 443 443 Height [mm] 700 700 Width [mm] 735 735 Housing dimensions not incl. fittings and connections Width net [mm] 1115 1115 Height net [mm] 1710 1710 1710 Depth net [mm] 925 925 Measures Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors 70 70 Unit doors 1 1 1 Environment-specific data 2 6 7 Sound-pressure level [dB(A)] 62 6 7	Phase (Nominal voltage)	3~	3~
Height [mm] 700 700 Width [mm] 735 735 Housing dimensions not incl. fittings and connections ************************************	Internal Dimensions		
Width [mm] 735 735 Housing dimensions not incl. fittings and connections 1115 1115 Width net [mm] 1710 1710 Depth net [mm] 925 925 Measures Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 5 6 6 Sound-pressure level [dB(A)] 62 6 6	Depth [mm]	443	443
Housing dimensions not incl. fittings and connections Width net [mm] 1115 1116 Height net [mm] 1710 1710 Depth net [mm] 925 925 Measures Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Unit doors 62 67 Fixtures	Height [mm]	700	700
Width net [mm] 1115 1115 Height net [mm] 1710 1710 Depth net [mm] 925 925 Measures Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 50 67 Fixtures	Width [mm]	735	735
Height net [rmn] 1710 1710 Depth net [rmn] 925 925 Measures Viewing window width [rmn] 508 508 Viewing window height [rmn] 300 300 Wall clearance back [rmn] 300 300 Wall clearance sidewise [rmn] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 Load per rack [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 50 67 Fixtures 50 67	Housing dimensions not incl. fittings and connections		
Depth net [mm] 925 925 Measures Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 50 67 Fixtures	Width net [mm]	1115	1115
Measures Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 50 67 Sound-pressure level [dB(A)] 62 67 Fixtures	Height net [mm]	1710	1710
Viewing window width [mm] 508 508 Viewing window height [mm] 300 300 Wall clearance back [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 50 67 Fixtures	Depth net [mm]	925	925
Viewing window height [mm] 300 300 Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors 1 1 Unit doors 1 1 Environment-specific data Sound-pressure level [dB(A)] 62 67 Fixtures	Measures		
Wall clearance back [mm] 300 300 Wall clearance sidewise [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors 1 1 Unit doors 1 1 Environment-specific data 5 Sound-pressure level [dB(A)] 62 67 Fixtures	Viewing window width [mm]	508	508
Wall clearance sidewise [mm] 200 200 Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 5 67 Sound-pressure level [dB(A)] 62 67 Fixtures	Viewing window height [mm]	300	300
Interior volume [L] 228 228 Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 5 62 67 Fixtures Fixtures 5 62 67	Wall clearance back [mm]	300	300
Net weight of the unit (empty) [kg] 340 340 permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data Sound-pressure level [dB(A)] 62 67 Fixtures	Wall clearance sidewise [mm]	200	200
permitted load [kg] 70 70 Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data 5 67 Fixtures Fixtures 5	Interior volume [L]	228	228
Load per rack [kg] 30 30 Doors Unit doors 1 1 Environment-specific data Sound-pressure level [dB(A)] 62 67 Fixtures	Net weight of the unit (empty) [kg]	340	340
Doors Unit doors 1 1 Environment-specific data 5 67 Fixtures Fixtures 67	permitted load [kg]	70	70
Unit doors 1 1 Environment-specific data 5 67 Fixtures 60 67	Load per rack [kg]	30	30
Environment-specific data Sound-pressure level [dB(A)] 62 67 Fixtures	Doors		
Sound-pressure level [dB(A)] 62 67 Fixtures	Unit doors	1	1
Fixtures	Environment-specific data		
	Sound-pressure level [dB(A)]	62	67
Number of shelves (std./max.) 1/6 1/6	Fixtures		
	Number of shelves (std./max.)	1/6	1/6

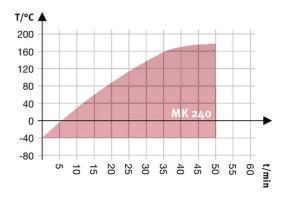
¹ All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances 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.

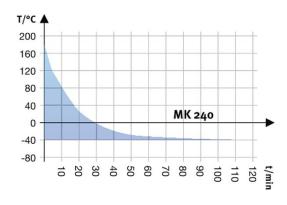


DIMENSIONS incl. fittings and connections [mm]

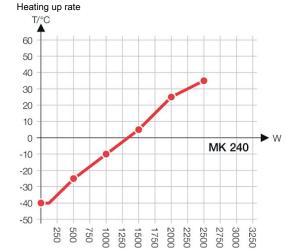


CHARTS





Cooling down rate



Heat compensation chart



OPTIONS AND ACCESSORIES

Designation	Description	*	ArtNo.
Access port	notch-type access port in door, 100 x 35 mm	_	8012-1850
	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	8012-135
	right		
Access port with silicone	30 mm	01	8012-1319
plug	50 mm	01	8012-1325
	80 mm	01	8012-133 ⁻
	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
Analog output 4-20 mA	for temperature values (output not adjustable)	-	8012-108
APT-COM™ 4 GLP-	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.		00.12.00
Edition	version 4, GLP edition	19	9053-0042
APT-COM™ 4	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.		
PROFESSIONAL- Edition	version 4, PROFESSIONAL edition	19	9053-0040
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	-	8012-114
Calibration certificate,	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-160
emperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-158
	temperature measurement incl. certificate, 9 measuring points at specified temperature		8012-1560
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		8012-071
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)		8012-082
Door lock	lockable door handle	-	8012-186
Dry-air purge	uncontrolled, incl. connection; for preventing condensation	-	8012-186
Ory-air purge, connection	for the connection to an existing pressurized air network	-	8012-108
H-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	-	8012-109
Rack	stainless steel	-	6004-009
Rack accessories	fasteners (1 set of 4) for additional security of racks	-	8012-062
Rack, reinforced	stainless steel, with fasteners (1 set of 4)	-	8012-060
	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
RS 485 interface, 2-wire	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	_	8012-176
Shelf, perforated	Stainless steel		8009-044
Femperature safety	with visual alarm (DIN 12880)		8012-1792
Zero voltage relay	for controlling 3 relay contacts via program regulators, accessible via 6-pin DIN socket (max. 24 V - 2.5 A)		8012-109

^{*} Notes > See last page



Battery test chamber with package S for testing lithium-ion energy storage devices

The extensive equipment in this safety package is designed for tests on lithium-ion batteries and is exactly in line with EUCAR Hazard Level 6.

Stress tests:

Various battery-specific parameters, such as the load state, are tested with overlapping temperature ranges. These tests are performed at the limit of the safe temperature range for the battery. This category also includes tests with higher charging and discharging currents overlapping with constant or dynamic temperatures.

Safety measures:

- Class 2 independent temperature safety device when temperature is set to 120°C
- Temperature range limited to 120°C on the controller
- Stainless-steel reversible pressure relief flap installed in the middle on top of the unit
- Enhanced door-locking mechanism with reinforced brackets
- Monitoring of CO, H₂, and O₂ in testing area atmosphere
- N₂ permanent inertization
 - CO₂ flushing equipment







REVERSIBLE PRESSURE RELIEF FLAP

Pressure relief flap with an additional relieving spring as a safety measure in the event of a fault in the cell.



TEMPERATURE RANGE LIMITATION

Class 2 independent temperature safety device when temperature is set to 120 °C.



ENHANCED MECHANICAL DOOR-LOCKING MECHANISM

Two strong door brackets on the side of the unit.



INERTIZATION EQUIPMENT

Option of inertization in customer test area; flow meter, needle valve, and solenoid valve included with equipment; gas tank and monitoring not included in scope of delivery.



CO₂ FIRE SUPPRESSION

Triggering of CO₂ compressed gas tank by means of manual release, upon CO concentration value being exceeded, or upon heat detector being activated.



WARNING INDICATOR LAMP

Acoustic and visual signals that alert the user to various operating states.



CO, H_2 , and O_2 are detected and monitored in the testing area atmosphere.

FURTHER ADJUSTMENTS AVAILABLE ON REQUEST:

Our BINDER INDIVIDUAL department is able to convert lithium-ion test chambers according to special customer requirements and equip them with additional functions.



Program sequence display using indicator lamps.



Electromechanical door lock mechanism controlled in a program and/or manually.



Additional access ports available in almost all sizes and locations.



Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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Please contact us if this literature doesn't answer all your questions.