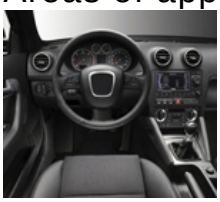
Environmental simulation chamber for complex temperature profiles

Temperature ranges between -70 °C and 180 °C, with the advantage of natural simulation make an MKT series environmental simulation chamber from BINDER unique. This environmental simulation chamber meets the highest precision and performance demands for cyclical temperature testing.

Advantages:

- State-of-the-art reliability
- User-friendly chamber interior
- Comprehensive standard equipment

Areas of application:


Automotive


Aerospace, Defense Industry


Metal Industry / Engineering

Features	Customer benefits	Characteristics
APT.line™ climate technology	• Same test conditions throughout the chamber interior • Independent of specimen size and quantity	**APT.line™** • Uniform circulation even under full load • Homogeneous climate conditions throughout test specimens
Standard equipment	• Very good price/performance ratio	**Well equipped** • Heated viewing window • LED illumination • Rugged chassis with rollers from 115 liters • Ethernet interface
Unit design	• Minimum space requirements • Convenient, safe access • Easy assembly	**Good use of space** • Optimal ratio of usable space and footprint • All operator controls accessible from the front • Wide construction
Production	• Reliable devices with long service lives • Short delivery times	• Premium quality made in Germany • Highly automated series production (20,000 units per year) • High-quality materials, state-of-the-art production technology
Accessories and Services	• Complete system from one source	**Comprehensive product portfolio** • Additional production lines with drying and vacuum chambers • Control and documentation software APT-COM™ • BINDER Data Logger Kits • Years of proven and recognized validation and documentation materials

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- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range -70 °C to 180 °C
- MCS controller with 25 storable programs of 100 sections each for a maximum of 500 program segments
  - User-friendly LCD color screen
  - Easy-to-read menu guide
  - Integrated electronic chart recorder
  - Variety of options for the graphic display of process parameters
  - Real-time clock
- Heated viewing window with interior lighting
- Programmable condensation protection for test material
- 230 V power socket on the right-side operating panel
- Adjustable ramp function via program editor
- Access port Ø 50 mm, left side
- Independent adjustable temperature safety device Class 2 (DIN 12880) with visual and audible temperature alarm
- 4 potential-free relay outputs that can be activated via MCS controller
- Ethernet interface for communication software APT-COM™ DataControlSystem
- BINDER Communication software APT-COM™ 3 Basic Edition
- Stainless steel rack
- 4 casters with 2 brakes
- BINDER test confirmation

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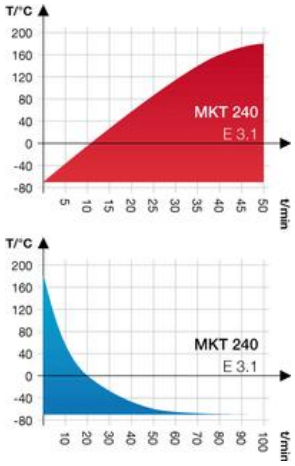
MKT 240 (E3.1)

Exterior dimensions	
Width (mm) (incl. 18 mm access port with plug)	1135
Height (incl. casters) (mm)	1940
Depth, (incl. cable and door handle) (mm)	1000
Wall clearance, rear (mm)	300
Wall clearance, side (mm)	200
Viewing window width x height (mm)	508 x 300

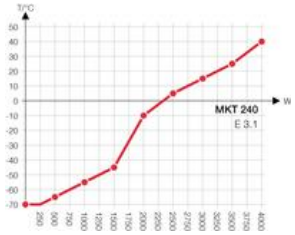
Interior dimensions	
Width (mm)	735
Height (mm)	700
Depth (mm)	443
Interior volume (l)	228
Number of racks (standard/max.)	1 / 6
Load per rack (kg)	30
Permitted total load (kg)	70
Weight (empty) (kg)	380

Temperature data	
Temperature range (°C)	-70 - 180
Temperature fluctuation (±K)	0,1 - 0,4
Temperature variation (±K)	0,1 - 1,0
Warm-up time from -70 °C to 180 °C (min.)	50
Cooling down time from 180 °C to -70 °C (min.)	95
Mean warm-up rate acc. to IEC 60068-3-5 (K/min.)	5,0
Mean cooling rate acc. to IEC 60068-3-5 (K/min.)	4,2
Max. heat compensation at 25 °C (W)	3000

Heating up and cooling down rate



Heat compensation



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Electrical data	
IP protection class acc. to EN 50529	IP 20
Voltage (±10 %) 50 Hz (V)	400, 3 N ~
Nominal power (kW)	6,5
Energy consumption at 20 °C (W) 1)	1400
Noise level (approx. dB(A))	64

1) These values can be used for dimensioning air condition systems.

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a line voltage fluctuation of ±10%. The temperature data is determined in accordance to factory standard following DIN 12880, respecting the recommended wall clearances of 10% of the height, width and depth of the inner chamber. All figures are typical average values for series devices. We reserve the right to alter technical specifications at any time.

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BINDER Data Logger Kits

The new BINDER Data Logger Kits – Makes independent recording of temperature data in the BINDER device possible. The tailored product solution contains helpful accessories: from mounting the logger to the BINDER device to cable access assistance to the sensor mount

Access port

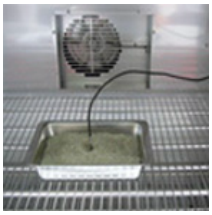
With silicone plugs for introducing external measuring instruments into the chamber, access ports with 30, 50, 80, 100, 125 mm diameters

Notch-type access port in door

Provides easy connection of cables to test specimens and facilitates loading and unloading of the chamber. Doors have access ports measuring 100 x 35 mm, which can be sealed with the included silicone plugs

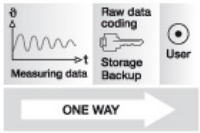
Reinforced rack

To ensure safe and stable storage of heavy test specimens



Temperature measurement of the specimen

Additional PT 100 temperature sensor for accurate temperature measurement of the specimen and digital display of measured values. Recording of measured data via Ethernet interface possible



APT-COM™ DataControlSystem

Software for convenient control, programming, and documentation. Allows networking of up to 30 devices

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MKT 240 (E3.1)

Access ports with silicone plug, 30, 50, 80, 100, 125 mm	O
Securing elements for additional fastening of racks (1 set of 4)	O
Door lock	O
RS 422 interface	O
Keyboard lock	O
Analog output for temperature 4 - 20 mA on two 6-pin DIN sockets for actual and set values (output not adjustable)	O
Temperature safety device for too low and high temperature, class 2	O
Data Logger Kit T 220: For continuous temperature recording of -90 °C to 220 °C. Kit includes 1 data logger, PT 100 sensor with 2 m Teflon extension cable and 1 fixture for mounting to the BINDER unit	O
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable	O
Data Logger converter cable (RS 232 to USB 2.0)	O
Additional measuring channel for digital display of specimen temperature with flexible PT 100 temperature sensor, measured data recorded via unit interface	O
Temperature measurement acc. to DIN 12880 (27 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	O
Calibration certificate. Measurement in center of chamber at 150 °C or at specified testing temperature	O
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	O
Notch-type access port in door, 100 x 35 mm	O
Rack, stainless steel	O
Reinforced rack, stainless steel, with 1 set of fasteners (4 pieces), max. load 70 kg	O
Shelf, perforated, stainless steel	O

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