

Environmental simulation chamber for cyclical temperature

The BINDER environmental simulation chamber of the MK series is suitable for heat or cold testing between -40 °C and 180 °C . The APT.line™ preheating chamber technology uniquely simulates a natural environment. For cyclical temperature testing, this environmental simulation chamber is a smart alternative to complex individual solutions.



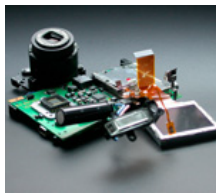
Advantages:

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

Areas of application:



Automotive

Electronics /
Semiconductor Industry

Plastics Industry

Features	Customer benefits	Characteristics
APT.line™ climate technology	<ul style="list-style-type: none"> • Same test conditions throughout the chamber interior • Independent of specimen size and quantity 	APT.line™ <ul style="list-style-type: none"> • Uniform circulation even under full load • Homogeneous climate conditions throughout test specimens
Standard equipment	<ul style="list-style-type: none"> • Very good price/performance ratio 	Well equipped <ul style="list-style-type: none"> • Heated viewing window • LED illumination • Rugged chassis with rollers from 115 liters
Unit design	<ul style="list-style-type: none"> • Minimum space requirements • Convenient, safe access • Easy assembly 	Good use of space <ul style="list-style-type: none"> • Optimal ratio of usable space and footprint • All operator controls accessible from the front • Wide construction
Production	<ul style="list-style-type: none"> • Reliable devices with long service lives • Short delivery times 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Complete system from one source 	Comprehensive product portfolio <ul style="list-style-type: none"> • Additional production lines with drying and vacuum chambers • Control and documentation software APT-COM™ • BINDER Data Logger Kits • Water treatment with BINDER PURE AQUA SERVICE • Years of proven and recognized validation and documentation materials

- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range of -40 °C to 180 °C
- MCS controller with 25 storable programs of 100 sections each for a maximum of 500 program segments
 - User friendly LCD screen
 - Easy-to-read menu guide
 - Integrated electronic chart recorder
 - Variety of options for the graphic display of process parameters
 - Real time clock
- Adjustable ramp function via program editor
- Access port Ø 50 mm, left side
- Heated viewing window with LED interior lighting
- Temperature safety device class 2 (DIN 12880) with visual and audible temperature alarm
- Ethernet interface for communication software APT-COM™ DataControlSystem
- 1 stainless steel rack
- BINDER test confirmation
- BINDER Communication software APT-COM™ 3 Basic Edition

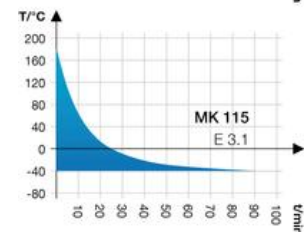
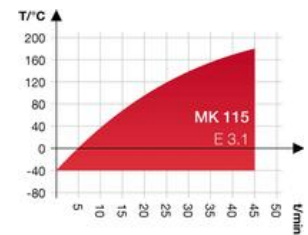
MK 115 (E3.1)

Exterior dimensions	
Width (incl. 18 mm access port with plug) (mm)	1000
Height (incl. casters) (mm)	1725
Depth (incl. door handle, I-triangle, connection 55 mm) (mm)	915
Wall clearance, side (mm)	200
Wall clearance, rear (mm)	300
Viewing window width (mm)	288
Viewing window height (mm)	222
Number of doors (ea.)	1

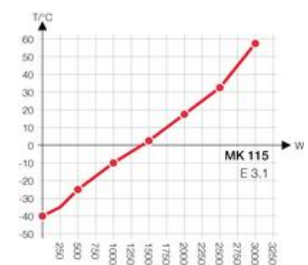
Interior dimensions	
Width (mm)	600
Height (mm)	480
Depth (mm)	400
Interior volume (l)	115
Racks (number standard/max.)	1 / 4
Load per shelf (kg)	30
Permitted total load (kg)	60
Weight (empty) (kg)	260

Temperature data	
Temperature range (°C)	-40 - 180
Temperature variation (± K)	0,1 - 2,0
Temperature fluctuation (± K)	0,1 - 0,5
Mean warm-up rate acc. to IEC 60068-3-5 (°C/min.)	5,3
Mean cooling rate acc. to IEC 60068-3-5 (°C/min.)	5,0
Heat compensation, max. (W)	2000

Heating up and cooling down rate



Heat compensation



MK 115 (E3.1)

▶ Electrical data	
IP protection class acc. to EN 50529	IP 20
Voltage ($\pm 10\%$) 50 Hz (V)	400, 3 N ~
Nominal power (kW)	3,5
Energy consumption at 20 °C (Wh/h) 1)	650
Noise level (approx. dB(A))	62

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 $\pm 10\%$. 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.



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



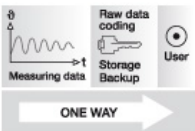
Notch-type access port in door

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



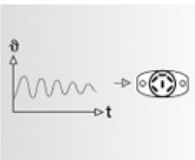
Reinforced rack

To ensure safe and stable storage of heavy test specimens



APT-COM™ DataControlSystem GLP Edition

Software for GLP-compliant control, programming and documentation. Allows networking of up to 30 devices or controllers. Meets FDA 21 CFR Part 11 requirements



Analog outputs

For temperature or temperature and humidity 4 - 20 mA with 6-pin DIN socket (output cannot be adjusted)



Calibration certificate + validation

BINDER can significantly reduce the workload in qualifying devices. Nobody knows our devices as well and has as much experience in certifications as we do

MK 115 (E3.1)

Access ports with silicone plug 30, 50, 80, 100, 125 mm	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Keyboard lock	<input type="radio"/>
Analog temperature output, 4-20 mA, with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Factory calibration certificate. Measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or temperature	<input type="radio"/>
Additional measuring channel for digital display of specimen temperature, with flexible PT 100 temperature sensor. Measuring data recorded through device interface	<input type="radio"/>
Data Logger Kit T 220: For the 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 the connection at the BINDER unit	<input type="radio"/>
Data Logger Software: Configuration und evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Reinforced rack, stainless steel, with 1 set of securing elements (1 set of 4 pieces), max. load 70 kg	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Notch-type access port in door, 100 x 35 mm	<input type="radio"/>
Temperature safety device for preventing too low and high temperatures, class 2	<input type="radio"/>
Zero-voltage relay outputs accessible via 6-pin DIN socket. Additional module for controlling 3 relay outputs via 3 of the programmable controller's controller contacts	<input type="radio"/>
RS 422 interface	<input type="radio"/>
Locking door handle with key	<input type="radio"/>