Model MKT 115 | Dynamic climate chambers for rapid temperature changes with extended low temperature range

Temperature ranges between -70 °C and 180 °C, with the added benefit of natural simulation, are what make the BINDER MKT series so unique. At the same time, this environmental simulation chamber fulfills the very highest precision and performance requirements for cyclical temperature tests.

BENEFITS

- Homogeneous climate conditions thanks to APT.line™ technology
- Comprehensive programming and data acquisition
- Large heated viewing window

MAIN FEATURES

- Temperature range: -70 °C to 180 °C
- 4 zero-voltage relay contacts
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- BINDER APT-COM™ 3 Basic Edition communication software
- 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
- 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 refrigerants R-452A and R-23
- Cooling with cascade compressor cooling unit
- 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

ORDERING INFORMATION

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<tbody>
<tr>
<td>Model MKT 115</td>
<td>400 V 3~ ph 50 Hz</td>
<td>Standard</td>
<td>MKT115-400V</td>
<td>9020-0385</td>
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<tr>
<td></td>
<td>480 V 3~ ph 60 Hz</td>
<td>with voltage and frequency converter</td>
<td>MKT115-480V-C</td>
<td>9020-0363</td>
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**TECHNICAL DATA**

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<th>MKT115-480V-C³</th>
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<tr>
<td>Article Number</td>
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<tr>
<td><strong>Performance Data Temperature</strong></td>
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<tr>
<td>Temperature range [°C]</td>
<td>-70...180</td>
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<tr>
<td>Temperature variation depending on setpoint [± K]</td>
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<td>0.2...1.8</td>
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<tr>
<td>Temperature fluctuation depending on setpoint [± K]</td>
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<td>Average heating-up rate according to IEC 60068-3-5 [K/min]</td>
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<tr>
<td>Cooling down time from 180 °C to -70 °C [min]</td>
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<tr>
<td>Average cooling down time according to IEC 60068-3-5 [K/min]</td>
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<td>Max. heat compensation at 25 °C [W]</td>
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<td>Power frequency [Hz]</td>
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<td>Nominal power [kW]</td>
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<td>Phase (Nominal voltage)</td>
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<td><strong>Outer dimensions</strong></td>
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<td>Wall clearance sidewise [mm]</td>
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<td>Viewing window height [mm]</td>
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<td><strong>Internal Dimensions</strong></td>
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<td>Width [mm]</td>
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<td>Height [mm]</td>
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<td>Depth [mm]</td>
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<td><strong>Measures</strong></td>
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<td>Interior volume [L]</td>
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<td>Net weight of the unit (empty) [kg]</td>
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<td>permitted load [kg]</td>
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<td>Load per rack [kg]</td>
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<td><strong>Environment-specific data</strong></td>
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<td>Sound-pressure level [dB(A)]</td>
<td>64</td>
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<td><strong>Fixtures</strong></td>
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<tr>
<td>Number of shelves (std./max.)</td>
<td>1/4</td>
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</table>

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]

![DIMENSIONS Diagram]

CHARTS

**Heating up rate**

![Heating up rate Chart]

**Cooling down rate**

![Cooling down rate Chart]

**Heat compensation chart**

![Heat compensation chart]
## OPTIONS AND ACCESSORIES

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>*</th>
<th>Art.-No.</th>
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<tbody>
<tr>
<td>Access port</td>
<td>notch-type access port in door, 100 x 35 mm</td>
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<td>8012-1852</td>
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<tr>
<td></td>
<td>left</td>
<td></td>
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<td></td>
<td>30 mm</td>
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<td>8012-1324</td>
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<td>01</td>
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<td>80 mm</td>
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<td>8012-1336</td>
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<td>100 mm</td>
<td>01, 11</td>
<td>8012-1338</td>
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<td></td>
<td>125 mm</td>
<td>01, 11</td>
<td>8012-1353</td>
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<td></td>
<td>right</td>
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<td>125 mm</td>
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<td>80 mm</td>
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<td>125 mm</td>
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<td>Analog output 4-20 mA</td>
<td>for temperature values (output not adjustable)</td>
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<td>Calibration certificate,</td>
<td>for temperature; for extending the measurement in center of chamber to</td>
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<td>8012-1125</td>
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<td>expanded</td>
<td>include another test temperature</td>
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<td>Calibration certificate,</td>
<td>temperature measurement in center of chamber at specified temperature</td>
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<td>8012-1144</td>
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<td>temperature</td>
<td>temperature measurement incl. certificate and 27 measuring points at</td>
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<td>8012-1603</td>
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<tr>
<td></td>
<td>specified temperature</td>
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<tr>
<td>Data Logger Kit</td>
<td>T 220: For continuous temperature logging from -90 °C to 220 °C. The kit</td>
<td>19</td>
<td>8012-0715</td>
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<td></td>
<td>includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1</td>
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<td></td>
<td>magnetic fixture for mounting to the BINDER unit</td>
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<td>Door lock</td>
<td>lockable door handle</td>
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<td>Dry-air purge</td>
<td>uncontrolled, incl. connection; for preventing condensation</td>
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<td>8012-1805</td>
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<td>Dry-air purge, connection</td>
<td>for the connection to an existing pressurized air network</td>
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<tr>
<td>Interface converter</td>
<td>RS 422 cable set and RS 232 / RS 422 interface converter for connection to</td>
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<td></td>
<td>10-way plug distributor or for connection to a unit</td>
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<td></td>
<td>120 V, 60 Hz option model</td>
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<td>8012-0557</td>
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<td></td>
<td>230 V, 50/60 Hz option model</td>
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<td>8012-0556</td>
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<td>Interface converter,</td>
<td>RS 422 cable set and RS 422 / Ethernet interface converter for connection</td>
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<td>USB / RS422</td>
<td>to 10-way plug distributor or for connection to a unit (USB-powered</td>
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<tr>
<td></td>
<td>converter)</td>
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<td>120 V, 60 Hz option model</td>
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<td>230 V, 50/60 Hz option model</td>
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<td>Interface converter,</td>
<td>RS 422 cable set and RS 422 / USB interface converter for connection to</td>
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<td>USB / RS422</td>
<td>10-way plug distributor or for connection to a unit (USB-powered converter)</td>
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<td>pH-neutral detergent</td>
<td>concentrated, for gentle remove of residual contaminants; 1 kg</td>
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<td>Pt 100 temperature sensor</td>
<td>additional flexible Pt 100, interior, for displaying the temperature on the</td>
<td>8012-1790</td>
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<td>unit display</td>
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<td>Rack</td>
<td>stainless steel</td>
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<td>6004-0008</td>
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<tr>
<td>Rack accessories</td>
<td>Rack accessories – fasteners (1 set of 4) for additional security of racks</td>
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<td>stainless steel, with 1 set of 4 fasteners, max. load 70 kg</td>
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<td>RS 422 interface</td>
<td>modular plug distributor for 10 RS 422 interfaces</td>
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<td>RS 422 interface, cable (15 m)</td>
<td>RS 422 connection cable (15 m) between plug distributor and RS 422 interface</td>
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<tr>
<td>RS 422 interface, cable (50 m)</td>
<td>RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor</td>
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<th>* Art.-No.</th>
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<tr>
<td>RS 485 / RS 422 cable set</td>
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<td>interface converter</td>
<td>230 V option model</td>
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<td>RS 485 interface, 2-wire</td>
<td>Additional serial interface can be used parallel to Ethernet, for communication software</td>
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<td>Shelf, perforated</td>
<td>Stainless steel</td>
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<td>Software</td>
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<td>version 3, STANDARD edition</td>
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<td>Temperature safety device</td>
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<td>class 2</td>
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### SERVICES

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<td>Installation</td>
<td>and set up of unit at operating location, connect to existing connections</td>
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<td>Executive of equipment inspection according to maintenance plan</td>
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<td>Calibration services</td>
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<td>incl. certificate</td>
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<td>Temperature measurement</td>
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<td>Validation services</td>
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<td>Execution of IQ/OQ</td>
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<td>15, 18, 20</td>
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<tr>
<td>Execution of IQ/OQ/PQ</td>
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<td>Qualification folder IQ/OQ</td>
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<td>15, 18, 20</td>
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<td>supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ</td>
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<td>Warranty service</td>
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<td>Extension of the warranty</td>
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<tr>
<td>from 2 to 3 years</td>
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<tr>
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<tr>
<td>from 2 to 5 years</td>
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NOTES

01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
02 UL mark is not granted when this option is used.
03 Heat resistant only to max. 200 °C.
04 Only available on units rated for 230 V.
06 Heating-up time may increase as a result of the lower heat conductivity.
07 The additional heat input may affect the temperature behavior.
09 Not in conjunction with the optional access port, door with window and interior lighting.
10 Not available on 23-liter units.
11 Not available on 23- or 53-liter units.
12 Only available on units rated for 230 V or 400 V.
13 Installation and connections take place at unit location; transport within the company only upon consultation.
14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
16 Sensor calibration is performed in an accredited calibration laboratory.
17 Calibration is performed according to the BINDER factory standard.
18 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).
19 For additional accessories, refer to the Process documentation chapter.
20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ folder.
   When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.