

## M 115 - Temperature test chambers with forced convection and individual programming

Because of its individual programming options and ability to operate at maximum temperatures up to 300 °C (572 °F), the M series is ideally suited for materials testing and aging tests. The heavy-duty air turbine and a programmable exhaust ventilation flap provide rapid heating-up and ensure that the test temperature is maintained absolutely precise at all levels, with minimal spatial fluctuations; performance as never before.



### ► Performance features and equipment:

- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range 5 °C (9 °F) above ambient temperature up to 300 °C (572 °F)
- MCS controller with 25 storable programs of 100 sections each for a maximum of 500 program segments
- Features:
  - 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
- Program-controlled ventilation flap
- High air-exchange rate through high-performance fan
- Adjustable fan speed
- Exhaust duct Ø 50 mm (1.97 inch)
- Temperature safety device class 2 (DIN 12880) with visual alarm
- Printer and communication interface RS 422 for use with optional GMP/GLP and FDA guideline 21 CFR Part 11 compliant APT-COM™ DataControlSystem software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test certificate



**M 115**

<b>Exterior dimensions</b>	
Width (mm/inch)	834 / 32.8
Height (inclusive feet) (mm/inch)	863 / 34.0
Depth (mm/inch)	645 / 25.4
plus door handle and exhaust duct (mm/inch)	90 / 3.5
Wall clearance rear (mm/inch)	100 / 3.9
Wall clearance side (mm/inch)	160 / 6.3
Exhaust duct outer- Ø (mm/inch)	52 / 2.1
Steam space volume (l/cu.ft.)	158 / 5.6
Number of doors	1
<b>Interior dimensions</b>	
Width (mm/inch)	600 / 23.6
Height (mm/inch)	480 / 18.9
Depth (mm/inch)	400 / 15.8
Interior volume (l/cu.ft.)	115 / 4.1
Rack, chrome-plated (number standard/max.)	2 / 6
Load per rack (kg/lbs.)	20 / 44
Permitted total load (kg/lbs.)	50 / 110
Weight of the unit (empty) (kg/lbs.)	89 / 196
<b>Temperature data</b>	
Temperature range, 5 °C (41 °F) above ambient up to (°C / °F)	300 / 572
Temperature variation 1)	
at 70 °C (± °C)	0.6
at 150 °C (± °C)	1.5
at 300 °C (± °C)	2.8
Temperature fluctuation (± °C)	0.3
Heating-up time 2)	
to 70 °C (Min.)	5
to 150 °C (Min.)	16
to 250 °C (Min.)	36
Recov. time after door was opened for 30 sec. 2)	
at 70 °C (Min.)	1
at 150 °C (Min.)	3
at 300 °C (Min.)	5
<b>Electrical data</b>	
Housing protection acc. to EN 60529	IP 20
Nominal voltage (±10 %) 50 / 60 Hz (V)	230
Nominal power (kW)	1,6
Energy consumption	
at 70 °C (W)	230
at 150 °C (W)	544
at 300 °C (W)	1100

- 1) value without window  
2) up to 98 % of the set value

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. The temperature data are 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 indications are average values, typical for units produced in series. We reserve the right to alter technical specifications at all times.



## ▶ Access ports

With silicon plugs for inserting external measuring devices into the chamber. Access ports with 10, 30, 50 mm (0.4, 1.2, 2 inch) diameter.



## ▶ Lockable door

Prevents unauthorized access and interference with processes in the chamber.



## ▶ Calibration certificates

Measurement in the center at specified values. Additional measuring points or test values according to your specification.

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Access port with silicone plugs, 10 mm (0.39 inch), 30 mm (1.18 inch), 50 mm (1.97 inch), 100 mm (3.94 inch)	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Anti - slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Keyboard lock	<input type="radio"/>
HEPA fresh-air filter, Class H 14 (according to EN 1822, min. 99.999% for 0.3 µm particles)	<input type="radio"/>
Measurement of air change rate according to ASTM D5374, with definition and protocol according to ambient temperature (Measurement in factory)	<input type="radio"/>
Analog temperature output, 4 - 20 mA, with 6 - pin DIN socket (output not adjustable)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including LEMO connector (3 - pin)	<input type="radio"/>
Additional measuring channel for digital display of specimen temperature, with flexible PT 100 temperature sensor. Measuring data recorded through RS 422 port	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points) at 150 °C (302 °F) or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Factory calibration certificate. Measurement in center of chamber at 150 °C (302 °F) 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"/>
Data Logger Kit T 350: For the continuous temperature recording of 0 °C (32 °F) to 350 °C (662 °F). 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	<input type="radio"/>
Rack, chrome - plated	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Door Lock	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
Door with window 320 x 260 mm (12.60 x 10.24 inch) and interior lighting (15 W)	<input type="radio"/>
10.24 inch) and interior lighting (15 W)	<input type="radio"/>
Mostly gas - tight version	<input type="radio"/>