▶BINDER

FED 115 - Heating chamber with forced convection

The FED series is a true all-rounder. It has a virtually unlimited capacity and is at the same time particularly adaptable to the specific requirements of a large variety of testing applications. The enhanced time functions and the digitally controlled air turbine can be used to adjust ideal temperature parameters and recirculation air conditions.

▶ Performance features and equipment:

- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range 5 °C (9 ºF) above ambient temperature up to 300 °C (572 °F)
- MS controller with serveral timer functions
  - Controller timer functions: delayed ON, delayed OFF, temperature dependent delayed OFF
- Digital temperature setting with an accuracy of one degree
- Adjustable fan speed
- Front ventilation flap slide and rear exhaust duct Ø 50 mm (1.97 inch)
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- RS 422 interface for use with optional GMP/GLP and FDA guideline 21 CFR Part 11 compliant APT-COM™ DataControlSystem software, or switch over to printer output with RS 232 / RS 422 interface converter
- Units up to 115 liters are stackable
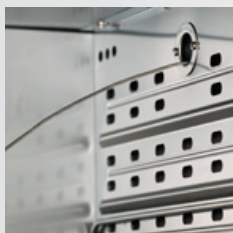- 2 chrome-plated racks included
- BINDER test certificate

FED 115

Exterior dimensions	
Width (mm/inch)	834 / 32.8
Height (inclusive feet/castors) (mm/inch)	702 / 27.6
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

Interior dimensions	
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
Racks, 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.)	62 / 137

Temperature data	
Temperature range, 5 °C (41 °F) above ambient up to (°C / °F)	300 / 572
Temperature variation 1)	
at 70 °C (± °C)	0.7
at 150 °C (± °C)	1.8
at 300 °C (± °C)	3.9
Temperature fluctuation (± °C)	0.3
Heating up time 2)	
to 70 °C (Min.)	7
to 150 °C (Min.)	30
to 250 °C (Min.)	49
Recov. time after door was opened for 30 sec. 2)	
at 70 °C (Min.)	2
at 150 °C (Min.)	8
at 300 °C (Min.)	15

Air change data	
Air change	
at 70 °C (x/h)	29
at 150 °C (x/h)	32
at 300 °C (x/h)	26

Electrical data	
Housing protection acc. to EN 60529	IP 20
Nominal voltage (±10 %) 50 / 60 Hz (V)	230
Nominal power (W)	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 determinated 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 and 100 mm (0.4, 1.2, 2, 3.9 inch) diameter.

▶ Door with window and interior lighting

For optimum process control in the interior, available for all equipment sizes.

▶ 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.

	FED 115
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)	O
HEPA fresh-air filter, class H 14 (according to EN 1822, min. 99.995% for 0.1-0.3 µm particles)	O
Securing elements for additional fastening of racks (1 set of 4 pieces)	O
Anti - slip rubber pads for safe stacking (1 set of 4 pieces)	O
Independent adjustable temperature safety device, Class 3.1 (DIN 12880) with visual alarm	O
Analog temperature output, 4 - 20 mA, with 6 - pin DIN socket (output not adjustable)	O
Over temperature alarm, audible, can be switched off. Temperature limit can be set at the independent, adjustable temperature safety device	O
Temperature measurement acc. to DIN 12880 at 150 °C (302 °F) or at specified temperature with measuring protocol and certificate	O
Factory calibration certificate. Measurement in center of chamber at 150 °C (302 °F) or at specified testing temperature	O
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or temperature	O
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	O
Data Logger Software: Configuration und evaluation software for all BINDER Data Logger Kits, incl. data cable	O
Rack, chrome - plated	O
Rack, stainless steel	O
Shelf, perforated, stainless steel	O
Door Lock	O
Door gasket, FKM (Viton)	O
Inert gas connection (gas inlet and outlet; Ø 10 mm (0.39 inch)).We recommend, in addition, the option mostly gas-tight version	O
Mostly gas - tight version	O
Door with window 320 x 260 mm (12.60 x 10.24 inch) and interior lighting (15 W)	O
Increased air change rate through high performance fan	O

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