

FED series

Heating ovens 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.



Leistungsmerkmale/Ausstattung:

- Electronically controlled APT.line™ preheating chamber technology with forced convection
- Temperature range of 5 °C (9 °F) above ambient temperature up to 300 °C (572 °F)
- MS Controller with several timer functions
- Controller timer functions: delayed ON, delayed OFF, temperature dependent delayed OFF
- Digital temperature setting with an accuracy of one degree
- One ramp function
- Adjustable fan speed (0 to 100 %)
- Independent adjustable temperature safety device, Class 2 (DIN 12880), with visual temperature alarm
- Adjustable ventilation by means of rear exhaust duct Ø 50 mm (2 inch) with ventilation flap and front ventilation slide
- RS 422 interface for communication software APT-COM™ DataControlSystem, or switch over to printer output with RS 232/RS 422 interface converter
- Adjustable intervals for printer
- Units up to 115 liters (4.1 cu.ft.) are stackable
- 2 chrome-plated racks
- BINDER test certificate

	FED 53	FED 115	FED 240	FED 400	FED 720
Exterior dimensions					
Width (mm/inch)	634 / 25.0	834 / 32.8	1034 / 40.7	1234 / 48.6	1234 / 48.6
Height (inclusive feet/castors) (mm/inch)	617 / 24.3	702 / 27.6	822 / 32.4	1022 / 40.2	1528 / 60.2
Depth (mm/inch)	575 / 22.6	645 / 25.4	745 / 29.3	765 / 30.1	865 / 34.1
Plus door handle, I-panel and exhaust duct (mm/inch)	105 / 4.1	105 / 4.1	105 / 4.1	105 / 4.1	105 / 4.1
Wall clearance rear (mm/inch)	100 / 3.9	100 / 3.9	100 / 3.9	100 / 3.9	100 / 3.9
Wall clearance side (mm/inch)	160 / 6.3	160 / 6.3	160 / 6.3	160 / 6.3	160 / 6.3
Exhaust duct outer- Ø (mm/inch)	52 / 2.1	52 / 2.1	52 / 2.1	52 / 2.1	52 / 2.1
Steam space volume (l/cu.ft.)	77 / 2.7	158 / 5.6	308 / 10.9	498 / 17.6	869 / 30.7
Number of doors	1	1	2	2	2
Interior dimensions					
Width (mm/inch)	400 / 15.8	600 / 23.6	800 / 31.5	1000 / 39.4	1000 / 39.4
Height (mm/inch)	400 / 15.8	480 / 18.9	600 / 23.6	800 / 31.5	1200 / 47.2
Depth (mm/inch)	330 / 13.0	400 / 15.8	500 / 19.7	500 / 19.7	600 / 23.6
Interior volume (l/cu.ft.)	53 / 1.9	115 / 4.1	240 / 8.6	400 / 14.3	720 / 25.7
Racks, chrome-plated (number standard/max.)	2/5	2/6	2/7	2/10	2/16
Load per rack (kg/lbs.)	15 / 33	20 / 44	30 / 66	35 / 77	45 / 99
Permitted total load (kg/lbs.)	40 / 88	50 / 110	70 / 155	90 / 199	120 / 265
Weight of the unit (empty) (kg/lbs.)	44 / 97	62 / 137	96 / 212	145 / 320	195 / 430
Temperature data					
Temperature range, 5°C (9°F) above ambient up to (°C/°F)	300 / 572	300 / 572	300 / 572	300 / 572	300 / 572
Temperature variation 1)					
at 70 °C (158 °F) (± °C)	0,8	0,7	0,8	1	1
at 150 °C (302 °F) (± °C)	2	1,8	2	2,5	2
at 300 °C (572 °F) (± °C)	3,7	3,9	4,3	4,8	5,5
Temperature fluctuation (± °C)	0,3	0,3	0,3	0,3	0,3
Heating up time 2)					
to 70 °C (158 °F) (Min.)	6	7	12	18	25
to 150 °C (302 °F) (Min.)	24	30	27	35	39
to 250 °C (482 °F) (Min.)	45	49	50	60	65
Recov. time after door was opened for 30 sec. 2)					
at 70 °C (158 °F) (Min.)	2	2	2	2	2
at 150 °C (302 °F) (Min.)	5	8	10	17	20
at 300 °C (572 °F) (Min.)	10	15	16	21	24
Air change 3)					
at 150 °C (302 °F) (x/h)	64	32	20	18	12
Electrical data					
Housing protection acc. to EN 60529	IP 20	IP 20	IP 20	IP 20	IP 20
Nominal voltage (±10 %) 50/60 Hz (V)	230 / 115	230 / 115	230 / 208 (3N)	400 / 208 (3N)	400 / 208 (3N)
Nominal power (W)	1200	1600	2700	3400	5000
Energy consumption					
at 70 °C (158 °F) (W)	145	230	370	520	570
at 150 °C (302 °F) (W)	300	544	850	1200	1320
at 300 °C (572 °F) (W)	720	1100	1400	2340	2600

- 1) value without window
- 2) up to 98 % of the set value
- 3) The air change depends on the inner chamber- and ambient temperature. Further measurement of air change rate in acc. to ASTM D5374 with definition and protocol are optional.

All technical specification are specified for units with standard equipment at an ambient temperature of 25 °C (77 °F) 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 values have been specified at a fan speed of 100 %. 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.



Reinforced inner chamber

Includes two reinforced racks for heavy loads. (Total load maximum 250 kg / 551 lbs.)



Calibration certificates

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



Lockable door

Prevents unauthorized access and interference with processes in the chamber.



Transportable precision measuring unit

For temperature, using a PT 100 temperature sensor. Suitable for universal use as an independent monitoring device for temperature chambers.



Serial printer

For recording temperature data. Suitable for connection to an RS 232 printer interface. Includes cables for the RS 422 interface and an interface converter.

	FED 53	FED 115	FED 240	FED 400	FED 720
Access port with silicone plug	O	O	O	O	O
Rack, chrome-plated or stainless steel	O	O	O	O	O
Shelf, perforated, stainless steel	O	O	O	O	O
Reinforced rack, stainless steel, with 1 set of rack securing elements (max. 70kg/154lbs.)	-	-	O	O	O
Reinforced inner chamber, including 2 reinforced racks (max. total load 250kg/552lbs. Load per rack 70kg/154lbs.)	-	-	O	O	O
Rack securings for additional fastening of racks (one set of 4)	O	O	O	O	O
Independent adj. temp. safety device, Class 3.1 (DIN 12880) for 230 V only	O	O	O	O	O
Door with window and interior lighting	O	O	O	O	O
Lockable door	O	O	O	O	O
Door gasket, FKM (temperature-resistant up to 200 °C / 392 °F)	O	O	O	O	O
Over-temperature alarm, acoustic, can be switched off	O	O	O	O	O
Analogue temperature output, 4–20mA, with 6-pin DIN socket	O	O	O	O	O
Air change rate measurement according to ASTM D5374 with definition and measurement protocol	O	O	O	O	O
Serial printer with interface converter for printing temperature logs. Connects to RS 232 printer interface. Includes set of connection cables for RS 422 interface and RS 232/RS 422 interface converter, 230 V	O	O	O	O	O
Unit acc. to CUL standard in 115 V 1N ~ 60 Hz	O	O	-	-	-
Calibration certificate	O	O	O	O	O
Extension for calibration certificate (additional values)	O	O	O	O	O
Stable table on castors with locking brakes	O	O	O	O	O
Evaporating dish with rim	O	O	O	O	O
Rubber pads for safe stacking	O	O	-	-	-
Transportable precision measuring equipment for temperature TM 01	O	O	-	-	-
Neutral cleaning agent (liquid concentrate)	O	O	O	O	O

O Option - not available

Technical specifications subject to change

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