FDL series

Safety drying ovens with first class safety features

This series presents the perfect environment for solvent-based samples. The interior chamber has a symmetrical airflow with defined flow velocities, free of silicone and dust, safeguarded by a high-efficiency filter cartridge. FDL thus complies with all EN 1539 and ISO 3215 requirements and its program with the intelligent fresh air monitoring feature offers maximum occupational safety.

Leistungsmerkmale/Ausstattung:

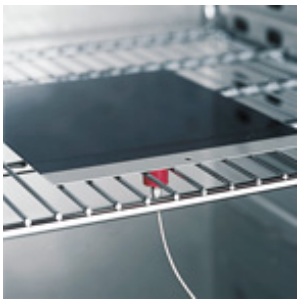
- Patented APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- In compliance with all safety requirements according to the standards EN 1539
- Temperature range 5 °C above ambient up to 300 °C
- MP controller allows easy programming of variable temperature cycles and with numerous temperature and time functions and programmable temperature ramp via program editor
- 2 programs with 10 sections each or alternatively switch over to 1 program with 20 sections
- Maximum time period of a program adjustable to either 0 to 99.59 or 999.59 h. This adjustment applies to all program sections
- Integrated week program timer with real time function
- Adjustable ramp function via program editor
- Elapsed time indicator
- Door gasket viton, up to max. 200 °C
- Replaceable fresh-air filter cartridge considerably improves particle- free, standard-compliant drying processes, class F6
- Fresh-air monitoring with acoustic and visual alarm and automatic deactivation of heating
- Independent adjustable temperature safety device class 2, providing full protection against chamber over-temperature, with visual and acoustic temperature alarm
- Rear exhaust connector Ø 100 mm
- RS 422 interface for GMP/GLP and FDA guide 21 CFR Part 11 compliant APT-COM™ DataControlSystem software
- 2 chrome-plated racks included
- BINDER test certificate

	FDL 115
Exterior dimensions	
Width (mm/inch)	834 / 32.8
Height (inclusive feet/castors) (mm/inch)	800 / 31.5
Depth (mm/inch)	685 / 27.0
Plus door handle (mm/inch)	50 / 2.0
Wall clearance (mm/inch)	100 / 3.9
Wandabstand bei geöffneter Tür (mm)	160 / 6.3
Exhaust duct outer- Ø (mm/inch)	100 / 3.9
Steam space volume (l/cu.ft.)	156 / 5.5
Interior dimensions	
Width (mm/inch)	600 / 23.6
Height (mm/inch)	435 / 17.1
Depth (mm/inch)	435 / 17.1
Interior volume (l/cu.ft.)	115 / 4.1
Racks, chrome-plated (number standard/max.)	2/5
Load per rack (kg/lbs.)	20 / 44
Permitted total load (kg/lbs.)	50 / 110
Weight of the unit (empty) (kg/lbs.)	90 / 199
Temperature data	
Temperature range, 5°C (9°F) above ambient up to (°C/°F)	300 / 572
Temperature variation	
at 70 °C (158 °F) (± °C)	1,5
at 150 °C (302 °F) (± °C)	2,5
at 300 °C (572 °F) (± °C)	4
Temperature fluctuation (± °C)	0,3
Heating-up time 2)	
to 70 °C (158 °F) (Min.)	7
to 150 °C (302 °F) (Min.)	17
to 300 °C (Min.)	44
Recov. time after door was opened for 30 sec. 2)	
at 70 °C (158 °F) (Min.)	1
at 150 °C (302 °F) (Min.)	3
at 300 °C (572 °F) (Min.)	6
Air change (approx. x/min.)	3
Air circulation (approx. x/min.)	40
Exhaust air volume flow (approx. L/Min. / m3/h)	400 / 24.0
Air flow velocity (m/sec)	0,8-1,2
Highest permitted solvent quantity (g) (at T-180 °C, M-100 g/mol, U-40 g/m3, K = 0.5)	6,65
Electrical data	
Housing protection acc. to EN 60529	IP 33
Nominal voltage (±10 %) 50/60 Hz (V)	230 / 115
Nominal power (W)	2900
Energy consumption	
at 70 °C (W)	388
at 150 °C (W)	1098
at 300 °C (W)	2023

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

All specified technical data apply for standard equipment operating at an ambient temperature of + 25 °C (77 °F), with line voltage fluctuations of ± 10%. These typical average values for series equipment were determined in accordance with the BINDER factory standard. They are based upon the recommended distances from the inner chamber walls, namely 10% of height, width and depth. Differing ambient temperatures or variances in the design of individual equipment may produce different performance data.

We therefore recommend that equipment be calibrated and/or validated on a case-by-case basis when working at the extremes of the permissible ambient temperature range.



Specimen temperature measurement

Additional PT 100 temperature sensor for exact temperature measurement of the specimen with digital temperature display. Recording of measured data acquisition possible via RS 422 interface.

Lockable door

Prevents unauthorized access and interference with processes in the chamber.

Drawer for coil coating applications

Split-second loading through the drawer in the door for coil coating/hot air short cycle applications.

Calibration certificates and validation

BINDER can significantly reduce the workload for equipment qualification. We draw on unparalleled knowledge of our equipment applications and years of experience in certification.

	FDL 115
Preparations for installation in inflamable areas (electrical areas according to protection class IP 54)	O
Rack, chrome-plated or stainless steel	O
Shelf, perforated, stainless steel	O
Door with viewing window and condensation protection	O
Door flap for coil-coating tests	-
Digital specimen temperature display with temperature sensor (clip or magnetic)* and analogue output 4 to 20 mA** via 6 pole DIN bushing	O**
Fresh air replacement filter (class F6/EU6 – dust filter for particles 1 to 10 µm)	O
Lockable door	O
Locking of controller keyboard	O
Silicone door gasket resistant to high temperatures > 200 °C (392 °F)	O
Calibration certificate, measurement in the center	O
Extension for calibration certificate (additional values)	O
Rubber pads for safe stacking	O

O Option - not available

Technical specifications subject to change

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