

# Safety drying

## FDL | MDL series

### Unconditionally good: BINDER Safety drying ovens

- ▶ Unconditionally accurate
  - ▶ Fast, uniform drying
  - ▶ Wide temperature range up to 350 °C
  - ▶ Low heat dissipation due to 60 mm insulation
  - ▶ Specimen temperature display with temperature sensor
- ▶ Unconditionally safe
  - ▶ Meets EN 1539: Fresh air monitoring with automatic switchoff
  - ▶ Safety class IP 33
  - ▶ Hermetic door with 2-points door closure
- ▶ Unconditionally versatile
  - ▶ Extension for coil coating test available for MDL series
  - ▶ Digital multi-program controller
  - ▶ Communication interface

For the perfect finish to your solvent-based paints and coating materials, we offer you two series. Absolute temperature accuracy with a high air exchange rate and thus the basis for the best results qualitatively and reproducible tests. You can work safely at all times thanks to replaceable fresh air cartridges and electronic monitoring.



Surface technology / Coating materials



Drying adhesives

# Safety drying ovens

## FDL series

This series provides the perfect environment for all specimens containing solvents: the high efficiency filter cartridge and symmetric airflow provide a silicone free and dust-free inner chamber. The FDL meets all EN 1539 requirements and also ensures maximum work safety with the intelligent fresh air monitoring program.



► FDL 115 model



115

Available size (liters)

### ► EQUIPMENT

- All safety features compliant with EN 1539
- Temperature range from 5 °C above ambient temperature to 300 °C
- MP controller with 2 programs with 10 sections each, or alternatively one program with 20 sections
- The time of an individual program step can be set to max. 999 hours and 59 minutes
- Integrated weekly program timer with real-time function
- Digital temperature setting with an accuracy of one or a tenth of a degree
- Elapsed time indicator
- Door gasket made of FKM (up to max. 200 °C)
- Replaceable fresh-air filter cartridge, class F6 (EU6 fine particle filter for particle sizes between 1 µm and 10 µm)
- Independent adjustable temperature safety device class 2 (DIN 12880), with audible and visual alarm
- Fresh-air monitoring with audible and visual alarm and automatic deactivation of heating
- Rear exhaust connector Ø 100 mm
- RS 422 interface for APT-COM™ DataControlSystem communication software
- Two chrome-plated racks included

## ► FDL SERIES | BEST TEST RESULTS:



### Uniform test conditions

- APT.line™ preheating chamber
  - Homogeneous temperature distribution
  - Identical test conditions throughout the chamber interior independent of sample size and quantity



### Convenient work environment

- Hermetic door closure with 2-points door closure
- Low heat dissipation due to 60 mm insulation
- Rack with tilt protection
- Complete stainless steel inner chamber
- No permanent fixtures
- Silicone free



### Maximum work safety

- Defined solvent quantity meets drying safety standards
- EN 1539 compliant: Fresh air monitoring with automatic switchoff
- Safety class IP 33
- Easy to replace fresh air filter

## ► OPTIONS

- Access ports, Ø 10 mm, Ø 30 mm, right, left
- Racks, chrome-plated or stainless steel
- Perforated shelf, stainless steel
- Specimen temperature display with temperature sensor and analog output 4 – 20 mA
- Replacement air filter (class F6/EU6 for particle sizes between 1 µm and 10 µm)
- Door lock
- Door gasket made of silicone for applications > 200 °C
- Calibration certificate, measurement in center
- Extension to factory calibration certificate (additional measuring point)
- Temperature measurement according to DIN 12880



Temperature measurement of the specimen



Calibrations and validations



Various access ports



Safety drying oven with UV lamp for testing UV resistance

**► BINDER  
INDIVIDUAL**  
More information  
on page 133

# Technical data for your planning and installation

## FDL series



	FDL 115
<b>Exterior dimensions</b>	
Width (mm/inch)	835 / 32,87
Height (including feet) (mm/inch)	800 / 31,50
Depth (mm/inch)	685 / 26,97
plus door handle (mm/inch)	50 / 1,97
<b>Interior dimensions</b>	
Width (mm/inch)	600 / 23,62
Height (mm/inch)	435 / 17,13
Depth (mm/inch)	435 / 17,13
Interior volume (l/cu.ft.)	115 / 4,1
Quantity of racks (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
<b>Temperature data</b>	
Temperature range, 5 °C/9 °F above ambient up to °C/°F	300 / 572
Temperature uniformity at 150 °C/302 °F (±K)	2,5
Temperature fluctuation (±K)	0,3
Heating-up time <sup>1)</sup> at 150 °C/302 °F (min.)	17
Recov. time after door was opened for 30 sec. <sup>2)</sup> at 150 °C/302 °F (min.)	3
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
<b>Electrical data</b>	
Housing protection acc. to EN 60529	IP 33
Nominal voltage (+10 %) 50/60 Hz (V)	230
Nominal power (kW)	2,9
Energy consumption at 150 °C/302 °F (Wh/h)	1098
<b>Model no.</b>	
	9010-0269

<sup>1)</sup> value without window // <sup>2)</sup> to 98 % of the set-point 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 with 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 change technical specifications at any time.

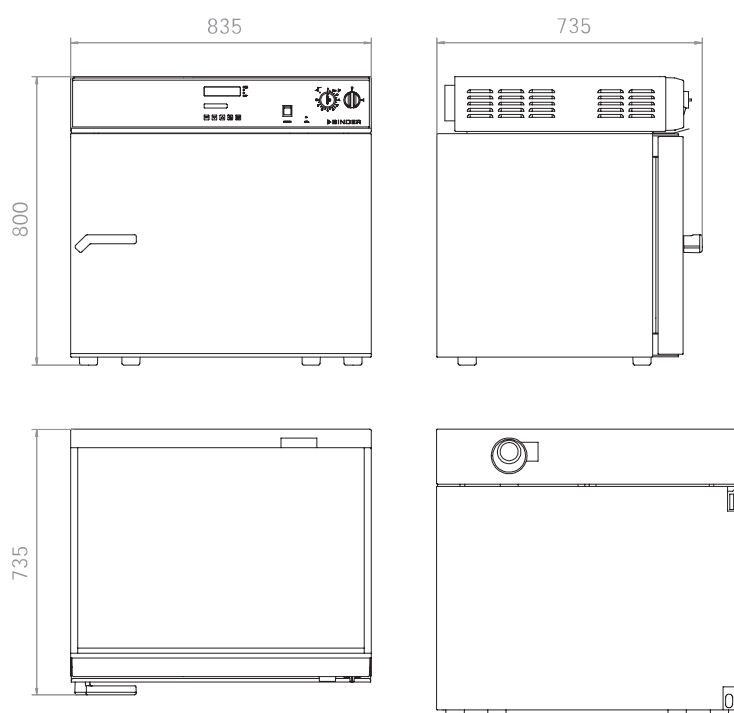


Current information and values are available at:  
[www.binder-world.com](http://www.binder-world.com)



## ► DIMENSIONS

### FDL 115



## ► INSTALLATION REQUIREMENTS

	FDL 115
Nominal voltage (+10 %) 50/60 Hz (V)	230
Nominal power (kW)	2,9

# Safety drying ovens with expanded temperature range

## MDL series

The MDL series works at temperatures up to 350 °C and at an extremely high airflow rate. It is perfectly suited for high-temperature testing such as in the coil coating testing sector. The preheating chamber technology with special airflow design allows evenly distributed burn-in over a very short period – and all that with maximum work safety due to electronic fresh air monitoring. The customized programming also gives you all the freedom you need for your work.



► MDL 115 model



115

Available size (liters)

### ► EQUIPMENT

- Compliant with all EN 1539 safety requirements
- Temperature range from 5 °C above ambient temperature to 350 °C
- MCS controller which can store 25 programs of 100 sections each for a maximum of 500 program segments
  - User-friendly LCD screen
  - Easy-to-read menu guidance
  - Integrated electronic chart recorder
  - Variety of options for the graphic display of process parameters
  - Real-time clock
- Heating output 9.0 kW
- Door gasket made of high temperature resistant silicone
- Rear exhaust connector Ø 100 mm
- Replaceable fresh-air filter cartridge, class F6 (EU6 fine particle filter for particle sizes between 1 µm and 10 µm)
- Independent adjustable temperature safety device class 2 (DIN 12880), with audible and visual alarm
- Fresh-air monitoring with audible and visual alarm and automatic heating feature deactivation
- RS 422 interface for APT-COM™ DataControlSystem communication software
- Two chrome-plated racks included

## ► MDL SERIES | BEST TEST RESULTS:



### Uniform test conditions

- APT.line™ preheating chamber
  - Homogeneous temperature distribution
  - Identical test conditions throughout the chamber interior independent of sample size and quantity



### Convenient work environment

- Hermetic door closure with 2-points door closure
- Low heat dissipation due to 60 mm insulation
- Rack with tilt protection
- Complete stainless steel inner chamber
- No permanent fixtures



### Maximum work safety

- Defined solvent quantity meets drying safety standards
- EN 1539 compliant: Fresh air monitoring with automatic switchoff
- Safety class IP 33
- Easy to replace fresh air filter



### Custom programming

- Controller with color display which can store 25 programs
- Integrated digital continuous-line recorder for monitoring limits and alarm function
- Convenient documentation
- All measured values read at a glance

## ► OPTIONS

- Racks, chrome-plated or stainless steel
- Perforated shelf, stainless steel
- Extension in the door for coil coating tests
- Replacement air filter (class F6/EU6 for particle sizes between 1 µm and 10 µm)
- Additional measuring channel for digital display of specimen temperature with clip temperature sensor
- Door lock
- Lockable controller keyboard
- Calibration certificate, measurement in center
- Extension to factory calibration certificate (additional measuring point)
- Temperature measurement according to DIN 12880



Temperature measurement of the specimen



Extension for coil coating applications



Calibrations and validations



Safety drying oven with HEPA fresh-air filter EU 14

► **BINDER  
INDIVIDUAL**  
More information  
on page 133



# Technical data for your planning and installation

## MDL series



	MDL 115
<b>Exterior dimensions</b>	
Width (mm/inch)	835 / 32.87
Height (including feet) (mm/inch)	800 / 31.50
Depth (mm/inch)	685 / 26.97
plus door handle (mm/inch)	50 / 1.97
<b>Interior dimensions</b>	
Width (mm/inch)	600 / 23.62
Height (mm/inch)	435 / 17.13
Depth (mm/inch)	435 / 17.13
Interior volume (l/cu.ft.)	115 / 4.1
Quantity of racks (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
<b>Temperature data</b>	
Temperature range, 5 °C/9 °F above ambient up to °C/°F	350 / 662
Temperature uniformity at 150 °C/302 °F (±K)	3,4
Temperature uniformity with door flap at 150 °C/302 °F (±K)	3
Temperature fluctuation (±K)	0,5
Heating-up time <sup>2)</sup> at 150 °C/302 °F (minutes)	6
Recov. time after door was opened for 30 sec. <sup>2)</sup> at 150 °C/302 °F (minutes)	2
Recov. time after door was opened for 30 sec <sup>2)</sup> with door flap, at 150 °C/302 °F (minutes)	1
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
<b>Electrical data</b>	
Housing protection acc. to EN 60529	IP 33
Nominal voltage (+10 %) 50/60 Hz (V)	400 V / 3N~
Nominal power (kW)	9
Energy consumption at 150 °C/302 °F (Wh/h)	1130
Model no.	9010-0200

<sup>1)</sup> value without window // <sup>2)</sup> to 98 % of the set-point 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 with 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 change technical specifications at any time.



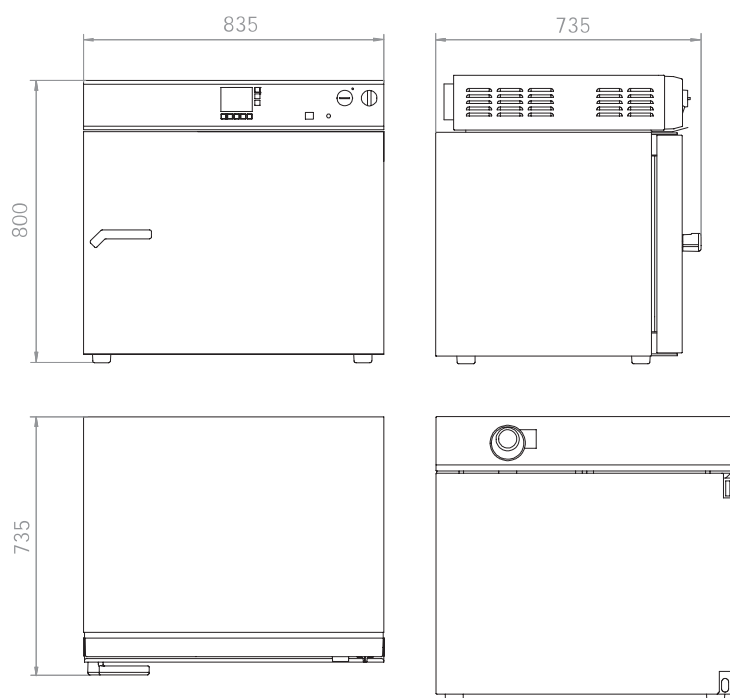
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## ► DIMENSIONS

### MDL 115



## ► INSTALLATION REQUIREMENTS

	MDL 115
Nominal voltage ( $\pm 10\%$ ) 50/60 Hz (V)	400 V / 3N~
Nominal power (kW)	9