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VD series
Vacuum drying oven for non-flammable solvents

The VD series offers safe drying with homogenous temperature distribution, thanks to its APT.line™ air jacket system. Optimum heat transfer through patented expansion rack technology; the racks can be positioned as needed and are easy to clean. In addition to these many features, the units have an individually programmable controller.

Leistungsmerkmale/Ausstattung:

- Electronically controlled APT.line™ preheating chamber technology with 2 expansion racks
- Temperature range: 15 °C (27 °F) above ambient temperature up to 200 °C (342 °F), optional up to 250 °C (482 °F)
- MP controller with 2 programs with 10 sections each, or alternatively one program with 20 sections
- The time interval of single program sections can be adjusted up to a maximum of 99:59 h or 999:59 h. This adjustment applies to all program sections.
- Digital temperature setting with an accuracy of one or thenth of a degree
- Integrated week program timer with real time function
- Elapsed time indicator
- Fine dosing ventilation valve
- Spring-mounted shatter proof safety glass panel
- Fine dosing inert gas valve with cross-flow technology
- Independent adjustable temperature safety device, Class 2 (DIN 12880), with visual alarm
- DN 16 measuring port in rear wall
- Analog pressure gauge (display pressure difference between the inner chamber and the ambient pressure)
- Electro polished inner chamber
- All suction and ventilation tubes, as well as the internally-welded pressure container, the removable rack support and the vacuum valve are made of stainless steel Mat. No. 1.4571 (V4A) / AISI 316 Ti
- Door gasket made of tempered silicone
- RS 422 interface for communication software APT-COM™ DataControlSystem, or switch over to printer output with RS 232 / RS 422 interface converter
- BINDER test certificate

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	VD 23	VD 53	VD 115
Exterior dimensions			
Width (mm/inch)	515 / 20.3	634 / 25.0	740 / 29.1
Height (inclusive feet/castors) (mm/inch)	655 / 25.8	775 / 30.5	900 / 35.4
Height of the option vacuum module (mm/inch)	624 / 24.6	624 / 24.6	622 / 24.5
Height with option vacuum module (mm/inch)	1279 / 50.4	1400 / 55.2	1522 / 59.9
Depth (mm/inch)	500 / 19.7	550 / 21.7	670 / 26.4
Plus door handle, connection (mm/inch)	100 / 3.9	100 / 3.9	100 / 3.9
Wall clearance rear (mm/inch)	100 / 3.9	100 / 3.9	100 / 3.9
Wall clearance side (mm/inch)	135 / 5.3	135 / 5.3	135 / 5.3
Interior dimensions			
Width (mm/inch)	285 / 11.2	400 / 15.8	506 / 19.9
Height (mm/inch)	285 / 11.2	400 / 15.8	506 / 19.9
Depth (mm/inch)	285 / 11.2	330 / 13.0	450 / 17.7
Interior volume (l/cu.ft.)	23 / 0.8	53 / 1.9	115 / 4.1
Expansion shelves (Aluminium) (number standard/max.)	2 / 4	2 / 5	2 / 6
Distance between the racks (width x depth) (mm/inch)	53 / 2.1	62 / 2.4	68 / 2.7
Usable space per rack (width x depth) (mm/inch)	234 x 280 / 9.2 x 11	349 x 320 / 13.7 x 12.6	455 x 440 / 17.9 x 17.3
Load per rack (kg/lbs.)	20 / 44	20 / 44	20 / 44
Permitted total load (kg/lbs.)	35 / 77	45 / 99	65 / 143
Weight of the unit (empty) (kg/lbs.)	63 / 139	80 / 177	150 / 331
Temperature data			
Temperature range, 15 °C (27 °F) above ambient up to (°C/°F)	200 / 392	200 / 392	200 / 392
Temperature variation 3)			
at 100 °C (212 °F) (± °C)	2	2,5	4
at 200 °C (392 °F) (± °C)	4	4,5	7
at 250 °C (482 °F) (± °C) (optional)	5	6,5	8
Temperature fluctuation 3) (± °C)	0.4	0.4	0.4
Heating up time 2)			
to 100 °C (212 °F) (Min.)	80	70	80
to 200 °C (392 °F) (Min.)	110	130	150
to 250 °C (482 °F) (Min.) (optional)	140	180	240
Vacuum connection with small flange (DN mm/inch)	16 / 0.63	16 / 0.63	16 / 0.63
Measuring access port with small flange (DN mm/in)	16 / 0.63	16 / 0.63	16 / 0.63
Inert gas connection with flow limiter - thread (RP)	3 / 8	3 / 8	3 / 8
Inert gas connection with flow limiter Adapter with hose olive (DN mm/inch)	8 / 0.31	8 / 0.31	8 / 0.31
Permitted end vacuum (mbar / torr)	0.01 / 0.008	0.01 / 0.008	0.01 / 0.008
Leak rate (max. bar 1/h / torr 1/h)	0.01 / 0.008	0.01 / 0.008	0.01 / 0.008
Electrical data			
Housing protection acc. to EN 60529	IP 20	IP 20	IP 20
Nominal voltage (± 10 %) 50/60 Hz (V)	230 / 115	230 / 115	230 / 115
Nominal power (W)	800	1200	1900
Energy consumption			
at 100 °C (212 °F) (W)	120	160	280
at 200 °C (392 °F) (W)	320	460	800
at 250 °C (482 °F) (W)	450	700	1120

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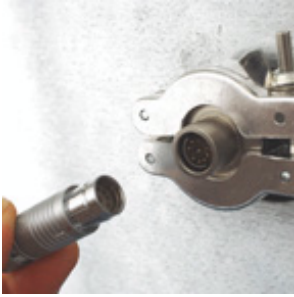
We therefore recommend that equipment be calibrated and/or validated on a case-by-case basis when working at the extremes of the permissible ambient temperature range.

Acid-proof models

VD series ovens are supplied with:

- Interior chamber of acid-proof Hastelloy C-22 alloy
- Two stainless steel Mat. No. 1.4571 (V4A) / AISI 316 Ti expansion racks
- Rack support of acid-proof stainless steel Hastelloy C-22 alloy
- Suction tube and vacuum valve of acid-proof PTFE Teflon
- Ventilation and inertization valves of stainless steel Mat. No. 1.4571 (V4A) / AISI 316 Ti
- Viton door gasket

Measuring port

Vacuum-tight bushing for instrument connection (9-pin) into the unit.

Specimen temperature display

Using a PT 100 sensor with digital temperature display.

Digital pressure display

The pressure in the interior chamber is measured with an installed pressure sensor and is displayed by a digital display to an accuracy of 1 mbar (0.08 torr).

Compact vacuum measuring unit

Unit has an external pressure sensor for precise and independent pressure measurement of the vacuum, with a range of 0.1 - 1100 mbar (0.08 - 825 torr).

BINDER service

This BINDER service is available to maintain your vacuum drying ovens in top condition. In addition to calibrating your equipment, we will also perform a comprehensive safety inspection in accordance with DIN.

	VD 23	VD 53	VD 115
Increased temperature range up to max. 250 °C (482 °F)	O	O	O
Expansion racks, aluminium or stainless steel AISI 316 Ti*	O	O	O
Acid-resistant version made of Hastelloy C-22 alloy	O	O	O
Door gasket, viton	O	O	O
Measuring port	O	O	O
Specimen temperature measuring with PT 100 and specimen temperature display	O	O	O
Digital pressure display	O	O	O
Serial printer with interface converter for printing temperature logs	O	O	O
Connection kit with multiple components	O	O	O
Program controlled ventilation through air valve for exact pressure control	O	O	O
Calibration certificate	O	O	O
Evaporating dish with rim	O	O	O
Vacuum module for installation of vacuum pumps	O	O	O
Vacuum module with chemical membrane pump with separator and emission condenser (for VDL Ex-proof version)	O	O	O
Nominal airflow (DIN 28432) (m³/h / cu.ft./h)	1,7 / 60	1,7 / 60	1,7 / 60
End vacuum (mbar / torr)	9 / 7	9 / 7	9 / 7
Electrical connection (50 - 60 Hz) (V)	230 / 115	230 / 115	230 / 115
Vacuum module with chemical membrane pump with separator and emission condenser (for VDL Ex-proof version)	O	O	O
Nominal airflow (DIN 28432) (m³/h / cu.ft./h)	3 / 106	3 / 106	3 / 106
End vacuum (mbar / torr)	2 / 1.5	2 / 1.5	2 / 1.5
Electrical connection (50 - 60 Hz) (V)	230 / 115	230 / 115	230 / 115
Vacuum module with speed-controlled chemical membrane pump	O	O	O
Nominal airflow (DIN 28432) (50/60Hz) (m³/h)	3.8 / 134	3.8 / 134	3.8 / 134
End vacuum (mbar / torr)	2 / 1.5	2 / 1.5	2 / 1.5
Electrical connection (50/60Hz) (V)	230 / 115	230 / 115	230 / 115

* We recommend stainless steel racks in case of frequent removing

O Option   - not available   Technical specifications subject to change