

## VDL 53 - Vacuum drying oven for flammable solvents

The VDL series ensures maximum safety when drying organic solvents in accordance with TÜV/GS guidelines. The interior chamber is designed in accordance with the ATEX Directive for Zone 2.



### ► Performance features and equipment:

- Electronically controlled APT.line™ preheating chamber technology with 2 patented expansion racks assures temperature accuracy and reproducible results
- Temperature range 15 °C (27 °F) above ambient temperature up to 200 °C (392 °F)
- MP controller with 2 programs with 10 sections each, or alternatively 1 program with 20 sections
  - Integrated week program timer with real time function
  - Digital temperature setting with an accuracy of one degree
  - Elapsed time indicator
- Spring mounted safety glass panel with shatter protection
- Precision-adjustable ventilation valve
- Precision-adjustable inert gas valve with Cross-Flow-Technology
- 2 patented, flexible aluminum expansion racks
- Safety features:
  - pressure control device for heating activated < 125mbar (3,69 inchHG)
  - Over pressure capsuled instrument panel with compressed air connection and maintenance unit
  - flame protection gasket
- Analog pressure gauge (display pressure difference between the inner chamber and the ambient pressure)
- Electro polished inner chamber, suction and ventilation tubes, pressure container, expansion racks and ball valve are made of stainless steel
- Door gasket made of tempered silicone
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- Measuring port DN 16
- Printer- and communication interface RS 422 interface for use with optional GMP/GLP and FDA guideline 21 CFR Part 11 compliant APT-COM™ DataControlSystem software
- All electrical components are decoupled from the interior chamber
- Available as complete system, with module and vacuum pump.
- Features:
  - Reduced sound level
  - Practical working height
  - Well balanced system
- BINDER test certificate



**VDL 53**

<b>Exterior dimensions</b>	
Width (mm/inch)	634 / 25.0
Height (inclusive feet) (mm/inch)	775 / 30.5
Depth (mm/inch)	550 / 21.7
Width option vacuum module (mm/inch)	634 / 25.0
Height option vacuum module (mm/inch)	624 / 24.6
Depth option vacuum module (mm/inch)	550 / 21.7
Total width with option vacuum module (mm/inch)	634 / 25.0
Total height with option vacuum module (mm/inch)	1400 / 55.1
Total depth with option vacuum module (mm/inch)	550 / 21.7
Plus door handle, connection (mm/inch)	100 / 3.9
Wall clearance rear (mm/inch)	100 / 3.9
Wall clearance side (mm/inch)	135 / 5.3
<b>Interior dimensions</b>	
Width (mm/inch)	400 / 15.8
Height (mm/inch)	400 / 15.8
Depth (mm/inch)	330 / 13.0
Interior volume (l/cu.ft.)	53 / 1.9
Expansion racks (Aluminium) (number standard/max.)	2 / 5
Distance between the racks (width x depth) (mm/inch)	62 / 2.4
Usable space per rack (width x depth) (mm/inch)	349 x 320 / 13.7 x 12.6
Load per rack (kg/lbs.)	20 / 44
Permitted total load (kg/lbs.)	45 / 99
Weight of the unit (empty) (kg/lbs.)	80 / 177
<b>Temperature data</b>	
Temperature range, 15 °C (27 °F) above ambient up to (°C / °F)	200 / 392
Temperature variation 1)	
at 100 °C (212 °F) (± °C)	2.5
at 200 °C (392 °F) (± °C)	4.5
Temperature fluctuation 1) (± °C)	0.1
Heating up time 1) 2)	
to 100 °C (Min.)	80
to 200 °C (Min.)	130
Vacuum connection with small flange (DN mm/inch)	16 / 0.63
Measuring access port with small flange (DN mm/in)	16 / 0.63
Inert gas connection with flow limiter - thread (RP)	3 / 8
Permitted end vacuum (mbar / torr)	1 x 10 <sup>-2</sup>
Leak rate (max. bar 1/h / torr 1/h)	1 x 10 <sup>-2</sup>
Compressed air connection for pressure-encapsulation (Ø mm)	8
<b>Electrical data</b>	
Housing protection acc. to EN 60529	IP 54
Nominal voltage (±10 %) 50 / 60 Hz (V)	230
Nominal power (kW)	1.2

Energy consumption	
at 100 °C (W)	150
at 200 °C (W)	445

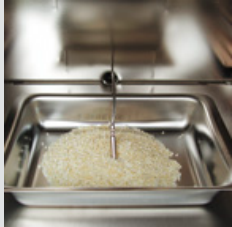
- 1) value with aluminium racks
- 2) up to 98 % of the set-point value

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of  $\pm 10$  %. 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 indications are average values, typical for units produced in series. We reserve the right to alter technical specifications at all times.



▶ **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.



▶ **Calibration certificates**

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



VDL 53

ATEX connection kit VP 4, consists of: straining ring aluminium, universal centering ring, transition piece adapter, antistatic vacuum hose, union nut, elbow	<input type="radio"/>
ATEX connection kit VP 5, consists of: straining ring aluminium, universal centering ring, outer centering ring, transition piece adapter, union nut, antistatic vacuum hose, elbow	<input type="radio"/>
Measurement port, for air-tight lead-through of measurement lines into the unit (9-pin)	<input type="radio"/>
Specimen temperature measurement via flexible PT 100 sensor (EX-proof via measurement current feed-through), with digital temperature display	<input type="radio"/>
Factory calibration certificate. Measurement in center of chamber at 100 °C (212 °F) or at specified testing temperature	<input type="radio"/>
VP 4, mechanical and electrical membrane pump (nominal air flow 1.9 m <sup>3</sup> /hour), final pressure 12 mbar, with separator and emission condenser 230 V 1N ~ 50 / 60 Hz	<input type="radio"/>
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or temperature	<input type="radio"/>
Expansion racks, aluminum	<input type="radio"/>
Expansion racks, stainless steel	<input type="radio"/>
Exchange and calibration to stainless steel expansion racks, standard equipment aluminum expansion racks will be replaced	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
Vacuum module (empty) for installation of vacuum pumps	<input type="radio"/>
Vacuum module with membrane pump VP 5, mechanical and electrical membrane pump components EX-proof, ATEX approved (nominal air flow 1.9 m <sup>3</sup> / hour), final pressure 12 mbar, with separator and emission condenser, including all necessary vacuum connection parts	<input type="radio"/>