

## Model VD 23 | Vacuum drying chambers for non-flammable solvents

BINDER's VD series vacuum drying chambers deliver impressive performance through their precise temperature control and gentle drying. The patented expansion rack technology from BINDER also optimizes heat transfer. The shelves can be repositioned for flexible placement and the interior of the chamber is easy to clean.

### BENEFITS

- Fast, gentle drying
- Optimum heat transfer through large thermal conducting plates
- Safe work thanks to proven safety concept
- Also option of modular complete system with vacuum pump and pump chamber



Model 23



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### IMPORTANT FEATURES

- Temperature range: +9°C above ambient temperature to +220 °C
- Controller with digital display of pressure and temperature
- Program-controlled drying monitoring with automatic ventilation at end of process
- Internal data logger, measured values can be read out in open format via USB
- 1 aluminum expansion rack, can be custom-positioned
- Inert gas connection
- Universal access port DN 16 - for the introduction of external measuring devices
- Shatterproof, spring-mounted safety glass panel
- Large viewing window with option of interior lighting
- Computer interface: Ethernet

### OPTIONAL EQUIPMENT

- Touchscreen Controller - Graphical display of main process parameter
- Expansion racks - Choice of aluminum or stainless steel racks depending on the application requirements
- Analogue output for temperature and pressure signals - for external monitoring and evaluation of the process parameters, integration into in-house systems is possible
- Universal ventilation - Selection of different ventilation by air or inert gas
- Universal access port DN 40 - for the introduction of external measuring devices
- Multi Management Software APT-COM - Manage, record and document device parameters
- Services - extensive services ensure correct device function

### ORDERING INFORMATION

Interior volume		Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
[L]	[L]					
<b>Model VD 23</b>						
		200...230 V 1~ 50/60 Hz -6,3 A	CEE 7/7	Standard	VD023-230V	9630-0001
24	24	100...120 V 1~ 50/60 Hz -10,0 A	NEMA 5-15	Standard	VD023UL-120V	9630-0005

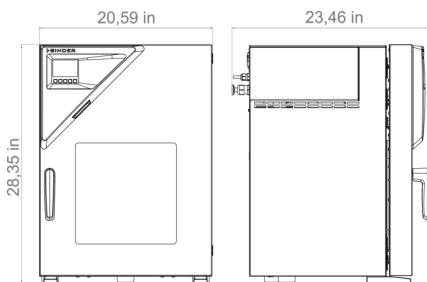
## TECHNICAL DATA

Data		
Designation	VD023-230V	VD023UL-120V
Article Number	9630-0001	9630-0005
Option model	Standard	Standard
Performance Data Temperature		
Temperature range	+9 °C above ambient temperature to 220 °C	+9 °C above ambient temperature to 220 °C
Temperature uniformity at 100°C	1.0 ± K	1.0 ± K
Temperature fluctuation at 100°C	0.1 ± K	0.1 ± K
Heating up time to 100°C	80 min	80 min
Vacuum Data		
Leckrate	0,01 bar/h	0,01 bar/h
Temperature fluctuation over time at 50 mbar	1 ± mbar	1 ± mbar
Temperature fluctuation over time at 400 mbar	70 ± mbar	70 ± mbar
Electrical data		
Rated Voltage	200...230 V	100...120 V
Power frequency	50/60 Hz	50/60 Hz
Nominal power	0,9 kW	0,9 kW
Unit fuse	6,3 A	10,0 A
Phase (Nominal voltage)	1~	1~
Connections		
Vacuum connection with small flange	16 DN mm	16 DN mm
Measuring access port with small flange	16 DN mm	16 DN mm
Compressed air connection for pressure-encapsulation	5 NW	5 NW
Dimensions and weights		
Interior volume	24 L	24 L
Net weight of the unit (empty)	64 kg	64 kg
Load per rack	20 kg	20 kg
Permitted load	50 kg	50 kg
Wall clearance back	100 mm	100 mm

Wall clearance sidewise	70 mm	70 mm
<b>Housing dimensions not incl. fittings and connections</b>		
Width net	523 mm	523 mm
Height net	698 mm	698 mm
Depth net	413 mm	413 mm
<b>Internal Dimensions</b>		
Interior width	285 mm	285 mm
Interior height	285 mm	285 mm
Interior depth	295 mm	295 mm
Unit doors	1	1
<b>Environment-specific data</b>		
Sound-pressure level	40 dB(A)	40 dB(A)
Energy consumption at 100°C	140 Wh/h	140 Wh/h
<b>Fixtures</b>		
Number of shelves (std./max.)	1/4	1/4

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10%. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing 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.

### DIMENSIONS Incl. fittings and connections [mm]



### OPTIONS

Designation	Description	VD 23	*	Art.-No.
Additional universal ventilation	Additional universal connection for ventilation with ambient air or inert gas. Flow limiter thread (RP"), and connection with 3/8" male thread.	•	-	8612-0001
Analog output 4-20 mA	for temperature and pressure values (output not adjustable)	•	-	8612-0004
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	•	-	8012-1127
Calibration certificate, pressure	Calibration of the pressure display to a specified value, including certificate	•	-	8012-2021

Designation	Description	VD 23	*	Art.-No.
		•	-	8012-2022
	for temperature, measurement in center of chamber at specified temperature	•	-	8012-1145
Calibration certificate, temperature	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	-	8012-0916
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-0919
Door gasket	made of FKM, silicone-free	•	-	8612-0007
Door lock	lockable door handle	•	-	8612-0002
Expansion racks	stainless steel expansion rack instead of standard aluminum expansion rack, incl. calibration	•	-	8612-0011
Interior lighting	LED light strips on the left and right in the door	•	-	8612-0005
Temperature measurement of the specimen	with flexible Pt 100 sensor and digital specimen temperature display	•	-	8612-0006
Touchscreen controller	Large display panel with intuitive operation, actual and set values of main process parameters are shown simultaneously on the display. In addition, the graphic chronological evaluation of process parameters is displayed.	•	-	8612-0015
Universal access port	Additional DN 40 small flange universal access port with blind flange, for positioning sensors or supply lines in the chamber.	•	-	8612-0003

## ACCESSORIES

Designation	Description	VD 23	*	Art.-No.
	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.			
	version 4, PROFESSIONAL edition	•	-	9053-0040
APT-COM™ 4	for simple logging and documentation requirements with up to 5 networked units.			
	version 4, BASIC edition	•	-	9053-0039
	for working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11.			
	version 4, GLP edition	•	-	9053-0042
Expansion racks	aluminum	•	-	8012-2055
	stainless steel	•	-	8012-2259
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
Qualification documents	IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit			
	Digital in PDF format	•	-	7057-0005
	Hard copy inside folder	•	-	7007-0005

Designation	Description	VD 23	*	Art.-No.
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, CO <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit			
	Digital in PDF format	•	-	7057-0001
	Hard copy inside folder	•	-	7007-0001
	Pump chamber for vacuum pumps, with switchable power socket. Chemical membrane pump with a nominal air flow of 2.0 m <sup>3</sup> /hour, final pressure 7 mbar			
Vacuum module with vacuum pump VAP 1	120 V / 50-60 Hz option model	•	-	8012-1961
	230 V / 50-60 Hz option model	•	-	8012-1958
	Pump chamber for vacuum pumps, with switchable power socket. Chemical membrane pump with a nominal air flow of 4.0 m <sup>3</sup> /hour, final pressure 2,0 mbar			
Vacuum module with vacuum pump VAP 2.1	120 V / 50–60 Hz option model	•	-	8012-1967
	230 V / 50-60 Hz option model	•	-	8012-1964
Vacuum pump connection kit	for vacuum pump VAP1 and VAP2; consisting of aluminum clamping ring, universal centering ring, small flange with hose nozzle, (2,5 m) rubber hose and 2 hose clamps	•	-	8012-1995
	Chemical membrane pump with a nominal air flow of 2.0 m <sup>3</sup> /hour, final pressure 7 mbar			
Vacuum pump VAP 1	120 V / 50-60 Hz option model	•	-	5013-0223
	230 V / 50-60 Hz option model	•	-	5013-0217
	Chemical membrane pump with a nominal air flow of 4.0 m <sup>3</sup> /hour, final pressure 1,8 mbar			
Vacuum pump VAP 2	120 V / 50-60 Hz option model	•	-	5013-0219
	Chemical membrane pump with a nominal air flow of 4.0 m <sup>3</sup> /hour, final pressure < 2 mbar			
Vacuum pump VAP 2.1	230 V / 50-60 Hz option model	•	-	5013-0249

## SERVICES

Designation	Description	*	Art.-No.
<b>Calibration services</b>			
Pressure calibration	Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate. Travel to be quoted separate.	–	DL30-0410
	Expansion – Additional Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate. Travel to be quoted separate.	–	DL30-0411
Temperature calibration	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.	–	DL30-0160
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate Travel to be quoted separate.	–	DL30-0102

Designation	Description	*	Art.-No.
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate. A total of 3 shelves are required.	–	DL30-0109
Temperature measurement, 15 measuring points	Temperature measurement with 15 measuring points with a set value specified by the user, including certificate. Travel to be quoted separate.	–	DL30-0218
<b>Installation services</b>			
Unit installation	Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work) Travel to be quoted as separate.	–	DL10-0120
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming. Travel to be quoted as separate Limited to 3 hours.	–	DL10-0510
<b>Maintenance services</b>			
BRONZE 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate. 10% Discount on Spare Parts and Labor for any additional Services needed Wear + tear parts to be purchased or billed to customer. Travel to be quoted as separate.	–	DL20-0710
GOLD 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate of Temperature. 25% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate.	–	DL20-0980
Preventive maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Checking a test temperature specified by the user in center of usable space without certificate. Wear + tear parts need to be purchased or billed to customer. Travel to be quoted as separate.	–	DL20-0615
SILVER 3-year maintenance contract	Annual Device Inspection Includes Preventive Maintenance with Calibration Certificate 15% Discount on Spare Parts and Labor for any additional Services needed One additional courtesy visit per year can be used for service visit or operator training. Wear + tear parts to be purchased or billed to customer. Travel to be quoted separate.	–	DL20-0880
VAP 1 vacuum pump maintenance	Maintenance service of the VAP 1 vacuum pump according to the maintenance schedule, visual inspection, replacement of the diaphragms, O-rings and seals, (Service Kit 8500-0158 included in the scope of services) as well as final functional test. Travel to be quoted as separate.	–	DL20-0410
VAP 2 vacuum pump maintenance	Maintenance service of the VAP 2 vacuum pump according to the maintenance schedule, visual inspection, replacement of the diaphragms, O-rings and seals, (Service Kit 8500-0159 included in the scope of services) as well as final functional test. Travel to be quoted as separate.	–	DL20-0420
<b>Validation services</b>			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.	–	DL42-0310
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.	–	DL44-0500
<b>Warranty service</b>			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	–	DL50-0020

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