

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



Model 23

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
- Internal data logger, measured values can be read out in open format via USB Large viewing window with option of interior lighting
- 1 aluminum expansion rack, can be custom-positioned

- · Inert gas connection
- Universal access port DN 16 for the introduction of external measuring
- · Shatterproof, spring-mounted safety glass panel
- · 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 inhouse 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
- 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	ArtNo.
[L] [L]						
Model VD 23						
24		200230 V 1~ 50/60 Hz -6,3 A	CEE 7/7	Standard	VD023-230V	9630-0001
	24	100120 V 1~ 50/60 Hz -10,0 A	NEMA 5-15	Standard		9630-0005



TECHNICAL DATA

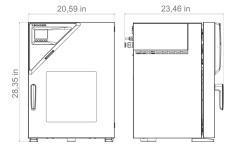
Action Humbher \$690 com \$690 com Option model Sandard Sandard Performance Duta Temperature 1970 Above arbient temperature to 220°C 1970 Above arbient temperature to 220°C Temperature uniformity on ton'C 50.4 K 50.4 K Herefore path fluctuation at 100°C 60.7 M 60.7 M Herefore path fluctuation at 100°C 60.7 M 60.7 M Herefore path fluctuation at 100°C 60.7 M 60.7 M Vaccurs Data 70.00 M 60.7 M Reservation fluctuation at 100°C 60.7 M 60.7 M Reservation fluctuation 200.00 M 60.7 M Reservation fluctuation 50.60 M 70.00 M Reservation fluctuation 60.8 M 60.00 M Nomed fluctuation with small flurge 60.00 M 60.00 M Compessed at connection with small flurge 60.00 M 60.00 M Compessed at connection for pressure excassistion 5.00 M 60.00 M Diversions and weight 60.00 M 60.00 M Exception for the unit (complete) 60.00 M 60.00 M Diversions a	TECHNICAL DATA					
Antice Number	Data					
Description model Scandad Scandad Performance Data Temperature Temperature anage 49 °C above ambient temperature to 220 °C Temperature anage 40 °C above ambient temperature to 220 °C Temperature anage 40 °C above ambient temperature to 220 °C Temperature anage 40 °C above ambient temperature to 220 °C Temperature anage 40 °C above ambient temperature to 220 °C Temperature anage 40 °C above ambient temperature to 220 °C Temperature anage 80 min 80 min Vacuum Data 80 min 80 min Vacuum Data 70 min 90 min Beatrical data 200 230 °V 100 230 °V Beatrical data 200 230 °V 100 230 °V Brown Required 6,3 °A 90 °AV Brown Required 6,3 °A 90 °AV Brown Required 100 °M min 100 °M min Brown Required (Some Some Reconstitution) 100 °M min 100 °M min Brown Required (Some Some Reconstitution) 100 °M min 100 °M min Brown Required (Some Some Reconstitution) 100 °M min<	Designation	VD023-230V	VD023UL-120V			
Professionane Distribution 10 C Alone antibuti Imperature (220°C) 10 C Alone antibut	Article Number	9630-0001	9630-0005			
Temperature onege 1-9 °C above ambient temperature to 220 °C 1-9 °C above ambient temperature to 220 °C Temperature uniformity at 200°C 0.4 K 1.0 4 K Temperature fluctuation at 100°C 0.1 1 K 0.1 1 K Heating up time to 200°C 20 bor /n 20 min Vocation fluctuation at 100°C Vocation fluctuation at 100°C Description at 100°C Descri	Option model	Standard	Standard			
Temperature uniformity at 100°C 10 ± K 10 ± K Itemperature functivation at 100°C 30 ± K 0.1 ± K Heading up time to 100°C 80 min 80 min Vectors between the total confect of the total co	Performance Data Temperature					
Temperature fluctuation at 100°C	Temperature range	+9 °C above ambient temperature to 220 °C	+9 °C above ambient temperature to 220 °C			
Interting up thire to 100°C. So min So min Vacuum Data Use Carde Oct Data/h Oct Data/h Electrical data Use Carde Use Carde Power frequency 50% Oct 12 50% Oct 12 </td <td>Temperature uniformity at 100°C</td> <td>1.0 ± K</td> <td>1.0 ± K</td>	Temperature uniformity at 100°C	1.0 ± K	1.0 ± K			
Vacuum Data Electrical Gates 0,01 bat/fh 0,01 bat/fh Electrical Gates 200—230 V 100—120 V Power frequency 50/60 Hz 100—120 V Power frequency 6,9 kW n.9 kW Unit fuse 6,3 A 10.0 A Phase (Normal Voltage) 1 - 2 1— Connections Weassuring access port with small flange 16 DN mm 16 DN mm Meassuring access port with small flange 16 DN mm 16 DN mm Compressed air connection for pressure-encapsulation 5 NW 5 NW Dimensions and weights 24 L 24 L New weight of the unit (empty) 64 kg 24 kg Volud Jearnace back 100 mm 100 mm Wall clearance back 100 mm 100 mm Wall clearance back 100 mm 100 mm	Temperature fluctuation at 100°C	0.1 ± K	0.1 ± K			
Leckrate o.ox bar/h co.ox bar/h Electrical data Concept frequency 200_230 V 100_120 V Power frequency 50/60 Hz 50/60 Hz 50/60 Hz Nominal power 0.9 kW 0.9 kW 10,0 A Phase (Naminal voltage) 1-2 1-2 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 3 NW 5 NW Dimensions and weights Interior volume 24 L 24 L Net weight of the unit tempty) 64 kg 64 kg Load per tack 20 kg 20 kg Wall clearance back 300 mm 100 mm Wall clearance back 20 mm 70 mm Would clearance sidewise	Heating up time to 100°C	8o min	8o min			
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- - 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 Uniterior volume 24 L 24 L Net weight of the unit (empty) 64 kg 64 kg Vestignt of the unit (empty) 50 kg 50 kg Vall clearance back 100 mm 100 mm Wall clearance back 100 mm 100 mm Wall clearance sidewise 70 mm 70 mm	Vacuum Data					
Rated Voltage 200230 V 100120 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 24 L 4 L Net weight of the unit (empty) 64 kg 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	Leckrate	0,01 bar/h	0,01 bar/h			
Power frequency 50/60 Hz Nominal power Out fluse Out	Electrical data					
Nominal power 0,9 kW 0,9 kW 10,0 A 10	Rated Voltage	200230 V	100120 V			
Unit fuse 6,3 A 10,0 A 1-1 Phase (Nominal voltage) 1-1 Vacuum connections Vacuum connection with small flange 16 DN mm 16 DN mm Aleasuring 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 Wall clearance back 100 mm Wall clearance back 100 mm Wall clearance sidewise 70 mm To mm Housing dimensions not incl. fittings and connections	Power frequency	50/60 Hz	50/60 Hz			
Phase (Nominal voltage) 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1	Nominal power	0,9 kW	0,9 kW			
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 Net weight of the unit (empty) 64 kg 64 kg Permitted load 50 kg Wall clearance back 100 mm 100 mm Wall clearance sidewise 70 mm To mm Housing dimensions not incl. fittings and connections	Unit fuse	6,3 A	10,0 A			
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 MW 5 MW 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 Housing dimensions not incl. fittings and connections	Phase (Nominal voltage)	1~	1~			
Measuring access port with small flange 16 DN mm 16 DN mm 5 NW	Connections					
Compressed air connection for pressure-encapsulation 5 NW 5 NW Dimensions and weights Interior volume 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 Housing dimensions not incl. fittings and connections	Vacuum connection with small flange	16 DN mm	16 DN mm			
Dimensions and weights Interior volume 24 L Act 24 L Act 364 kg 64 kg Load per rack 20 kg 20 kg Permitted load 50 kg Wall clearance back 100 mm 70 mm Housing dimensions not incl. fittings and connections	Measuring access port with small flange	16 DN mm	16 DN mm			
Interior volume 24 L Net weight of the unit (empty) 64 kg 64 kg Load per rack 20 kg Permitted load 50 kg Wall clearance back 100 mm Wall clearance sidewise 70 mm To mm To mm Housing dimensions not incl. fittings and connections	Compressed air connection for pressure-encapsulation	5 NW	5 NW			
Net weight of the unit (empty) 64 kg 64 kg Load per rack 20 kg Permitted load 50 kg Wall clearance back 100 mm 70 mm Housing dimensions not incl. fittings and connections	Dimensions and weights					
Load per rack Permitted load So kg Wall clearance back Wall clearance sidewise 70 mm Too mm Too mm Too mm Too mm	Interior volume	24 L	24 L			
Permitted load 50 kg 50 kg Wall clearance back 100 mm 100 mm Wall clearance sidewise 70 mm 70 mm Housing dimensions not incl. fittings and connections	Net weight of the unit (empty)	64 kg	64 kg			
Wall clearance back 100 mm 100 mm 70 mm Wall clearance sidewise 70 mm 70 mm Housing dimensions not incl. fittings and connections	Load per rack	20 kg	20 kg			
Wall clearance sidewise 70 mm 70 mm Housing dimensions not incl. fittings and connections	Permitted load	50 kg	50 kg			
Housing dimensions not incl. fittings and connections	Wall clearance back	100 mm	100 mm			
	Wall clearance sidewise	70 mm	70 mm			
Width net 523 mm 523 mm	Housing dimensions not incl. fittings and connections					
	Width net	523 mm	523 mm			



Height net	698 mm	698 mm			
Depth net	413 mm	413 mm			
Internal Dimensions					
Interior width	285 mm	285 mm			
Interior height	285 mm	285 mm			
Interior depth	295 mm	295 mm			
Unit doors	1	1			
Environment-specific data					
Sound-pressure level	40 dB(A)	40 dB(A)			
Energy consumption at 100°C	140 Wh/h	140 Wh/h			
Fixtures					
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	*	ArtNo.
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 and Case		•	-	8012-2021
Calibration certificate, pressure	Calibration of the pressure display to a specified value, including certificate —	•	-	8012-2022
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	•	-	8012-1145



Designation	Description	VD 23	*	ArtNo.
	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	*	ArtNo.
	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.			
	version 4, PROFESSIONAL edition	•	-	9053-0040
IDT COMTM	for simple logging and documentation requirements with up to 5 networked units.			
APT-COM™ 4	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
	aluminum	•	-	8012-2055
Expansion racks	stainless steel	•	-	8012-2259
oH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
	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, $\mathrm{CO_2}$, $\mathrm{O_2}$ – or pressure, depending on unit			
0.116	Digital in PDF format	•	-	7057-0005
Qualification documents	- Hard copy inside folder	•	-	7007-0005

IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, $\mathrm{CO_2}$, $\mathrm{O_2}$, pressure, depending on unit



Designation	Description	VD 23	*	ArtNo.
	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 m³/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 m³/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 m³/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
Vacuum pump VAP 2	Chemical membrane pump with a nominal air flow of 4.0 m³/hour, final pressure 1,8 mbar			
vacaum pump vvii 2	120 V / 50-60 Hz option model	•	-	5013-0219
Vacuum pump VAP 2.1	Chemical membrane pump with a nominal air flow of 4.0 m³/hour, final pressure < 2 mbar			
vacaum pump vAF 2.1	230 V / 50-60 Hz option model	•	-	5013-0249

SERVICES

Designation	Description	*	ArtNo.
Calibration services			
Pressure calibration	Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate. Travel to be quoted separate.	-	DL30-0410
Pressure Calibration	Expansion – Additional Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate. Travel to be quoted separate.	-	DL30-0411
	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate Travel to be quoted separate.	-	DL30-0160
Temperature calibration	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
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



Designation	Description	*	ArtNo.
emperature 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
nstallation services			
Jnit 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
Init 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
Maintenance services			
RONZE 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
reventive 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
'AP 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
'AP 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
/alidation services			
execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder. Travel to be quoted separate.	-	DL42-0310
xecution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder. Travel to be quoted separate.	-	DL44-0500
Varranty service			
-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	-	DL50-0020
·	The warranty is extended by 1 year from the delivery date, wear parts are excluded	-	D



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