



VACUUM DRYING CHAMBERS

Vacuum drying chambers

Series VD

Seite 6

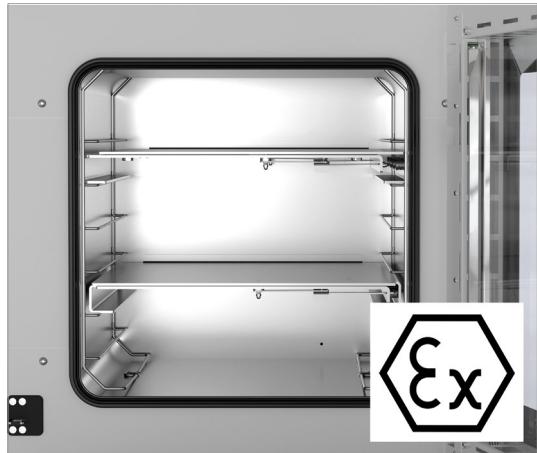
Series VDL

Seite 14

Both BINDER vacuum drying chamber models enable effective drying without residue or damaging the material being dried. With their proven technological features, they excellently address the strict requirements of industrial and scientific laboratories.

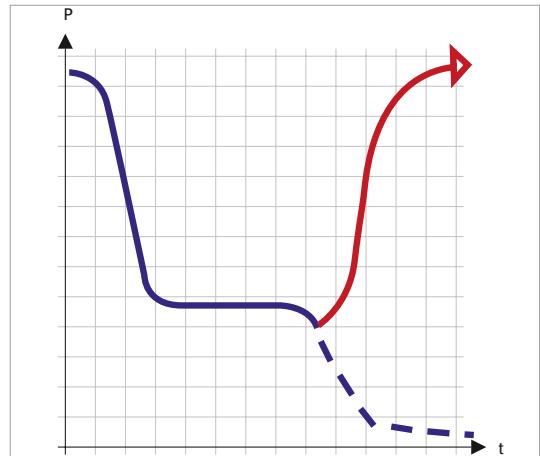
Samples and similar materials incorporating flammable and non-flammable solvents can be dried, depending on the individual use. The chambers use a unique safety design that, together with accustomed outstanding performance, sets the bar in terms of quality and safety.

ADVANTAGES AT A GLANCE



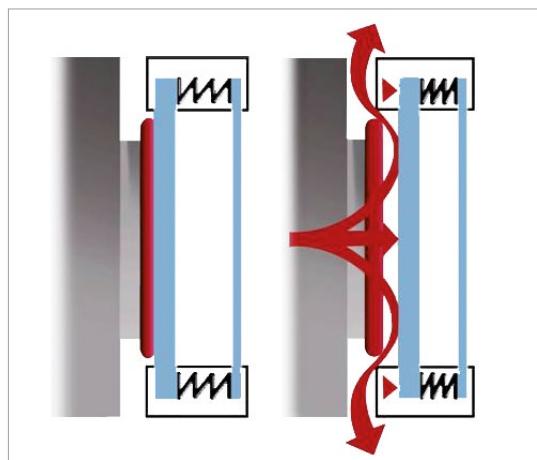
EXPLOSION-PROTECTED INTERIOR

thanks to the ATEX-compliant unit concept with pressure control device for heating activation at a vacuum of < 100 mbar. The unit conforms to ATEX category EX II 2/3/- G IIB T3 Gb/Gc/- X.



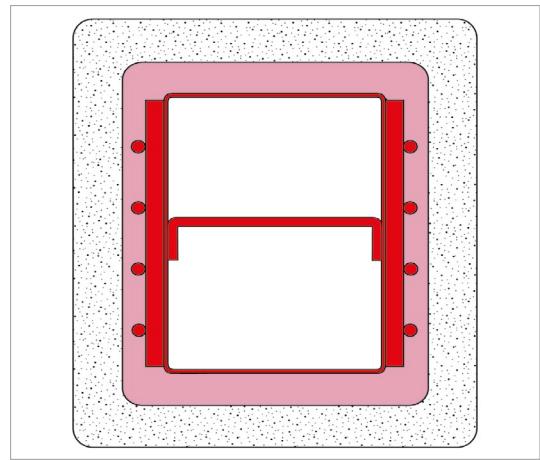
AUTOMATIC DRYING DETECTION

Thanks to the program control, the second pressure drop that typically takes place at the end of drying is detected and the interior is automatically ventilated.



TESTED SAFETY

thanks to the shatterproof, spring-mounted safety glass panel, inert gas connection for interior flushing, and electronic components decoupled from the interior.



JACKET HEATING

optimum heat transfer thanks to patented expansion racks providing flexible placement for precise temperature control.

Series VD | 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.



Model 56

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

IMPORTANT CHARACTERISTICS

- 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

AVAILABLE SIZES

Designation	Interior volume	Kurz-URL
VD 23	24	go2binder.com/en-VD23
VD 56	55	go2binder.com/en-VD56
VD 115	119	go2binder.com/en-VD115

OPTIONAL EQUIPMENT

Expansion racks	The expansion racks ensure maximum heat transfer to the items to be dried. You can choose between aluminum and stainless steel racks.	
Analog output for temperature and pressure values	For external monitoring and evaluation of process parameters, option of integration into on-site systems.	
Universal ventilation	For the convenient selection of different ventilation types, with air or inert gas. The valves can be actuated in a targeted manner via the controller or the APT-COM Multi Management Software.	
Universal access port DN 40	For inserting and positioning sensors or supply lines in the vacuum chamber.	
Pump module with vacuum pump	The pump module lifts your vacuum oven to the optimum working height, it also significantly reduces the noise of the vacuum pump and protects the pump and glass material from mechanical damage. The pump in the module can be switched on and off using a switchable socket via the control of the vacuum oven.	
Vacuum pumps	Specifically designed for BINDER VD series vacuum drying ovens. The pumps are ideal for drying aqueous and non-flammable solvents. They are resistant to chemicals, designed for continuous operation, operate quietly and are equipped with condensate separators on the inlet side.	
Multi Management Software APT-COM™	The new version of Multi Management Software APT-COM™ 4 consists of three different editions. Depending on your requirements, you can use the BASIC, PROFESSIONAL, or GLP version. The selection of functions ranges from simple log management and administration for around 100 connected environmental simulation chambers through to the tamper-proof documentation of measured values according to GLP/GMP guidelines, which correspond to the requirements of the FDA Regulation 21 CFR 11.	
Services	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter.	

► All extras online www.binder-world.com

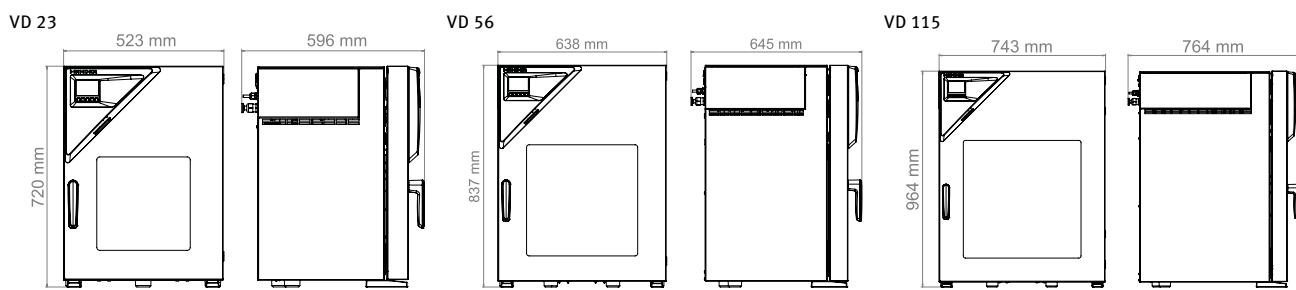
TECHNICAL DATA

Data			
Designation	VD 23	VD 56	VD 115
Option model	Standard	Standard	Standard
Performance Data Temperature			
Temperature range	+9 °C above ambient temperature to 220 °C	+9 °C above ambient temperature to 220 °C	+9 °C above ambient temperature to 220 °C
Temperature uniformity at 100°C	1.0 ± K	1.2 ± K	2.9 ± K
Temperature fluctuation at 100°C	0.1 ± K	0.1 ± K	0.1 ± K
Heating up time to 100°C	80 min	80 min	130 min
Vacuum Data			
Leak rate	0,01 bar/h	0,01 bar/h	0,01 bar/h
Pressure fluctuation over time at 50 mbar	1 ± mbar	1 ± mbar	1 ± mbar
Pressure fluctuation over time at 400 mbar	70 ± mbar	70 ± mbar	70 ± mbar
Electrical data			
Nominal power	0,9 kW	1,4 kW	1,6 kW
Phase (Nominal voltage)	1~	1~	1~
Connections			
Vacuum connection with small flange	16 DN mm	16 DN mm	16 DN mm
Measuring access port with small flange	16 DN mm	16 DN mm	16 DN mm
Compressed air connection for pressure-encapsulation	5 NW	5 NW	5 NW
Dimensions and weights			
Interior volume	24 L	55 L	119 L
Net weight of the unit (empty)	64 kg	96 kg	146 kg
Load per rack	20 kg	20 kg	20 kg
Permitted load	50 kg	60 kg	70 kg
Wall clearance back	100 mm	100 mm	100 mm
Wall clearance sidewise	70 mm	70 mm	70 mm
Housing dimensions not incl. fittings and connections			
Width net	523 mm	638 mm	743 mm
Height net	698 mm	815 mm	942 mm
Depth net	413 mm	461 mm	581 mm
Internal Dimensions			
Interior width	285 mm	400 mm	506 mm
Interior height	285 mm	400 mm	506 mm
Interior depth	295 mm	343 mm	460 mm
Unit doors	1	1	1
Environment-specific data			
Sound-pressure level	40 dB(A)	40 dB(A)	40 dB(A)
Energy consumption at 100°C	140 Wh/h	180 Wh/h	230 Wh/h
Fixtures			
Number of shelves (std./max.)	1/4	1/5	1/6

ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
Model VD 23					
24	100...120 V 1~ 50/60 Hz -10,0 A	NEMA 5-15	Standard	VD023UL-120V	9630-0005
	200...230 V 1~ 50/60 Hz -6,3 A	CEE 7/7	Standard	VD023-230V	9630-0001
Model VD 56					
55	100...120 V 1~ 50/60 Hz -16,0 A	NEMA 5-15	Standard	VD056UL-120V	9630-0006
	200...230 V 1~ 50/60 Hz -8,0 A	CEE 7/7	Standard	VD056-230V	9630-0002
Model VD 115					
119	100...120 V 1~ 50/60 Hz -20,0 A	NEMA 5-15	Standard	VD115UL-120V	9630-0007
	200...230 V 1~ 50/60 Hz -10,0 A	CEE 7/7	Standard	VD115-230V	9630-0003

DIMENSIONS AND WEIGHTS



OPTIONS

Designation	Description	VD 23	VD 56	VD 115	*	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
	Extension of the calibration of the pressure display by another pressure value, including certificate	•	•	•	-	8012-2022
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	•	•	•	-	8012-1145
	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
		-	-	•	-	8612-0008
Door lock	lockable door handle	•	•	•	-	8612-0002
Expansion racks	stainless steel expansion rack instead of standard aluminum expansion rack, incl. calibration	•	-	-	-	8612-0011
		-	•	-	-	8612-0012
		-	-	•	-	8612-0013

Designation	Description	VD 23	VD 56	VD 115	*	Art.-No.
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	VD 56	VD 115	*	Art.-No.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition	•	•	•	-	9053-0039
APT-COM™ 4 GLP-Edition	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
APT-COM™ 4 PROFESSIONAL-Edition	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. version 4, PROFESSIONAL edition	•	•	•	-	9053-0040
Connection kit VD VP1-VP2	For vacuum pump VP1 and VP2. Consisting of plastic hose 1.9 m long, clamping ring, universal centering ring and small flange adapter DN 16 to hose nozzle DN 10.	•	•	•	-	8012-2613
Emissions condenser VP1-VP2	For vacuum pump VP1 and VP2. Mounting kit for upgrading the pump with a condenser for recovering emissions.	•	•	•	-	8012-2615
	aluminum	•	-	-	-	8012-2055
	-	•	-	-	-	8012-2056
Expansion racks		-	-	•	-	8012-2057
	stainless steel	•	-	-	-	8012-2259
	-	•	-	-	-	8012-2258
	-	-	•	-	-	8012-2257
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	•	•	-	8012-2250
Pump chamber VD 23 with vacuum pump VP1	Pump chamber for installation of vacuum pumps, with switchable power socket. Including chemical membrane pump with a nominal air flow of 2.0 m³/hour, final pressure 7 mbar and connection kit VD VP1-VP2. 120 V / 50-60 Hz option model	•	-	-	-	8012-2618
	230 V / 50-60 Hz option model	•	-	-	-	8012-2616
Pump chamber VD 23 with vacuum pump VP 2	Pump chamber for installation of vacuum pumps, with switchable power socket. 120 V / 50-60 Hz option model	•	-	-	-	8012-2619
	230 V / 50-60 Hz option model	•	-	-	-	8012-2617
Pump chamber VD 56 with vacuum pump VP1	Pump chamber for installation of vacuum pumps, with switchable power socket. Including chemical membrane pump with a nominal air flow of 2.0 m³/hour, final pressure 7 mbar and connection kit VD VP1-VP2. 120 V / 50-60 Hz option model	-	•	-	-	8012-2622
Pump chamber VD 56 with vacuum pump VP 2	Pump chamber for installation of vacuum pumps, with switchable power socket. 120 V / 50-60 Hz option model	-	•	-	-	8012-2623

Designation	Description	VD 23	VD 56	VD 115	*	Art.-No.
Pump chamber VD 56 with vacuum pump VP1	Pump chamber for installation of vacuum pumps, with switchable power socket. Including chemical membrane pump with a nominal air flow of 2.0 m ³ /hour, final pressure 7 mbar and connection kit VD VP1-VP2.					
	230 V / 50-60 Hz option model	-	•	-	-	8012-2620
Pump chamber VD 56 with vacuum pump VP 2	Pump chamber for installation of vacuum pumps, with switchable power socket.					
	230 V / 50-60 Hz option model	-	•	-	-	8012-2621
Pump chamber VD 115 with vacuum pump VP1	Pump chamber for installation of vacuum pumps, with switchable power socket. Including chemical membrane pump with a nominal air flow of 2.0 m ³ /hour, final pressure 7 mbar and connection kit VD VP1-VP2.					
	120 V / 50-60 Hz option model	-	-	•	-	8012-2626
Pump chamber VD 115 with vacuum pump VP 2	Pump chamber for installation of vacuum pumps, with switchable power socket.					
	120 V / 50-60 Hz option model	-	-	•	-	8012-2627
	230 V / 50-60 Hz option model	-	-	•	-	8012-2625
Pump chamber VD 115 with vacuum pump VP1	Pump chamber for installation of vacuum pumps, with switchable power socket. Including chemical membrane pump with a nominal air flow of 2.0 m ³ /hour, final pressure 7 mbar and connection kit VD VP1-VP2.					
	230 V / 50-60 Hz option model	-	-	•	-	8012-2624
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 ₂ , O ₂ – or pressure, depending on unit					
	Digital in PDF format	•	•	•	-	7057-0005
	Hard copy inside folder	•	•	•	-	7007-0005
Vacuum pump VP1	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 ₂ , O ₂ , pressure, depending on unit					
	Digital in PDF format	•	•	•	-	7057-0001
	Hard copy inside folder	•	•	•	-	7007-0001
Vacuum pump VP1	Chemical membrane pump with a nominal air flow of 2.0 m ³ /h and final pressure 7 mbar. Option model can be switched between 230V/50Hz and 120V/60Hz.	•	•	•	-	5013-0256
Vacuum pump VP2	Chemical membrane pump with a nominal air flow of 3.4 m ³ /h and final pressure 1.5 mbar. Option model can be switched between 230V/50Hz and 120V/60Hz.	•	•	•	-	5013-0257

SERVICES

Designation	Description	*	Art.-No.
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	05	DL50-0020
BRONZE 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	05	DL20-0710
Calibration certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	05	DL30-0160
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	05	DL30-0102
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	05	DL42-0310
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500
GOLD 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate	05	DL20-0980
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	05	DL20-0615
Pressure calibration	Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate	05	DL30-0410
	Expansion – Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate	05	DL30-0411
SILVER 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate	05	DL20-0880
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	05	DL30-0109
Temperature measurement, 15 measuring points	Temperature measurement with 15 measuring points with a set value specified by the user, including certificate	05	DL30-0218
Unit commissioning	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)	05	DL10-0120
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0510
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.	05	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.	05	DL20-0420

Series VDL | for flammable solvents

BINDER VDL series safety vacuum drying chambers ensure maximum safety when drying organic solvents. Explosion-protected unit with classification according to ATEX directive 2014/34/EU: EX II 2/3/- G IIB T3 Gb/Gc/- X.



Model 115

BENEFITS

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

IMPORTANT CHARACTERISTICS

- Temperature range: +9°C above ambient temperature to +110 °C
- ATEX conformity for units: EX II 2/3/- G IIB T3 Gb/Gc/- X
- Intuitive touchscreen controller with graphical pressure and temperature display
- 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
- Pressure control device for heating activated from < 100 mbar
- 2 aluminum expansion racks, can be custom-positioned
- Universal connection for ventilation with ambient air or inert gas
- Universal access port DN 16 - for the introduction of external measuring devices
- Shatterproof, spring-mounted safety glass panel
- Large viewing window
- Computer interface: Ethernet

AVAILABLE SIZES

Designation	Interior volume	Kurz-URL
VDL 23	24	go2binder.com/en-VDL23
VDL 56	55	go2binder.com/en-VDL56
VDL 115	119	go2binder.com/en-VDL115

OPTIONAL EQUIPMENT

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.	
Expansion racks	The expansion racks ensure maximum heat transfer to the items to be dried. You can choose between aluminum and stainless steel racks.	
Analog output for temperature and pressure values	For external monitoring and evaluation of process parameters, option of integration into on-site systems.	
Universal ventilation	For the convenient selection of different ventilation types, with air or inert gas. The valves can be actuated in a targeted manner via the controller or the APT-COM Multi Management Software.	
Universal access port DN 40	For inserting and positioning sensors or supply lines in the vacuum chamber.	
Pump module with vacuum pump	The pump module lifts your vacuum oven to the optimum working height, it also significantly reduces the noise of the vacuum pump and protects the pump and glass material from mechanical damage. The pump in the module can be switched on and off using a switchable socket via the control of the vacuum oven.	
Vacuum pumps	Ideal for the safe drying of flammable solvents with BINDER VDL vacuum drying ovens. The ATEX-compliant pump operates quietly and with low vibration, is resistant to chemicals and designed for continuous operation. An inlet-side condensate separator and outlet-side emission condenser enable efficient solvent recovery.	
Multi Management Software APT-COM™	The new version of Multi Management Software APT-COM™ 4 consists of three different editions. Depending on your requirements, you can use the BASIC, PROFESSIONAL, or GLP version. The selection of functions ranges from simple log management and administration for around 100 connected environmental simulation chambers through to the tamper-proof documentation of measured values according to GLP/GMP guidelines, which correspond to the requirements of the FDA Regulation 21 CFR 11.	

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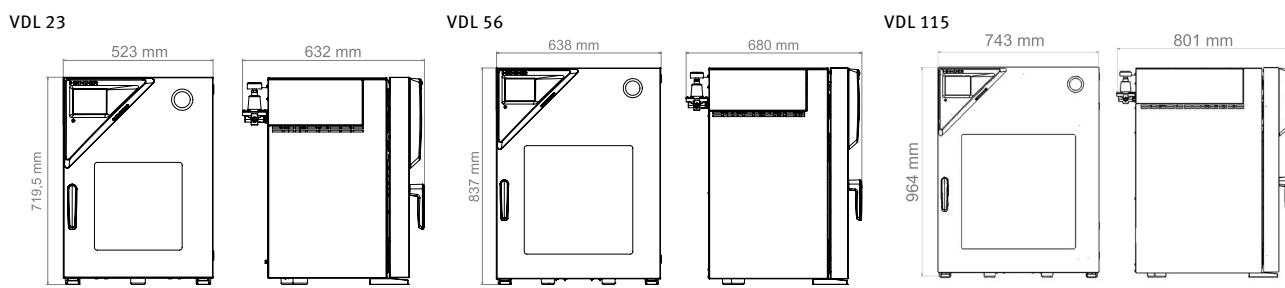
TECHNICAL DATA

Data			
Designation	VDL 23	VDL 56	VDL 115
Option model	Standard	Standard	Standard
Performance Data Temperature			
Temperature range	+9 °C above ambient temperature to 110 °C	+9 °C above ambient temperature to 110 °C	+9 °C above ambient temperature to 110 °C
Temperature uniformity at 100°C	1.0 ± K	1.2 ± K	2.9 ± K
Temperature fluctuation at 100°C	0.1 ± K	0.1 ± K	0.1 ± K
Heating up time to 100°C	110 min	140 min	170 min
Vacuum Data			
Leak rate	0,01 bar/h	0,01 bar/h	0,01 bar/h
Pressure fluctuation over time at 50 mbar	1 ± mbar	1 ± mbar	1 ± mbar
Pressure fluctuation over time at 400 mbar	70 ± mbar	70 ± mbar	70 ± mbar
Electrical data			
Nominal power	0,9 kW	1,4 kW	1,6 kW
Unit fuse		8,0 A	
Phase (Nominal voltage)	1~	1~	1~
Connections			
Vacuum connection with small flange	16 DN mm	16 DN mm	16 DN mm
Measuring access port with small flange	16 DN mm	16 DN mm	16 DN mm
Dimensions and weights			
Interior volume	24 L	55 L	119 L
Net weight of the unit (empty)	72 kg	104 kg	158 kg
Load per rack	20 kg	20 kg	20 kg
Permitted load	50 kg	60 kg	70 kg
Wall clearance back	100 mm	100 mm	100 mm
Wall clearance sidewise	70 mm	70 mm	70 mm
Housing dimensions not incl. fittings and connections			
Width net	523 mm	638 mm	743 mm
Height net	698 mm	815 mm	942 mm
Depth net	413 mm	461 mm	581 mm
Internal Dimensions			
Interior width	285 mm	400 mm	506 mm
Interior height	285 mm	400 mm	506 mm
Interior depth	295 mm	343 mm	460 mm
Unit doors	1	1	1
Environment-specific data			
Sound-pressure level	40 dB(A)	40 dB(A)	40 dB(A)
Energy consumption at 100°C	140 Wh/h	180 Wh/h	230 Wh/h
Fixtures			
Number of shelves (std./max.)	2/4	2/5	2/6

ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
Model VDL 23					
24	100...120 V 1~ 50/60 Hz -10,0 A 200...230 V 1~ 50/60 Hz -6,3 A	NEMA 5-15 CEE 7/7	Standard	VDL023-120V VDL023-230V	9630-0013 9630-0009
Model VDL 56					
55	100...120 V 1~ 50/60 Hz -16,0 A 200...230 V 1~ 50/60 Hz -8,0 A	NEMA 5-15 CEE 7/7	Standard	VDL056-120V VDL056-230V	9630-0014 9630-0010
Model VDL 115					
119	100...120 V 1~ 50/60 Hz -20,0 A 200...230 V 1~ 50/60 Hz -10,0 A	NEMA 5-15 CEE 7/7	Standard	VDL115-120V VDL115-230V	9630-0015 9630-0011

DIMENSIONS AND WEIGHTS



OPTIONS

Designation	Description	VDL 23	VDL 56	VDL 115	*	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 Extension of the calibration of the pressure display by another pressure value, including certificate	• •	• •	• •	-	8012-2021 8012-2022
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature temperature measurement incl. certificate, 9 measuring points at specified temperature temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	• • •	• • •	• • •	-	8012-1145 8012-0916 8012-0919
Door gasket	made of FKM, silicone-free	• - -	- • -	- - •	-	8612-0007 8612-0008 8612-0009

Designation	Description	VDL 23	VDL 56	VDL 115	*	Art.-No.
Door lock	lockable door handle	•	•	•	-	8612-0002
Expansion racks	stainless steel expansion rack instead of standard aluminum expansion rack, incl. calibration	• –	– •	– –	-	8612-0011 8612-0012 8612-0013
Temperature measurement of the specimen	with flexible Pt 100 sensor and digital specimen temperature display	•	•	•	-	8612-0006
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	VDL 23	VDL 56	VDL 115	*	Art.-No.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition	•	•	•	-	9053-0039
APT-COM™ 4 GLP-Edition	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
APT-COM™ 4 PROFESSIONAL-Edition	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. version 4, PROFESSIONAL edition	•	•	•	-	9053-0040
Connection kit VDL VP5 PTFE	For vacuum pump VP5 EX. Consisting of antistatic PTFE hose 1.9 m long, with small flange DN 16 on both sides, 2 clamping rings and 2 universal centering rings.	•	•	•	-	8012-2614
Connection kit VDL VP5 stainless steel	For vacuum pump VP5 EX. Consisting of stainless steel hose 1.9 m long, with small flange DN 16 on both sides, 2 clamping rings and 2 universal centering rings. aluminum	• –	• –	• –	-	8012-2724 8012-2055 8012-2056
Expansion racks	– stainless steel	– –	– •	– –	-	8012-2057 8012-2259 8012-2258 8012-2257
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	•	•	-	8012-2250
Pump chamber VDL 23 with vacuum pump VP5 EX	Pump chamber for installation of vacuum pumps. Including ATEX chemical membrane pump with nominal pumping speed 1.9 m³/h, final pressure 12 mbar, 230V/50Hz. ATEX conformity: suction chamber (pumped gases): II 2G Ex h IIC T3 Gb X; exterior with inert gas flushing: II 2G Ex h IIB T4 Gb X; exterior without inert gas flushing: II 3G Ex h IIB T4 Gc X motor: II 2G Ex db IIB T4 Gb 230 V / 50-60 Hz option model	•	–	–	-	8012-2628
Pump chamber VDL 56 with vacuum pump VP5 EX	Pump chamber for installation of vacuum pumps. Including ATEX chemical membrane pump with nominal pumping speed 1.9 m³/h, final pressure 12 mbar, 230V/50Hz. ATEX conformity: suction chamber (pumped gases): II 2G Ex h IIC T3 Gb X; exterior with inert gas flushing: II 2G Ex h IIB T4 Gb X; exterior without inert gas flushing: II 3G Ex h IIB T4 Gc X motor: II 2G Ex db IIB T4 Gb 230 V / 50-60 Hz option model	–	•	–	-	8012-2629

Designation	Description	VDL 23	VDL 56	VDL 115	*	Art.-No.
Pump chamber VDL 115 with vacuum pump VP5 EX	<p>Pump chamber for installation of vacuum pumps. Including ATEX chemical membrane pump with nominal pumping speed 1.9 m³/h, final pressure 12 mbar, 230V/50Hz.</p> <p>ATEX conformity: suction chamber (pumped gases): II 2G Ex h IIC T3 Gb X; exterior with inert gas flushing: II 2G Ex h IIB T4 Gb X; exterior without inert gas flushing: II 3G Ex h IIB T4 Gc X motor: II 2G Ex db IIB T4 Gb</p> <p>230 V / 50-60 Hz option model</p>	-	-	•	-	8012-2630
Qualification documents	<p>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, CO₂, O₂, – or pressure, depending on unit</p> <p>Digital in PDF format</p> <p>Hard copy inside folder</p>	•	•	•	-	7057-0005
Vacuum pump VP5 EX	<p>IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, CO₂, O₂, pressure, depending on unit</p> <p>Digital in PDF format</p> <p>Hard copy inside folder</p>	•	•	•	-	7007-0001
VDL pressure gage test device	<p>ATEX chemical membrane pump with nominal pumping speed 1.9 m³/h, final pressure 12 mbar, 230V/50Hz.</p> <p>ATEX conformity: maximum permissible pressure at inlet and 1.1 suction chamber (pumped gases): II 2G Ex h IIC T3 Gb X; exterior with inert gas flushing: II 2G Ex h IIB T4 Gb X; exterior without inert gas flushing: II 3G Ex h IIB T4 Gc X motor: II 2G Ex db IIB T4 Gb</p> <p>for the annual inspection of the function of the compressed air flushing pressure gage</p>	•	•	•	-	5013-0258
		•	•	•	-	9501-0048

SERVICES

Designation	Description	*	Art.-No.
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	05	DL50-0020
BRONZE 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	05	DL20-0710
Calibration certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	05	DL30-0170
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	05	DL30-0102
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	05	DL42-0310
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500
GOLD 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate	05	DL20-0960
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	05	DL20-0612
Pressure calibration	Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate	05	DL30-0410
	Expansion – Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate	05	DL30-0411
Safety test	Testing of ATEX-specific safety systems: inert gas flushing and safety temperature shut-off. Testing of the specified systems also forms part of the more extensive maintenance service (DL20-0520)	05	DL34-0000
SILVER 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate	05	DL20-0860
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	05	DL30-0109
Temperature measurement, 15 measuring points	Temperature measurement with 15 measuring points with a set value specified by the user, including certificate	05	DL30-0218
Unit commissioning	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)	05	DL10-0120
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0510
VAP 5 vacuum pump maintenance	Maintenance service of the VAP 5 vacuum pump according to the maintenance schedule, visual inspection, replacement of the diaphragms, O-rings and seals, (Service Kit 8500-0160 included in the scope of services) as well as final functional test.	05	DL20-0430

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