

Model VDL 23 | Vacuum drying chambers 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.

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



Model 23



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MAIN FEATURES

- Temperature range: Ambient temperature +9 °C 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
- DN 16 universal access port with small flange and blind flange, for positioning sensors or supply lines in the chamber
- Shatterproof, spring-mounted safety glass panel
- Large viewing window
- Computer interface: Ethernet

OPTIONAL EQUIPMENT

- 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

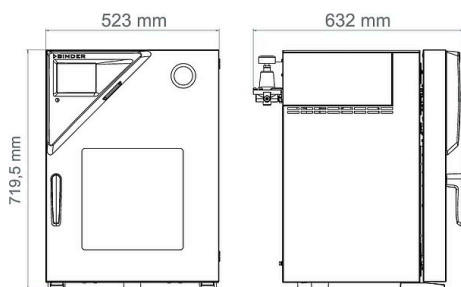
ORDERING INFORMATION

| Interior volume [L] | Voltage | Option model | Version | Art.-No. |
|---------------------|----------------------------|--------------|---------------|-----------|
| 24 | 200...230 V 1~ ph 50/60 Hz | Standard | VDL023-230V | 9630-0009 |
| | 100...120 V 1~ ph 50/60 Hz | Standard | VDL023UL-120V | 9630-0013 |

TECHNICAL DATA

| Description | VDL023-230V ¹ | VDL023UL-120V ¹ |
|--|--------------------------|----------------------------|
| Article Number | 9630-0009 | 9630-0013 |
| Performance Data Temperature | | |
| Temperature range +9 °C above ambient temperature to [°C] | 110 | 110 |
| Temperature variation at 100 °C [± K] | 1.0 | 1.0 |
| Temperature fluctuation [± K] | 0.1 | 0.1 |
| Heating-up time to 100 °C [min] | 150 | 150 |
| Vacuum Data | | |
| Leak rate [bar/h] | 0.01 | 0.01 |
| Electrical data | | |
| Rated Voltage [V] | 200...230 | 100...120 |
| Power frequency [Hz] | 50/60 | 50/60 |
| Nominal power [kW] | 0.9 | 0.9 |
| Unit fuse [A] | 6.3 | 10 |
| Phase (Nominal voltage) | 1~ | 1~ |
| Connections | | |
| Vacuum connection with small flange [DN mm] | 16 | 16 |
| Measuring access port with small flange [DN mm] | 16 | 16 |
| Universalanschluss für Luft / Inertgas, mit Durchflussbegrenzer (RP ¹) | 3/8 | 3/8 |
| Measures | | |
| Interior volume [L] | 24 | 24 |
| Net weight of the unit (empty) [kg] | 72 | 72 |
| Permitted load [kg] | 50 | 50 |
| Load per rack [kg] | 20 | 20 |
| Viewing window width [mm] | 305 | 305 |
| Viewing window height [mm] | 305 | 305 |
| Wall clearance back [mm] | 100 | 100 |
| Wall clearance sidewise [mm] | 70 | 70 |
| Internal Dimensions | | |
| Width [mm] | 285 | 285 |
| Height [mm] | 285 | 285 |
| Depth [mm] | 295 | 295 |
| Doors | | |
| Unit doors | 1 | 1 |
| Housing dimensions not incl. fittings and connections | | |
| Width net [mm] | 523 | 523 |
| Height net [mm] | 698 | 698 |
| Depth net [mm] | 413 | 413 |
| Environment-specific data | | |
| Sound-pressure level [dB(A)] | 40 | 40 |
| Fixtures | | |
| Number of shelves (std./max.) | 2/4 | 2/4 |

¹ 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 | * | 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 | for digital pressure display, measurement at 100 mbar or at specified pressure (range 20 – 900 mbar) | - | 8012-0440 |
| Calibration certificate, temperature | for temperature, measurement in center of chamber at specified temperature | - | 8012-1145 |
| | temperature measurement incl. certificate, 15- 18 measuring points at specified temperature | - | 8012-0919 |
| | temperature measurement incl. certificate, 9 measuring points at specified temperature | - | 8012-0916 |
| Door gasket | made of FKM, silicone-free | 03 | 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 |
| 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 |

* Notes › See last page

ACCESSORIES

| Designation | Description | * | Art.-No. |
|--|---|----|-----------|
| APT-COM™ 4 BASIC-Edition | for simple logging and documentation requirements with up to 5 networked units. version 4, BASIC edition | 19 | 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 | 19 | 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 | 19 | 9053-0040 |
| Expansion racks | stainless steel | - | 8009-1093 |
| | aluminum | - | 8009-1031 |
| pH-neutral detergent | concentrated, for gentle remove of residual contaminants; 1 kg | - | 1002-0016 |

* Notes › See last page

| Designation | Description | * | Art.-No. |
|--|--|---|-----------|
| Qualification documents | 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 module with vacuum pump VP 4 | 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 connection kit (ATEX) | Chemical membrane pump with nominal pumping speed 1.9 m ³ /h, final pressure 12 mbar, with separator and emission condenser, ATEX conformity: suction chamber (pumped gases): II 2G IIC T ₃ X, exterior with inert-gas flushing: II 2G IIB T ₄ X, exterior without inert-gas flushing: II 3G IIB T ₄ X, motor: II 2G Ex d IIB T ₄ Gb, including all necessary parts for vacuum connection 230 V / 50 Hz option model | – | 8012-1970 |
| Vacuum pump VP 4 | for vacuum pump VP 4; consisting of clamping rings, universal centering rings, transition piece, anti-static vacuum hose, union nut, and elbow | – | 8012-0621 |
| Vacuum pump VP 4 | Chemical membrane pump with nominal pumping speed 1.9 m ³ /h, final pressure 12 mbar, with separator and emission condenser, ATEX conformity: Suction chamber (pumped gases): II 2G IIC T ₃ X, exterior with inert-gas flushing: II 2G IIB T ₄ X, exterior without inert-gas flushing: II 3G IIB T ₄ X, motor: II 2G Ex d IIB T ₄ Gb 230 V / 50 Hz option model | – | 5013-0049 |

* Notes › See last page

SERVICES

| Designation | Description | * | Art.-No. |
|--|--|----------------|-----------|
| Installation services | | | |
| Unit installation | Unpacking and setting up of unit, connecting to existing connections, and checking function | 13, 18 | DL10-0100 |
| Unit instructions | Unit function instructions for operation and programming of the controller | 18 | DL10-0500 |
| Preventive maintenance | | | |
| Maintenance | Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule | 14, 18 | DL20-0400 |
| Calibration services | | | |
| Pressure calibration | Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate | 14, 16, 17, 18 | DL32-0000 |
| Temperature calibration | Expansion – including certificate, each additional measuring point in center of chamber at specified test temperature | 14, 16, 17, 18 | DL30-0102 |
| | Temperature calibration with 1 measuring point in center of chamber at a specified test temperature, including certificate | 14, 16, 17, 18 | DL30-0101 |
| Temperature measurement, 15 measuring points | Temperature measurement with 15 measuring points at a specified test temperature, including certificate | 14, 16, 17, 18 | DL30-0218 |
| Temperature measurement, 9 measuring points | Temperature measurement with 9 measuring points at a specified test temperature, including certificate | 14, 16, 17, 18 | DL30-0109 |
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder | 15, 18 | DL42-0300 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | 15, 18 | DL44-0500 |
| Warranty service | | | |
| Warranty extension from 2 to 3 years | The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded | – | DL00-9041 |
| Warranty extension from 2 to 5 years | The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded | – | DL00-9042 |

* Notes › See last page

NOTES

- 01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
- 02 UL mark is not granted when this option is used.
- 03 Heat resistant only to max. 200 °C.
- 04 Only available on units rated for 230 V.
- 07 The additional heat input may affect the temperature behavior.
- 09 Not in conjunction with the optional access port, door with window and interior lighting.
- 10 Not available on 23-liter units.
- 11 Not available on 23- or 53-liter units.
- 12 Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- 16 Sensor calibration is performed in an accredited calibration laboratory.
- 17 Calibration is performed according to the BINDER factory standard.
- 18 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).
- 19 For additional accessories, refer to the Process documentation chapter.

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