

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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IMPORTANT FEATURES

- 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

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] | Power supply - unit fuse | Plug* | Version | Model version | Art.-No. |
|---------------------|---------------------------------|-----------|----------|---------------|-----------|
| Model VDL 23 | | | | | |
| 24 | 100...120 V 1~ 50/60 Hz -10,0 A | NEMA 5-15 | Standard | VDLo23-120V | 9630-0013 |
| | 200...230 V 1~ 50/60 Hz -6,3 A | CEE 7/7 | Standard | VDLo23-230V | 9630-0009 |

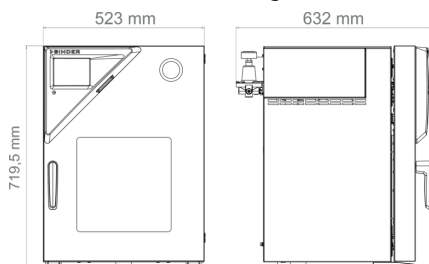
TECHNICAL DATA

| Data | | |
|---|---|---|
| Designation | VDLo23-230V | VDLo23-120V |
| Article Number | 9630-0009 | 9630-0013 |
| Option model | Standard | Standard |
| Performance Data Temperature | | |
| Temperature range | +9 °C above ambient temperature to 110 °C | +9 °C above ambient temperature to 110 °C |
| Temperature uniformity at 100°C | 1.0 ± K | 1.0 ± K |
| Temperature fluctuation at 100°C | 0.1 ± K | 0.1 ± K |
| Heating up time to 100°C | 110 min | 110 min |
| Vacuum Data | | |
| Leak rate | 0,01 bar/h | 0,01 bar/h |
| Pressure fluctuation over time at 50 mbar | 1 ± mbar | 1 ± mbar |
| Pressure 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 |
| Dimensions and weights | | |
| Interior volume | 24 L | 24 L |
| Net weight of the unit (empty) | 72 kg | 72 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 | | |

| | | |
|----------------------------------|----------|----------|
| 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.) | 2/4 | 2/4 |

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 | VDL 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 |
| | Extension of the calibration of the pressure display by another pressure value, including certificate | • | - | 8012-2022 |

| Designation | Description | VDL 23 | * | Art.-No. |
|---|--|--------|---|-----------|
| 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 |
| 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 |

ACCESSORIES

| Designation | Description | VDL 23 | * | 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 |
| Expansion racks | aluminum | • | - | 8012-2055 |
| | stainless steel | • | - | 8012-2259 |
| pH-neutral detergent | concentrated, for gentle remove of residual contaminants; 1 kg | • | - | 8012-2250 |
| Pump chamber with vacuum pump VAP 5 | Pump chamber for mounting vacuum pumps including chemical membrane pump VAP 5 with nominal air flow 3.9 m³/hour, final pressure 3 mbar, with separator and emission condenser, suitable for flammable solvents and vacuum pump connection kit (ATEX). | | | |
| | 120 V / 60 Hz option model | • | - | 8012-2060 |
| | 230 V / 50-60 Hz option model | • | - | 8012-2059 |
| 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 |

| Designation | Description | VDL 23 | * | Art.-No. |
|-----------------------------------|---|--------|---|-----------|
| | 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, CO ₂ , O ₂ , pressure, depending on unit | | | |
| | Digital in PDF format | • | - | 7057-0001 |
| | Hard copy inside folder | • | - | 7007-0001 |
| Vacuum pump connection kit (ATEX) | For vacuum pump VAP 5, consisting of 2 m metal hose, clamping ring, internal centering ring and protective covers | • | - | 8012-2029 |
| | Chemical membrane pump with nominal air flow 3,9 m ³ /h, final pressure 3 mbar, with separator and emission condenser, suitable for flammable solvents | | | |
| Vacuum pump VAP 5 | 120 V / 60 Hz option model | • | - | 5013-0221 |
| | 230 V / 50 Hz option model | • | - | 5013-0220 |
| VDL pressure gage test device | for the annual inspection of the function of the compressed air flushing pressure gage | • | - | 9501-0048 |

SERVICES

| Designation | Description | * | Art.-No. |
|--|--|----|-----------|
| Calibration services | | | |
| Calibration certificate, temperature | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate | - | DL30-0170 |
| | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate | - | DL30-0102 |
| Pressure calibration | Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate | - | DL30-0410 |
| | Expansion – Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate | - | DL30-0411 |
| Temperature measurement, 9 measuring points | Temperature measurement with 9 measuring points with a set value specified by the user, including certificate | - | DL30-0109 |
| Temperature measurement, 15 measuring points | Temperature measurement with 15 measuring points with a set value specified by the user, including certificate | - | DL30-0218 |
| Installation services | | | |
| 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) | - | DL10-0120 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming | 05 | DL10-0510 |
| Maintenance contracts | | | |
| 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 | - | DL20-0710 |

| Designation | Description | * | Art.-No. |
|------------------------------------|---|---|-----------|
| 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 | - | DL20-0960 |
| 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 | - | DL20-0860 |
| Maintenance services | | | |
| 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 | - | DL20-0612 |
| 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) | - | DL34-0000 |
| 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. | - | DL20-0430 |
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder | - | DL42-0310 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | - | DL44-0500 |
| Warranty service | | | |
| 1-year warranty extension | The warranty is extended by 1 year from the delivery date, wear parts are excluded | - | DL50-0020 |

NOTES

- 05 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).

BINDER GmbH

Tuttlingen, Germany
TEL +49 7462 2005 0
info@binder-world.com
www.binder-world.com

BINDER Inc.

Bohemia, NY, USA
TEL +1 631 224 4340
usa@binder-world.com
www.binder-world.us

BINDER Environmental Testing Equipment (Shanghai) Co., Ltd.

Shanghai, P.R. China
TEL +86 21 685 808 25
china@binder-world.com
www.binder-world.com

BINDER Asia Pacific (Hong Kong) Ltd.

Kowloon, Hong Kong, P.R. China
TEL +852 39070500
asia@binder-world.com
www.binder-world.com