

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

BINDER's VD series vacuum drying chambers while deliver impressive performance through their precise temperature control and gentle drying. The patented expansion rack technology from BINDER also ensures optimal heat transfer. The shelves provide flexible placement and are easy to dry in the interior of the chamber.

## BENEFITS

- Fast, gentle drying
- Direct 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

## MAIN FEATURES

- Temperature range: Ambient temperature plus 10 °C 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
- Shatterproof, spring-mounted safety glass panel
- Large viewing window with option of interior lighting
- Computer interface: Ethernet
- 2 relay outputs, 24 V DC (max. 0.4 A)

## OPTIONAL EQUIPMENT

- Touchscreen Controller - Graphical display of main process parameter
- USB port - Data readable in open format
- 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

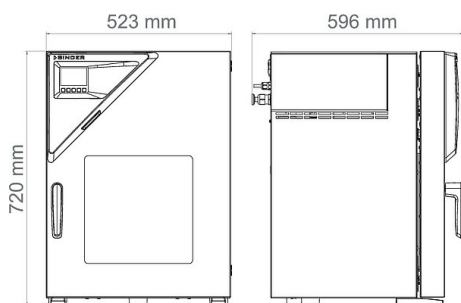
## ORDERING INFORMATION

| Interior volume [L] | Voltage                    | Option model | Version      | Art.-No.  |
|---------------------|----------------------------|--------------|--------------|-----------|
| 24                  | 200...230 V 1~ ph 50/60 Hz | Standard     | VD023-230V   | 9630-0001 |
|                     | 100...120 V 1~ ph 50/60 Hz | Standard     | VD023UL-120V | 9630-0005 |

## TECHNICAL DATA

| Description   | VD023-230V <sup>1</sup> | VD023UL-120V <sup>1</sup> |
|---|-------------------------|---------------------------|
| Article Number  | 9630-0001               | 9630-0005                 |
| <b>Performance Data Temperature</b>                                   |                         |                           |
| Temperature range 10 °C above ambient temperature to [°C]             | 220                     | 220                       |
| Temperature variation at 100 °C [± K]                                 | 1.0                     | 1.0                       |
| Temperature fluctuation [± K]   | 0.1                     | 0.1                       |
| Heating-up time to 100 °C [min]                                       | 80                      | 80                        |
| <b>Vacuum Data</b>  |                         |                           |
| Permitted end vacuum [mbar]   |                         |                           |
| Leak rate [bar/h]   | 0.01                    | 0.01                      |
| <b>Electrical data</b>  |                         |                           |
| 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~                        |
| <b>Connections</b>  |                         |                           |
| 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") | 3/8                     | 3/8                       |
| Compressed air connection for pressure-encapsulation                  | 5 NW                    | 5 NW                      |
| <b>Measures</b>   |                         |                           |
| Interior volume [L]   | 24                      | 24                        |
| Net weight of the unit (empty) [kg]                                   | 64                      | 68                        |
| 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]  | 135                     | 135                       |
| <b>Internal Dimensions</b>  |                         |                           |
| Width [mm]  | 285                     | 285                       |
| Height [mm]   | 285                     | 285                       |
| Depth [mm]  | 295                     | 295                       |
| <b>Doors</b>  |                         |                           |
| Unit doors  | 1                       | 1                         |
| <b>Housing dimensions not incl. fittings and connections</b>          |                         |                           |
| Width net [mm]  | 523                     | 523                       |
| Height net [mm]   | 698                     | 698                       |
| Depth net [mm]  | 413                     | 413                       |
| <b>Fixtures</b>   |                         |                           |
| Number of shelves (std./max.)   | 1/4                     | 1/4                       |

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        | Inlet for ambient air or inert gas with adapter. 8 mm hose and fine dosing valve for ventilation   | -  | 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 |
| Interior lighting                       | with 15 W light bulb   | -  | 8612-0005 |
| Temperature measurement of the specimen | with flexible Pt 100 sensor and digital specimen temperature display   | -  | 8612-0006 |
| Touchscreen controller                  | Large display with intuitive operation; actual and set values of key process parameters are shown on the display at the same time. It is also possible to perform graphical time-based evaluation of process parameters. | -  | 8612-0015 |
| Universal access port                   | Additional universal DN 40 access port, 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.<br>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.<br>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.<br>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 <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit |   |           |
|                                      | Digital in PDF format   | – | 7057-0001 |
|                                      | Hard copy inside folder   | – | 7007-0001 |
| 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 |
| Vacuum module with vacuum pump VAP 1 | Chemical membrane pump with nominal pumping speed of 2.0 m <sup>3</sup> /h, final pressure 7 mbar, ATEX conformity: II 3G IIC T3 X (only for interior, areas coming in contact with media), including all necessary parts for vacuum connection                     |   |           |
|                                      | 120 V / 50-60 Hz option model   | – | 8012-1961 |
|                                      | 230 V / 50-60 Hz option model   | – | 8012-1958 |
| Vacuum module with vacuum pump VAP 2 | Chemical membrane pump with nominal pumping speed of 4.0 m <sup>3</sup> /h, final pressure 1.8 mbar, ATEX conformity: II 3G IIC T3 X (only for interior, areas coming in contact with media)  |   |           |
|                                      | 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 |
| Vacuum pump VAP 1                    | Chemical membrane pump with nominal pumping speed 2.0 m <sup>3</sup> /h, final pressure 7 mbar, ATEX conformity: II 3G IIC T3 X (only for interior, areas coming in contact with media)   |   |           |
|                                      | 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 nominal pumping speed 4,0 m <sup>3</sup> /h, final pressure 1.8 mbar, ATEX conformity: II 3G IIC T3 X (only for interior, areas coming in contact with media)   |   |           |
|                                      | 120 V / 50-60 Hz option model   | – | 5013-0219 |
|                                      | 230 V / 50-60 Hz option model   | – | 5013-0218 |

\* Notes › See last page

## SERVICES

| Designation                                  | Description  | *              | Art.-No.  |
|--|--|----------------|-----------|
| <b>Installation services</b>                 |  |                |           |
| 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 |
| <b>Preventive maintenance</b>                |  |                |           |
| Maintenance                                  | Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule | 14, 18         | DL20-0400 |
| <b>Calibration services</b>                  |  |                |           |
| 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 |
| <b>Validation services</b>                   |  |                |           |
| 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 |
| <b>Warranty service</b>                      |  |                |           |
| Warranty extension from 2 to 3 years         | The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded                                   | –              | DL00-8041 |
| Warranty extension from 2 to 5 years         | The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded                                   | –              | DL00-8042 |

\* 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.

BINDER GmbH  
Tuttlingen, Germany  
TEL +49 7462 2005 0  
FAX +49 7462 2005 100  
info@binder-world.com  
www.binder-world.com

BINDER Asia Pacific (Hong Kong) Ltd.  
Kowloon, Hong Kong, P.R. China  
TEL +852 39070500  
FAX +852 39070507  
asia@binder-world.com  
www.binder-world.com

Representative Office for CIS  
Moscow, Russia  
TEL +7 495 988 15 16  
FAX +7 495 988 15 17  
russia@binder-world.com  
www.binder-world.com

BINDER Environmental Testing  
Equipment (Shanghai) Co., Ltd.  
Shanghai, P.R. China  
TEL +86 21 685 808 25  
FAX +86 21 685 808 29  
china@binder-world.com  
www.binder-world.com

BINDER Inc.  
Bohemia, NY, USA  
TEL +1 631 224 4340  
FAX +1 631 224 4354  
usa@binder-world.com  
www.binder-world.us



**Wolflabs**

# Wolf Laboratories Limited

[www.wolflabs.co.uk](http://www.wolflabs.co.uk)

Tel: 01759 301142

Fax: 01759 301143

[sales@wolflabs.co.uk](mailto:sales@wolflabs.co.uk)



**Use the above details to contact us if this literature doesn't answer all your questions.**

**Pricing on any accessories shown can be found by keying the part number into the search box on our website.**

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

