

# Model VD 56 | 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 56

## MAIN FEATURES

- Temperature range: ambient temperature +9 °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
- 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

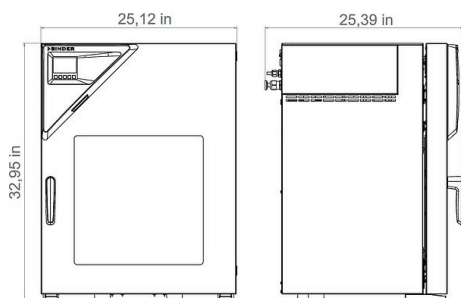
## ORDERING INFORMATION

| Interior volume [cu.ft.] | Voltage                 | Option model | Version      | Art.-No.  |
|--------------------------|-------------------------|--------------|--------------|-----------|
| 1.9                      | 200...230 V 1~ 50/60 Hz | Standard     | VD056-230V   | 9630-0002 |
|                          | 100...120 V 1~ 50/60 Hz | Standard     | VD056UL-120V | 9630-0006 |

**TECHNICAL DATA**

| Description  | VD056-230V <sup>1</sup> | VD056UL-120V <sup>1</sup> |
|--|-------------------------|---------------------------|
| <b>Article Number</b>  | <b>9630-0002</b>        | <b>9630-0006</b>          |
| <b>Performance Data Temperature</b>  |                         |                           |
| Temperature range +9 °C above ambient temperature to [°C]                          | 220                     | 220                       |
| Temperature variation at 100 °C [± K]  | 1.5                     | 1.5                       |
| Temperature fluctuation [± K]  | 0.1                     | 0.1                       |
| Heating-up time to 100 °C [min]  | 80                      | 80                        |
| <b>Vacuum Data</b>   |                         |                           |
| 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]   | 1.4                     | 1.4                       |
| Unit fuse [A]  | 8                       | 16                        |
| 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 <sup>1</sup> ) | 3/8                     | 3/8                       |
| Compressed air connection for pressure-encapsulation                               | 5 NW                    | 5 NW                      |
| <b>Measures</b>  |                         |                           |
| Interior volume [cu.ft.]   | 1.9                     | 1.9                       |
| Net weight of the unit (empty) [lbs]   | 209                     | 223                       |
| Permitted load [lbs]   | 132                     | 132                       |
| Load per rack [lbs]  | 44                      | 44                        |
| Viewing window width [in]  | 16.55                   | 16.55                     |
| Viewing window height [in]   | 16.55                   | 16.55                     |
| Wall clearance back [in]   | 3.94                    | 3.94                      |
| Wall clearance sidewise [in]   | 2.76                    | 2.76                      |
| <b>Internal Dimensions</b>   |                         |                           |
| Width [in]   | 15.76                   | 15.76                     |
| Height [in]  | 15.76                   | 15.76                     |
| Depth [in]   | 13.51                   | 13.51                     |
| <b>Doors</b>   |                         |                           |
| Unit doors   | 1                       | 1                         |
| <b>Housing dimensions not incl. fittings and connections</b>                       |                         |                           |
| Width net [in]   | 25.14                   | 25.14                     |
| Height net [in]  | 32.11                   | 32.11                     |
| Depth net [in]   | 18.16                   | 18.16                     |
| <b>Environment-specific data</b>   |                         |                           |
| Sound-pressure level [dB(A)]   | 40                      | 40                        |
| <b>Fixtures</b>  |                         |                           |
| Number of shelves (std./max.)  | 1/5                     | 1/5                       |

<sup>1</sup> 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 DN 40 small flange universal access port with blind flange, for positioning sensors or supply lines in the chamber.  | -  | 8612-0003 |
|                     | Additional universal connection for ventilation with ambient air or inert gas. Flow limiter thread (RP <sup>m</sup> ), and connection with 3/8" male thread.  | -  | 8612-0001 |
|                     | for digital pressure display, measurement at 100 mbar or at specified pressure (range 20 – 900 mbar)  | -  | 8012-0440 |
|                     | for temperature and pressure values (output not adjustable)   | -  | 8612-0004 |
|                     | for temperature; for extending the measurement in center of chamber to include another test temperature   | -  | 8012-1127 |
|                     | 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 |
| Options/Accessories | LED light strips on the left and right in the door  | -  | 8612-0005 |
|                     | lockable door handle  | -  | 8612-0002 |
|                     | made of FKM, silicone-free  | 03 | 8612-0008 |
|                     | Measurement in center of chamber at specified temperature   | -  | 8012-1145 |
|                     | stainless steel expansion rack instead of standard aluminum expansion rack, incl. calibration   | -  | 8612-0012 |
|                     | 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 |
|                     | with flexible Pt 100 sensor and digital specimen temperature display  | -  | 8612-0006 |

\* Notes › See last page

**ACCESSORIES**

| Designation               | Description                        | *  | Art.-No.  |
|---------------------------|------------------------------------|----|-----------|
|                           | Multi Management Software APT-COM™ |    |           |
| Multi Management Software | version 4, BASIC edition           | 19 | 9053-0039 |
|                           | version 4, GLP edition             | 19 | 9053-0042 |
|                           | version 4, PROFESSIONAL edition    | 19 | 9053-0040 |

\* Notes › See last page

| Designation                | Description   | * | Art.-No.  |
|----------------------------|---|---|-----------|
|                            | stainless steel   | - | 8009-1092 |
|                            | aluminum  | - | 8009-1030 |
|                            | Chemical membrane pump with a nominal air flow of 2.0 m <sup>3</sup> /hour, final pressure 7 mbar, including all necessary parts for vacuum connection  |   |           |
|                            | 120 V / 50-60 Hz option model   | - | 5013-0223 |
|                            | 230 V / 50-60 Hz option model   | - | 5013-0217 |
|                            | Chemical membrane pump with a nominal air flow of 4.0 m <sup>3</sup> /hour, final pressure 1,8 mbar, including all necessary parts for vacuum connection  |   |           |
|                            | 120 V / 50-60 Hz option model   | - | 5013-0219 |
|                            | 230 V / 50-60 Hz option model   | - | 5013-0218 |
|                            | concentrated, for gentle remove of residual contaminants; 1 kg  | - | 1002-0016 |
|                            | 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 |
| <b>Options/Accessories</b> | 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 |
|                            | 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 |
|                            | Pump chamber for vacuum pumps, with switchable power socket. Chemical membrane pump with a nominal air flow of 2.0 m <sup>3</sup> /hour, final pressure 7 mbar, including all necessary parts for vacuum connection   |   |           |
|                            | 120 V / 50-60 Hz option model   | - | 8012-1962 |
|                            | 230 V / 50-60 Hz option model   | - | 8012-1959 |
|                            | Pump chamber for vacuum pumps, with switchable power socket. Chemical membrane pump with a nominal air flow of 4.0 m <sup>3</sup> /hour, final pressure 1,8 mbar, including all necessary parts for vacuum connection   |   |           |
|                            | 120 V / 50-60 Hz option model   | - | 8012-1968 |
|                            | 230 V / 50-60 Hz option model   | - | 8012-1965 |

\* Notes › See last page

## SERVICES

| Designation                   | Description  | *              | Art.-No.  |
|-------------------------------|--|----------------|-----------|
| <b>Installation services</b>  |  |                |           |
| Services                      | Unit function instructions for operation and programming of the controller   | 18             | DL10-0500 |
|                               | Unpacking and setting up of unit, connecting to existing connections, and checking function                                | 13, 18         | DL10-0100 |
| <b>Preventive maintenance</b> |  |                |           |
| Services                      | Executive of equipment inspection according to maintenance plan  | 14, 18         | DL20-0400 |
| <b>Calibration services</b>   |  |                |           |
| Services                      | Digital pressure display calibration at a specified test pressure of 20–900 mbar, including certificate                    | 14, 16, 17, 18 | DL32-0000 |
|                               | 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 with 15 measuring points at a specified test temperature, including certificate                    | 14, 16, 17, 18 | DL30-0218 |
|                               | Temperature measurement with 9 measuring points at a specified test temperature, including certificate                     | 14, 16, 17, 18 | DL30-0109 |
| <b>Validation services</b>    |  |                |           |
| Services                      | Execution of IQ/OQ in accordance with qualification folder   | 15, 18         | DL42-0300 |
|                               | Execution of IQ/OQ/PQ in accordance with qualification folder  | 15, 18         | DL44-0500 |

\* Notes › See last page

| <b>Designation</b> | <b>Description</b>   | <b>*</b> | <b>Art.-No.</b> |
|--------------------|--|----------|-----------------|
| Warranty service   |  |          |                 |
| Services           | The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded | –        | DLo0-8041       |
|                    | The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded | –        | DLo0-8042       |

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**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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