

# Model VDL 23 | Vacuum drying chambers for flammable solvents

A BINDER safety vacuum drying oven of the VDL series ensures maximum safety when drying organic solvents standard with TÜV/GS. The inner chamber of the VDL safety vacuum drying oven is designed according to ATEX guidelines 2014/34/EU Ex II -/3G c IIB T3-T1 Gc X.

## BENEFITS

- Fast and gentle drying
- Direct heat transfer through large thermal conducting plates
- Safe work with one-of-a-kind safety concept
- Coordinated, modular system with vacuum pump and vacuum module



Model 23



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## MAIN FEATURES

- Temperature range: room temperature plus 15 °C to 200 °C
- ATEX compliance chamber's interior: Ex II -/3G c IIB T3-T1 Gc X
- APT.line™ preheating chamber technology
- Controller with time-segment and real-time programming
- 2 aluminum expansion racks
- Inert gas connection
- Shatterproof, spring-mounted safety glass panel
- Pressurized instrument panel with compressed air connection
- Pressure control device for heating activated < 125 mbar
- Flame protection gasket
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
Model VDL 23				
23	230 V 1~ ph 50/60 Hz	Standard	VDL023-230V	9030-0038

## TECHNICAL DATA

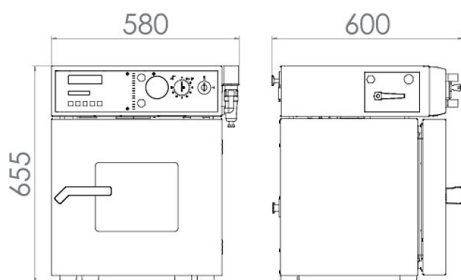
Description	VDL023-230V <sup>1</sup>
Article Number	9030-0038
Performance Data Temperature	
Temperature range 15 °C above ambient temperature to [°C]	200
Temperature variation at 100 °C [± K]	1.5
Temperature fluctuation [± K]	0.1
Heating-up time to 100 °C [min]	65

<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.

Description	VDL023-230V <sup>1</sup>
Article Number	9030-0038
<b>Vacuum Data</b>	
Permitted end vacuum [mbar]	0.01
Leak rate [bar/h]	0.01
<b>Electrical data</b>	
Rated Voltage [V]	230
Power frequency [Hz]	50/60
Nominal power [kW]	0.8
Unit fuse [A]	10
Phase (Nominal voltage)	1~
<b>Connections</b>	
Vacuum connection with small flange [DN mm]	16
Measuring access port with small flange [DN mm]	16
Inert gas connection with flow limiter (RP <sup>®</sup> )	3/8
Compressed air connection for pressure-encapsulation [mm]	8
<b>Outer dimensions</b>	
Width net [mm]	515
Height net [mm]	655
Depth net [mm]	500
Wall clearance back [mm]	100
Wall clearance sidewise [mm]	135
Viewing window width [mm]	250
Viewing window height [mm]	207
<b>Doors</b>	
Unit doors	1
<b>Internal Dimensions</b>	
Width [mm]	285
Height [mm]	285
Depth [mm]	295
<b>Measures</b>	
Interior volume [L]	23
Net weight of the unit (empty) [kg]	63
permitted load [kg]	35
Load per rack [kg]	20
<b>Fixtures</b>	
Number of shelves (std./max.)	2/4

<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 AND ACCESSORIES

Designation	Description	*	Art.-No.
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1128
Calibration certificate, temperature	for temperature, measurement in center of chamber at specified temperature	-	8012-1146
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1583
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1562
Door gasket	made of FKM, silicone-free	03	8012-1316
Electric access port	9-pin, vacuum-tight access port for transmitting electrical currents, voltages, or signals (max. 50 V / 2 A per pin; vacuum connection DN 16 ISO-KF)	-	8012-1238
Expansion rack	aluminum	-	8009-0370
	stainless steel 1.4571 (V4A)	06	8009-0101
	stainless steel expansion rack instead of standard aluminum expansion rack, incl. calibration	-	8012-1422
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
Temperature measurement of the specimen	using flexible Pt 100 sensor (EX-proof via current-measurement access port) and digital temperature display	-	8012-0574
Vacuum module	to receive vacuum pumps	-	8012-0690
Vacuum module with vacuum pump VP 4	Chemical membrane pump with nominal pumping speed 1.9 m <sup>3</sup> /h, final pressure 12 mbar, with separator and emission condenser, ATEX conformity: suction chamber (pumped gases): II 2G IIC T3 X, exterior with inert-gas flushing: II 2G IIB T4 X, exterior without inert-gas flushing: II 3G IIB T4 X, motor: II 2G Ex d IIB T4 Gb, including all necessary parts for vacuum connection		
	230 V / 50 Hz option model	-	8012-0381
Vacuum pump connection kit (ATEX)	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 <sup>3</sup> /h, final pressure 12 mbar, with separator and emission condenser, ATEX conformity: Suction chamber (pumped gases): II 2G IIC T3 X, exterior with inert-gas flushing: II 2G IIB T4 X, exterior without inert-gas flushing: II 3G IIB T4 X, motor: II 2G Ex d IIB T4 Gb		
	230 V / 50 Hz option model	-	5013-0049

\* Notes > See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Installation	and set up of unit at operating location, connect to existing connections	13, 18	DL10-0100
Instruction	unit function instructions for operation and programming of the controller	18	DL10-0500
<b>Preventive maintenance</b>			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0400
<b>Calibration services</b>			
Calibration digital pressure display	including certificate, measurement at specified pressure, range 20 – 900 mbar	14, 16, 17, 18	DL32-0000
Calibration temperature incl. certificate	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL30-0101
Temperature measurement 15 measuring points	including certificate, 15 measuring points at specified temperature	14, 16, 17, 18	DL30-0218
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL30-0109
<b>Validation services</b>			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL42-0300
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL44-0500
Qualification folder IQ/OQ	supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001	15, 18, 20	8012-0860

\* Notes > See last page

Designation	Description	*	Art.-No.
Qualification folder IQ/OQ/PQ	supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ	15, 18	8012-0949
<b>Warranty service</b>			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL00-9041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	-	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.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 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.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ folder.  
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.