

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

## 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



## MAIN FEATURES

- Temperature range: room temperature plus 15 °C to 200 °C
- 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
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422
- 2 relay outputs, 24 V DC (max. 0.4 A)

## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
Model VD 23				
23	230 V 1~ 50/60 Hz	Standard	VD023-230V	9030-0029
	120 V 1~ 60 Hz	Standard	VD023UL-120V	9030-0035

## TECHNICAL DATA

Description	VD023-230V	VD023UL-120V
Article Number	9030-0029	9030-0035
Performance Data Temperature		
Temperature range 15 °C above ambient temperature to [°C]	200	200
Temperature variation at 100 °C [± K]	1.5	1.5

Description	VD023-230V	VD023UL-120V
Article Number	9030-0029	9030-0035
Temperature fluctuation [± K]	0.1	0.1
Heating-up time to 100 °C [min]	65	65
<b>Vacuum Data</b>		
Permitted end vacuum [mbar]	0.01	0.01
Leak rate [bar/h]	0.01	0.01
<b>Electrical data</b>		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	0.8	0.8
Unit fuse [A]	10	12.5
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
Inert gas connection with flow limiter (RP <sup>®</sup> )	3/8	3/8
<b>Measures - Outer dimensions</b>		
Width net [mm]	515	515
Height net [mm]	665	665
Depth net [mm]	500	500
Wall clearance back [mm]	100	100
Wall clearance sidewise [mm]	135	135
Viewing window width [mm]	250	250
Viewing window height [mm]	207	207
<b>Measures - Doors</b>		
Unit doors	1	1
<b>Measures - Internal Dimensions</b>		
Width [mm]	285	285
Height [mm]	285	285
Depth [mm]	295	295
<b>Measures</b>		
Interior volume [L]	23	23
Net weight of the unit (empty) [kg]	63	63
permitted load [kg]	35	35
Load per rack [kg]	20	20
<b>Fixtures</b>		
Number of shelves (standard/maximum)	2/4	2/4

## OPTIONS AND ACCESSORIES

Designation	Description	*	Art.-No.
Calibration certificate, expanded	each measurement at additional measuring point or testing temperature	-	8012-0022
Calibration certificate, pressure	for digital pressure display, measurement at 100 mbar or at specified pressure (range 30 – 900 mbar)	-	8012-0440
Calibration certificate, temperature	for measurement in center of chamber at specified temperature	-	8012-0031
	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
Digital pressure display	measuring range from 1 mbar to atm. pressure, display accuracy 1 mbar	-	8012-0805
Door gasket	made of FKM, silicone-free	03	8012-0500

\* Notes › See last page

Designation	Description	*	Art.-No.
Electric access port	9-pin vacuum-tight access port for measuring lines	-	8012-0262
	aluminum	-	8009-0370
Expansion rack	stainless steel 1.4571 (V4A)	06	8009-0101
	stainless steel expansion rack instead of standard aluminum expansion rack, incl. calibration	-	8012-0616
	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0557
	230 V, 50/60 Hz option model	-	8012-0556
Interface converter	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0405
	230 V, 50/60 Hz option model	-	8012-0380
Interface converter, USB / RS422	RS 422 cable set and RS 422 / USB interface converter for connection to 10-way plug distributor or for connection to a unit (USB-powered converter)	-	8012-0665
Magnetic Pouch (A4)	insert pouch with magnetic strip	-	1007-0065
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
RS 422 interface	modular plug distributor for 10 RS 422 interfaces	-	8012-0295
RS 422 interface, cable (15 m)	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	-	5023-0036
RS 422 interface, cable (50 m)	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	-	5023-0117
	APT-COM™ communications software		
	version 2 to 3, GLP edition	19	9053-0016
	version 3, BASIC edition	19	9053-0014
Software	version 3, GLP edition	19	9053-0015
	version 3, STANDARD edition	19	9053-0013
	APT-COM™ communications software, price: for free		
	version 3, GLP DEMO Edition	19	9053-0008
Specimen temperature display	with flexible Pt 100 sensor and digital specimen temperature display	-	8012-0551
	to receive vacuum pumps, with switchable power socket		
Vacuum module	120 V, 13 A option model	-	8012-0273
	230 V, 16 A option model	-	8012-0130
	nominal pumping speed 2.0 m³/h, final pressure 7 mbar, including all necessary parts for vacuum connection, ATEX conformity: II 3G IIC T3 X (only for inner chamber, areas coming in contact with media)		
Vacuum module with chemical membrane pump VP 1.1	120 V option model	-	8012-0726
	230 V option model	-	8012-0723
	nominal pumping speed 3.4 m³/h, final pressure 1.5 mbar,		
Vacuum module with chemical membrane pump VP 2.1	120 V option model	-	8012-0727
	230 V option model	-	8012-0724
	nominal pumping speed 4.6 m³/h, final pressure 1.5 mbar, including all necessary parts for vacuum connection, digital vacuum controller (accurate to ≤1 mbar), ATEX conformity: II 3G IIC T3 X (only for inner chamber, areas coming in contact with media)		
Vacuum module with speed-controlled chemical membrane pump VP 3.1	120 V option model	-	8012-0728
	230 V option model	-	8012-0725
Vacuum pump connection kit	for vacuum pump VP 1.1, VP 2.1, VP 3.1; consisting of aluminum clamping ring, centering ring, small flange with hose nozzle, (2.5 m) rubber hose and 2 hose clamps	-	8012-0146
	chemical membrane pump with nominal pumping speed 2.0 m³/h, final pressure 7 mbar, ATEX conformity: II 3G IIC T3 X (only for inner chamber, areas coming in contact with media)		
Vacuum pump VP 1.1	120 V option model	-	5013-0118
	230 V option model	-	5013-0117

\* Notes › See last page

Designation	Description	*	Art.-No.
Vacuum pump VP 2.1	chemical membrane pump with nominal pumping speed 3.4 m <sup>3</sup> /h, final pressure 1.5 mbar, ATEX conformity: II 3G IIC T3 X (only for inner chamber, areas coming in contact with media)		
	120 V option model	–	5013-0120
	230 V option model	–	5013-0119
Vacuum pump VP 3.1	speed-controlled chemical membrane pump with nominal pumping speed 4.6 m <sup>3</sup> /h, final pressure 1.5 mbar, ATEX conformity: II 3G IIC T3 X (only for inner chamber, areas coming in contact with media)		
	120 V option model	–	5013-0122
	230 V option model	–	5013-0121

\* 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	DL100200
Instruction	unit function instructions for operation and programming of the controller	18	DL100500
<b>Preventive maintenance</b>			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL200500
<b>Calibration services</b>			
Calibration digital pressure display	including certificate, measurement at specified pressure, range 20 – 900 mbar	14, 16, 17, 18	DL320000
Calibration temperature	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL300201
Temperature measurement 18 measuring points	including certificate, 18 measuring points at specified temperature	14, 16, 17, 18	DL300218
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL300209
<b>Validation services</b>			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL420300
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL440500
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	8012-0859
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	8012-0948
<b>Warranty service</b>			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	–	DL008041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	–	DL008042

\* 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 (see the chapter on BINDER Service) 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 both items.  
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.
- 21 ATEX conformity:  
Pumping chamber (pumped gases): II 2G IIC T3 X  
Environment with inert purge gas: II 2G IIB T4 X  
Environment without inert purge gas: II 3G IIB T4 X  
Motor: II 2G Ex d IIB T4 Gb

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