ATEX Chemical Membrane Pump | Model BINDER VP5 EX

The VP5 EX vacuum pump, together with the VDL series vacuum ovens, is perfectly suited for the safe drying of flammable solvents

Benefits

- Optimally matched for operation with BINDER VDL series vacuum drying ovens
- Resistant to a wide range of chemicals
- Very quiet and low-vibration operation
- Designed for S1 operating mode (continuous operation)
- Suction and pressure-side separators for collecting condensate
- Emission condenser at the pump outlet for solvent recondensation

Important Features

- Maximum pumping speed at 230V/50Hz: 1,9 m^3/h
- Final vacuum without gas ballast: 12 mbar[1]
- Final vacuum with gas ballast: 18 mbar[2]
- Rated power: 1,5 kW
- Power connection via fixed connection. Pump is delivered with blank cable ends.
- Scope of delivery: Pumping station fully assembled, ready for operation, with instructions

ATEX Conformity of the Pump:

Pumping chamber (pumped gases): II 2G Ex h IIC T3 Gb X;
Outer compartement with inert gas purging: II 2G Ex h IIB T4 Gb X;
Outer compartement without inert gas purging: II 3G Ex h IIB T4 Gc X
Motor: II 2G Ex db IIB T4 Gb

Order Information:

Art.No.	Article	Description
5013-0258	Pump stand VP5 EX	ATEX Chemical membrane pump
8012-2724	Connection kit VDL VP5 EX stainless steel	Connecting VP5 EX to vacuum ovens of series VDL *with flexible stainless steel hose*
8012-2614	Connection kit VDL VP5 EX PTFE	Connecting VP5 EX to vacuum ovens of series VDL *with flexible, electrostatically conductive PTFE hose*
8500-0538	Service kit VP5 EX[3]	Wear parts set, consisting of membranes, valves, and seals
8500-0542	Membranschlüssel SW 66	Special tool for replacing the membranes

The pump VP5 EX is also available as a set with pump module (undercabinet) and connection kit, see page 5

1 The final vacuum of the entire system consisting of vacuum pump and vacuum oven is usually about 1-3 mbar above the ultimate vacuum of the pump alone
2 When drying larger quantities of liquid (> 100 ml), the use of gas ballast is recommended
3 It is recommended to replace the wearing parts after 15000 operating hours, which corresponds to 1,7 years of continuous operation.

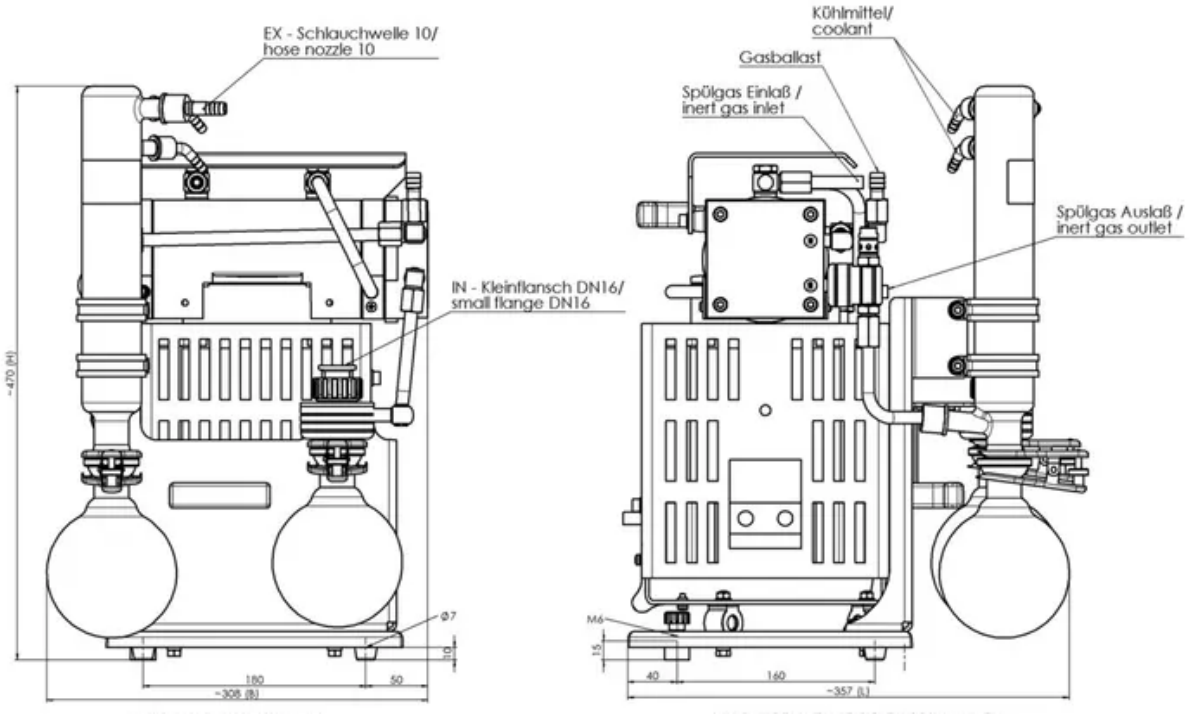
Technical Data

Type	Unit	BINDER VP5 EX
Maximum pumping speed 50/60 Hz according to ISO 21360	m^3/h	1,9
Final vacuum without gas ballast (absolute)	mbar	12
Final vacuum witht gas ballast (absolute)	mbar	18
Maximum permissible pressure at the inlet (absolute)	bar	1,1
Maximum permissible pressure at the outlet (absolut)	bar	1,1
Maximum permissible differential pressure between inlet and outlet	bar	1,1
Permissible ambient temperature during storage	°C	-10 to +60
Permissible ambient temperature during operation	°C	+10 to +40
Permissible relative ambient humidity during operation (non-condensing)	%	30 to 85
Maximum installation height	m	2000 NN
Rated power	kW	0,15
Idle speed	1/min	1500
Maximum permissible range of supply voltage / mains frequency		230V ±10% / 50 Hz
Rated current consumption	A	1,2
Maximum starting current / Starting time	A / ms	5,5 / 125
Device fuse	A	6,3 inert
Device plug	**Without!** Supplied with 10 m long permanently mounted power cable and bare cable ends[4]	
Motor protection	Flameproof motor with integrated, self-locking overcurrent and overtemperature protection for direct 230 V / 50 Hz single-phase connection	
Protection class according to IEC 529		IP 52
Inlet	mm	small flange DN 16
Outlet	mm	hose nozzle DN 10
Volume of round flasks (each)	ml	500
Emission sound pressure level[5]	db(A)	50
Dimensions L x W x H ca	mm	357 x 308 x 470
Weight ready for use approximately	kg	25,4
Permissible Gas intake temperature	°C	+10 to +40

4 The pump must be connected to the power grid by ATEX-trained personnel via a fixed connection. Outside of ATEX zones, the power connection can also be made via professional installation of a power supply plug.

5 Measurement at ultimate vacuum at 230 V / 50 Hz according to EN ISO 2151:2004 and EN ISO 3744:1995 with exhaust hose at the outlet.

Drawing

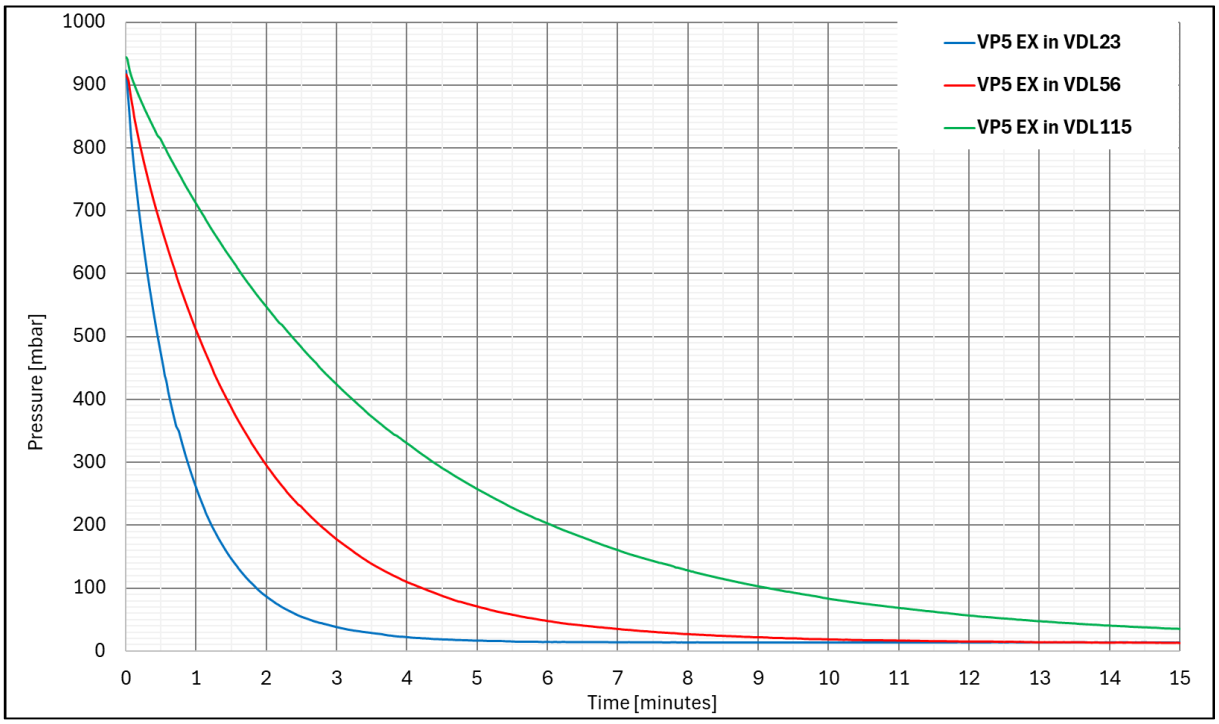


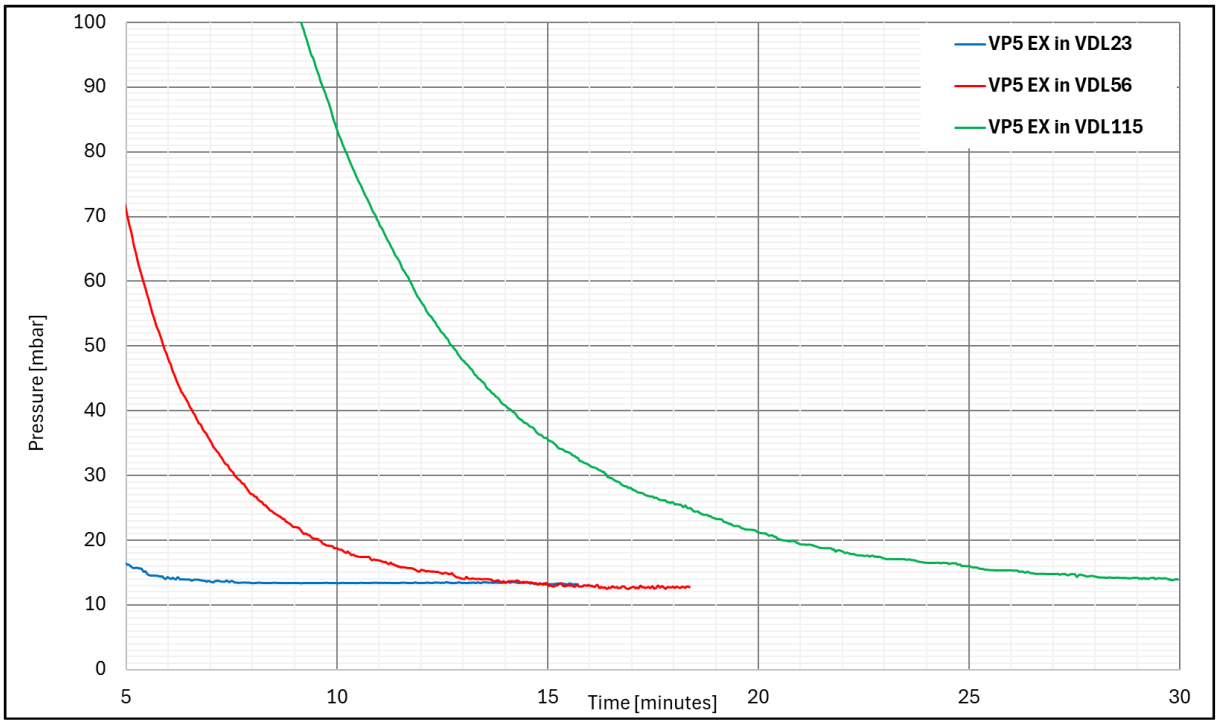
All dimensions mm

List of Materials in Contact with Medium

Component	**Material**
Inlet	Stainless steel
Outlet	Stainless steel / PBT
Membrane clamping disc	ETFE carbon fiber reinforced
Membranes	PTFE
Valves	FFKM oder PTFE
Tubing	PTFE, antistatic
Screw connections	ETFE / Stainless steel
Housing cover inner part	PTFE, carbon fiber reinforced
Head cover	ETFE carbon fiber reinforced
O-rings in the Head cover	FPM
O-ring at round flask, suction side	Fluorelastomer
Round flasks, emission condenser	Borosilicate glass
pressure relief valve	Stainless steel; PTFE, carbon fiber reinforced; FFKM
Separator cover plate	PTFE, carbon fiber reinforced t

Pump-Down Charts of VP5 with Vacuum Ovens of Series VDL

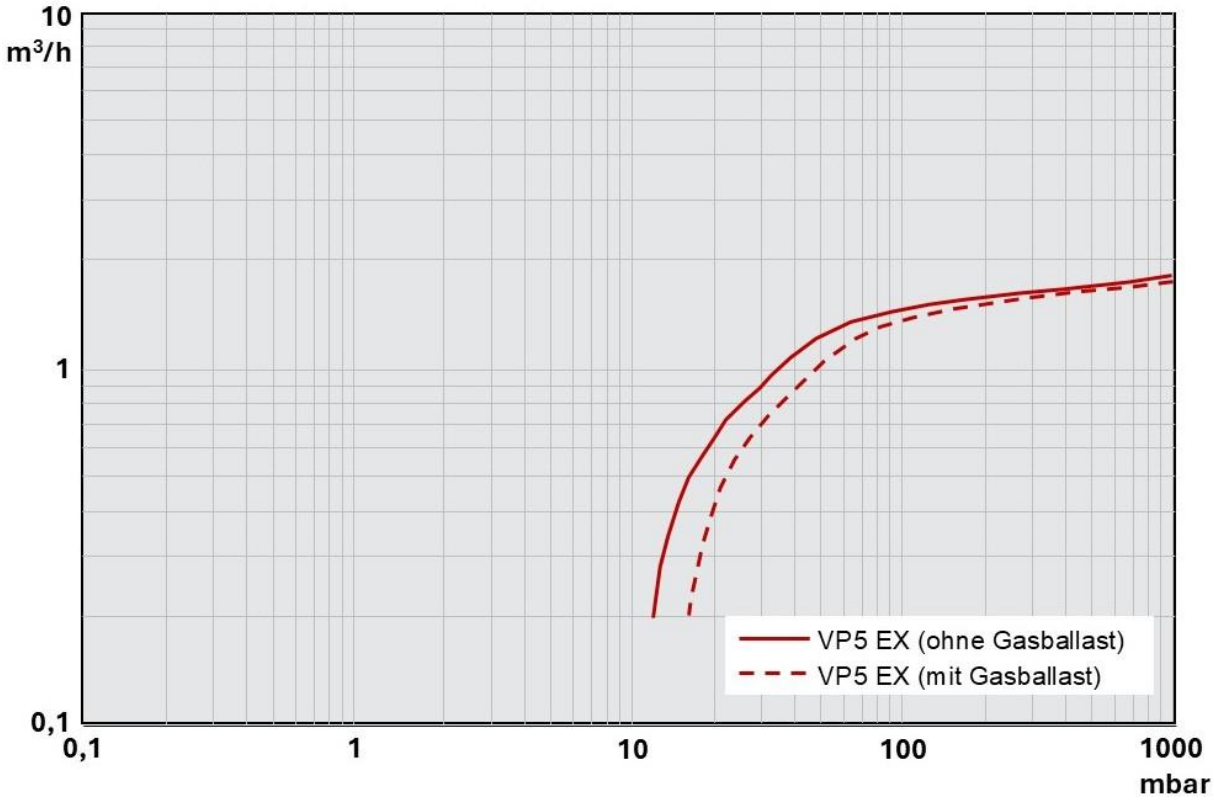




Note:

- curves relate to pump-down of an empty oven. When containing volatile liquid, the pressure curve will be significantly different
- temperature will affect the curves, but only to a minor effect (higher temperature → slightly faster pump-down). All curves are taken at a chamber temperature of 70°C

Pump Characteristic Curve



Shipment Data:

VP5 EX is delivered on a customized pallette:

Freight dimensions on palette (L x W x H in mm): 630 x 690 x 685

Shipment weight on palette (kg): 38

CE Conformity:

The product is CE compliant with the regulations and directives

- 2006/42/EG
- 2014/34/EU
- 2011/65/EU, 2015/863

Set-Articles: vacuum pump VP1 with pump module (under cabinet) and connection kit (with flexible stainless steel hose)

For our VDL series vacuum ovens, available in size 23-liter, 56-liter, and 115-liter, we offer sets consisting of a VP5 EX vacuum pump, a pump module (under cabinet) for housing the pump, and a connection kit for connecting the pump to the vacuum oven.

The pump module raises the vacuum oven to an ergonomic working height, reduces pump noise, and protects the pump from mechanical damage.

The pump module contains a stainless steel drip tray to collect any accidentally spilled solvent (e.g., when emptying the round flask).

A 100 mm diameter exhaust port is located on the rear wall of the pump cabinet. This is used for connection to an on-site exhaust system. A suction capacity of 130 m^3/h is recommended.

SET - Article	
Art.No.	**Description**
8012-2628	Pump module VDL 023 + VP5 EX + connection kit (stainless steel hose)
8012-2629	Pump module VDL 056 + VP5 EX + connection kit (stainless steel hose)
8012-2630	Pump module VDL 115 + VP5 EX + connection kit (stainless steel hose)

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