VP-20 vacuum pump



User manual

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1. Safety precautions

The following symbols are used in this manual; please fully understand the meaning of each symbol:



WARNING

Failure to follow the instructions provided may result in fire or electric shock, resulting in injury or death.

CAUTION

Failure to follow the instructions provided may result in electric shock or other damage, resulting in injury or property damage.

	Warning or caution		Prohibited
	Indication (must be performed)		Do not place the equipment in a damp, dusty, greasy place or near a device that generates heat, as this may cause malfunctions, fires or electric shocks.
	Switch off the power supply when the equipment is not in use or during prolonged maintenance, otherwise fire or electric shock may occur.		Prohibition of disassembly Do not disassemble, repair or modify the product, as this may cause fire or electric shock.
	Turn off the power in case of malfunction If any malfunction occurs, turn off the power immediately, otherwise it may cause fire or electric shock.		Do not use fluids that corrode materials This may cause fire, electric shock, or chemical contamination.

2. Equipment

NO.	Class	Name	Unit	Quantity	Note
1	Instrumentation	Main unit (Pump body)	set	1	
2	Document	Instruction manual	piece	1	
4	Accessories	Silicone tube	piece	1	Φ7 (inner diameter) × 1000 mm for VP-20 series
5	Accessories	Power cable	piece	1	

3. Product overview

The VP-20 vacuum pump is a two-stage pump designed for vacuum generation and maintenance. All parts in contact with the fluid (gas) are made of PTFE (polytetrafluoroethylene), a material that guarantees high corrosion resistance and allows for a wide range of applications, completely replacing water circulation systems. The pump is resistant to contact with corrosive gases in the chemical, pharmaceutical, petrochemical and other industrial sectors, in operations such as suction filtration, vacuum distillation, rotary evaporation, vacuum concentration, centrifugal concentration, solid phase extraction and similar processes.

4. Main features

High resistance to corrosive chemicals: the corrosion-resistant pump uses a special diaphragm (with a PTFE composite coating on the diaphragm surface) and a specially designed pump head, including all fittings and pipes, so that the parts in contact with the gas are made of PTFE. This makes the pump resistant to most corrosive gases. At the same time, the electrical switch and outer casing are also treated against corrosion. In particular, the transmission mechanism and electrical components are enclosed in a sealed space made of resistant materials and completely isolated from the external environment, allowing the pump to operate in corrosive environments and completely solving the problem of chemical corrosion in vacuum pumps.

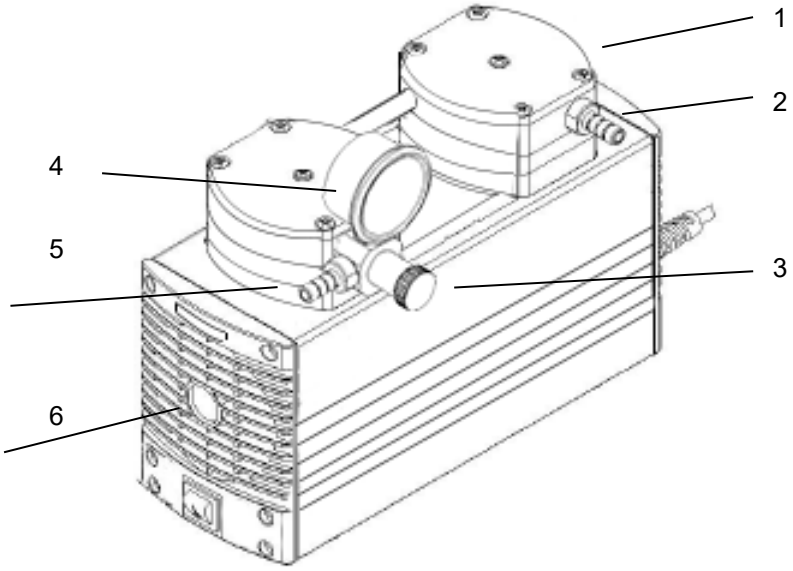
No contamination: the diaphragm pump allows for complete solvent recovery, eliminating environmental pollution caused by toxic and harmful organic solvents and reducing health risks to operators and surrounding personnel, even in the case of mixed solvents with high recovery capacity. As it is a dry pump, without water or oil, the laboratory remains clean and quiet.
Low noise and low vibration: the anti-corrosion pump uses direct motor transmission, without intermediate transmission parts; in addition, the reduced stroke and low noise level of the diaphragm keep product noise below 70 dB.
Overheating protection: each product is equipped with a thermal protection switch. When the internal temperature of the machine becomes too high, it automatically shuts down. After cooling, the pump restarts automatically to ensure system stability and safety.

Technical parameters

Type / Parameters	VP-20
Rated voltage/frequency	220 V±10%/50 Hz　or 110V 60Hz or 220V 60Hz (as requested)
Rated power	120 W
Pump head type	Ultimate vacuum, Two-stage pump
Ultimate vacuum	6～8 mbar
Maximum operating pressure	1 bar
Maximum flow	20 L/min
Interface specification	10 mm
Medium and ambient temperature	5 ° C to 40 ° C
Relative humidity	＜80%
Pump head material	PTFE composite diaphragm material
Valve material	FFPM
Working system	Continuous operation
Noise (db)	＜70db
Rated speed	1450 RPM
Dimensions (LxWxH) mm	315x165x210mm
Weight	9.4 kg

Note: for any issues not covered here or for special applications, please contact our technical staff.

6. Instrument parts



1. Pump body in operation
2. Discharge side
3. Vacuum control valve
4. Vacuum gauge
5. Vacuum side
6. Power switch

7. Installation instructions

1. Checking the contents upon opening the package

a. Carefully open the shipping container.

b. Remove the pump and place it on the workbench. Check that the instrument and accessories match the packing list. If the instrument or accessories are incorrect, incomplete or faulty, contact the manufacturer.

2. Installation

a. Before installation, the pump and accessories must be at room temperature.

b. Ensure that the pump is installed in a ventilated environment so that the motor fan can draw in sufficient cooling air.

c. Check that the socket voltage corresponds to that indicated on the pump nameplate.

d. Ensure that the pump is installed in a clean, ventilated, dry environment with a temperature below 40 °C. Avoid rain, splashes, dripping pipes or water that could reach the equipment.

e. Ensure that the pump inlet and outlet are connected with a high-pressure hose. Note that the hose connected to the pump outlet must be at a lower level than the outlet itself.

8. Instructions for use

When all hoses are correctly connected to the inlet and outlet, turn on the power switch.
After use, remove the vacuum and allow the vacuum pump to run for at least two minutes to prolong its life.
Note:
a. When the pump is used as a vacuum pump, the outlet must not be blocked.
b. Do not use the pump to transport liquid or solid particles.
c. Use in environments where explosion-proof equipment is required is prohibited.
d. Do not handle samples (e.g. explosive samples, etc.) that may explode due to impact, friction, heat or sparks.
e. It is prohibited to use the pump to generate vacuum and pressure simultaneously.
f. The pump suction point must not be connected to overpressure.
g. If the pump does not work after switching it on, immediately turn off the switch, then turn it off and on again; if the pump still does not work, contact our technicians.

9. Maintenance and repair

1. Maintenance and precautions:
The anti-corrosion pump must be stored in a dry and ventilated environment; the inlet and outlet of the pump must be sealed with a specific adhesive to prevent foreign bodies from entering the internal chamber and damaging the sealing parts. Also avoid contact with oil or other flammable materials.

2. Troubleshooting
During troubleshooting, the power supply must be turned off.

Problems	Causes	Troubleshooting method
Power supply not working	The device is not connected to the power supply	Check that the electrical connection is correct
	No voltage	Open the bottom plate and check the fuse
	The thermal switch has disconnected after the pump overheated	Disconnect the pump from the power supply, allow it to cool naturally, identify and resolve the cause of the overheating
The pump is running but not creating a vacuum	Blockage in the connection line	Check the connection line
	Connected valve closed or filter clogged	Check valves and filters
	Condensation in the pump's test chamber	After eliminating the vacuum, allow the pump to operate for approximately 5 minutes (noting that condensation collects at the pump outlet)

	Contamination of the composite diaphragm and valve plate	Clean or replace composite diaphragm and valve plate
The system leaks or does not reach maximum vacuum	Incorrect or faulty pipe connection	Check the pipe connections
	Leakage in the pipes (fragility)	Replace the pipes
	Condensation in the pump head	After eliminating the vacuum, allow the pump to run for approximately 5 minutes (noting that condensation collects at the pump outlet)
	Contamination of the composite diaphragm and valve plate	Clean or replace composite diaphragm and valve plate

10 Warranty

Under normal conditions of use, this instrument is guaranteed for a period of 24 months from the date of purchase. The warranty is valid only if the purchased product remains in its original condition and has not been modified. The warranty does not cover damage caused by incorrect installation, improper connections, misuse, accidents or abnormal operating conditions. Similarly, damage resulting from use not in accordance with the instructions, failure to perform the specified maintenance or unauthorised modifications is excluded from the warranty.

NOTE: We accept no liability for any indirect or consequential damage resulting from failure to follow the instructions for use or unauthorised tampering with the instrument.

Disposal of electronic equipment

This equipment is subject to regulations for electronic devices.

11 Disposal of electronic equipment

This equipment is subject to regulations for electronic devices.

Dispose of in accordance with local regulations.

