



# Diaphragm Vacuum Pump

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## 1. Product Overview

### 1.1 Introduction

Thank you for using the DVP series diaphragm vacuum pump. This instruction manual explains the installation, use, and maintenance of diaphragm vacuum pumps. Please read the instruction manual carefully before using this product.

### 1.2 Safety

This chapter elaborates on the safety rules/regulations involved in the installation and use of the DVP series diaphragm vacuum pump. Users should strictly follow the operating procedures on the premise of mastering relevant warning signs, which can ensure product and personal safety to avoid accidents from occurring.

#### 1.2.1 User Qualification

The operator of the DVP series diaphragm vacuum pump should have practical operation experience and be able to master the requirements in this manual. Otherwise, it is necessary to use it under the guidance of personnel with corresponding technical capabilities.

#### 1.2.2 Usage

The DVP series diaphragm vacuum pump is required to be installed indoors and can be used in conjunction with other products to provide pressure conditions for experimentation or production.

Application scope:

- a) Evaporation and distillation test equipment;
- b) Concentrator;
- c) Vacuum drying oven
- d) Reactor;
- e) Negative pressure filtration test, solid-phase extraction test

### 1.2.3 Improper use

Failure to follow the instructions in the user manual belongs to improper use. Any damage caused by improper use shall be the responsibility of the user.

Prohibited from use under the following conditions:

- a) Explosive gas environment or explosive dust environment;
- b) Places where the power supply does not meet the requirements;
- c) Strong magnetic field environment or corrosive environment.
- d) This product is not suitable for pumping flammable&explosive substances, liquids, solid particles, and media with extremely high dust content.

### 1.2.4 Warning signs used in the user manual

Signs	Indication
	<b>Danger</b> Indicates that the situation is extremely dangerous and will result in death or serious injury
	<b>Warning</b> Indicates a dangerous situation that may result in death or serious injury
	<b>Prohibition</b> Raining or splashing water
	<b>Attention</b> Indicates a dangerous situation that may cause injury to personnel
	<b>Attention</b> Pay attention to high temperatures
	<b>Attention</b> Beware of approaching rotating parts

	<p><b>Attention</b></p> <p>Please wear protective equipment, otherwise it may cause personal injury</p>
	<p><b>Prompt</b></p> <p>Indicates situations that may cause product damage</p>

Special attention should be paid to all warning signs

### 1.2.5 Hazards related to the product

Please pay attention to the following safety tips:

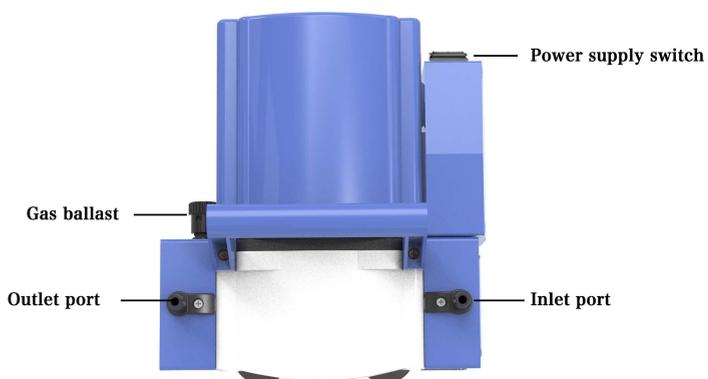
	<p><b>Danger</b></p> <ul style="list-style-type: none"> <li>● Prohibit use in explosive gas environments or explosive dust environments;</li> <li>● Prohibit the use of hazardous materials beyond the scope of product design;</li> <li>● Non professional person are prohibited from repairing equipment</li> </ul>
	<p><b>Prohibition</b></p> <ul style="list-style-type: none"> <li>● Prohibited from use in outdoor environments. Raining, splashing water, etc. can cause the shell to become electrified, resulting in personal injury or death</li> </ul>
	<p><b>Warning</b></p> <ul style="list-style-type: none"> <li>● Be sure to connect to the power supply specified on the product nameplate;</li> <li>● The product has implemented equipotential bonding, and the internal grounding connection wire is not allowed to be removed</li> <li>● Before opening the product casing for maintenance and repair, it is necessary to disconnect the power supply of the product. Wait for 5 seconds before operation to ensure that the residual voltage is released to a safe value and avoid electric shock;</li> <li>● Do not use the product when the casing is not installed properly to prevent electric shock</li> </ul>
	<p><b>Attention</b></p> <ul style="list-style-type: none"> <li>● When abnormal situations occur during the use of the product, promptly disconnect the power supply and conduct troubleshooting, and contact professional maintenance personnel as needed;</li> <li>● When cleaning, maintaining, and repairing, person should wear protective gloves to prevent hand injuries.</li> </ul>

	<p><b>Prompt</b></p> <ul style="list-style-type: none"> <li>● Please do not use in high temperature and humid environments. Otherwise, it will affect the normal operation and service life of the product;</li> <li>● The maximum temperature at which gas is drawn into the product should not exceed 60 °C;</li> <li>● Good ventilation should be maintained around the product;</li> <li>● Please do not exert excessive pressure on the product case;</li> </ul>

### 1.2.6 Other hazards

	<p><b>Warning</b></p> <ul style="list-style-type: none"> <li>● When there are corrosive materials such as acid and alkali vapor around the product, it affects the performance and service life of the components</li> </ul>
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### 1.3 Product configuration



## 2. Technical parameters

## Sheet 1 Technical Parameters of Diaphragm Vacuum Pump

Model	USA-DVP-663
Ambient temperature (°C)	5 – 35
Relative humidity (%)	≤ 70
Motor power (W)	200
Maximum vacuum degree/ultimate pressure* (Pa/ mbar)	600/6
Power supply	220 – 240V~, 50Hz
Maximum pumping rate (L/min)	33
Inner diameter of inlet nozzle (mm)	Ø7
Inner diameter of outlet nozzle (mm)	Ø7
Connection hose for inlet and outlet nozzles	Ø14×Ø8
Case protection class	IP20
Pollution prevention class	Class 2
Gas ballast function	Yes
Valve plate material	FFKM
Diaphragm material	PTFE+FKM
Material of gas pipeline connecting pipe	FEP
Material of suction joint	PTFE+C
Gas ballast material	FKM/PTFE+C
Gas chamber material	ETFE
Overall dimension W×D×H (mm)	270×250×210
Weight (Kg)	9.5
Packing dimension W×D×H (mm)	325×305×250
Packing weight (Kg)	10

### 3. Installation

### 3.1 Note

- 1) During the installation, the product should not be inverted;
- 2) The ventilation openings of the product must not be covered! The surrounding environment should be well ventilated.
- 3) If liquid splashes or spills onto the product case, it should be wiped clean first to ensure that all components are intact before being put into use.

### 3.2 Installation

1) Open the outer packaging box, take out the instruction manual and read it carefully.

Check whether the equipped accessories are complete by comparing them with the packing list;

2) Select the installation position that meets the loading requirements based on the product weight provided in Table 1;

3) Put this instrument on a stable workbench, the tilt angle should not exceed 10°;

4) External pipeline connection of the product:

As shown in Figure 3.2, remove the dust cap from the intake nozzle of the diaphragm vacuum pump, and use the vacuum special hose specified in Table 1 to connect the suction nozzle of the diaphragm vacuum pump to the pressure reducing device.



- 1) Failure to select connecting hose as specified in Table 1
  - a) May result in pumping rates not meet the targets in Table 1
  - b) The required time of the depressurization process is longer than the theoretical value
  - c) When the wall thickness of the hose does not meet the requirements, deformation of the hose may occur, affecting the operation of the system
- 2) Connecting hoses should avoid being bended

### 5) Power connection

Provide power according to the power supply features specified on the product nameplate, and the power supply should be single-phase two wire system (L、N、PE).



If the power supply is not connected according to the requirements, resulting in electric shock or product damage, the user should be responsible for this.

## 4. Operation

Set the "power switch" of the entire machine in Figures 1.4.1 to 1.4.4 to "1", and the product will start running.

After the experiment is completed, disconnect the product from the pressure reducing device firstly, then set the power switch of the product to "0" and turn off the power.

## 5. Maintenance and Management

To ensure the normal operation of the product and extend its service life, users should perform daily maintenance and management. Before maintenance, please disconnect the power supply, prepare tools and materials, and carry out the work according to the requirements in this user manual. Otherwise, electric shock or product damage accidents may occur.

### 5.1 Management

- 1) Please wipe the surface of the body regularly with a soft cloth to keep it clean. It is strictly prohibited to rinse directly with water!
- 2) Do not use brushes, grinding powder, acid, gasoline, or other solvents to clean the surface of the body to avoid damage to the protective layer.
- 3) Inspect the vacuum hose regularly. If aging or damage is found, it should be replaced promptly according to the original specifications

## 5.2 Maintenance requirements

- 1) Product repair must be undertaken by professional technicians or authorized maintenance personnel of our company;
- 2) If you need to send the product back to the factory for repair, please contact our company;
- 3) Before returning the product to the factory:
  - a) Please fill in the detailed fault information record and provide feedback to our company;
  - b) Please add safety packaging to the product to avoid damage caused by vibration, collision, etc. during transportation.

## 6. Warranty Statement

- 1) Free service period: Within 12 months from the date of purchase, if the product malfunctions due to quality reasons, it can be repaired for free . If the product is damaged due to improper use, it is not within the scope of free service.
- 2) Within the specified warranty period, if one of the following situations occurs, free repair is not provided.
  - a) Unable to present warranty card or purchase proof;
  - b) Malfunctions and damages caused by failure to install and use in accordance with the instructions and requirement on the product;
  - c) Failures or damages caused by transportation, movement, falling, and collision;
  - d) Malfunctions and damages caused by product modification;
  - e) Faults and damages caused by natural disasters such as fire, earthquake, flood, and wind, as well as abnormal power supply, due to force majeure;
  - f) The consumption, wear, aging, and replacement of consumables.
- 3) After the free service period expires or for repairs outside the scope of free service, our company will charge maintenance fees accordingly.
- 4) When there are problems with the product, please contact after-sales service timely.

This instruction manual is subject to change without prior notice.