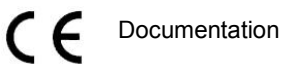




-- Model EVP-600
Dry Scroll Vacuum Pump

Operating instruction

English version of original operating instructions



It is imperative to read the operating instructions prior to commissioning!

This document as well as all documents included in the appendix is not subject to any update service!

Subject to technical changes.

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Warranty

Products manufactured by Seller are warranted against defects in materials and workmanship for twelve (12) months from date of shipping to customer destination, and Seller's liability under valid warranty claims is limited, at the option of Seller, to repair, to replace, or refund of an equitable portion of the purchase price of the Product. Items expendable in normal use are also covered by this warranty. All warranty replacement or repair of parts shall be limited to equipment malfunctions which, in the sole opinion of Seller, are due or traceable to defects in original materials or workmanship. All obligations of Seller under this warranty shall cease in the event of abuse, accident, alteration, misuse, or neglect of the equipment. In-warranty repaired or replaced parts are warranted only for the remaining unexpired portion of the original warranty period applicable to the repaired or replaced parts. After expiration of the applicable warranty period, Customer shall be charged at the then current prices for parts, labor, and transportation.

Reasonable care must be used to avoid hazards. Seller expressly disclaims responsibility for loss or damage caused by use of its Products other than in accordance with proper operating procedures.

Except as stated herein, Seller makes no warranty, expressed or implied (either in fact or by operation of law), statutory or otherwise; and, except as stated herein, Seller shall have no liability under any warranty, expressed or implied (either in fact or by operation of law), statutory or otherwise. Statements made by any person, including representatives of Seller, which are inconsistent or in conflict with the terms of this warranty shall not be binding upon Seller unless reduced to writing and approved by an officer of Seller.

Replacement and Adjustment

All claims under warranty must be made promptly after occurrence of circumstances giving rise thereto, and must be received within the applicable warranty period by Seller or its authorized representative. Such claims should include the Product serial number, the date of shipment, and a full description of the circumstances giving rise to the claim. Before any Products are returned for repair and/or adjustment, written authorization from Seller or its authorized representative for the return and instructions as to how and where these Products should be returned must be obtained. Any Product returned to Seller for examination shall be prepaid via the means of transportation indicated as acceptable by Seller. Seller reserves the right to reject any warranty claim not promptly reported and any warranty claim on any item that has been altered or has been returned by non-acceptable means of transportation. When any Product is returned for examination and inspection, or for any other reason, Customer shall be responsible for all damage resulting from improper packing or handling, and for loss in transit, notwithstanding any defect or non-conformity in the Product. In all cases, Seller has the sole responsibility for determining the cause and nature of failure, and Seller's determination with regard thereto shall be final.

If it is found that Seller's Product has been returned without cause and is still serviceable, Customer will be notified and the Product returned at the Customer's expense; in addition, a charge for testing and examination may be made on Products so returned.

Instructions for Operation




General Information

EVP-600 Dry Scroll Vacuum Pump is designed for use by professionals. The user should read this instruction manual and any other additional information supplied by EVP before operating the pump. EVP will not be held responsible for any events that occur due to non-compliance with these instructions, improper use by untrained persons, non-authorized interference with the pump, or any action contrary to that provided for by specific national standards.

The EVP-600 is a double scroll rotor, dry scroll vacuum pump. This pump is suitable for pumping air or inert gases. The pump is not intended to pump toxic, corrosive, explosive, or particulate-forming gases.

Font and Sign instruction

The size of font indicates the relationship of the contents. This manual use the following signs:

Sign	Instruction	Representation
	Note	The notes contain important information taken from the text.
	Caution	The caution messages are displayed before procedures, which if not followed, could cause damage to the pump.
	Warning	The warning messages are for attracting the attention of the operator to a particular procedure or practice which, if not followed correctly, could lead to serious injury.

Storage

When transporting and storing the pump, the following environmental requirements should not be exceeded:

Temperature: +5°C to +35°C

Relative humidity: 0 to 90% (no condensation)

Preparation for installation

The pump is supplied in a special protective packing. If this shows signs of damage, which may have occurred during transport, contact your local sales office.

Total weight of the packing, EVP-600 pump included, is approximately 60 kg.



Warning: When unpacking the pump, be sure not to drop it and avoid any kind of sudden impact or shock vibration to it.



Note: Normal exposure to the environment cannot damage the pump. Nevertheless, it is advisable to keep the pump inlet closed until the pump is installed in the system.

Installation

Do not install or use the pump in an environment exposed to atmospheric mediums (rain, snow, ice), dust, aggressive gases, or in explosive environments or those with a high fire risk. If want to install the pump in shell, enough room should be reserved.

During operation, the following environmental conditions must be respected:

Temperature: +5°C to +35°C

Relative humidity: 0 to 90% (no condensation)



Caution: Be certain that your electrical power voltage corresponds to that indicated on the electrical motor on the rear of the pump.



Caution: Do not screw the two bolts installed at the side of two fans. Screwing the bolts will leads to pump's performance reduction or pump damage.

Use

In order to reach maximum vacuum, the pump must be left running for about an hour with the inlet sealed.

There are no special instructions for starting the pump, it only need be switched on using the On/Off switch.



Warning: The pump is designed for operating with neutral or noncorrosive fluids. It is absolutely forbidden to use it with potentially explosive, inflammable or poisonous substances.

Maintenance

Person responsible for pump operation and maintenance must be well-trained and aware of the accident prevention rules.



Warning:

- ◆ Death may result from contact with high voltages. Always take extreme care and observe the accident prevention regulations in force.
- ◆ When machine is powered, be careful of moving parts and high voltages.

- ◆ If you have to perform maintenance on the pump after a considerable operating time, allow it to cool as the temperature of the outer surface may be more than 70 °C.
- ◆ Always disconnect your power supply to the pump before beginning maintenance work.

! **Note:** Before returning the pump to the factory for repair, contact the seller firstly.

! **Note:** If the pump is to be discarded, it must be disposed in accordance with specific national standards.

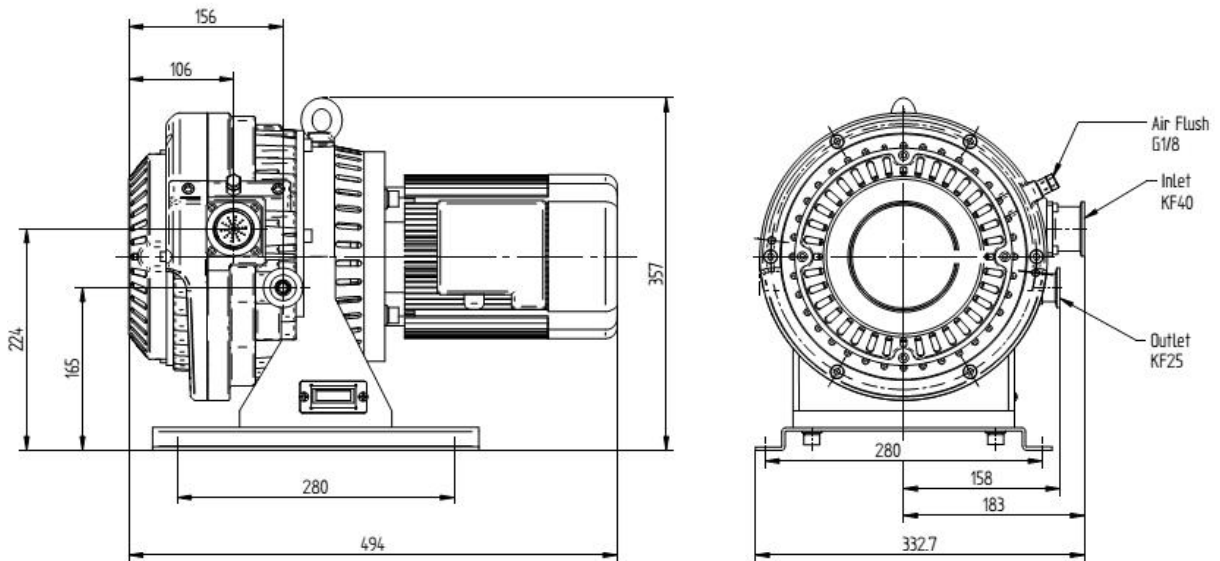


Figure 1. Outline

Technical Information

Model	EVP-600 Dry Scroll Vacuum pump
Interface dimension	See Figure 1 on page 5
Pumping speed	8L/s (50Hz)
Medium	No toxic, corrosive, explosive or particulate forming gases
Ultimate pressure	3Pa
Inlet connection	KF40
Outlet connection	KF25
Operating temperature	5 °C to 40 °C
Motor power rating	0.75kW/0.85kW
Operating voltage	triphas asynchronous motor Y 380VAC 50Hz / Δ 220V 50HZ
Cooling	Air cooled
Weight	Pump only: 44Kg Shipping weight: 60Kg
Noise level (per ISO 11201)	≤ 65dB
Application	Science and Chemistry analysis Primary backing pump for oil-free pumping system Semiconductor Scanning Electron Microscopes

Installation

1. carry and remove packing

The pump only is about 44Kg, In order not to being hurt, do not carry the pump with only one or two persons.

When carrying the pump, proper lifting equipment should be used. Be careful, do not lean the pump, use the lifting lug which is fixed near the centroid of the pump.

2. Installation place

Installation place should satisfy six conditions:

- 1) Flat
- 2) Non direct sunlight
- 3) Surroundings temperature: 5 to 35°C; Humidity: below 90%
- 4) Good ventilation
- 5) No chemical or flammable gas stored around
- 6) Easy to clean and inspection.

3. Checking running state

Warning:

- ◆ Do not start the pump without fan cover, otherwise, fan may hurt persons.
- ◆ Be certain that the parts installed on the pump are undamaged.

4. Power connection

Warning:

- ◆ The pump must be grounded, in order to avoiding electric shock.
- ◆ Check power voltage. The voltage must be triphase $\text{Y}380\text{V} / \Delta 220\text{V}$.
- ◆ Allow the pump run 2 or 3 seconds with the inlet and outlet exposed in the air. Check the route of air, make sure that the air is pumped from inlet. If not, change the power phase immediately.
- ◆ The motor rotation direction must be consistent with the indication arrow fixed on the pump.

5. Mechanical connection

Warning:

- ◆ The pump is not intended to pump flammable, toxic, corrosive, explosive, or particulate-forming gases.
- ◆ Do not damage the joint face of inlet flange and outlet flange, otherwise, it will lead to low ultimate pressure.
- ◆ Vacuum valve and deflation valve should be set between vacuum pump and vacuum chamber.(see figure 2 mechanical connection)

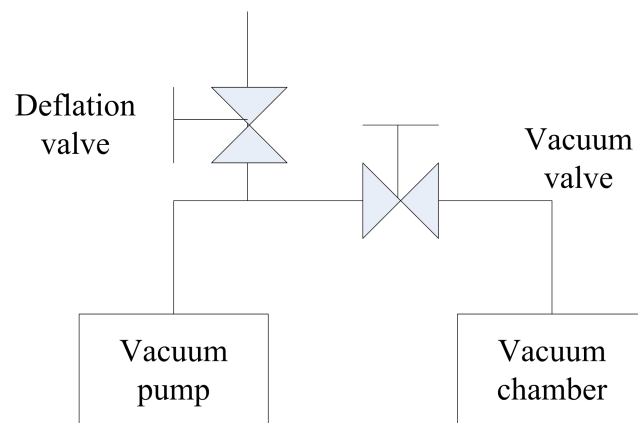


Figure 2. mechanical connection

Operation

Warning:

- ◆ Do not touch the motor and metal parts of pump, when the pump is running or just stopped. The temperature of pump surface could reach 70°C, when the pump is running.
- ◆ Be certain that the power is triphase \sphericalangle 380V / \triangle 220V and connection is correct.
- ◆ Allow the pump racing 2 or 3 seconds everyday with inlet and outlet exposed in the air, in order to removing the dust and water in the pump.

Maintenance

In order to keeping the pump long operating in good condition, check the pump according to the table below.

Item	Solution	Frequency
Bearing	Abnormal noise	everyday
	Replace new parts(Contact seller)	
Seals (e.g. tip seals, O-rings)	Replace new parts(Contact seller)	8000 hours

Trouble shooting

Problem	Solution	Corrective action
Will not start	Defective motor	Replace motor(Contact seller)
	Low power voltage	Check power
	Pump blocked	Contact seller
Poor ultimate pressure	Flange scratch	Replace flange(Contact seller)
	System leak	Locate and repair leak.
	Poor pipeline conductivity	Replace shorter or bigger diametrical pipeline
	Seals worn out	Replace seals(Contact seller)
Loud noise or severe vibration	Bearing worn out	Replace bearing(Contact seller)
	Foreign substance in pump	Contact seller

Warranty and After-Sale Service

[Warranty]

Products manufactured by Seller are warranted against defects in materials and workmanship for twelve (12) months from date of shipping to customer destination. Seller's liability under valid warranty claims is limited, to repair, to replace are covered by this warranty. Items expendable in normal use are also covered by this warranty. All obligations of Seller under this warranty shall cease in the event of below:

- 1) Damage created by misuse, abuse, accident or neglect
- 2) Damage created by alteration
- 3) Damage created by natural disaster

Other equipments' damage created by EVP-600 pump is not covered by this warranty.

[After-Sale Service]

After expiration of the applicable warranty period, Customer shall be charged at the then current prices for parts, labor, and transportation.

Please send the card to EVP

After service card

Name	Dry Scroll Vacuum Pump	Model	<u>EVP-600</u>
Delivery date		Product No.	
Customer		Contact person	
Address		Telephone	

Customer stamp:

Date: