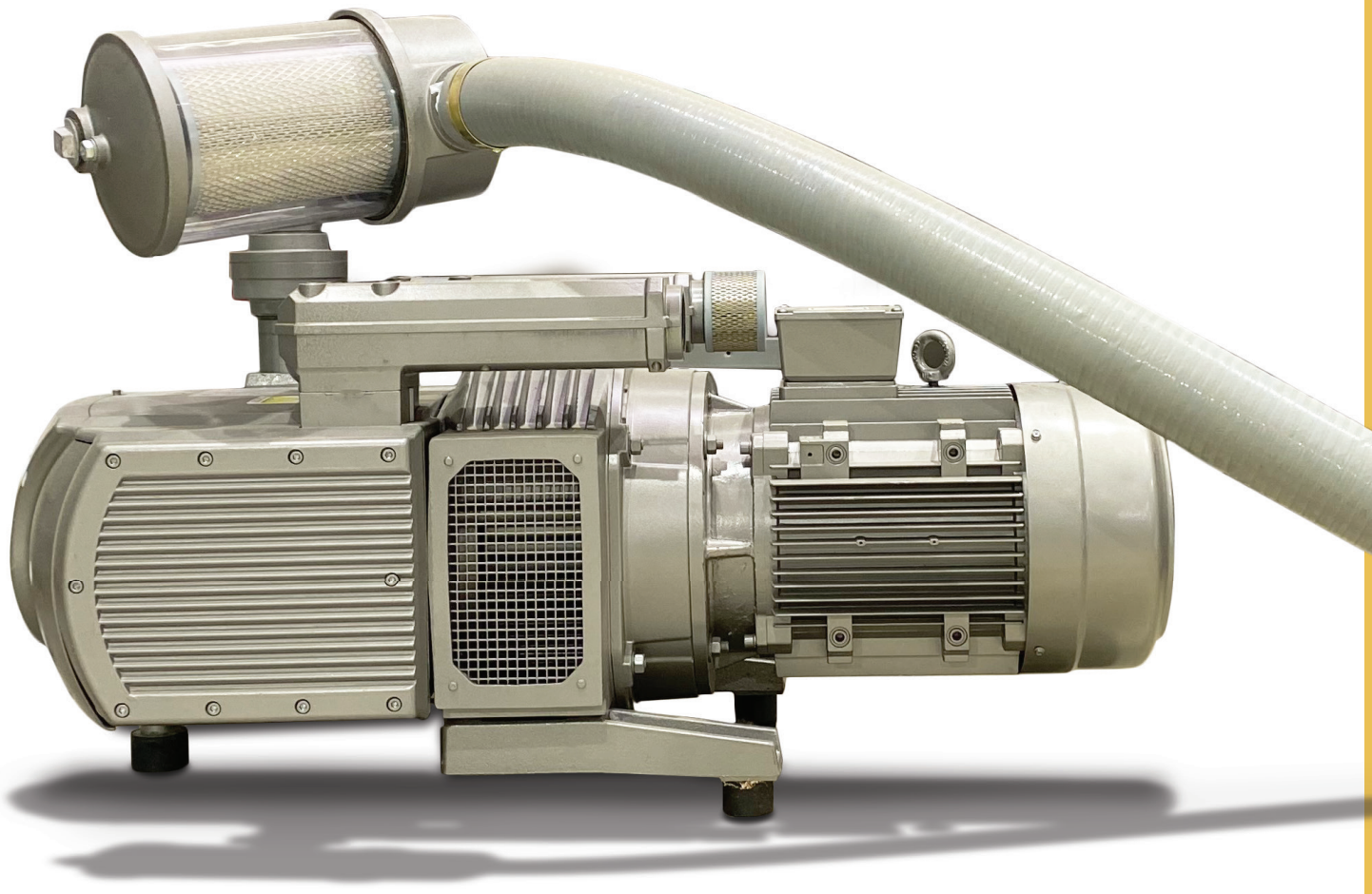
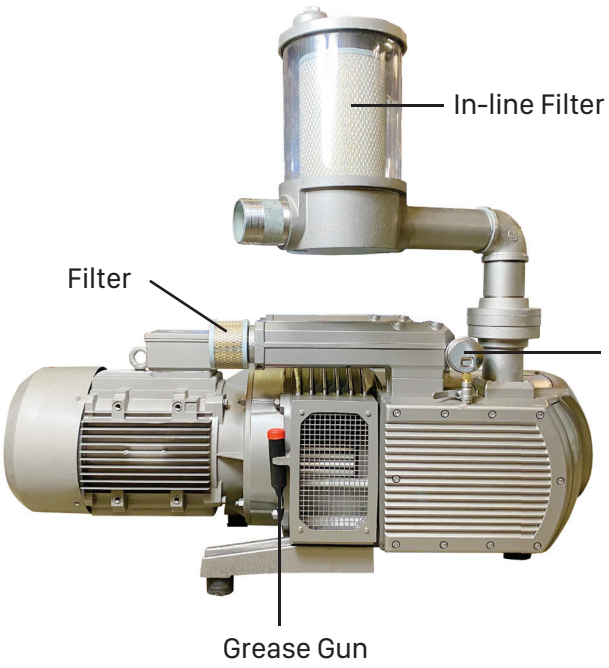
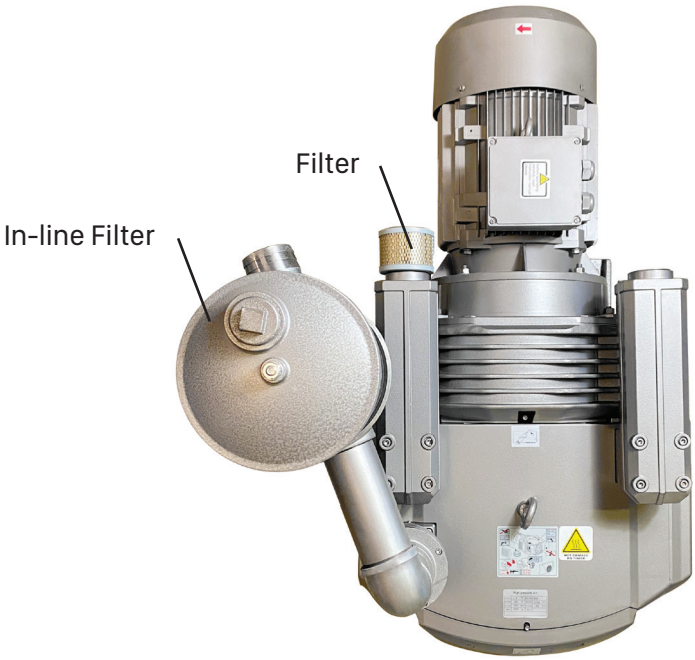
V300 SERIES VACUUM PUMP

[USER GUIDE]





LEFT SIDE



TOP VIEW

RIGHT SIDE

READ BEFORE INSTALLATION

Please follow all the guidelines under this manual pertaining to the installation, operation and maintenance of your V300 Series Vacuum Pump (“V300 Pump” or “pump”).

The V300 Pump produces hot temperatures on the pump and the air exiting the pump. To avoid contact with its hot surfaces:

- Install the pump in the proper, upright position on a stable surface. Allot a minimum 12” clearance on all sides of the pump.
- Install warning signs around and/or block accidental access to the pump via enclosures or barriers

GENERAL

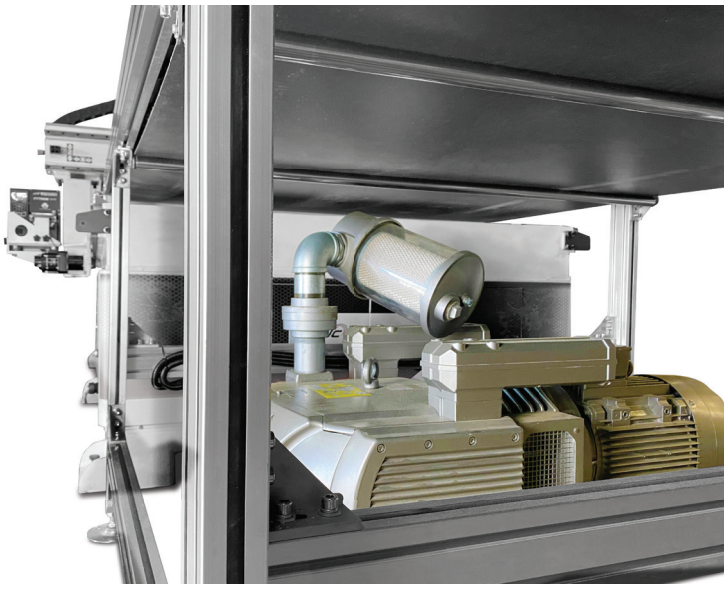
- The V300 pump can be used to generate a vacuum (KVE).
- The V300 pump is a dry vane pump and does not require oil. It cannot be used with toxic or flammable materials.
- Its inlet takes in dry, clean air free of dust and debris. Air with dust and debris will lead to internal vane and structural damage and degrade the pump’s performance.

TRANSPORT AND STORAGE

To move the V300 pump, only use the lifting bolts on top of the pump. Verify the tightness of the rigging before moving. The V300 pump always requires dry storage.

INSTALLATION

Install the V300 pump in a position for easy maintenance access. However, it should be 12” away from any wall or obstacle to ensure that airflow and cooling is not impeded. The ambient temperature should not exceed 110 degrees.



IN-LINE FILTER

The in-line vacuum filter should always be used to help capture any dust or debris. Having an in-line filter between the pump and machine ensures proper operation of your pump. During the initial installation, check the filter chamber and blow off/ remove any debris. For many new installations, there is usually some leftover debris from the machine hose or vacuum table. **Make sure to check the in-line filter at least once a month.**

VACUUM HOSE DIAMETER

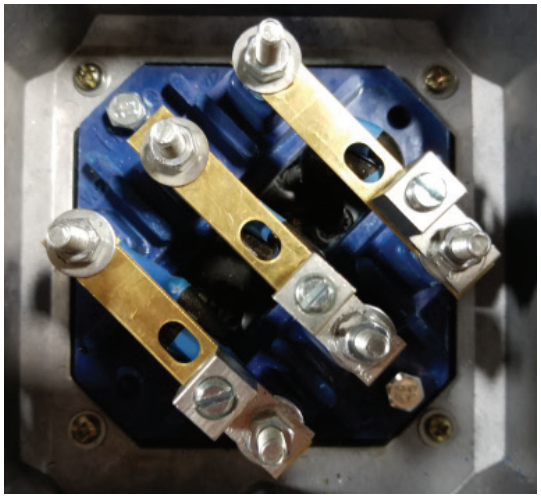
The V300 pump comes with fittings for 3". The vacuum hose should not exceed a 20' distance between the machine manifold and the air in-line filter.

ELECTRICAL CONNECTION

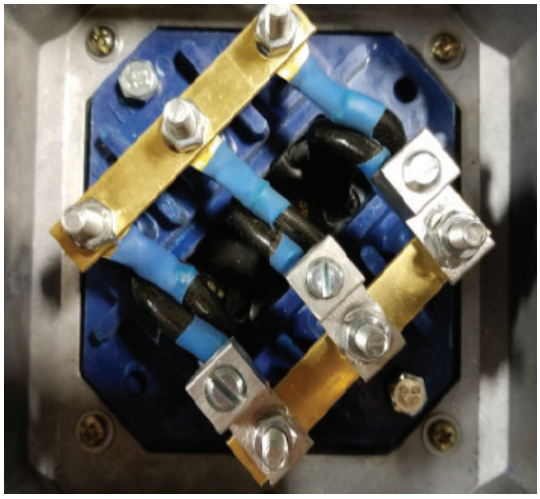
Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements of this machine, a new circuit must be installed. To minimize the risk of fire or equipment damage, electrical work must be done by a licensed electrician or qualified service personnel in accordance with all applicable codes and standards.

FULL-LOAD CURRENT RATING

The full-load current rating is the amperage the V300 pump draws at 100% of the rated output power. On machines with multiple vacuum motors, this is the amperage drawn by the sum of all vacuum motors and any electrical device that might operate at the same time.

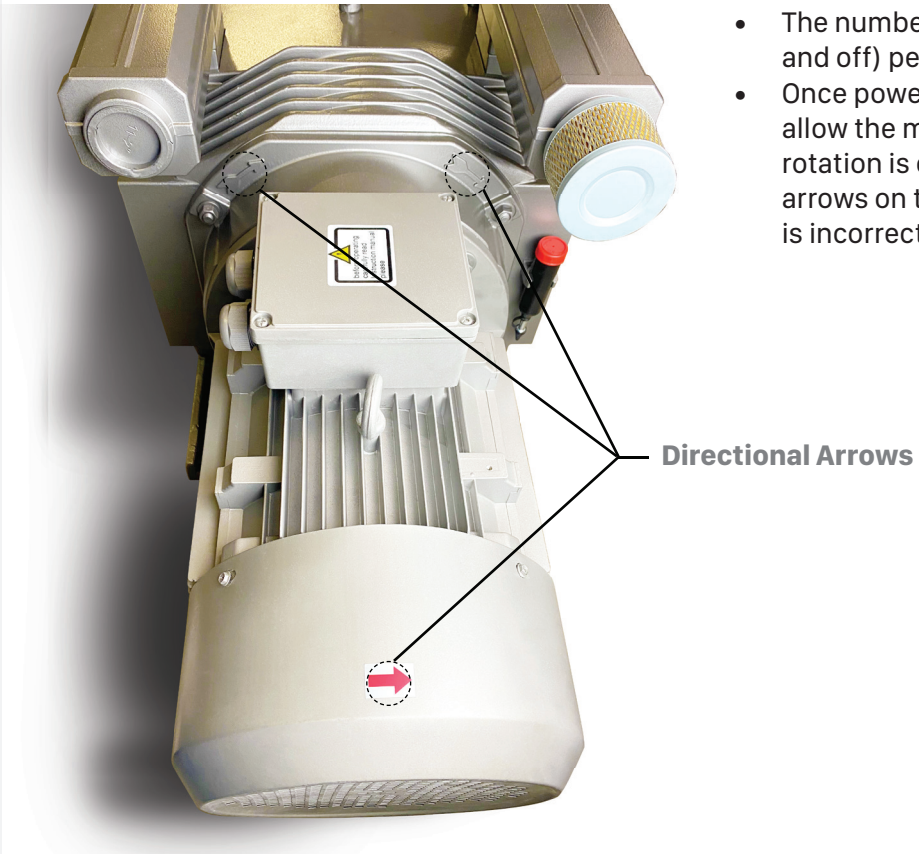


220 Volt Configuration



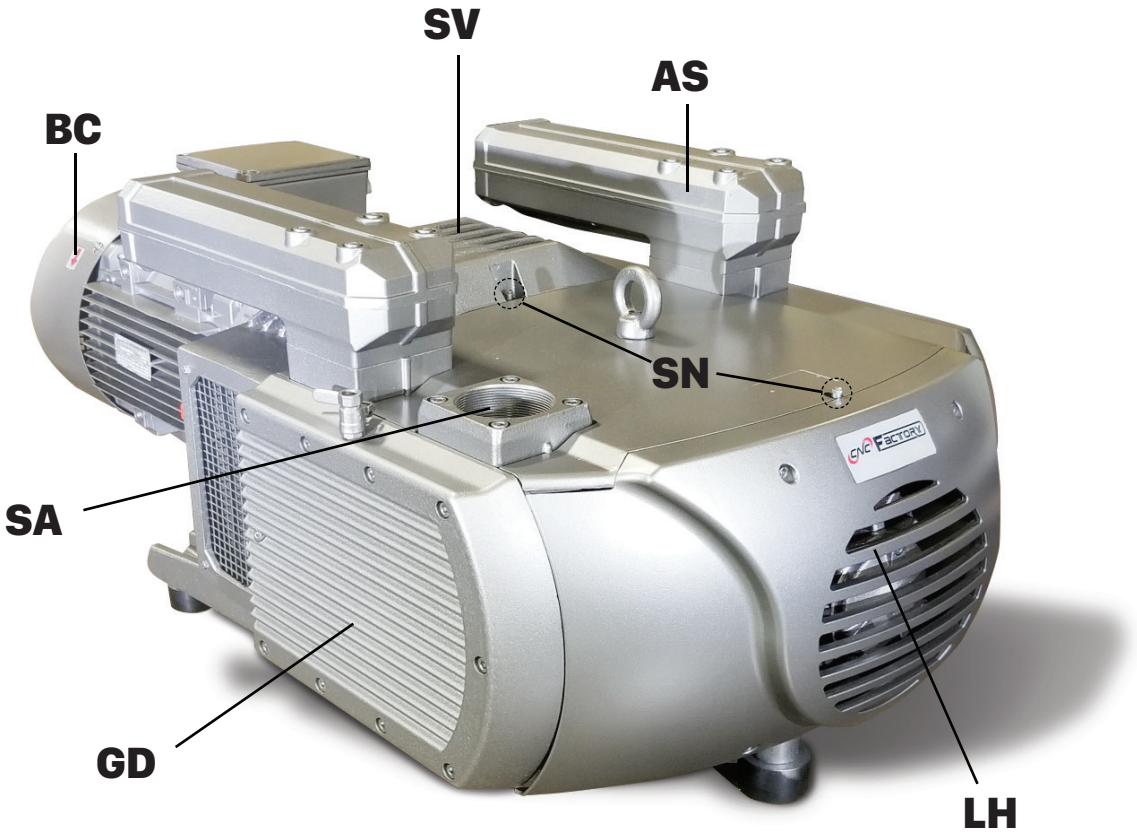
380 Volt Configuration

Configure the wiring and disconnect according to the electric motor configuration and model:
Model V300: Full-Load Current Rating at 220V.....40 Amps
Model V300: Full-Load Current Rating at 380V.....32 Amps
Model V340: Full-Load Current Rating at 480V.....25 Amps
Model V340: Full-Load Current Rating at 720V.....12.5 Amps



- The number of switches (turning the machine on and off) per hour should not exceed 6 times
- Once power is installed, turn on the machine to allow the motor to slightly turn. Then, check is the rotation is correct (it should match the directional arrows on the vacuum pump case). If the rotation is incorrect, switch a wire leg at the terminal.

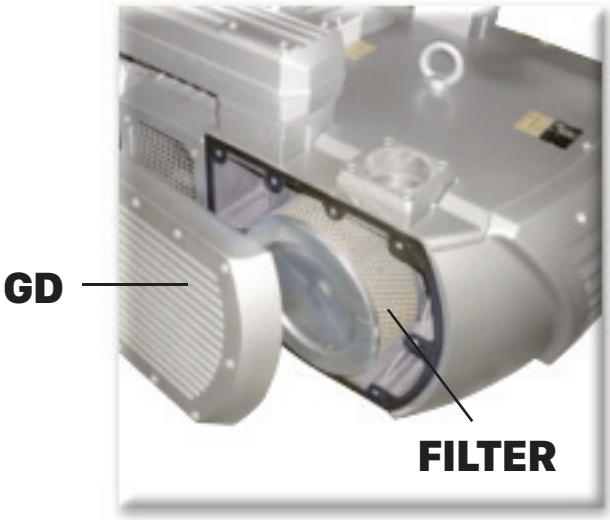
GENERAL PUMP DESCRIPTION

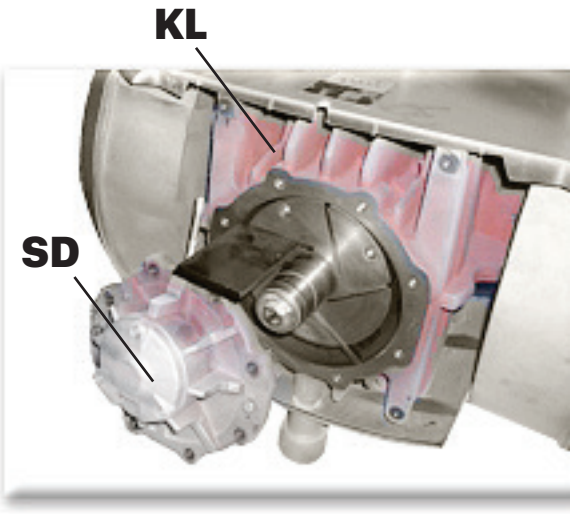


BC: Vacuum Air Intake
SA: Vacuum Access Port
GD: Side Filter Cover

SV: Vacuum Air Safety Valve
AS: Vacuum Silencer
SN: Grease Inlet
LH: Rear Pump Cover

KL: Cylinder Air Duct
SD: Rear Inner Vane Cover



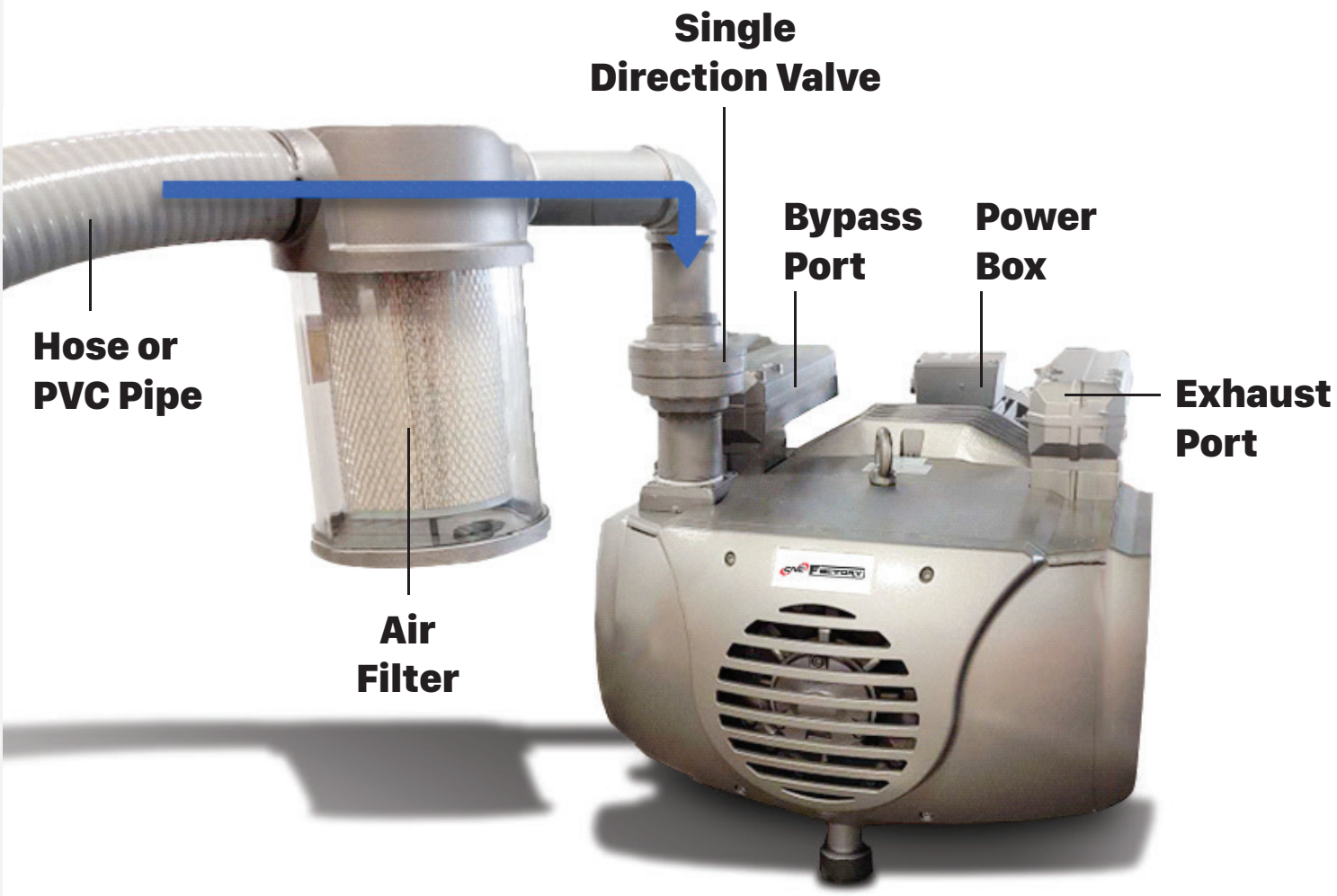


FILTER ASSEMBLY

Assemble the pump as shown below. The blue arrow indicates the air flow direction. The air filter and single direction valve both have directional arrows marking the correct direction. Make sure they match with the blue arrow.

Remove all plastic protection covers on both ports before powering on the pump. Use Teflon tape on all pipe thread; be careful not to over thread the pipe. The bypass port supports air flow when the intake is completely blocked.

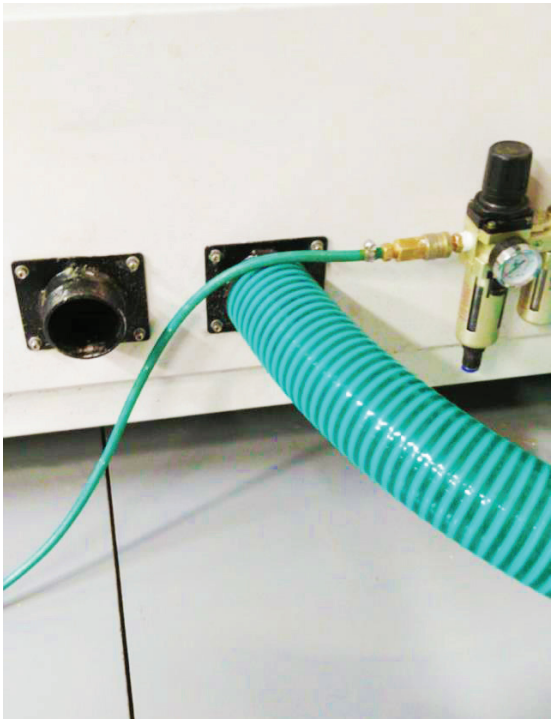
The exhaust port and pump generate heat, avoid contact.



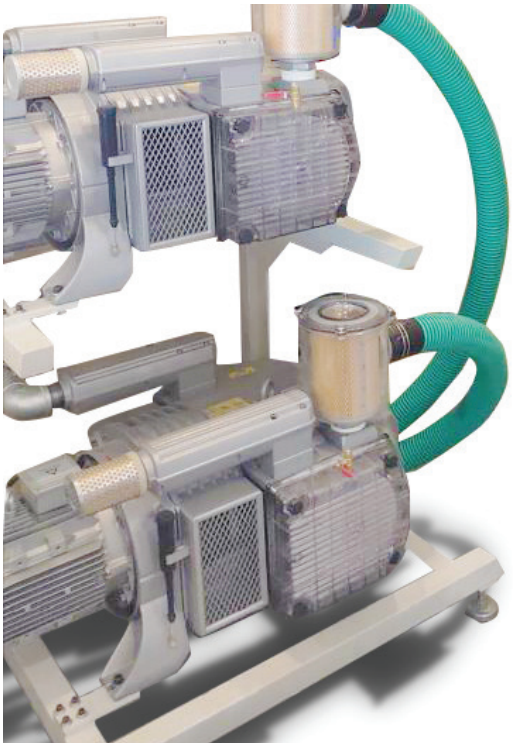
VACUUM PUMP PIPING

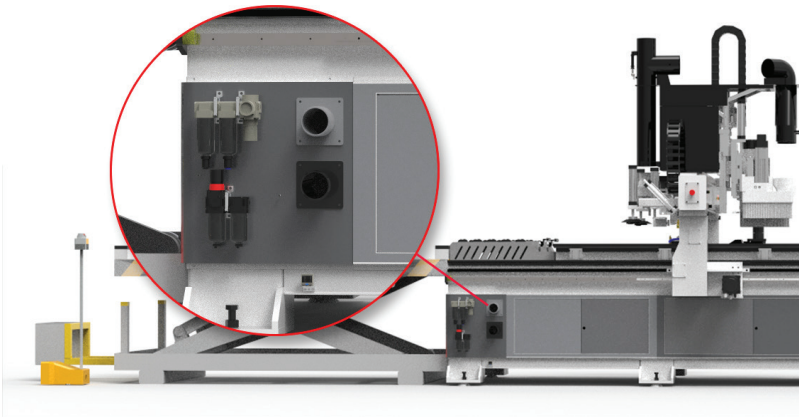
There are 2 way to connect the vacuum pump to your CNC Factory machine:

1) Via heavy duty flex vacuum hose:



Use the provided hose clamps (below) to connect the hose to the machine via the vacuum port (left) & the vacuum pump.





For newer CNC models. The vacuum ports are in this configuration.

(left) Our optional pump rack allows you to stack your pumps on top of each other. You can also place them under the unloading table if you have one (see next page).

2) Via Schedule 40 PVC pipe:

Fernco 2in x 2in x 2.41in Coupling PVC Fitting

2in schedule 40 PVC pipe - 6 inch long

2in PVC long sweep elbow pipe

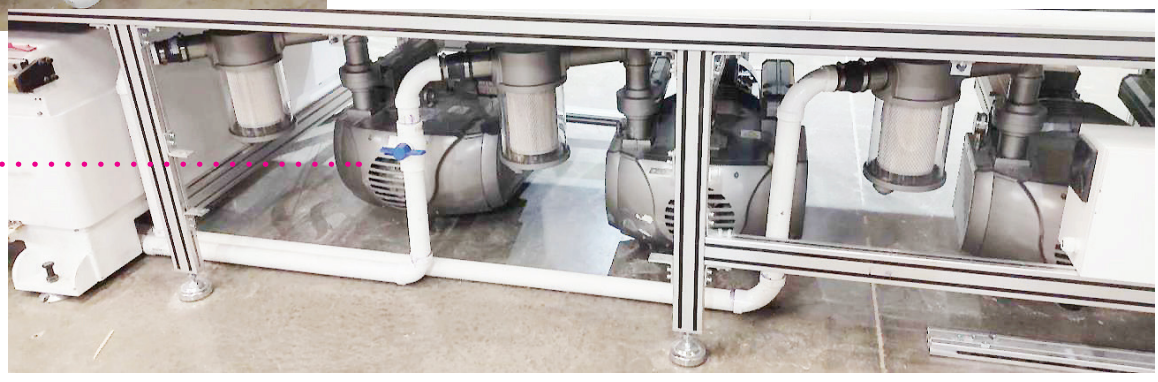
2in schedule 40 PVC pipe

To connect:

1) Loosen or remove the 2 metal clamps from the coupling.
2) Heat up the coupling using a torch/heat gun to stretch it out so the vacuum port can be fitted in.
3) Once the coupling is fitted around the port, tighten the metal clamp closest to the port's mouth to secure it.
4) Then, cut a 6" long PVC pipe and insert into the coupling all the way into the port.
5) Tighten the remainng clamp to secure the pipe.
6) Finally, glue the other end of the pipe to the elbow.

Do the same thing with a 2nd coupling for the pump's air filter.

Pumps can be placed under the unloading table



MAINTENANCE

Regular maintenance of the V300 pump allows it to maintain optimum operating conditions. Each maintenance cycle depends on how much the pump is used as well as its work environment (i.e. degree of dust generated and hours used). Minimum maintenance should be performed monthly until a regular maintenance schedule can be established based on your usage and environment.

Before performing maintenance or servicing your V300 pump, disengage the electrical power to the pump to ensure there is no chance for an accidental start.

Standard Scheduled Maintenance:

Cleaning the Intake Filter

The filter cartridge is installed behind the side cover (GD location) and is cleaned to remove dust and debris accumulation. When cleaning, use compressed air to clean the filter inside out. Adjust your maintenance schedule based on dust and debris accumulation here. **A clean side filter is crucial to proper operation and warranty coverage!**

Cleaning the Vacuum Intake Filter

The filter cartridge is installed inside the vacuum intake housing (GD location) and is cleaned to remove dust and debris accumulation. When cleaning, use compressed air to clean the filter inside out. Adjust your maintenance schedule based on dust and debris accumulation here. **A clean vacuum intake filter is crucial to proper operation and warranty coverage!**

Lubrication

The V300 pump requires lubrication every 300 hours of use to ensure enough grease to lubricate its bearings. Install grease at both SN locations until the grease starts to back out from the input plug. For new installations, lubricate after the first 3 months of use. Your vacuum includes a grease gun. Refills can be purchased from CNC Factory or at most hardware stores. **Regular lubrication is crucial to proper operation and warranty coverage!**

Use **Klüber PETAMO GY 193** lubrication. Apply 5 grams to each grease port.

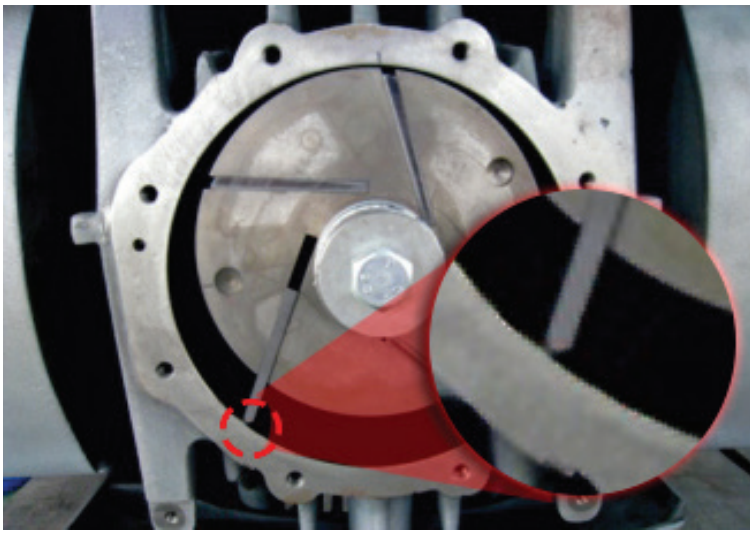
Cleaning the Cylinder Air Duct

Blow compressed air into the cylinder air duct (KL location) to remove any build up.

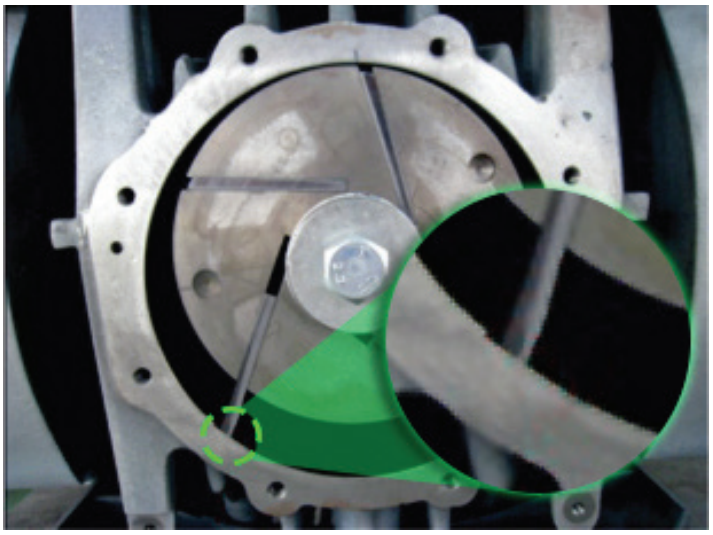
Annual Cleaning or Vane Replacement

The V300 pump uses Rotary Vane Technology to perform robust vacuum pressure. The vanes should be checked after 3,000 hours of use or at least once a year. Check the width of the blades (see table for minimum width) to see if they need replacement. Blades will eventually wear out due to the friction the rotary vanes have with the inner wall.

Wear a mask, gloves and safety glasses when cleaning or replacing vanes



Carbon vanes are installed INCORRECTLY



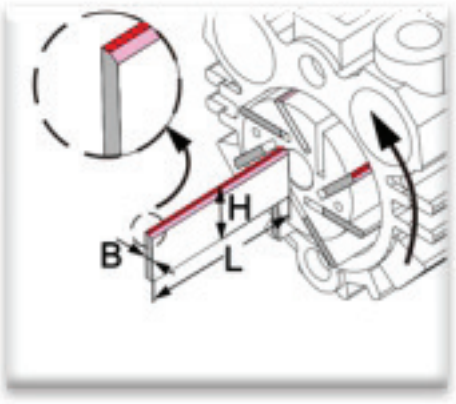
Carbon vanes are installed CORRECTLY

H = 65mm

↓

41mm

L = 355mm
H = 65mm
B = 5mm



1. To access the inside, slide open both the rear case cover (LH) and side case cover (SD). You will need to remove 8 bolts.
2. Carefully open the belt by unscrewing the next 2 bolts and slowly remove the blades from the rotor.
3. Do not use external force on the rotor while touching the blade.
4. Make sure it is clean and free from dust and debris.
5. When assembling the blades back, note that the blade should be 1-2mm from the end of the rotor.
6. Check the oil seal.
7. Clean the grease on the rotor shaft and carefully put back the cover of the rotor.
8. If the screws do not immediately fit, slightly raise the cover so the screw hits precisely the center of the hole. Tighten when it's locked in.
9. Check if the rotor turns easily.