



**Eurovacuum
Installations and
Operating manual
EVDR-Series
Vacuum pumps
Models:
EVDR-V010 till V040**

Dry Rotary Vane Vacuum Pump

Contents



It is mandatory that these operating instructions be read and understood prior to the vacuum pump installation and start-up.

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1.0 INSTALLATION

1.1 General description

The EVDR vacuum pumps are able to run 24 hours a day and especially suited for harsh industrial applications. They are supplied with self-lubricated long life graphite vanes to insure a long time between service, combined with the easy accessible service of the pump, this results in a very short service down time for the EVDR-series.

1.2 Unpacking and Storage

Inspect the box and pump carefully for any signs of damage incurred in transit. Since all pumps are ordinarily shipped EXW from our factory or regional warehouse, such damage is the normal responsibility of the carrier and should be reported to them.

The inlet of the pump is covered with plastic caps to prevent dirt and other foreign substances from entering the pump. Leave the cap in place until you are ready to pipe the pump to your equipment.

The pump should be stored in a dry environment with normal air humidity (RH 0~80%, -10°C to 45°C), not for more than 12 months.

1.3 Location

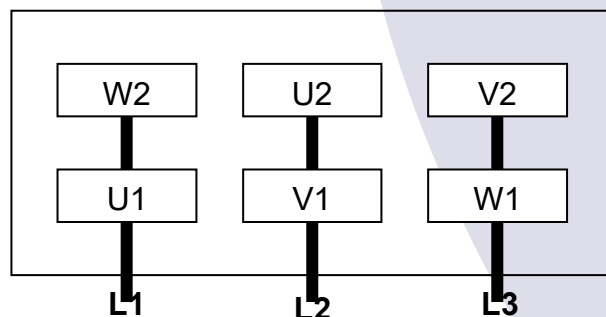
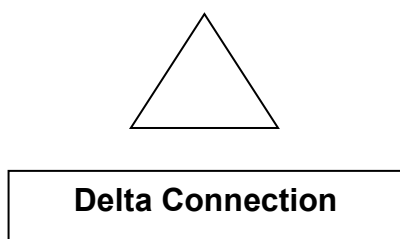
Install the pump in a horizontal position on a level surface so that the pump can be evenly supported on its rubber feet. Leave 10 ~ 15 cm of access around the pump to allow proper cooling. Also, adequate ventilation must be provided for the cooling of the pump and motor. Ambient temperatures should not exceed 45°C.

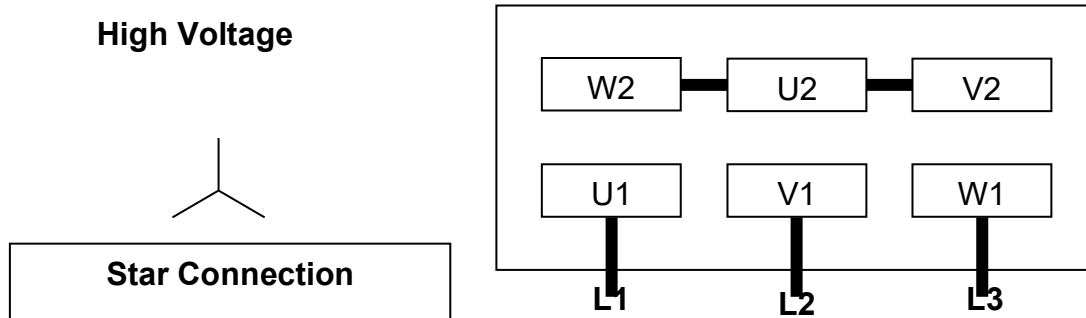
1.4 Power Requirements

A schematic diagram for the electrical motor terminal connections is located in the junction box of the motor or on the motor nameplate. Typical wirings for Three Phase Motors are as below:

Wiring Scheme- Three Phase Motor

Low Voltage





The motor must be connected according to the electrical codes through a fused switch in order to protect the motor against electrical or mechanical overload conditions. The overload of the motor starter must be set at a level equal to the full load motor current listed on the motor nameplate.

Check the rotation connection before starting the pump, the correct direction of rotation is marked by an arrow on the pump casing.

Avoid more than 10 switches per hour.

After electrical connections have been made, the rotation of the motor must be checked. If backward, reverse any two leads of the three at the power connection.

1.5 Vacuum Connections

Use a pipe size that is at least the size of the pump inlet connections. Smaller lines result in a reduced pump capacity.

Pumps operating in parallel on a common main line should have a manual or automatic operated shut-off valve or positive action check valve, installed in the suction line adjacent to the pump suction flange. The built-in anti-suck back valve should not be used as a shut-off valve for the vacuum system. Remove the plastic protective cap from the inlet port prior to connection of pump to the system.

Should process gas contain dust or other foreign particles, a suitable in line (inlet) filter should be connected to the inlet port. Consult Eurovacuum for recommendations.

The vacuum piping should be designed to ensure that no liquids such a condensate or liquid carried over from the process can reach the pump. If this possibility exists, a knock-out liquid separator should be installed. Consult Eurovacuum for recommendations.

The following thread sizes are standard on the pumps

| <u>Pump Model</u> | <u>Inlet Size</u> |
|-------------------|-------------------|
| EVDR-V010 & V016 | G 1/2" |
| EVDR-V025 & V040 | G 3/4" |



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2.0 SAFETY

Please read the following safety notice carefully before operating the pump.

2.1 General Notices

- Understand fully this installation and operating manual before operation.
- Any other person except authorized operator should not operate the vacuum pump
- When the pump is not properly working, it should be stopped immediately.
- Eurovacuum shall have no liability for any accident and failure arising from no compliance with instructions in this manual.

2.2 Warning labels and its explanation

Following warning labels are shown and attached on EVDR series pumps

2.2.1 No oil:

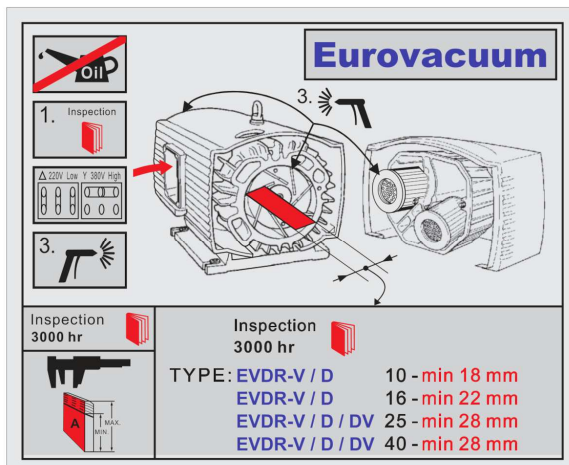
No oil should be used in this pump and the intake of oil and oil mist must be prevented

2.2.2 Read operating instruction manual:

Read and understand operator's manual before using this machine

2.2.3 Vane inspection

Inspect the size of the vanes after 3.000 hours of running



2.2.4 Location of the labels

The labels shall be shown on the top of sound shield of the pump.

2.3 Risks and warnings

2.3.1 Risk of burns

During operation the surface of the pump may reach temperatures of more than 70°C.

- Avoid contact with the pump during and after directly after operation.

2.3.2 Risk of damage to hearing

If people are present near to the pump over extended periods then there is a risk hearing damage.

- Ear protection must be used.
- Do not lubricate the compression chamber of the pump with oil or grease

2.3.3 Damage to the pump

- Do not lubricate the compression chamber of the pump with oil or grease
- Avoid more than 10 on/off switches of the pump per hour



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3.0 OPERATION

3.1 Start-up

Check rotation of the motor as described in paragraph 1.4 Power Requirements.

3.2 Stopping the pump

To stop the pump, turn off the power. An anti-suck back valve (built-in) for the pump installed in inlet flange will prevent the air from back flowing into the vacuum chamber after the pump is shut down.

3.3 Operating Conditions

The EVDR-Vxxx pumps are designed to run the ultimate vacuum levels stated in technical data (6.0) for continuous operation. A vacuum regulator is installed on the pump, the desired vacuum level to can be achieved by rotating the adjustment knob on the regulator.

The standard version is for use of dry air only, and may not be used in hazardous areas. Handling of humid air or gases containing aggressive chemicals is possible only with specially configures units. Consult Eurovacuum for assistance.

It is recommended for operating personnel who are working near the pump to wear ear protectors. If noise below the designed dBA is required, an external sound enclosure can be added to the system, provided adequate ventilation is provided

The ambient and suction air temperature must be below 45°C.

Caution: Any non compliance may lead to severe injury to persons and damage to the pump.

Caution: Maximum number of motor starts per hour should not exceed 10 per hour. Excessive starting of the motor can cause overheating and premature failure of the motor.

4.0 MAINTENANCE

EVDR-Series vacuum pumps require light maintenance. To ensure optimum performance, the following maintenance steps should be followed:

4.1 Vanes check

Check the vanes width every 3.000 operating hours or annually.

The vanes width minimum sizes, if smaller width then they must be replace.

| Pump type | Minimum width |
|-----------|---------------|
| EVDR-V010 | 18 mm |
| EVDR-V016 | 22 mm |
| EVDR-V025 | 28 mm |
| EVDR-V040 | 28 mm |

Caution: Only use original Eurovacuum vanes or order them at www.vanes.shop

4.2 Filter check

Check the filter cartridges inside the enclosure cover of the pump and clean/replace them when necessary. You can order these from Eurovacuum or at www.vanes.shop



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4.3 Maintenance Chart

Weekly: Check inline inlet filter element / Mesh. More often if high particulates in inlet stream.

Monthly: Clean the pump from dust and dirt. When inlet filter is installed: check the filter cartridge, replace if needed.

Every 3.000 operating hours: Check the vanes size. Replace vanes if under the size.

Semi-Annually: Check cooling fan. More often if dirty environment.

5.0 PROBLEM SOLVING

5.1 Problem

Pump does not start.

5.1.1 Possible Cause

Wrong voltage supplied.

Remedy : Check the power supply and compare it with the pump motor data.

5.1.2 Possible Cause

Damaged electric motor.

Remedy : Call service agent for service or exchange program.

5.2 Problem

Pump does not reach its usual vacuum level.

5.2.1 Possible Cause

Filters are clogged with debris.

Remedy : Clean the filters or replace them if needed .

5.2.2 Possible Cause

Vacuum regulator is out of order.

Remedy : Clean and check the regulator or replace it with new one.

5.2.3 Possible Cause

Vanes are stuck.

Remedy : Free the vanes or replace them.

5.2.4 Possible Cause

Vanes are worn out.

Remedy : Replace the vanes and clean the pump inside.

5.3 Problem

Vacuum pump runs very noisily.

5.3.1 Possible cause

The pump runs in the wrong direction.

Remedy : Check and change the rotation direction if needed.

5.3.2 Possible cause

Defective bearings.

Remedy : Repair the pump or call service agent for service or exchange program.



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5.4 Problem

The vacuum pump runs too hot.

5.4.1 Possible cause

Ambient temperature is too high.

Remedy : Check the ambient temperature and take care of extra cooling.

5.4.2 Possible cause

Insufficient cooling.

Remedy : Remove dust and dirt from the pump.

5.4.3 Possible Cause

Filters clogged.

Remedy : replace filter cartridges.

6.0 TECHNICAL DATA

| Technical Data | | EVDR-V010 | EVDR-V016 |
|---|------------|-------------|-------------|
| Nominal displacement | 50 Hz | 10 | 16 |
| | 60 Hz | 12 | 19 |
| Ultimate vacuum level | mbar(abs.) | 150 | 150 |
| Motor power at 50/60Hz | kW | 0,37 / 0,45 | 0,55 / 0,66 |
| Nominal speed at 50/60Hz | rpm | 1420 / 1700 | 1420 / 1700 |
| Noise level with exhaust silencer @50Hz | dB(A) | 60 +/-3 | 61 +/-3 |
| Cooling medium | | air | air |
| Weight approx.. | kg | 15 | 22 |
| Admissible ambient temperature | °C | 0 to 40 | 0 to 40 |
| Connection (inlet) | G(BSP) | 1/2" | 1/2" |
| Dimensions LxWxH | mm | 426x202x192 | 454x225x208 |

| Technical Data | | EVDR-V025 | EVDR-V040 |
|---|------------|-------------|-------------|
| Nominal displacement | 50 Hz | 25 | 40 |
| | 60 Hz | 30 | 48 |
| Ultimate vacuum level | mbar(abs.) | 150 | 150 |
| Motor power at 50/60Hz | kW | 0,75 / 0,9 | 1,25 / 1,5 |
| Nominal speed at 50/60Hz | rpm | 1420 / 1700 | 1420 / 1700 |
| Noise level with exhaust silencer @50Hz | dB(A) | 62 +/-3 | 67 +/-3 |
| Cooling medium | | air | air |
| Weight approx.. | kg | 28 | 39 |
| Admissible ambient temperature | °C | 0 to 40 | 0 to 40 |
| Connection (inlet) | G(BSP) | 3/4" | 3/4" |
| Dimensions LxWxH | mm | 502x252x292 | 570x270x292 |

