



Eurovacuum
Installations and
Operating manual
EV Series
Vacuum pumps
Model 0008

Single Stage Oil Sealed Rotary Vane 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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INSTALLATION AND OPERATING MANUAL

This manual is written to cover the EV-0008 Model vacuum pumps. The article number and serial number are mentioned on the nameplate.

Please identify the article number and serial number when ordering parts.

1.0 INSTALLATION

1.1 Unpacking

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

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

1.2 Location

Install the pump in a horizontal position on a level surface so that the pump can be evenly supported on its feet. Leave enough access around the pump to allow proper cooling. Also adequate ventilation must be provided for the fan and motor.

Allow access to the oil sight glass in order to inspect the oil level and the exhaust port for easy access to change the exhaust Filter.

Do not tip the pump over if filled with oil.

1.3 Power Requirements

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 type plate.

If the pump is supplied with a motor starter it is preset at the factory according to customer specifications. It is advisable to check that these settings are in line with the voltage at your location. If the voltage is different, please contact Eurovacuum for motor and starter information.

Correct direction of rotation is clockwise when looking at the motor from the motor's fan side. Or counter clockwise when looking from the side of the oil level glass.

After electrical connections have been made, but prior to filling with oil, the rotation of the motor should be checked. If backward, reverse any two leads of the three phase at the power connection.



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1.3 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 screw cap from the inlet port prior to connection of pump to the system.

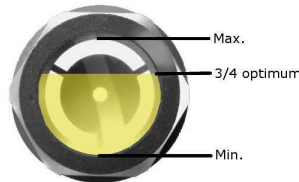
Should process gas contain dust or other foreign particles, a suitable in line (inlet) filter should be connected to the inlet port. Consult Eurovacuum for recommendations.

The vacuum piping should be designed to ensure that no liquids such as 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.

If an exhaust manifold is connected, install a drip leg and drain near the pump exhaust to prevent exhaust condensation from entering the exhaust box. The thread size on the inlet is G 3/4" (BSP).

1.4 Oil Filling

The pump is shipped without oil. After level installation and correct rotation has been established, fill the pump with recommended vacuum pump oil through the oil fill port. Oil level should be at the 3/4 positions on the oil sight glass.



Non-detergent oil should be used. We recommend original Eurovacuum Vacuum Pump oil. Eurovacuum oil is a high quality vacuum oil that will provide longer running time between oil changes, better lubrication at high operating temperatures and prolongs the life of the exhaust filter elements. Oil detergent additives can cause exhaust filters to become clogged and shorten their service life.

Ordering information on Eurovacuum oil:

	Mineral oil EV-mineral 32 Article number:
1 ltr can	100110
5 ltr can	100112
20 ltr can	100113

The approximate quantities of oil required for one filling of the EV-0008 pump is 0,25 ltr.

Do not add oil with pump running or through the inlet or exhaust ports! Do not overfill.



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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.
- No other person except authorized operator should not operate the 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 EV-0008 pumps

2.2.1 Read and Understand a manual:

Read and understand operator's manual before using this machine

2.2.2 Burn Hazard:

Hot surface. Do not touch.

2.2.3 Loud noise Hazard:

Loud noise hazard. Ear protection must be worn.

2.2.4 Hazardous Voltage:

Disconnect power before opening. Contact causes severe electrical shock



2.3 Location of the labels

The labels of 2.2.1 Read and Understand a manual, 2.2.2 Burn Hazard, 2.2.4 Hazardous Voltage and 2.2.3 Loud noise Hazard shall be shown on the oil sump top of EV-0008 pump.



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3.0 OPERATION

3.1 Start-up

Check rotation of the motor as described in paragraph 1.3 Power Requirements.
Fill the pump with oil as described in paragraph 1.5 - Oil Filling

Start the pump with the inlet closed. Run the pump for a few minutes and then shut down. Check the oil level again and make sure the oil level is between the 3/4 marks and full on the upper oil sight glass.

Add oil, if necessary. Pump oil should only be added when the pump is off and circulating oil has sufficient time to return to the oil sump.

If the ambient temperature is below 10°C, it is recommended to use a heater to warm up the pump oil first before starting the pump.

3.2 Stopping the pump

To stop the pump, turn off the power. A built in anti-suck back valve will prevent oil from the oil reservoir being sucked back into the cylinder after the pump is shutdown.

Do not utilize the anti-suck back valve as a check valve. Consult Eurovacuum for proper check valves.

3.3 Check Valve (Built-In)

EV-series pumps are equipped with Built-in Check Valve. The valve is located in the inlet flange housing to prevent oil back to inlet side (system) when the pump is running off.
(However, it is recommended to install a separate check valve in the line of inlet)

4.0 MAINTENANCE

EV-Series vacuum pumps require very little maintenance. To ensure optimum performance, the following maintenance steps should be followed:

4.1 Pump Oil

4.1.1 Oil Level

Under normal circumstances it should not be necessary to add oil between oil changes. A significant drop in oil level means there is either an oil leak, a defective exhaust filter or O-ring, or a leaking anti-suck back valve. If the pump is smoking excessively, the exhaust filter may be installed improperly.

It is normal for the oil to be foamy or lightly coloured in an operating pump. This may be normal aeration of the oil. If the oil appears milky or dark coloured, it is contaminated or burned and must be changed.

Check the oil level only when the pump is shut off. Replenish oil if it drops below the ¼ mark of the sight glass.

Caution: Do not add oil while the pump is running, since hot oil can escape from the oil fill port.



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4.1.2 Oil Type and Quantity

See section 1.5 - Oil Filling - for details on oil type and quantity

4.1.3 Oil Change

Oil life is dependent on the operating conditions. A clean and dry air stream and operating temperatures below 100°C are ideal. When using proper Vacuum Pump Oil, it is recommended to change the oil every 500-1000 operating hours or after half year. Oil life can be shorter than 500 hours if the pumps are operated under unfavorable operating conditions Oil change frequency is dependent upon the application and ambient temperature. It is recommended that the customer monitor the condition of the oil during this period.

Caution: Always change the oil when the pump is off but still at working temperature.

When disposing of used oil, please observe the relevant environmental regulations.

4.2 Inline (Inlet) Filter

Check inline (inlet) filter on a weekly basis. The filter cartridge should be cleaned or replaced when dirty. Consult Eurovacuum for replacement element information.

Caution: Depending on the mounting position of the filter, be careful not to allow accumulated foreign material to fall in the pump suction inlet when removing the filter cartridge. Horizontal filter installation is recommended to prevent this.

4.3 Exhaust Filter

Replace this filter every 9 to 18 months of operation or as necessary. The service life of this filter varies depending upon the application and frequency of oil change. It is necessary to change the filter only when it's become clogged. Indications of clogged filters are smoke or oil mist coming from the exhaust of the pump and higher than normal motor current.

<u>Pump Model</u>	<u>Part No.</u>	<u>No. required</u>
EV-0008	016031	1 pc

Do not clean or re-use these filters. Filters must be disposed of in a proper way as they might contain toxic substances carried over from the process. Replace O-rings on filter when changing.

4.4 Maintenance Chart

Daily	: visually check oil level and colour.
Weekly	: inspect inline (inlet) filter and check oil leaks from the vacuum pump.
Monthly	: check the exhaust filter function (If oil mist at exhaust, replace the exhaust filter with O-ring).
Every 2- 6 month	: drain and discard oil from pump while hot. Refill with fresh oil.
Every 9-18 month	: replace exhaust filter elements with O-ring.
Every 500 ~ 2000 operating hours:	Change the oil and oil filter.

The operating life of the pump is greatly enhanced based on the oil quality and condition of the filters. Periodic maintenance will ensure a reliable operating vacuum pump.



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4.5 Gasket Kit, Overhaul Kit and other Parts

A gasket kit contains a full set of gaskets and O-rings, Eurovacuum article number: 016490.

A Overhaul (Maintenance) kit contains a set of gaskets, O-rings, vanes, bearings, shaft seals and exhaust filter, Eurovacuum article number: 016500.

A Service kit contains motor coupling insert(s), filters, seals for filter exchange & oil exchange, Eurovacuum article number: 016500.

Other parts are available. Please consult Eurovacuum parts department for information.

5.0 PROBLEM SOLVING

5.1 Problem

Pump does not reach end pressure. This is the lower absolute (best vacuum) when running with the inlet closed.

- First point is to double check the function of the vacuum meter.

5.1.1 Possible Cause

Oil condition is most often the cause of not reaching end vacuum.

Remedy : drain oil from pump and refill with fresh oil. Run pump with fresh oil for 15 minutes then take new pressure reading.

5.1.2 Possible Cause

Exhaust filter blocked.

Remedy : replace the exhaust filter and O-ring.

5.1.3 Possible Cause

Shaft seal leak

Remedy : replace shaft seal from seal or overhaul kit, or call Eurovacuum for exchange program.

5.1.4 Possible Cause

Vane stuck in rotor slot.

Remedy : drain oil with flushing oil. Run pump for 15 minutes and drain. Replace fluid with fresh oil and exhaust filter. Replace vane from overhaul kit or call Eurovacuum for exchange program.

5.1.5 Possible Cause

Wrong direction of rotation.

Remedy : read chapter 1.3 of this manual on how to check and change the rotation direction of the pump.

5.1.6 Possible Cause

Inlet filter clogged by debris.

Remedy : change or clean .

5.1.7 Possible Cause

Vacuum fitting or hose is not leak tight.

Remedy : check hose and pipe connections for leaks.



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5.2 Problem

Pump runs very noisy.

5.2.1 Possible cause

Broken bearing(s).

Remedy : Replace bearings from overhaul kit or call Eurovacuum for exchange program.

5.2.2 Possible Cause

Vanes stuck

Remedy : drain oil with flushing oil. Run pump for 15 minutes and drain. Replace fluid with fresh oil and exhaust filter. Replace vane from overhaul kit or call Eurovacuum for exchange program.

5.2.3 Possible Cause

Broken capacitor (single phase version only)

Remedy : replace the capacitor, Eurovacuum article number: 016016.

5.3 Problem

Pump starts, but labors and draws high amperage.

5.3.1 Possible Cause

Oil is too viscous.

Remedy : drain and change with fresh oil or correct oil with recommended viscosity.

5.3.2 Possible Cause

Exhaust filter is clogged

Remedy : replace exhaust filter, maintain proper oil condition, oil level and use Vacuum pump oil. Make sure inlet filter is operational preventing particulate carryover.

5.3.3 Possible Cause

Loose connection on wires or wrong voltage.

Remedy : check wiring diagram for proper connections; tighten or replace loose connections.

5.3.4 Possible Cause

Foreign particles in pump. Broken vanes or seized bearings.

Remedy : overhaul pump or call Eurovacuum for exchange program.

5.3.5 Possible Cause

Pump is overfilled with oil or wrong kind of oil is in pump.

Remedy : drain oil; use correct type of Vacuum pump oil.

5.3.6 Possible Cause

Pump runs in wrong direction.

Remedy : check for correct rotation. If incorrect, switch any two leads.



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5.3.7 Possible Cause

Working temperature below 12°C.

Remedy : Raise the working temperature to above 12°C or change to another lubricant, consult Eurovacuum for the correct choice of oil for your situation.

5.4 Problem

Pump will not start.

5.4.1 Possible Cause

Supply voltage is not proper or is overloaded. Motor starter overload settings are too low or improper; fuses are burned; wire size is too small or too long causing a voltage drop.

Remedy : check voltage supply; overload settings in motor starter for size and settings according to motor nameplate. Install proper size wire. If ambient temperature is high, use the next larger size overloads or adjust settings 5% above motor nameplate value.

Remedy : turn pump fan by hand. If it will not turn. Repair or replace if needed or call Eurovacuum for exchange program.

5.5 Problem

Pump smokes at the exhaust side or expels oil droplets from the exhaust.

5.5.1 Possible Cause

Exhaust filters are not properly installed with O-ring; Filter media is damaged.

Remedy : check exhaust filter placement and replace if needed.

5.5.2 Possible Cause

Exhaust filters are clogged with foreign particles.

Remedy : replace filter and O-ring.

5.5.3 Possible Cause

Oil is not re-circulating properly.

Remedy : check oil quality and make certain oil lines are clean.

5.6 Problem

Pump is running too hot. (Typical operating temperature of the EV-0008 pump is 50°C ~ 95°C)

5.6.1 Possible Cause

Not enough oil in the oil reservoir or oil is badly burned or carbonized.

Remedy : drain oil and refill with proper Eurovacuum oil; change oil more frequently.

5.6.2 Possible Cause

Not enough air ventilation to the pump

Remedy : clean the pump housing and motor fins. Make certain a sufficient amount of fresh air is supplied to the pump.



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5.6.3 Possible Cause

Surrounding temperature higher than 40°C

Remedy : reduce the surrounding temperature of the pump to lower than 40°C.

5.6.2 Possible Cause

Temperature of the pumped inlet air too high

Remedy : cool down the temperature of the air before entering the vacuum pump.

5.7 Problem

Pump will not operate (seized up).

5.7.1 Possible cause

Pump operated without oil and vanes broke

Remedy : Call Eurovacuum for exchange program.

5.7.2 Possible Cause

Liquid carry over into pump cylinder broke vanes while pump was running.

Remedy : Install knock-out pot at inlet of pump and call Eurovacuum for exchange program.

6.0 TECHNICAL DATA

Technical Data		EV-0008	
		50 Hz	60 Hz
Nominal displacement	m ³ /h	8	9,6
Ultimate pressure	mbar	2	2
Motor power	kW	0,35	0,45
Nominal speed	rpm	2800	3300
Noise level	dB(A)	59	62
Operating temperature	°C	50-95	50-95
Oil capacity	ltr	0,25	0,25
Weight approx	kg	9,5	9,5
Admissible ambient temp.	°C	12 to 40	12 to 40
Connection	Inlet	G(BSP)	3/8"
	Outlet	G(BSP)	1/2"

7.0 DIMMENSIONS

