


ROTARY OIL VACUUM PUMP

User Manual



BEFORE USING, PLEASE READ THIS USER MANUAL. Keep the manual for possible future use, as it may always be necessary to remember the information contained in the manual, and it must be provided with the device in the event of reselling the machine or changing the user.



WARNING! In order to avoid the risk of injuries and accidents, as well as to increase work efficiency and prevent premature wear of the device, read all warnings, safety instructions and paragraphs marked with the symbol: 



Do not dispose of that product as unsorted municipal waste. Used equipment should be sent to an electro-waste collection point.

All photos used in this manual are illustrative photos. The appearance and quantity of the elements supplied to the customer, as well as their mutual location may vary depending on the ordered vacuum pump.

This user manual is based on current knowledge and experience. The manufacturer reserves the right to change the content of this manual without informing the consumer.

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1. Range of applications.

Rotary oil vacuum pumps offered by VacuumChambers.eu are characterized by high efficiency, very high value of the achieved vacuum and quiet operation. In addition, they are characterized by a favorable price-quality ratio and are covered by a one-year warranty.

Vacuum pumps are used as a component of vacuum sets for degassing moulding compounds and other products such as silicone, resin and gypsum. They can be used in the impregnation of wood and other porous materials. They are also perfect for air conditioning servicing, vacuum packing and many other industries.

The vacuum pump should be operated in the following conditions: ambient temperature from +5 °C to +40 °C, air humidity up to 80% at 20 °C.

2. Properties of the rotary oil vacuum pump.

The rotary oil vacuum pump consists of:



Photo 1: Rotary oil vacuum pump.

- 1) Exhaust, oil mist filter.
- 2) Aluminium housing.
- 3) Oil sight glass.
- 4) Oil drain.
- 5) Air intake fitting.
- 6) Handle.
- 7) Power switch.
- 8) Nameplate.
- 9) Fan cover.
- 10) Motor.
- 11) Base.

Rotary oil vacuum pumps achieve an ultimate vacuum of 0.05 bar (5 Pa) - single stage pumps or 0.003 mbar (0.3 Pa) - dual stage pumps. Table 1 shows the properties of rotary oil vacuum pumps.

Table 1: Properties of rotary oil vacuum pumps.

Pump model:	VP115	VP125	VP160	VP225	VP260	VP280
Pump partial vacuum:	5Pa	5Pa	5Pa	0.3Pa	0.3Pa	0.3Pa
Pump efficiency:	51l/min 1.8CFM	71l/min 2.5CFM	170l/min 6.0CFM	71l/min 2.5CFM	170l/min 6.0CFM	283l/min 10.0CFM
Pump power:	1/4HP	1/4HP	1/2HP	1/3HP	3/4HP	1HP
Pump oil capacity:	320ml	300ml	450ml	280ml	700ml	600ml
Pump dimensions (mm):	250x120x230	270x110x220	340x130x250	280x120x230	370x130x250	400x150x250
Pump weight (gross):	5.7kg	5.8kg	9.2kg	6.5kg	13.9kg	14.3kg

All rotary oil vacuum pumps offered by the VacuumChamber.eu are equipped with an oil mist filter and a one-way mechanical valve. The oil mist filter reduces the amount of oil vapour emitted to the environment during pump operation. While the one-way mechanical valve prevents the pump oil from flowing back into the vacuum system.

3. Preparing a rotary oil vacuum pump for operation.

When transporting the rotary oil pump, there is a risk of oil spilling out of the pump. Therefore, the pump delivered to the customer is not filled with oil. The oil needed to run the pump is included in a separate container. The customer should fill the pump with the supplied oil in accordance with the following instructions before the pump starts. Do not run the pump without oil, as it may damage it.



- The pump delivered to the client is never filled with oil. A little amount of oil in the oil sight glass indicates only the fact that the pump was tested before the shipment. The pump must necessarily be filled with oil before use.
- Some oil mist filters are sealed with a cap with a yellow warning label. The cap must be removed every time before the pump starts. Leaving the cap in the filter housing may cause it to pop out while the vacuum pump is running.



Photo 2: Rotary oil vacuum pump - front view.

A. Instructions for filling the pump with oil.

- 1) Place the pump on a flat surface.
- 2) Open the oil filler hole by unscrewing the red oil filler plug shown in the photo above. Some models of rotary oil pumps do not have an oil filler capped with a red cap. In this case, unscrew and remove the entire oil mist filter (blue cylindrical part).
- 3) Gradually pour oil through the oil filler hole, constantly checking the oil amount in the sight glass. The recommended minimum and maximum oil levels in the pump are marked with the MIN and MAX lines on the aluminium housing. The volume of oil poured during refilling the pump should be at least 1/2 but no more than 3/4 of the range between the MIN and MAX lines.
- 4) Close the oil filler hole by reinstalling the oil filler red cap (or oil mist filter).
 - 5) Unscrew and remove the air intake cap.
 - 6) Make sure that the switch is in the off position ("0").
 - 7) Connect the pump to the power supply.
 - 8) Turn on the pump by setting the switch to on position ("1").
 - 9) Allow the pump to run for approximately one minute.
 - 10) Check the oil level. Add oil if necessary.

If too much oil has been poured into the pump, drain the excess oil. For instructions on how to drain the pump, see 7. "BOI change." of this manual. Too little oil in the pump may result in poor pump performance. Conversely, too much oil may cause blowing out the oil at the air outlet.

4. Operating manual.

It is recommended that a rotary oil vacuum pump be combined with a vacuum system equipped with an air valve located between the vacuum system and the pump. Such a valve should make it possible to cut off the vacuum pump from the vacuum generated in the system. The following operating manual describes what to do when using a rotary oil vacuum pump with a system equipped with the air valve. If your vacuum set is not equipped with the air valve described, ignore the notes in parentheses in a paragraph "4. Operating manual."

- 1) Place the pump on a flat surface.
- 2) Connect the pump to the vacuum set with which it is to cooperate:
(The valve between the system and pump should be closed.)
 - a) Unscrew and remove the pump air intake cap.
 - b) Tightly connect the vacuum set hose to the pump air intake.
- 3) Make sure that the switch is in the off position ("0").
- 4) Connect the pump to the power supply.
- 5) If the pump has an oil mist filter cap, make sure the cap is removed.
- 6) Turn on the pump by setting the switch to on position ("1").
(Open the valve between the vacuum set and the pump.)
- 7) Carry out the intended process. Remember to respect the recommended pump operation times and avoid overheating.
If the maximum operating time is reached or the pump overheats:
 - a) (Close the valve between the vacuum set and the pump.) Turn the pump off by turning the pump switch to off position ("0").
 - b) Leave the pump to cool down or wait for the recommended downtime.
 - c) Turn on the pump. (Open the valve between the vacuum set and the pump.)
- 8) After reaching the intended vacuum value, turn off the vacuum pump by setting the switch to off position ("0").
(Before turning off the vacuum pump, it is recommended to close the air valve between the vacuum set and the vacuum pump.)
- 9) Disconnect the vacuum set hose from the pump air intake.
- 10) Secure the pump air intake with the cap.

5. Notes about use.

- Before starting work, make sure that the oil level in the pump is suitable. The pump can't work without oil (possible seizing of the pump) or with an excessive amount (possible oil splashing at the pump outlet).
- The vacuum pump must always be set below the vacuum tank.
- Rotary oil vacuum pumps are not designed for continuous operation. The recommended mode of use is intermittent work S3 25%.
- The time of continuous operation of the rotary oil vacuum pump shouldn't exceed 15 minutes with the connected load such as a tank or installation.
- Time of continuous operation of the rotary oil vacuum pump must not exceed 30 minutes in conditions of free air circulation, without connected load.
- Do not allow the vacuum pump to overheat. Exceeding the temperature of 75°C on the motor housing significantly shortens the life of the pump, and in some cases can lead to its complete damage.
- It is recommended that a rotary oil vacuum pump be combined with a vacuum system equipped with an air valve located between the vacuum system and the pump. Such a valve should make it possible to cut off the vacuum pump from the vacuum generated in the system. This extends the life of the pump and makes it easier to start.
- In the case of using a vacuum pump for processes that cause strong contamination of the oil, for example wood stabilization, it is recommended to pour the oil after each process. The poured oil can be re-used as long as it has returned to its original properties. Failure to adhere to this point may cause corrosion and accelerated wear of pump mechanisms.
- If the rotary oil vacuum pump is used for degassing aggressive resins and degassing time exceeds more than 10 minutes, an additional filter should be placed between the chamber and the pump. Not using a filter can lead to pump damage, which results in the loss of warranty.
- In order to protect the vacuum pump against selected harmful compounds (e.g. water, ethanol), a vacuum cold trap can be used.

- The pump air intake should always be sealed with a cap or connected to the vacuum set hose. Leaving the air intake open may contaminate the inside of the pump. This can degrade pump efficiency and cause it damage.
- Under certain conditions, the vacuum pump may have trouble starting. This happens especially at low temperatures which cause the oil to thicken. It is also related to the vane positioning when the pump is switched off. This is due to the operating principle of the pump and is not a defect. In case of problems with starting the pump, the air intake of the pump must be unsealed, which should enable the pump to start.
- It is recommended to store the pump at room temperature. If the pump is stored at lower temperatures, it is recommended that the pump be moved to a warm space before it is put into operation, in order to warm the cold oil to room temperature. This prevents possible problems with starting the pump.

6. WARNING! Safety Instructions.



- Read the user manual before use.
- Perform servicing and maintenance of the vacuum pump periodically.
- Before each use of the vacuum pump, it is necessary to check its technical condition, in particular the supply cable.
- The general rules for the use of equipment working under voltage must be observed.
- Be sure to use product in safe, well-ventilated area, on flat, stable surface.
- Avoid excessive pollution of the working environment by dust, powders, small solids or water, as heavy contamination can damage the pump.
- Make sure that the chemicals used by customer will not damage the pump. The customer is solely responsible for choosing the right pump for intended purposes and technology.
- Do not assemble or disassemble individual parts of the vacuum pump or the components of the vacuum set connected to it, while the vacuum pump is operating.
- Some parts of the vacuum pump get very hot during operation. To prevent burns, never touch the body and pump motor. Be careful when changing hot oil.
- Never put fingers or other objects inside the pump impeller cover. Keep your hair, clothing, gloves and other objects that could get into the impeller away from moving parts.
- Do not expose the device to rain or excessive moisture.
- Do not leave the vacuum pump unattended during operation.
- Do not place live organisms in vacuum tanks.
- Do not subject any parts of the human body to under pressure.
- Keep children, people with disabilities and animals away from the operating area of the device.
- During work, use personal protective equipment: face shields, protective gloves, clothing and footwear.
- Before use, watch what you are doing, and be reasonable when using the device. Do not use the device when you are tired or under the influence of drugs, alcohol or medication.
- The device should be operated by trained technicians, mentally and physically able to operate the vacuum pump and its individual components.
- Do not use the device or any of its parts for purposes other than those for which it was intended. Do not make any modifications or changes to the vacuum pump or its individual components. Any modifications and changes are made by the customer under his sole responsibility and will void the warranty.

7. Maintenance.

Vacuum pump must be kept clean and the pneumatic components must be taken care of, so that the extraneous objects don't get into them and as a result block and damage the chamber. Do not clean the vacuum pump with flammable liquids, solvents or by spraying it with a stream of water. The pump housing can be cleaned with a damp cloth using a mild detergent or a jet of compressed air. If the oil is heavily contaminated with water, it may be necessary to remove the aluminium pump housing and clean the inside of the pump with a cloth. Before doing so, the pump must be drained of oil.

A. Oil for rotary oil vacuum pumps.

The quality and condition of the oil used in the pump directly affects the value of the ultimate vacuum achieved. Only oils designed to work with pumps that produce a high vacuum should be used in rotary oil vacuum pumps. It is advisable to use only the oil recommended by Vacuum Chambers.eu. Shell brand oil available in the Vacuum Chambers.eu offer is suitable for use in high vacuum pumps.



Photo 3: Oil for rotary oil vacuum pumps.

It is an oil intended for use in rotary vacuum pumps that achieve a high vacuum level (not lower than 0.001 [mbar] at 75 °C). The formulation of this oil consists of high-quality, selected fractions of deeply refined mineral oil. Such composition gives low oil vapour pressure and excellent lubricating properties in rotary vacuum pumps. This oil shows excellent resistance to chemical and mechanical degradation, which ensures long drain intervals and a significant reduction in the formation of deposits and sludge. It protects very well internal metal surfaces of devices against corrosion and wear. The oil can operate in a wide temperature range, from 0°C to 100°C, but the maximum vacuum level will decrease dramatically with increasing temperature. The oil is not recommended for use in conditions where corrosive gases or vapours may be generated.

B. Oil change.

Oil in rotary vacuum pumps should be changed every 20 operating hours and at least once a year. Also, failure to reach the maximum vacuum value, oil turbidity or a change in its colour to dark are an indication of the need to change the oil. Used oil must be completely drained from the pump and replaced with new oil.

Oil change should only be performed when the pump is warm. Be especially careful when working with hot oil. Before changing the oil, prepare a sufficiently large container for the old oil and a sufficient quantity of the new oil. The oil capacity of rotary vacuum pumps ranges from 180 to 600 ml depending on the model. To change the oil:

- 1) Place the pump on a flat, level surface.
- 2) Place the old oil container below the vacuum pump so that the pump oil can drain freely into it.
- 3) Unscrew and remove the entire oil mist filter (blue cylindrical part) or the red oil filler cap.
- 4) Open the oil drain.

Unscrew the oil drain screw carefully with an Allen key. Be careful not to lose the O-ring, which is located on the screw being unscrewed.
- 5) Allow the oil to drain freely into the container.

To remove oil thoroughly from the pump, the pump can be started for a few seconds while the oil is being drained. When doing this, the pump's air inlet should be open, at the same time the air outlet should be partially covered with a cloth. Do not run the pump as described for more than 20 seconds.
- 6) When the oil stops draining, the pump can be gently tilted with the oil drain downwards to facilitate drainage of the old oil into the container.
- 7) After draining the old oil, secure the oil drain.

The drain securing screw with the O-ring on it should be screw back in the oil drain and tightened. The screw must not be tightened too much to avoid the O-ring damage. The entire O-ring should be seated completely in the recess of the pump's aluminium housing. O-ring protruding outside the housing causes oil leakage.
- 8) Fill the pump with new oil in accordance with point „3. A. Instructions for filling the pump with oil.“ of this manual.
- 9) Make sure the oil drain is tightly closed.

Oil drain bolt may leak out if it is tightened too little. In that case, gently tighten the screw and make sure that the O-ring is positioned correctly. Tightening the screw too much can damage the O-ring.

Dispose of used oil in accordance with local regulations.

8. Warranty.

Vacuum Chambers.eu guarantees that the vacuum pump will be operational and free of defects for a period of 12 months from the date of purchase. In the event of a breakdown during this period, Vacuum Chambers.eu will repair or replace any damaged system element on the terms described in the warranty card included in the kit.

This limited warranty does not cover damage to the pump caused by improper use, maintenance or use not in accordance with this manual. Any use of the device which is not in accordance with the intended purpose given above is forbidden and will void the warranty and the manufacturer's liability for any resulting damage. Any modifications of the device made by the user release the manufacturer from liability for damage and damage caused to the user and the environment. Proper use of the device also applies to maintenance, storage, transport and repair.

Vacuum Chambers.eu is not liable for damages, nor does it cover them under the warranty, for any kind of losses resulting from the breakdown of this product. In the case of a claim, Vacuum Chambers.eu's sole responsibility is to accept a return or exchange of the product itself.