

ROTARY OIL VACUUM PUMP

User Manual



Model: VP115, VP125, VP160, VP180, VP215, VP225, VP260, VP280

TRANSLATION OF THE ORIGINAL USER MANUAL

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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 distributor reserves the right to change the content of this manual without informing the consumer.

ENVIRONMENTAL INFORMATION:



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



firma przyjazna naturze® Nature friendly company.

SYMBOLS USED IN THE MANUAL:



Danger - A hazard that can cause injury or damage.



Hot surfaces. Risk of burns.



Danger - Electrically energized device.



Necessity to read the instruction manual of the device.



Necessity to use eye protection.



Necessity to use appropriate protective gloves.




Necessity to use protective clothing.



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: .

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1. WARNING! Safety Instructions.



• During work, use personal protective equipment, including: protective goggles, protective gloves, clothing and footwear.



• 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.



• The general rules for the use of equipment working under voltage must be observed.



- 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.
- 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.
- The user must ensure that the chemicals used by him in the intended process or when cleaning the vacuum set do not damage the elements of the vacuum set.
- Pumps available in the standard VacuumChamber.eu offer are not intrinsically safe.
- The customer is solely responsible for the appropriate selection of the vacuum set for the 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.
- 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 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.
- Be foreseeable, 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.
- Vacuum pump is intended for professional use. It is not intended for non-professional use. The buyer is obligated to secure the vacuum set and all its components against unauthorized use.
- 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 or changes are made by the customer under his sole responsibility and will void the warranty.

2. 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.

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.

3. 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 mbar (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 180 WATT	1/4HP 180 WATT	1/2HP 370 WATT	1/3HP 240 WATT	3/4HP 550 WATT	1HP 740 WATT
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.

4. 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 pump is included in a separate container. The customer should fill the pump with the supplied oil in accordance with the following instructions before pumps first start. 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 8. B "Oil 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.

5. 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 describe 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 "5. 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.

6. 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 its 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 the aggressive resins and degassing time exceeds more than 10 minutes, additional filter should be placed between the chamber and the pump. Not using a filter can lead to the 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.

7. Trouble shooting guide.

Possible and the most common failures and problems are described below, as well as recommended procedure in case of their occurrence.

Problem	Possible cause	Recommended procedure.
Vacuum pump does not start.	No connection to the power supply.	Check connection to power supply.
	Pump is overheated.	Allow the pump to cool down, then try turning it on again.
	Low temperature storage of the pump which causes the oil to thicken.	Leave the pump at room temperature and wait for the pump and oil to warm up. Try to start the pump again. Do not store the pump in cold temperatures.
The pump heats up to a temperature exceeding 65° C.	Thermal sensor failure. S3 25% intermittent operation was not used.	Stop using the pump. Contact the supplier for additional information or to perform a warranty or post-warranty repair.
Loud, unusual vacuum pump operation.	Pump damaged.	Stop using the pump. Contact the supplier to assess possible damage, obtain additional information, or perform a warranty or post-warranty repair.
Failure to achieve the values of the negative pressure in the vacuum chamber declared by the manufacturer.	Vacuum pump oil level too low. Poor oil quality (oil contaminated or unsuitable for vacuum pumps).	Check the quantity and quality of the oil in the vacuum pump according to point 8. B. "Oil change." of this manual. A heavily contaminated pump may require several oil changes.
	Pump is worn or damaged.	Contact the supplier for additional information or to perform a warranty or post-warranty repair.
	Weakening of pump elements by using harmful compounds in the degassing process	Stop using the pump. Contact the supplier for additional information or to perform a warranty or post-warranty repair.
	Leakage on one or more components of the vacuum set.	Make sure that the vacuum gauge and all connections are in good condition and tight.
Mechanical damage or weakness of the vacuum pump.	Incorrect operation of the vacuum pump.	Stop using damaged pump. Contact the supplier to replace damaged elements with new ones, if possible. Inform the supplier about how the vacuum pump have been damaged for additional information and guidance that may reduce the risk of similar damage in the future.
Chemical damage or weakness of the vacuum pump. Oil leak	Use of unsuitable materials when using or cleaning the vacuum set or its individual components.	Stop using damaged pump. Verify the safety of the substances used in the process and to clean the vacuum set or its components. Contact the supplier to replace the damaged elements with new ones or more suitable for the intended process, and to obtain additional information.
	Leakage in the gasket in the pump housing.	Please contact your supplier for a gasket replacement or for more information.
	Oil drain is leaking.	Check that the oil drain is properly closed. The method of correct closing of the oil drain is described in point 8.B. "Oil change." of this manual.

If the above information did not allow to fix the problem or the problem that occurred is not described above, please contact the supplier for additional information or to return the product for warranty repair or post-warranty service.

8. 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 VacuumChambers.eu. Shell brand oil available in the VacuumChambers.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 drainage 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.

9. Warranty.

VacuumChambers.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, VacuumChambers.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.

VacuumChambers.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, VacuumChambers.eu's sole responsibility is to accept a return or exchange of the product itself.

10. EC declaration of conformity.



DEKLARACJA ZGODNOŚCI WE/

EC DECLARATION OF CONFORMITY/ EG-KONFORMITÄTSERKLÄRUNG

W rozumieniu dyrektywy 2014/35/UE, załącznik IV/ As defined in the directive, 2014/35/EU, annex IV/ Im Sinne der Richtlinie 2014/35/EU Anhang IV

Produkt:/ Product:/ Produkt: Pompa próżniowa/ Vacuum pump/ Vakuumpumpe.

Nazwa i adres producenta:/ Name and address of the manufacturer: / Name und Anschrift des Herstellers:

VacuumChambers.eu
drControl Dawid Roszczenko
Jodłowa 3A/34 16-001 Ignatki-Osiedle
Polska / Poland / Polen

Niniejsza deklaracja zgodności wydana zostaje na wyłączną odpowiedzialność producenta./
This declaration of conformity is issued under the sole responsibility of the manufacturer./
Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.

Przedmiot deklaracji:/ Object of the declaration:/ Gegenstand der Erklärung:

Model:/ Model:/ Modell:	VP115	VP125	VP160	VP180	VP215	VP225	VP260	VP280
Numer seryjny:/Serial number:/ Seriennummer.*	110000	210000	310000	320000	330000	410000	510000	610000

*Numer seryjny określa dwie pierwsze cyfry./ The serial number is determined by the first two digits./ Seriennummer wird durch die ersten zwei Ziffern bestimmt.

Wymieniony powyżej przedmiot niniejszej deklaracji jest zgodny z odpowiednimi wymaganiami unijnego prawodawstwa harmonizacyjnego:/
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:/

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:

DYREKTYWA PARLAMENTU EUROPEJSKIEGO I RADY 2014/35/UE z dnia 26 lutego 2014 r.
w sprawie harmonizacji ustawodawstw państw członkowskich odnoszących się do udostępniania na rynku sprzętu elektrycznego przewidzianego do stosowania w określonych granicach napięcia

DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014
on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

RICHTLINIE 2014/35/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 26. Februar 2014
zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt

oraz:/ and:/ und:

DYREKTYWA PARLAMENTU EUROPEJSKIEGO I RADY 2014/30/UE z dnia 26 lutego 2014 r.
w sprawie harmonizacji ustawodawstw państw członkowskich odnoszących się do kompatybilności elektromagnetycznej.

DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014
on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

RICHTLINIE 2014/30/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 26. Februar 2014
zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit.

Odniesienia do odpowiednich norm zharmonizowanych, które zastosowano, lub do innych specyfikacji technicznych, w stosunku do których deklarowana jest zgodność:/ References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:/ Angabe der einschlägigen harmonisierten Normen, die zugrunde gelegt wurden, oder Angabe der anderen technischen Spezifikationen, in Bezug auf die die Konformität erklärt wird:

EN ISO 12100:2010, EN 1012-1:2010, EN 60204-1:2018,
EN IEC 61000-6-1:2019, EN 61000-6-3:2007 + A1:2011+AC:2012, EN IEC 61000-3-2:2019, EN 61000-3-3:2013 + A1:2019.

Podpisano w imieniu:/ Signed for and on behalf of:/ Unterzeichnet für und im Namen von: VacuumChambers.eu

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Białystok, 01.04.2022
(miejsce i data wydania)
(place and date of issue)
(Ort und Datum der Ausstellung)

Dawid Roszczenko
(osoba upoważniona do sporządzenia deklaracji)
(the person empowered to draw up the declaration)
(die zur Ausstellung dieser Erklärung bevollmächtigte Person)

(podpis)
(signature)
(Unterschrift)