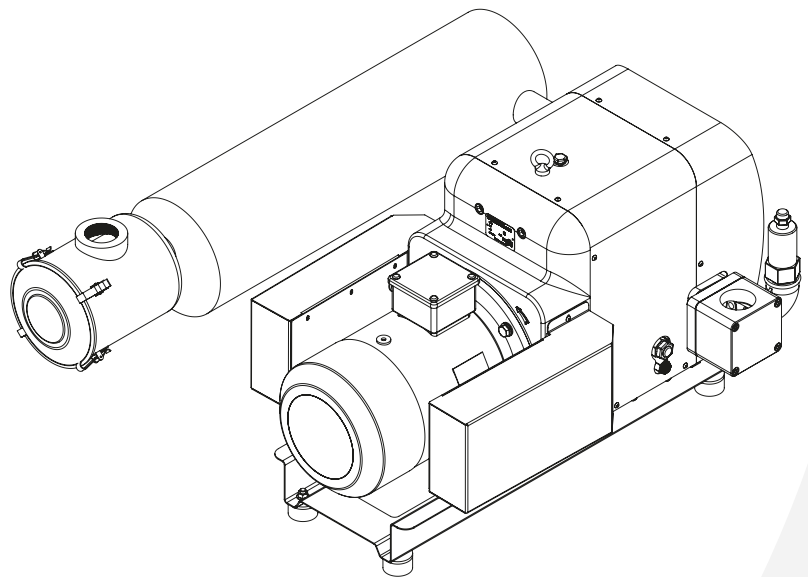


**DRY C 100P
DRY C 250P
DRY C 300P**
Claw vacuum pumps



**Operating and
maintenance
instructions**

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Operating and maintenance instructions

EN

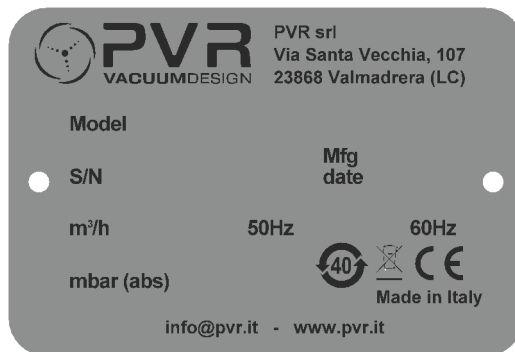
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1. General information

This manual contains information necessary for the proper operation of the compressor, in order to prevent unsuitable use and for the safety of the operators. Do not attempt any other type of operation without having first contacted our **Service Department**. The information provided does not intend to replace, integrate or change any rules, regulations, decree, directive or law of specific character in force in the Country where the installation takes place.

The suggestions given to the staff engaged in the installation and servicing assumes that the personnel is expert and prepared in facing any problem of servicing, both mechanical and electrical. For any questions or information not included in this manual, please contact our Service Department, always providing: model (Model), serial number (Serial), year of manufacture, stated on the pump name plate.



Symbols used:



WARNING:
Instructions that, if not followed,
could result in serious
personal injuries.



NOTE:
Instructions that, if not followed,
could result in pump damages.



HOT SURFACES



**HARMFUL SUBSTANCES
EMISSION**



**DO NOT DISPOSE
INTO THE ENVIRONMENT**



ELECTRIC SAFETY



FIRE HAZARD



**READ THE OPERATING
INSTRUCTIONS FOR USE
AND MAINTENANCE**



INLET PORT



EXHAUST PORT



DISPOSAL

2. Product specification

2.1 Compressor description

The compressors of DRY C P series have got two rotors having a claw shape, which are rotating synchronised by a pair of gears. The pumping chamber is lubricant and seal fluid free. The gears are oil lubricated and the same oil is used to lubricate the bearings. The oil tank is separated from the pumping chamber by means of labyrinth seals. Compressor cooling is assured with a fan.

The electric motor is flanged and it is connected to the lower shaft by means of a coupling.

2.2 Expected use

DRY C P series compressors are designed to handle dry air. These claw compressors operate without contact, and they are suitable for overpressure generation between 0 and maximum limit (bar) indicated on the data plate. Ambient and sucking recommended temperature must be between 5°C and 40°C.

2.3 Forbidden use



ATTENTION:

The compressor MUST NOT handle:

- liquids or solid substances
- dangerous, explosive or aggressive gases and vapours
- pure oxygen or air mixtures enriched with oxygen

It is forbidden to use the discharge of the compressor to create even limited pressures.



ATTENTION:

It is forbidden to install the compressor in a potentially explosive environment.

3. Safety rules



ATTENTION:

Despite of all the precautions adopted when designing the equipment, there are some risk elements that arise during operation and servicing.



HOT SURFACES

The temperature of the compressor surfaces and inlet pipelines may exceed 80°C. Install the compressor in a protected area accessible only by authorized personnel, to prevent possible personal injuries due to contact with hot surfaces. The compressor can be placed inside other machines by adopting the necessary safeguards. Before carrying out any maintenance on the compressor, be sure the compressor is cold.

FOR A SAFE MAINTENANCE

All maintenance operations must be carried out with the compressor idle, disconnected from the electrical supply, with the compressor cold, vented to atmospheric pressure. Prevent unexpected start-up (e.g. block the power switch with a personal lock).



ELECTRIC SAFETY

Some components of the electric equipment are electrically charged during operation. Any contact may cause serious injuries to persons or objects. Connection and control of the electric system must be carried out by skilled personnel only. The electrical equipment must comply with the EN 60204-1 standard and with any other law in force in the Country of use. Besides, electrical equipment must comply with EN 61000-6-4 and EN 61000-6-2 standards concerning electromagnetic compatibility and electromagnetic immunity for industrial environment.



FIRE HAZARD

WARNING! The use of the compressor in situations unforeseen or not recommended by this manual, as well as lack of correct maintenance, may create high risks for overheating or fire. In case of a fire do not use water to extinguish but use a powder CO₂ extinguisher or other means compatible with the electrical equipment and lubricating oil.



ATTENTION:

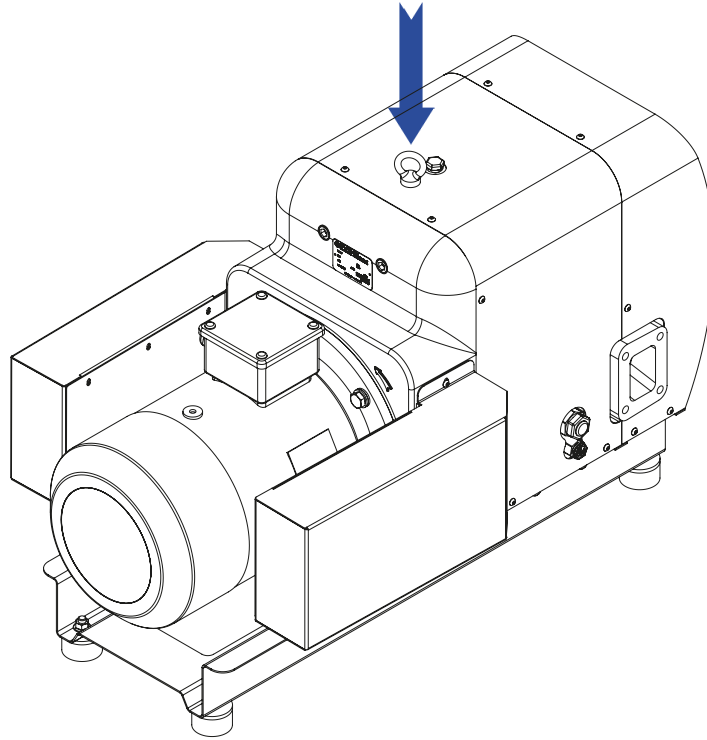
Sound emission.

In case of long periods of time near the running machine, wear hearing protection to avoid permanent damage to your hearing!

4. Transport/handling

4.1 Lifting

Use the suitable lifting eyebolt.



4.2 Unpacking and components control

When receiving the machine, check that the packing is intact or if it shows signs of damages occurred during transportation.

If there is no damage, proceed to the unpacking and check further the machine.

In case damages are found, inform immediately PVR and the carrier.

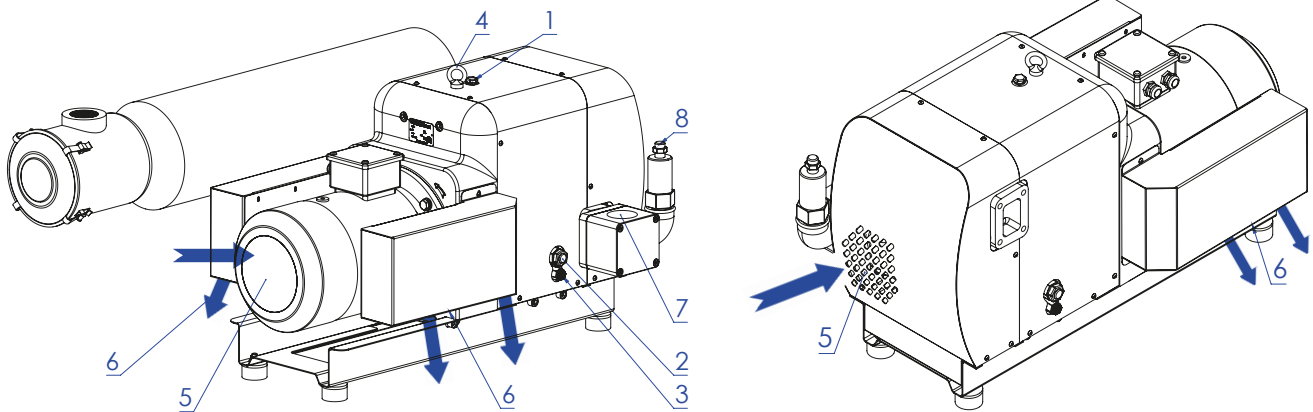
4.3 Storage

The compressors must be stored or transported without oil and protected from the atmospheric agents at a temperature between -15°C and 70°C (normal humidity rate max. 95% non condensing).

5. Installation and operation

5.1 Location

Install the compressors so that the inlet (5) and the outlet (6) are at least 20 cm away from the closest walls. Oil filling port (1), oil sight glasses (2) and oil drainage ports (3) must be easily accessible.



5.2 Electric connection

Check the main voltage and frequency in use to correspond to the data stamped on the motor name plate.

The electric motor must be protected against overload. Use amperage value on the motor name plate as a reference.

Make sure the grounding is correctly done.

Carry out the electric connection following the diagram shown on the motor terminal box.

Check direction of rotation by starting the compressor for a short time (2-3 seconds). The correct direction is shown by the arrow on the compressor. In case of wrong rotation, it is necessary to change the motor rotation by exchanging position of two of the three connections in the motor terminal box.

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5.3 Connection to the machine

The connection of the compressor to the tank to be pressurized must be carried out with pipes suitable for the capacity and temperature of the compressor.



ATTENTION:

The connection of the compressor to the chamber to be pressurized must be carried out by means of pipes of the same diameter as the inlet port.

Pipe weights and expansions, if any, must not rest on the compressor.

It is advisable to make the final connection to the compressor inlet port with flexible pipes or fittings.

It is important that all the pipes and the different fittings are tight.

Very long or small diameter pipes decrease the compressor performances.



ATTENTION:

Make sure the pressure line is designed to withstand high heat, and fits the pressure fitting on the compressor.



NOTE:

this pipe must be descending, to avoid the condensate going back to the tank.



ATTENTION:

do not connect ball valves to this pipeline.



This symbol identifies the exhaust port.

Compressor Model	Inlet Size	Exhaust
DRY C 100P	G 2"*	G 2"
DRY C 250P	G 2"*	G 2"
DRY C 300P	G 2"*	G 2"

*= If there is the silencer

5.4 Pressure conveying

In the event of insufficient air exchange in the compressor room, it is possible to draw air from other rooms or from outside.

A filter must be inserted in the intake to preserve the compressor.

The weight of the pipes must not weight on the compressor.

Use fittings or flexible pipes in the final section.



This symbol identifies the inlet port.

5.5 Commissioning

- a) Fill oil into the gear chamber (1) until the level reaches the middle of the oil sight glass (2).
- b) Switch the motor on for a moment, checking the direction of rotation.
- c) Connect the delivery line to the tank to be pressurized (7)

The valve (8) allows to safely operate limiting the maximum achievable pressure.



ATTENTION:

Do not remove nor tamper with the safety valve. The compressor is designed to operate under the conditions described in the technical data sheet. In the event of manipulation, risk of damage or destruction of the compressor and adjacent system components! Risk of injury!

5.6. Precautions for use

Do not exceed 10 starting/hour. For more frequent starting, install a “soft-start” device.

6. Maintenance and spare parts

SERVICING FREQUENCY	DESCRIPTION OF THE OPERATION	AUTHORIZED PERSONNEL
Monthly	Check the inlet air filter cartridge, replace it if necessary.	Operator
	Check the condition of the safety valve and replace it if necessary.	Operator
Every 3 months	Verify the oil level.	Operator
	Clean the machine from dust and dirt.	Operator
2000 Hours/every year	Check and, if necessary, replace the elastic element of the coupling.	Skilled Worker
	Verify electric connections.	Skilled Worker
Every 5000 hours	Replacing oil RVF805	Skilled Worker
Every 10000 hours	Replacing oil RVF315	Skilled Worker
30000 Hours/every 5 years	Compressor overhaul.	Customer Service

6.1 Maintenance

All maintenance operations must be carried out with the compressor idle, disconnected from the electrical supply, with the compressor cold, vented to atmospheric pressure.

Check the oil level through the suitable oil sight glasses (2) periodically. If needed, top it up.

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Change the oil every 5000 (Rotant VF805)/10000 (Rotant VF 315) hours of operation, draining the exhausted oil through the discharge ports (3). Use a oil ISO VG 150.

When changing the oil also check the coupling elastic element, replace it if required.

Used oil must be disposed of according to local regulations.

If there is an external inlet filter, keep it cleaned to allow full compressor performance.

6.2 How to order spare parts

When ordering spare parts, always state the compressor model, serial number, year of production, electric motor characteristics (manufacturer's name, model, kW, V, Hz), position reference on the spare parts list, description and quantity needed.



ATTENTION:

**compressor capacity: DRY C100P - 0.5 l
DRY C250/300P - 1 l**

7. Lubricants

Synthetic oil recommended for heavy use, both for high and low temperatures.

Use the synthetic oil for compressors.

Ambient temperature	Grade	PVR oil
5 - 40°C	ISO 150	Rotant VF 315
5 - 40°C	ISO 150	Rotant VF 805



ATTENTION:

refer to chapter 6 and the data sheet for the quantity and frequency of oil changes.

8. De-commissioning

Drain the oil from the compressor prior to the removal.

If the oil is polluted, flush the compressor with fresh oil (see "oil change").

Drain the oil from the tank, plug the inlet and the discharge ports and store the compressor without oil.

In case of compressor disposal, separate the compressor parts by materials and trash the parts in accordance with the local regulations in the Country of use.

9. Return for repair

In case of compressor return for repair to PVR, provide a list of substances which have come in contact with the compressor and advise the risks involved in handling, if any. Drain the lubricant from the compressor prior to shipping the compressor back.

10. Inconvenients and solutions

TROUBLE	CAUSE	REMEDY
The machine does not start	The motor is not supplied with the correct voltage.	Check power supply.
	Fault in the motor.	Replace the motor.
	The coupling joint is defective.	Replace the coupling.
The machine does not reach the standard pressure in the suction connection.	The suction mesh filter is partially clogged.	Clean the suction mesh filter.
	The suction filter cartridge is partially clogged.	Replace the suction filter cartridge.
The machine is very noisy	Worn coupling.	Replace the coupling.
	Oil level too low.	Refill the oil.
	Faulty bearings.	Repair the machine.
The machine overheats too much	Insufficient cooling.	Remove dust and dirt from the machine.
	Ambient temperature too high.	Respect the admissible ambient temperature.
	Safety valve malfunction.	Check valve functionality and replace it, if necessary.
	Inlet process gas temperature too high.	Observe the permitted inlet gas temperature.
	Oil level too low.	Refill oil.

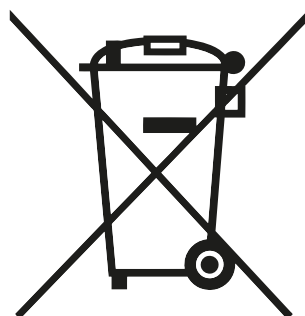
11. Disposal

Meaning of the “WEEE” logo found in labels.

The following symbol is applied in accordance with the EC WEEE (Waste Electrical and Electronic Equipment) Directive.

This symbol (valid only in countries of the European Community) indicates that the product it applies to must NOT be disposed of together with ordinary domestic or industrial waste but must be sent to a differentiated waste collection system.

The end user is therefore invited to contact the supplier of the device, whether the Parent Company or a retailer, to initiate the collection and disposal process after checking the contractual terms and conditions of sale.





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