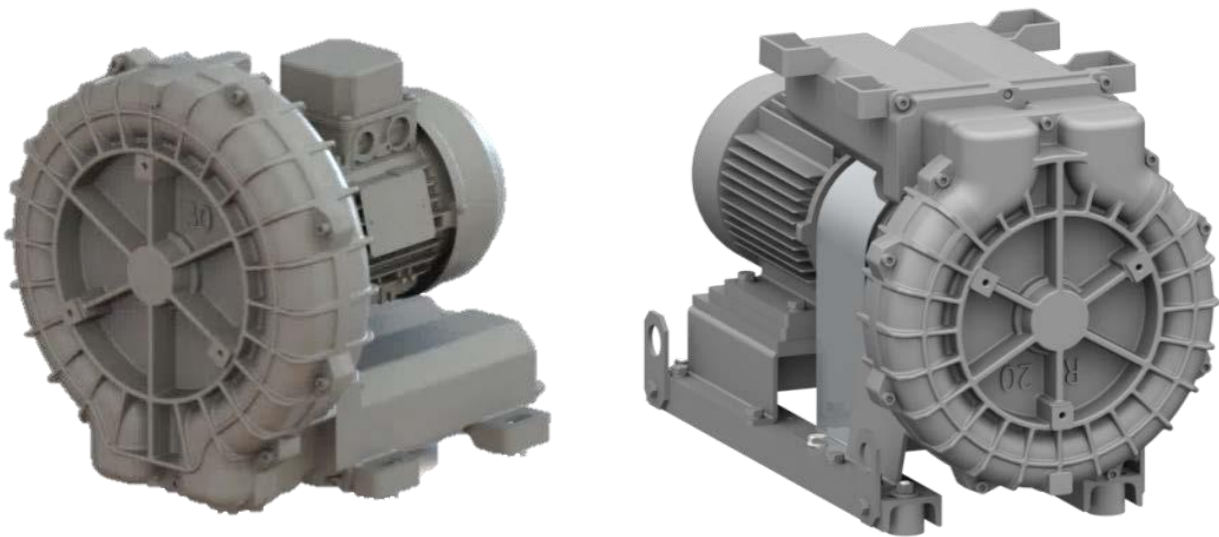


# Manual

## Oxydent High Pressure Blower



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## GENERAL INFORMATION

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### PURPOSE OF THE MANUAL

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- The purpose of the manual is to provide the operator and maintenance personnel with "instructions for use" to prevent and minimise risks during the interaction of man and unit.
- The information was prepared by the manufacturer in the original language (ITALIAN) according to the principles of professional writing and in compliance with the applicable regulations.
- To facilitate its reading and understanding, the principles of communication best suited to the characteristics of the recipients have been adopted as far as possible.
- Keep the manual and enclosed documentation for the entire service life of the unit in a known and easy to access place so that it is always at hand for reference.
- To easily find specific information, see the table of contents.
- Any observations made by recipients can be an important contribution to improving the after-sales services provided by the manufacturer.
- Some information may not entirely match the actual configuration of the work unit delivered.
- Some parts of the text, or those of considerable importance, are indicated by symbols, whose meaning is described:

	<p>These are generic or specific <b>DANGER</b> symbols and indicate hazards that can cause even serious <b>injury</b> if the required precautions are not taken.</p>
	<p>This is the <b>PROHIBITED</b> symbol and indicates operations that must not be carried out because they can result in serious <b>injury</b>.</p>
<p><b>ATTENTION</b></p>	<p>The word <b>ATTENTION</b> is used to provide additional information and in particular to point out hazards that can involve <b>damage</b> to the machine and/or system.</p>
	<p><b>NOTES</b> are used to provide information allowing the user to make best use of the unit, with best performance, and for safety and respecting the environment.</p>

### LIABILITY

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#### Testing and inspection

- The entire unit is sent to the customer prearranged for installation, after passing the tests and inspections required by the manufacturer, in conformity with the current regulations. **Warranty**
- Warranties are defined in the general terms and conditions of sale. **Liability**
- **Oxydent B.V.** cannot be held liable for operation faults or generic failures caused by improper use of the unit or operations carried out by persons not authorised by **Oxydent B.V.**.

## SAFETY RULES

### GENERAL NOTES ON SAFETY AND FOR THE USER



The instructions listed below must be read carefully and become a fundamental part of daily procedures in the use and maintenance of all the equipment, in order to prevent any kind of accident, injury or damage.

- The unit must be used only and exclusively for its intended purpose and in accordance with that contractually established **Oxydent B.V.**
- All installation, commissioning and maintenance operations must be carried out exclusively by **qualified personnel**.
- Use appropriate **PPE** such as boots, gloves, goggles and work clothes.
- Do not try to start the unit until its operation is clearly understood.
- If any doubts arise after having read this manual carefully and completely, contact **Oxydent B.V.**
- Make sure all personnel involved in the use of the unit are informed regarding all the safety requirements.
- Before starting the unit, the operator must check the efficiency of the safety devices and for any obvious defects in the unit. In case of any defects, immediately notify **Oxydent B.V.**
- Check the proper operation of all the safety devices every day.
- The safety devices must never be removed or disabled.
- During maintenance or repair work it may be necessary to exclude some safety devices from the service. This operation must be carried out by authorised personnel.
- Never attempt rash solutions.
- Do not modify the electrical connections on the unit.
- Do not wear clothes, jewellery or accessories that can get caught in moving parts.
- Always keep the area around the unit free of obstructions.
- Pay attention to all danger and caution signs placed on the unit.
- Always apply and enforce the safety rules; in case of any doubts, always consult this manual before acting.



**Non-compliance with the unit's intended use can cause serious accidents**

The unit must only be started:

- In conformity with the purposes of use, specified in "FORESEEN USE", respecting the rules on transport and handling.
- Respecting the values given in the "SPECIFICATIONS" and the electric motor RATING DATA.




### CONDITIONS OF INSTALLATION AND NORMAL OPERATION


Startup and operation must occur only under the following conditions:


- The unit must be completely assembled and intact, i.e. not damaged or tampered with.
- The silencers/manifolds must be properly connected to the system piping.
- The machine must be securely fixed in place.
- The motor must be connected to a suitable control panel.
- If installed outdoors, protect the unit against the sun and weather.





**Risk of injury due to shearing, crushing and catching**

<p>During work on the unit there are risks of injury due to shearing, crushing or catching. Therefore it must be carried out by technicians who handle and install the machine, taking the necessary safety measures and following the instructions given in this manual.</p>	
	<p><b>Danger due to escaping process fluids</b></p>
<p>Danger due to overpressure with sudden release of process fluids (injury to the skin and eyes) Start the machine only if properly connected.</p>	

	<p><b>Danger due to electricity</b></p>
<p>Work on the electrical equipment must only be carried out by qualified and authorised electricians! Before starting work on the unit or system, take the following precautions: - disconnect the mains power; - open the terminal box only after making sure the power is disconnected; - take steps to prevent the power from being reconnected.</p>	

	<p><b>Danger of suction</b></p>
<p>Danger due to negative pressure: sudden drawing in of hair and clothing. Start the machine only if properly connected.</p>	


	<p><b>Danger due to seizing of the impeller caused by performance values being exceeded</b></p>
<p>Use the blower, making sure that the operating conditions comply with the values given in the "SPECIFICATIONS" and the electric motor RATING DATA. Never operate the unit, even temporarily (if not foreseen), with the inlet and/or outlet port closed. Install a limiter valve or equivalent circuit able to prevent excessive vacuum and/or overpressure and that enables compliance with the values given in the "SPECIFICATIONS" and the electric motor RATING DATA. <b>Turn the unit off immediately in case of any abnormal impeller noise! Then schedule maintenance.</b></p>	


	<p><b>Danger of burns caused by contact with hot surfaces of the unit</b></p>
<p>In operation, in conformity with the values given in the "SPECIFICATIONS" and the electric motor RATING DATA, the blowers / exhausters can reach high surface temperatures. Use suitable PPE against the risk of burns. (Also see the section residual risks)</p>	


## FAULT CONDITION AND MAINTENANCE

Before starting routine maintenance on the unit, or for a fault, take the following safety measures:

- Disconnect the unit from the power supply via the main the switch.
- Place a sign: "DANGER! Maintenance work in progress."
- **Allow the unit to cool!**
- Wait until the unit has completely stopped, i.e. that the impeller and transmission coupling (where foreseen) are not rotating, checking the electric motor fan.
- Ensure the absence of vacuum or overpressure in the unit and in the piping to be disconnected and that no fluid can escape from the unit and/or system.
- Read the maintenance instructions given in this manual.


	<p><b>Danger due to rotating parts: cutting or shearing</b></p>
<p>The rotating impeller (where foreseen) can be accessed via the openings of the body and/or cover of the machine, once the manifolds, silencer housings or blind flanges (where foreseen) are removed. Never put hands or anything through these openings.</p>	


	<p><b>Danger due to rotating parts: cutting or shearing</b></p>
<p>The transmission coupling can be accessed once the covers are removed. Never put hands or anything through these openings.</p>	


	<b>Danger due to electricity</b>
<p>Improper behaviour can cause serious accidents.            Work on the electrical equipment must only be carried out by qualified and authorised electricians. Before starting work on the unit or system, take the following precautions:</p> <ul style="list-style-type: none"> <li>- disconnect the mains power;</li> <li>- take steps to prevent the power from being reconnected;</li> <li>- open the terminal box only after making sure the power is disconnected.</li> </ul>	

## RESIDUAL RISKS

When designing the machines or systems on which the blower is to be installed, the following residual risks must be considered.

	<b>Danger due to hot surfaces!</b>
<p>In operation, the unit may overheat, exposing the operator to contact with hot surfaces</p> <ul style="list-style-type: none"> <li>- Indicate the danger</li> <li>- Use protection devices to prevent contact</li> </ul>	

	<b>Danger due to noise from the unit!</b>
<p>Some machines can produce high noise levels, even exceeding 80 dB(A).            The reference values are given in the "SPECIFICATIONS" and do not consider environmental reverberation.</p> <p><b>Protection measures:</b>            Check the actual sound pressure of the machine in the place, and if necessary:</p> <ul style="list-style-type: none"> <li>- Report the foreseen noise risk</li> <li>- Arrange the use of PPE</li> <li>- Insulate the place</li> </ul>	

	<b>Danger due to rotating parts: electric motor cooling fan.</b>
<p>Although designed to reduce any danger, the machine has residual risks linked to the rotation of the fan.</p> <p><b>Protection measures:</b></p> <ul style="list-style-type: none"> <li>- Do not wear loose fitting clothes</li> <li>- Do not go near the machine with long and loose hair</li> </ul>	

## FORESEEN USE

Oxydent B.V. side channel blowers / exhausters are designed to generate vacuum and overpressure and for conveying non-explosive, nonflammable, non-toxic and non-aggressive gases and air in continuous duty in a non-explosive environment.

Oxydent B.V. side channel blowers / exhausters are designed and built for industrial use and are equipped with three-phase or single-phase asynchronous bipolar electric motors in compliance with IEC 60034-1.

## CONDITIONS OF USE



**Non-compliance with the unit's intended use can cause serious accidents.**

- This manual:
  - MUST be read carefully and understood before carrying out any operations on the unit;
  - MUST be strictly complied with;
  - MUST always be at hand in the place where the unit is used.
- Installation must only be carried out by qualified personnel.

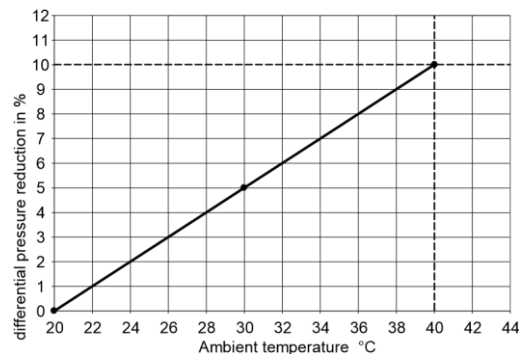
The maximum pressure differentials given in the "SPECIFICATIONS" refer to the following operating conditions:

- as a blower: gas intake temperature 20°C (+68°F) and atmospheric pressure 1013 mbar (abs.) (29.92 In Hg ) measured at the inlet port
- as an exhauster: gas intake temperature 20°C (+68°F) measured at the inlet port and atmospheric backpressure 1013 mbar (abs.) (29.92 In Hg).

The ambient **temperature**, and the conveyed gas intake temperature, is permissible inside the range -15°C (+5°F) ÷ +40°C (+104°F) with the following provisions;

- for ambient temperature +30°C (+86°F) **reduce** the maximum pressure differentials given in the "SPECIFICATIONS" by 5%;
- for ambient temperature +40°C (+104°F) **reduce** the maximum pressure differentials given in the "SPECIFICATIONS" by 10%.

The graph to be used to reduce the maximum pressure differentials in case of ambient temperature between +21°C and +40°C (or between +70°F and +104°F) is given opposite



The maximum **height** at which the unit can be installed is 1000m a.s.l.

In case of suction in the place or on the system, protect the intake pipe using a suitable filter with maximum filtration degree 20 µm / 25 µm. For the use of filters with different filtration degree, ask Oxydent B.V. Check compliance with the maximum pressure / vacuum data given in the "SPECIFICATIONS".

### ATTENTION !

To ensure machine operation within the maximum pressure differentials indicated in the "SPECIFICATIONS", it is advisable to use a device for limiting the vacuum / pressure rather than throttling the suction or delivery.

### ATTENTION !

If installation is outdoors, protect the unit from the sun.

## SPECIAL VERSIONS

Oxydent B.V. side channel blowers/exhausters can be manufactured in special or custom versions; the instructions given in this manual still apply to some of them.

The special versions manufactured, and for which that given above applies, are:

- **TMS version**  
Machines that ensure mechanical seal between the parts that convey air or fluids, minimising leakage.
- **Special electric motors**


On request, blowers/exhausters can be manufactured with motors having one or more of the following characteristics:

- Special voltages
- Higher levels of protection against solid bodies and/or liquids (standard IP55)
- Higher insulation classes (standard Class F)
- Protection such as heaters, PTC, PT100 (standard PTO)

Further customisation must be requested and agreed when ordering, after a feasibility appraisal by the Technical Department.

<b>ATTENTION !</b>	For maintenance of special version machines, contact Oxydent B.V.
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## PROHIBITIONS

	<b><u>THE FOLLOWING IS PROHIBITED:</u></b>
<ul style="list-style-type: none"> <li>- Using the unit in <u>installations for unforeseen use</u>.</li> <li>- The suction and conveying of aggressive, corrosive and/or harmful fluids.</li> <li>- Using the unit in conditions different from the values given in the "SPECIFICATIONS" and RATING DATA.</li> <li>- Using the unit without having considered the filter in suction and appraised the degree of filtration. - Operation with inlet and/or outlet port closed (when not foreseen).</li> <li>- Making conversions or changes to the unit, <u>maintenance or repair work</u> on own initiative or not envisaged in the manual. Maintenance work can be carried out only in compliance with that described in this user manual, exclusively by qualified personnel.</li> </ul>	

### IT IS COMPULSORY TO:

- Check and comply with the intended use of the machine.
- Check and comply with the conditions of use specified in this manual.
- Comply with the installation conditions specified in this manual.
- Carry out the preliminary checks as specified in the section "STARTUP".
- Carry out maintenance as specified in maintenance.

## REASONABLY FORESEEABLE IMPROPER USE

	<b>Non-compliance with the unit's intended use can cause serious accidents.</b>
Failure to comply with the prohibitions/obligations can result in technical faults, damage to the system or accidents. Danger of serious injury.	

Listed below are some examples of improper use identified by risk analysis and based on practical experience, arranged according to the conditions they can create.







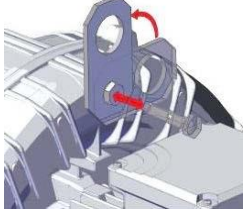


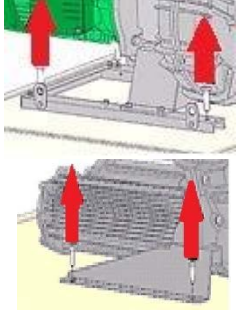

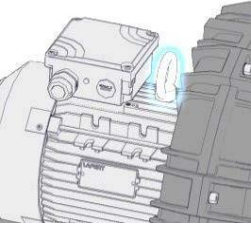
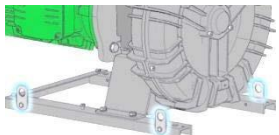

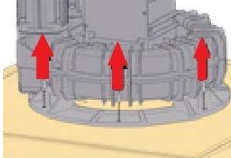


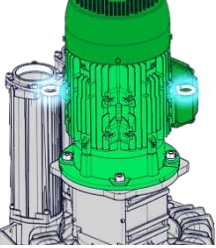
IMPROPER USE	CONSEQUENCES	RISKS
<b>IMPROPER USE LINKED TO NORMAL OPERATION</b>		
Failure to comply with the distance for the motor air intake	Motor overheating and possible damage to the blower	RISK FOR THE MACHINE
Presence of operators and possible contact with the machine	Operator coming into contact with hot parts of the machine	RISK FOR THE OPERATOR
Use of loose clothing or untied long hair	Possible catching or suction in the machine or in the motor fan	RISK FOR THE OPERATOR
<b>IMPROPER USE LINKED TO METHODS OF USE</b>		
Failure to comply with the operating conditions: <ul style="list-style-type: none"> <li>- Ambient temperature outside the limits or incorrect</li> <li>- Altitude above 1000 m</li> </ul> Failure to consider system and filter pressure losses	Machine performance exceeding the values given in the "SPECIFICATIONS". Possible motor failure and possible seizure of the impeller	RISK FOR THE MACHINE, SYSTEMS AND OPERATORS
Incorrect appraisal of the filter (for use with suction in the place)	Particles entering the blower with seizing of the impeller	RISK FOR THE MACHINE



Operation exceeding the values given in the "SPECIFICATIONS" and the electric motor RATING DATA.	Machine performance different from the data given in the "SPECIFICATIONS". Possible motor failure and possible seizure of the impeller	RISK FOR THE MACHINE, SYSTEMS AND OPERATORS
Rigid connection between the machine and system	Abnormal vibrations for the machine and/or system with possible seizing of the impeller.	RISK FOR THE MACHINE, SYSTEMS AND OPERATORS
Using the unit with current values exceeding the motor rating	Possible overheating of the machine and motor	RISK FOR THE MACHINE
IMPROPER USE LINKED TO MAINTENANCE WORK		
Failure to clean the filter	Seizing of the impeller	RISK FOR THE MACHINE
Failure to eliminate of layers of surface dust	Machine overheating	RISK FOR THE MACHINE, SYSTEMS AND OPERATORS
Failure to check the condition of parts subject to wear (seals, flexible couplings, etc.) where foreseen	Machine performance different from the data given.	RISK FOR THE MACHINE, SYSTEMS AND OPERATORS
FAULT CONDITIONS / EMERGENCY CONDITIONS		
Not stopping the machine when making an abnormal noise.	Damage with possible seizing of the impeller, machine overheating and possible motor damage.	RISK FOR THE MACHINE, SYSTEMS AND OPERATORS
Failure to refit the protection devices (coupling covers, blind flanges) where foreseen.	Operator coming into contact with moving parts.	RISK FOR THE OPERATOR

## TRANSPORT AND STORAGE

### TRANSPORT AND HANDLING

	<p>Manual handling and transport are permitted only in accordance with the current applicable regulations.</p>			
		<p>m &lt; 25 kg</p>	<p>m &gt; 25 kg</p>	<p>m &gt; 25 kg</p>
				
				
				

### STORAGE

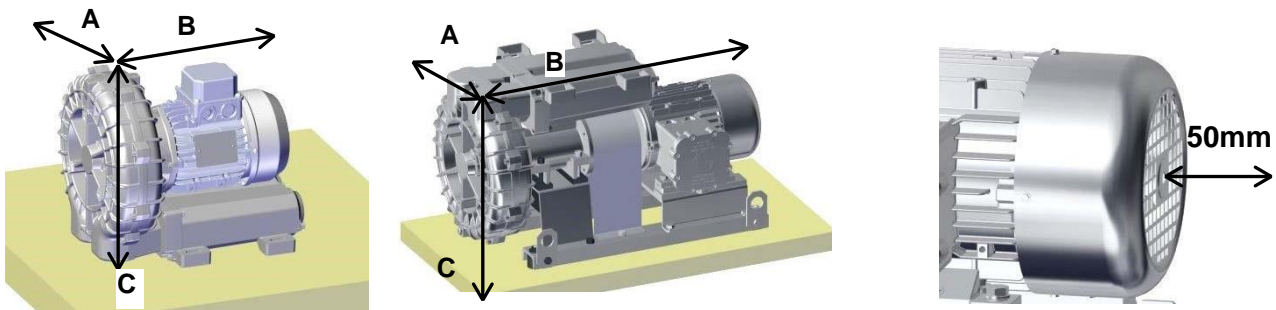
- Store the machine in a dry place, if possible keeping it in its packaging.
- Do not remove the protection from the openings.

## INSTALLATION

### INSTALLATION CONDITIONS

Make sure the conditions of use as described in section 3 are complied with, then proceed with installation of the machine as specified below.

- The unit's support surface must be flat, sturdy, stable and as level as possible.
- The unit must be installed on a structure that does not transmit vibrations. Do not install the unit on structures that can transmit or amplify the noise.
- The unit must always be installed using vibration dampers, with tightening torque 3.0.0Nm.
- Connect the pipes using flexible sleeves, without resting the weight of the pipes on the unit, with the exception of a possible filter supplied by Oxydent B.V. in case of suction in the place.
- Establish the dimensions A, B, C to allow adequate space for installation of the unit with relevant accessories (Dimensions given on the data sheet).



<b>ATTENTION</b>	Ensure ventilation of the machine so that the surrounding environment is less than or equal to 40°C
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	<b>Danger due to limited visibility in the place where the unit is installed.</b>
Make sure to always have the installed unit under control when carrying out any operation in the installation area. The control elements must be placed so that the installed unit can be seen.	

	<b>Danger due to vibration!</b>
Regularly check the fixing of the unit to the support structure. Excessive vibration of the unit can seriously damage the machine.	

<b>ATTENTION</b>	If installed outdoors, protect the unit against the sun and weather. Also the motor ventilation must not be hindered by obstacles placed in the immediate vicinity.
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To avoid overloads caused by pressure fluctuations, install a bypass pressure-relief valve on the suction pipe in case of operation as an exhauster, and on the delivery when operating as a blower.



If the flow rate has to be reduced, use a bypass valve instead of throttling the suction or delivery.



Protect the suction pipe with a filter with max. filtration degree 20 µm / 25 µm. For the use of filters with different filtration degree, ask Oxydent B.V.. Foreign bodies are: dust, sand, gravel, dirt in the pipes, cutting burrs and shavings, welding slag and spatter, metal burrs and sealant residuals produced when connecting the pipes. Change the filters regularly.



Size the pipes and choose accessories that minimise pressure losses; therefore:

- do not fit pipes narrower than the ports of the machine
- when installing several machines in parallel, suitably size the manifold and the main line
- use large-radius curves and not elbows
- do not install valves with bore smaller than nominal and check valves with shutter opposed by spring
- clean the pipes thoroughly before connection.



**Danger due to foreign bodies and dirt entering the unit!**

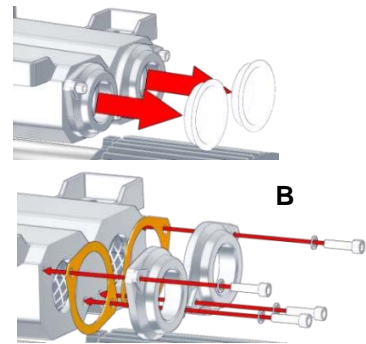
The ingress of even tiny foreign bodies causes serious damage to the unit with probable breakage of the impeller blades and the danger of debris being thrown out!

See **INSTALLATION DIAGRAM** in the first section

## BLOWER INSTALLATION

Units supplied with standard set-up are ready to be installed in the **A** horizontal position.

- The feet have holes for fixing; use the holes and choose the appropriate type of screw. • Remove the protection on the ports before checking the rotation direction and before final connection (A).
- To connect the unit to the piping, remove the flange from the silencer housings (B).
- Screw the flanges to the pipes and clean from any impurities.
- Refit the flanges on the silencer housings. Provide for a hose, as per the initial diagrams.



The use of pressure measuring instruments is advisable (but not compulsory) in order to check that the difference between the delivery and suction pressures respects the values given in the "SPECIFICATIONS" and on the machine's rating plate.

## ELECTRIC MOTOR

The side channel blowers are equipped with electric motors with specifications: single-phase, two-pole three-phase, continuous duty (S1), according to efficiency class as per the current regulations.



**Danger of sudden restarting.**

The PTO thermal protector is an normally-closed electromechanical device. Once the tripping temperature is reached, it opens and stops the electric motor. **The electric motor resumes normal operation when the temperature falls below the trip threshold.** Take suitable steps to prevent injury and damage to property in case of sudden restarting.

### ATTENTION!

The units are equipped with motors S1 for continuous operation. A maximum of 6 starts per hour, equally distributed, are permitted. Non-compliance can damage the unit.

## ELECTRIC MOTOR REFERENCE STANDARD (EU)

- The electric motors that power the machines are CE marked
- The electric motors comply with EU regulation 4/2014 and the efficiency class specified in standard IEC 60034-30

## CONNECTION

### ATTENTION!


Connection to the grid must comply with the current regulations.

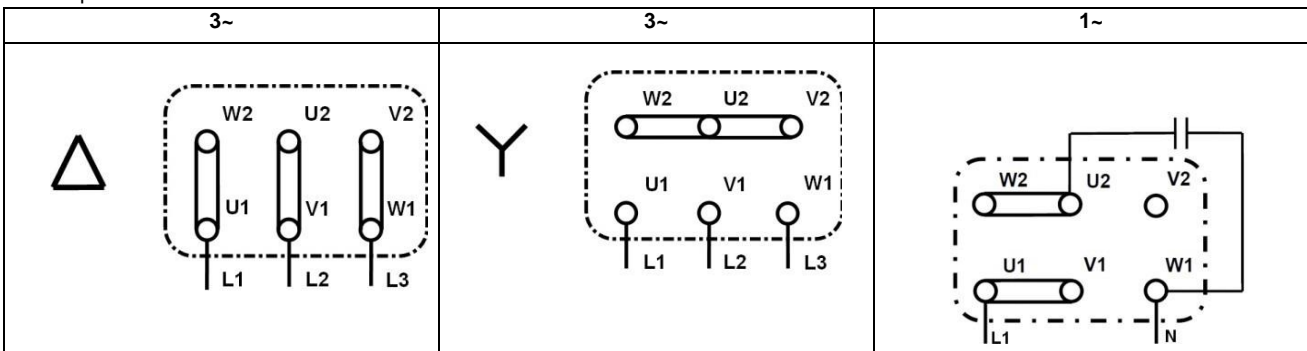


**Make sure the mains voltage and frequency match the values given on the motor rating plate.**



**Danger due to electricity!**

- Before starting work on the unit or system, take the following precautions:
  - make sure the machine is NOT powered;
  - take steps to prevent the power from being reconnected;
- The terminal box must not contain:
  - foreign bodies;
  - impurities;
  - moisture.
- The machines are supplied without control panel.
- Wire sizes must be able to take maximum current absorbed by the electric motor.
- The electric motor must be protected against the effects of short circuit, overload, phase failure and reconnection that can cause overvoltages.
- Before connecting to the grid, make sure to connect the earth wire to the respective electric motor terminal indicated by the following symbol .
- Use the openings in the cable clamps to run the power cables inside the terminal box.
- After making the terminal box connections, tighten the cable clamp to secure the cables.
- The wiring in the terminal box must be carried out according to the desired connection (Δ, Y) as shown in the diagrams below and present in the terminal box:



## INVERTER POWERED ELECTRIC MOTOR

### ATTENTION!

The performance of the unit may vary in case of power supply with inverter, and frequency or voltage different from the rated values. For the performance of an inverter-powered unit with frequency or voltage different from the rated values, contact the Oxydent B.V.

- Connect the electric motor thermal protectors, to protect the inverter-powered electric motor.
- The power supply via inverter is always the responsibility of the installer, who must ensure compliance with the standards and the installation procedures indicated by the inverter manufacturer.

## ROTATION DIRECTION

The machines must be used respecting the rotation direction indicated by the arrow on the electric motor fan cover.

- To check the rotation direction, switch the motor on briefly and observe the fan.
- To change the rotation direction, invert the power cable connections, leaving the earth connection unchanged.
- refer to the connection diagram located inside the terminal box and in this section



**ATTENTION!**

The position of the motor does not always allow the rotation direction to be checked, therefore it is advisable to do this check before installation in the system.

## STARTUP

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**Non-compliance with the unit's intended use can cause serious accidents.**

The unit must only be started:

- after carefully reading, understanding and complying with this user manual ("SAFETY RULES" and "INSTALLATION");
- in conformity with its intended use as prescribed in the "SPECIFICATIONS";
- Respecting the values given in the "SPECIFICATIONS" and the electric motor RATING DATA.

## PRELIMINARY CHECKS

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Before starting the machine for use, carry out the following preliminary checks:

- If the unit has not been started up for some time, check its condition and, if necessary, remove any dust from the external surfaces.
- Deactivate/open any pipe closing devices (shut-off valves, solenoid valves, etc.) before starting the unit.
- **Never start and operate the unit with the inlet and/or outlet port closed! (if not foreseen).**
- Make sure the ambient and conveyed gas suction temperatures come within the values: -15°C (+5 °F)÷ +40°C (+104 °F).
- Check the operation of any flow control/limiting devices.

## OPERATION

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The unit can be started for use after carrying out the preliminary checks.

- Start the unit by switching on the power to the electric motor.
- Respect the values given in the "SPECIFICATIONS" and the electric motor RATING DATA.". Pressure losses in the pipes are often underestimated but are decisive factors for the operating pressure differential.
- Measure the motor absorption and check compliance with the rated value.

## STOPPING

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- The unit must be stopped by switching off the power supply to the motor.
- On shutdown, make sure to operate the unit with open outlet (suction/ delivery) for about 20 minutes. This operation allows the removal any condensate inside.


## MAINTENANCE

In order to prevent faults and damage it is important to periodically check the units in operation, therefore it is advisable to adopt a maintenance plan in line with this Manual, providing for:

- Periodical checks
- Periodical maintenance

### PERIODICAL CHECKS

	The units in operation should undergo periodical inspections by qualified personnel, in order to prevent failures that can directly or indirectly cause damage.
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	<p><b>Danger of burns caused by contact with hot surfaces of the unit!!</b></p> <p>When in operation the blowers / exhausters can reach high surface temperatures. Before carrying out any operation after shutdown allow the unit to cool by waiting at least 20 minutes.</p>
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**A) With the unit in operation periodically check the following parameters:**

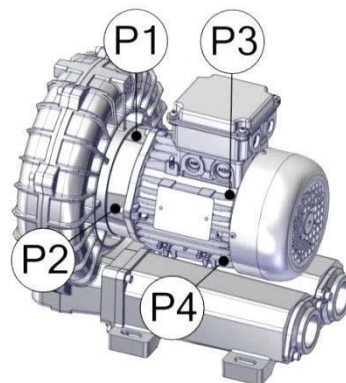
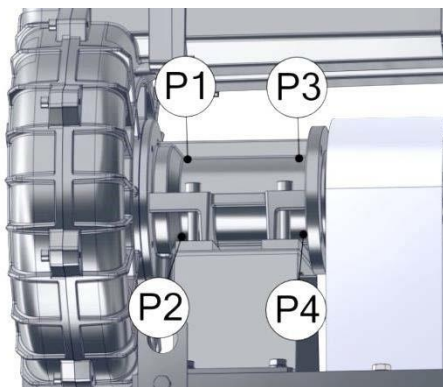
- Delivery temperature
- Operating pressure and/or vacuum
- Electric motor current absorption
- Vibration

**Measurement of vibration**

The measurements for determining the vibration velocity must be made with an electronic vibration meter at the places indicated below (at 90° to each other with respect to the axis of rotation).

**Points P1 and P2 (front bearing):** place the vibration meter near the front bearing, adopting the highest value.

**Points P3 and P4 (rear bearing):** place the vibration meter near the rear bearing, adopting the highest value.



Effective vibration velocity value [mm/s]	Class I (≤ 15kW)
a<2.2	<b>A</b>



Legend:

Classification of machines:


Class I = Blowers with electric motor of power  $\leq 15\text{kW}$

2.2 < a < 4.5	<b>B</b>
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Appraisal zones:

Zone A = Blowers with vibration (a) inside this zone they are considered acceptable for long-term duty.

Zone B = Blowers with vibration (a) inside this zone they are considered unsuitable for long-term continuous duty. The machine can be operated in these conditions for a limited period, as long as there is the opportunity for a suitable corrective action.

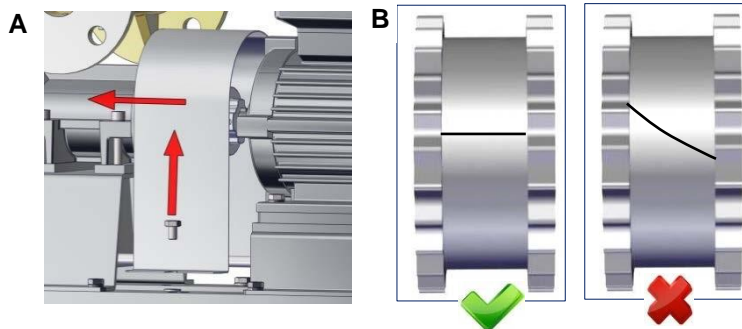
	<b>Danger due to seizing of the impeller caused by excessive vibration.</b>
<p>Vibration values higher than Zone B (table of effective vibration velocity value) are considered NOT permissible and can cause damage to the machine and therefore serious injury to operators.</p> <p><b>- In case of noise and/or abnormal vibration indicating the possibility of seizing of the impeller, move away and turn the unit off immediately!</b></p>	

Variations in normal working conditions (increases in power absorption, abnormal noise, vibration, excessive overheating of the service fluid) are signs of a unit malfunction.

Compare the measured values with those given in the "SPECIFICATIONS".

**B) With the unit stopped and cooled, periodically carry out the following checks:**


- Dust: check and remove deposits from the external surfaces of the unit.
- Suction filter (if fitted): every 10-15 days, check and clean or replace the filter cartridge. The dirty cartridge creates strong suction resistance and consequently a higher pressure differential, power absorption and operating temperature.
- Check the flexible coupling as follows:
  - Remove the screws and coupling cover (A).
  - Manually rotate the coupling to expose the reference lines marked on the elastomer.
  - Check the coupling and appraise its state after 100 hours or up to 1 month of operation; if no deformations are detected, the check can be repeated every 2000 hours or every 3 months.
  - The deformations are detected by the lines marked on the elastomer (B).





<b>ATTENTION !</b>	To limit the formation of surface layers of dust that can affect the natural heat exchange between the unit and the environment, ensure regular cleaning and removal with suitable equipment. The suction and/or delivery pipes must not be dirty or clogged.
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## PERIODICAL MAINTENANCE AND TROUBLESHOOTING

In case of periodical maintenance for cleaning or for replacing components, as well as in case of failure, the machine must be disconnected and removed from the system.

	<b>Danger due to electricity.</b>
Before carrying out any operation, make sure the machine is NOT powered.	

	<p><b>Risk of injury due to shearing, crushing, catching.</b></p>
<p>During work on the unit there are risks of injury due to shearing, crushing or catching. Therefore it must be carried out by qualified personnel who handle and install the machine, taking the necessary safety measures and following the instructions given in this manual.</p>	

	<p><b>Danger due to residual negative pressure or overpressure.</b></p>
<p>For residual overpressure: possible release of process fluids with risk of injury to the skin and eyes. For negative pressure: possible drawing in of hair and clothing. Disassemble the machine only after closing and draining the system connected to it.</p>	

<p><b>ATTENTION</b></p>	<p><b>Due to the particular construction and operation of the machines, it is advisable to contact Oxydent B.V. for this type of assistance.</b></p>
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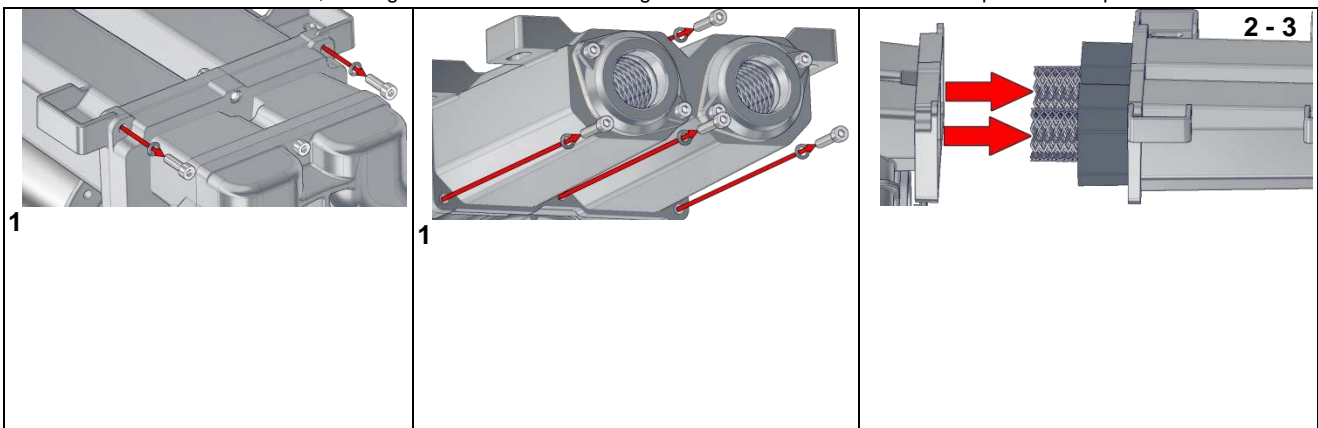
	<p>If maintenance or repair is carried out at another repair centre, it is advisable to contact Oxydent B.V. for instructions and information about the intervention procedures.</p>
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The machine must be completely vented, cleaned and rendered inert before being sent to a service centre.

## REPLACING THE SOUND ABSORBING MATERIAL

When replacing the sound absorbing material in the silencers, proceed as follows:

- Undo the screws (1)
- Disconnect the silencer housings (2)
- Remove the sound absorbing material from the silencer housings (3)
- Recover the support mesh
- Replace the sound absorbing material
- Remove sealant residue on the removed parts
- Assemble in reverse order, making sure to restore the sealing with SYSTEM RS 01 between the parts that require it



## LIFE OF BEARINGS

In normal operating conditions (values given in the "SPECIFICATIONS") it is advisable to have all the machine's bearings replaced by Oxydent B.V. personnel after 25000 hours or 3 years, whichever comes first.

	<p>The unit's bearings can be replaced only if all the instructions, parts list, and the section/exploded view of the respective unit are available.</p>
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## OPERATION PROBLEMS

Problem	Seriousness	Cause	Cure
<b>The unit does not start</b>	F	Incorrect electrical wiring.	Have the electrical connection checked by the Technician, referring to the diagram in the terminal box.
	F	Unsuitable supply voltage.	Check the power supply voltage. Tolerance of fixed voltage value $\pm 10\%$ .
	G	The impeller is stuck.	Have the unit repaired by Oxydent B.V. After-Sales Service.
<b>Insufficient or no air flow</b>	G	The suction filter is clogged.	Have the cartridge cleaned or replaced by the Technician.
	G	Wrong frequency (for inverter powered units).	Correct the frequency.
	G	Profile of impeller blades modified (due to deposits on the profile).	Have the impeller checked by Oxydent B.V. After-Sales Service
<b>Insufficient or no differential pressure</b>	F	Wrong rotation direction.	Have the rotation direction reversed by the Technician, inverting the two power supply wires and leaving the earth connection unchanged.
	G	Leak in the system	Find the leak and seal it.
<b>Current absorption higher than the permissible value</b>	F	Incorrect electrical wiring.	Have the electrical connection checked by the Technician, referring to the diagram in the terminal box.
	F	Supply voltage drop.	Have the supply voltage at the terminals restored within the permissible values by the Technician.
	G	The suction filter is clogged.	Have the cartridge cleaned or replaced by the Technician.
	G	The unit has accumulated deposits inside.	Have the unit cleaned inside by Oxydent B.V. After-Sales Service.
	G	The unit is operating at a pressure and/or vacuum higher than the permissible value.	Operate on the system and/or control valve to decrease the pressure differentials.
<b>High delivery air temperature</b>	G	The unit is operating at a pressure/vacuum higher than the permissible value.	Operate on the system and/or control valve to decrease the pressure differentials.
	G	The suction filter is clogged.	Have the cartridge cleaned or replaced by the Technician.
	G	The unit has accumulated deposits inside.	Have the unit cleaned inside by Oxydent B.V. After-Sales Service.
	G	Suction and/or delivery pipes obstructed.	Have the obstructions removed by the Technician.
	G	Intake air temperature above 40°C (+104°F).	Use heat exchangers to reduce the intake air temperature.
<b>Abnormal noise</b>	F	The sound absorbing material is damaged.	Have the sound absorbing material replaced by the Technician.
	G	The impeller rubs against the casing: - The unit is operating at a pressure/vacuum higher than the permissible value.	Operate on the system to decrease the pressure differentials.
		- Reduction of assembly play due to internal deposits (dust, dirt on pipes, process residues, etc.).	Have the unit cleaned inside by Oxydent B.V. After-Sales Service.
G	Worn bearing.	Have the bearing replaced by Oxydent B.V. After-Sales Service.	

<sup>6</sup> Divided as follows: F for functional fault and G for serious fault

	F	Unit installation position unsuitable.	Have the units installed on structures that cannot transmit or amplify the noise (tanks, metal plates, etc.) by the Technician.
<b>Abnormal vibration</b>	G	The impeller is damaged.	Have the impeller replaced by Oxydent B.V. After-Sales Service.
	G	The impeller has accumulated deposits.	Have the unit cleaned inside by Oxydent B.V. After-Sales Service.
	G	Unit fixed without vibration dampers.	Have the unit secured with vibration dampers by the Technician.
	F	Rigid connection to the system	Have flexible sleeves installed between the unit and the pipes by the Technician.

	G	Worn transmission coupling	Have the transmission coupling replaced by Oxydent B.V. After-Sales Service.
	G	Faulty bearing on blower side or motor side.	Have the bearing replaced by Oxydent B.V. After-Sales Service.
<b>Fluid leakage</b>	G	Faulty gaskets on the silencer.	Have the gaskets checked and, if necessary, replaced by Oxydent B.V. After-Sales Service.
	G	Faulty gaskets on the cover (if present).	Have the gaskets checked and, if necessary, replaced by Oxydent B.V. After-Sales Service.
	G	Worn sliding sealing ring	Have the gaskets checked and, if necessary, replaced by Oxydent B.V. After-Sales Service.