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ExitOxy

User manual

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Introduction

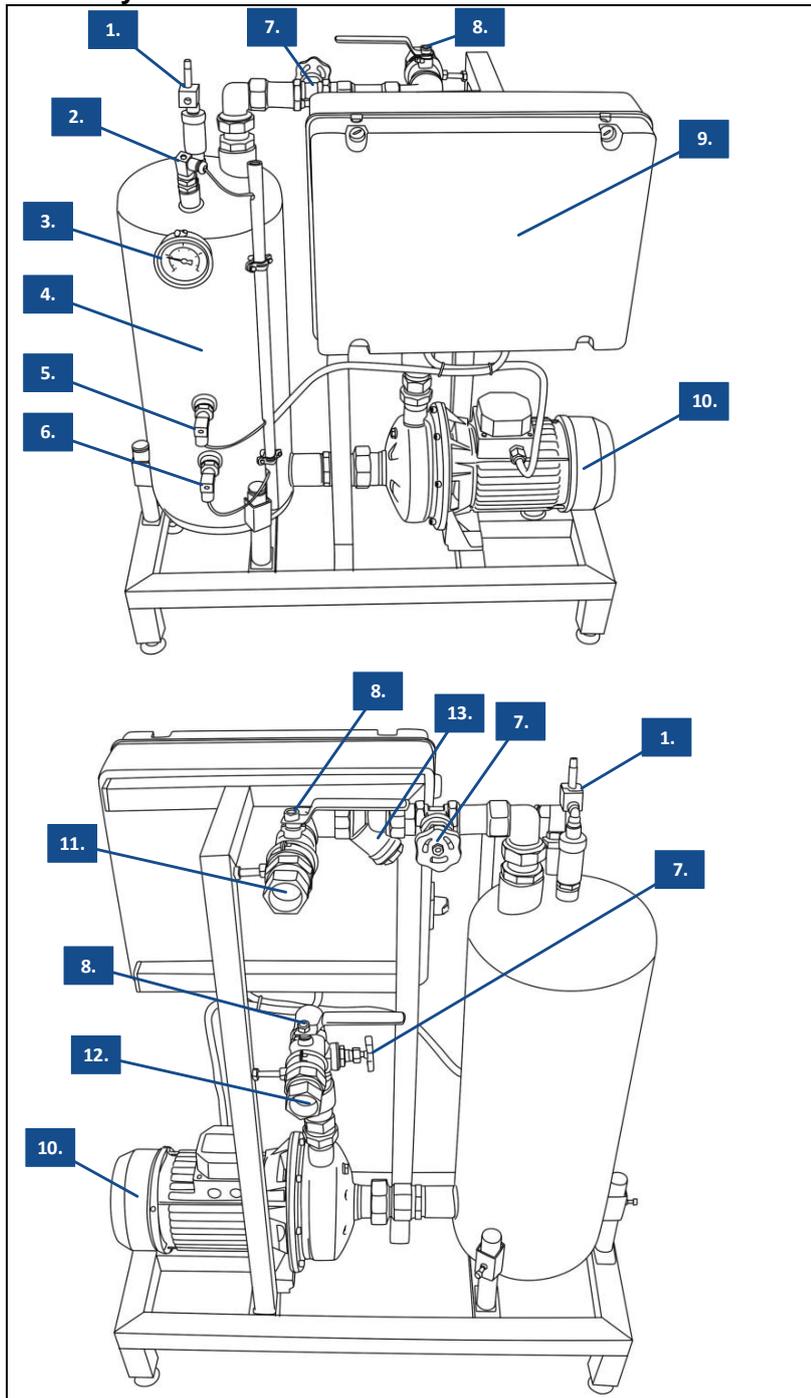
Foremost we congratulate you on your purchase of a PRESSCON ExitOxy degasser system. This manual describes how to install a PRESSCON ExitOxy degasser system. If there, despite our explanation in this manual, is a lack of clarity with regard to the installation or if there are any questions in another way, don't hesitate to contact us through the information below.

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Description of the hazard symbols

Symbol	Description	Symbol	Description
	1. OVERPRESSURE VALVE, Be aware of the sudden relief of overpressure.		7. HIGH PRESSURE, Relief pressure from components before work is conducted.
	2. DANGEROUS VOLTAGE, Forbidden to work on the system if the power is on.		8. HOT PARTS, Do not touch parts with bare hands. Use heat-resistant clothing.
	3. DANGEROUS TO INHALE GAS, Avoid the specified area or wear appropriate breathing equipment.		9. MOVING PARTS, Risk of getting stuck or injuries to limbs. Turn the machine off completely before working on it.
	4. NOISE, Wear ear protection to prevent hearing damage.		10. ROTATING FAN, Risk of getting stuck or injuries to limbs. Turn the machine off completely before working on it.
	5. MACHINE WITH AUTOMATIC START, Machine stops and starts automatically when it is operating normally. Turn off the machine completely before working on it.		11. ATTENTION, Special situation occurs, follow additional instructions.
	6. READ THE OPERATING AND MAINTENANCE INSTRUCTIONS, It is advised that the maintenance instructions are read before continuing work.		

1 System overview



- 1. Air vent
- 2. Level sensor stop
- 3. Vacuum-overpressure manometer
- 4. Degassing tank
- 5. Level sensor start
- 6. Level sensor minimal
- 7. Disk valve
- 8. Ball valve
- 9. Control cabinet
- 10. Centrifugal pump
- 11. Supply terminal "Inlet"
- 12. Return terminal "Outlet"
- 13. Dirt trap

Figure 1. System overview

2 Surface

Because the ExitOxy is permanently attached to the central heating system, it's important to have hardened subsoil for the system to prevent the system from tilting. On a soft surface like sand or gravel the ExitOxy can tilt and cause mechanic stresses on the inlet and outlet.

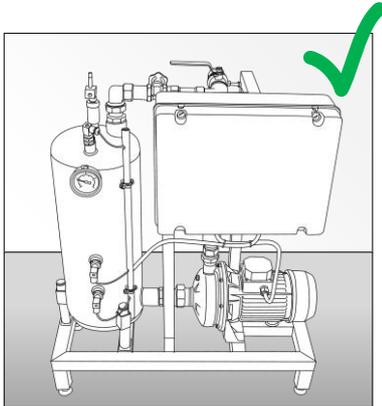


Figure 2. ExitOxy on a hard surface

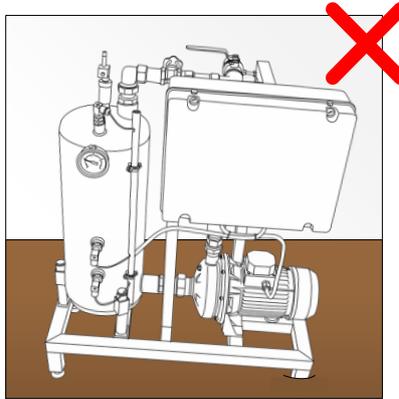


Figure 3. ExitOxy on a soft surface

3 Water-side connection

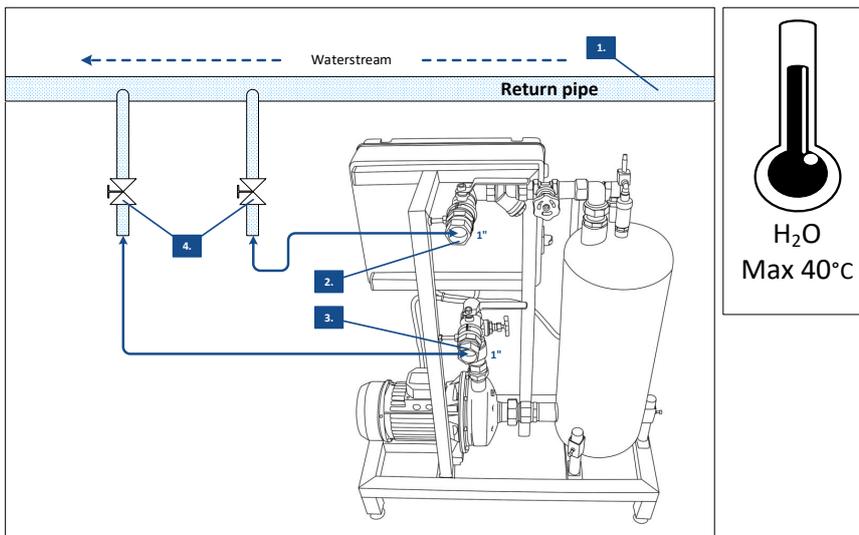


Figure 4. Connection to return pipe

The ExitOxy has to be connected on the return pipe of the greenhouse heating system. Normally the temperature of the water in the return pipe doesn't exceed 40°C which benefits the life span of the machine. If the water temperature is higher than 40°C it is possible that this is detrimental to the life span. In this case it is advised to install the ExitOxy together with PRESSCON or a licensed installer. For the waterside connection of the ExitOxy apply the following steps.

- Connect the inlet (Figure 4. No. 2) to the return pipes of the central heating system (Figure 4. No. 1). The size of the inlet is usually 1" BSP internal thread.
- Connect the outlet (Figure 4. No. 3) 1 metre further than the inlet to the return pipe. The size of the outlet connection is usually 1" BSP internal thread.
- Mount ball valves (Figure 4. No. 4) in the inlet and outlet pipes on the side of the return pipe of the greenhouse heating system. These can be put to use in an emergency to cut off the system.

4 Electrical connection

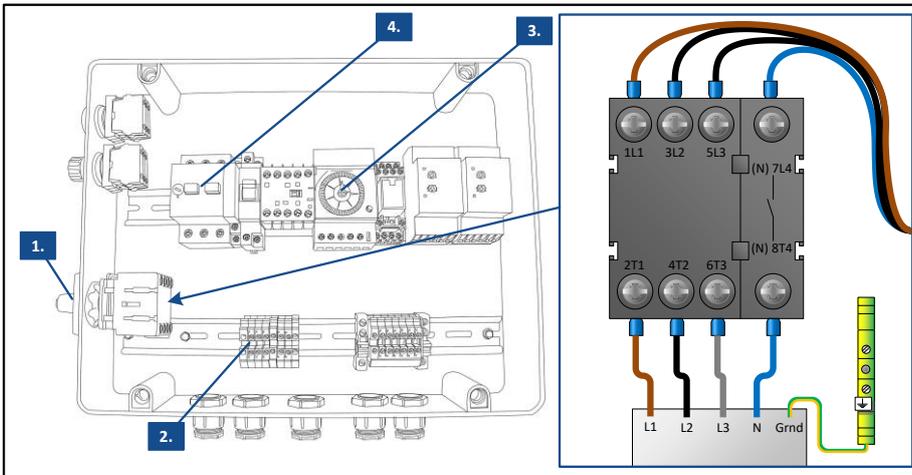


Figure 5. ExitOxy switch panel



The ExitOxy needs a supply of $\pm 400V$ AC + N 16A

Before the ExitOxy can be supplied, the following points must be checked:

- **Is there a correct main power cable supplied?**
The ExitOxy is delivered without its own power cable. It is therefore desirable the an authorized electrician provides a correct main power supply cable to the location of the ExitOxy.
- **Is the supplied power cable voltage-free?**
Use a fitting voltmeter or multi-meter to check if the cable is voltage-free. Is there a voltage? Let an authorized electrician shut off the power.
- **Is the head switch in the 'OFF' position?** (Figure 5. No. 1 & Figure 6)
Put this, if needed, in the desired position.
If the above points are met, the supply can be safely connected.

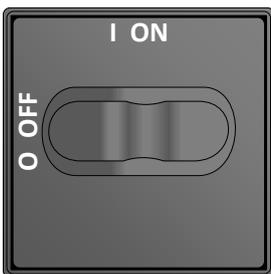


Figure 6. Main switch

Step 1. Insert the supplied power cable into the ExitOxy switch panel.
Finish the cable with a suitable cable tray or PVC pipe.

Step 2. Connect the phases 1, 2 and 3 to the contacts 2T1, 4T2 and 6T3 of the main switch (Figure 5).

Step 3. Connect the neutral wire to the contact (N)8T4 of the main switch (Figure 5).

Step 4. Connect the green/yellow wire to the first ground terminal of the terminal strip. (Figure 5. No. 2).

5 Commissioning

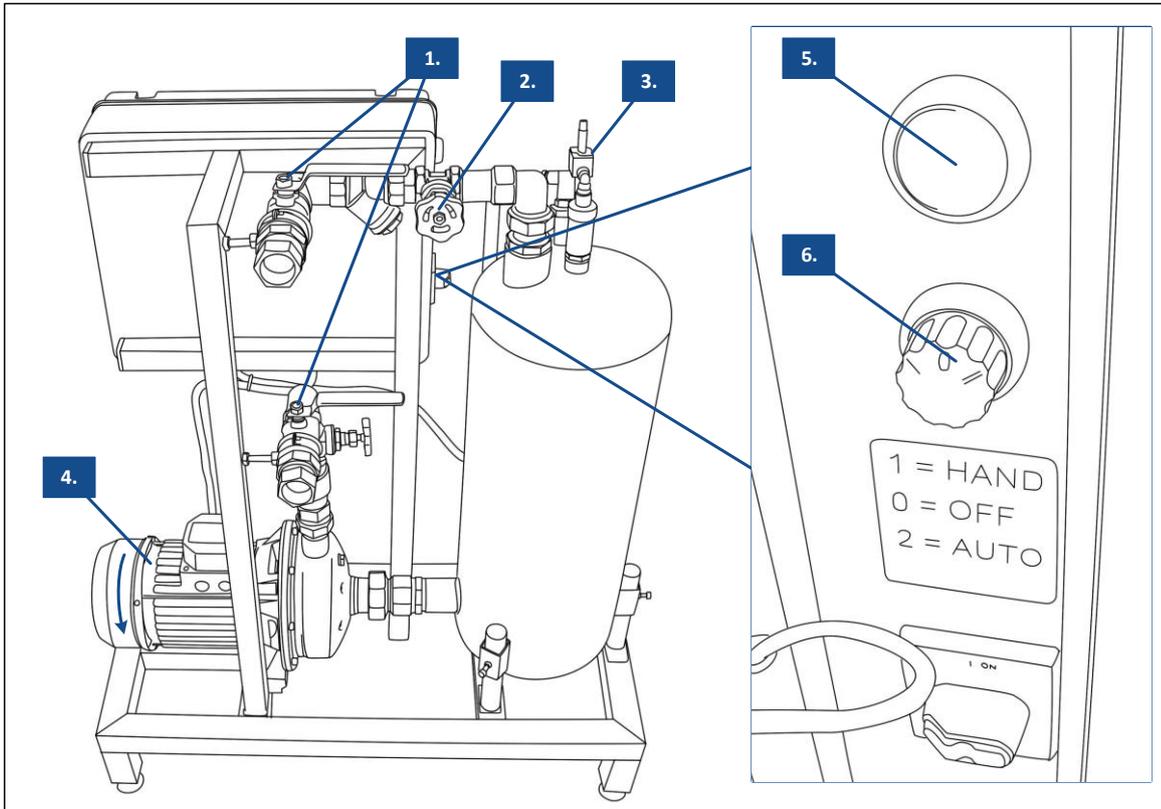


Figure 7. ExitOxy back view

When the ExitOxy is delivered it is already tested and adjusted. The ExitOxy is adjusted by adjusting the disc valves properly. The disc valves as in Figure 7. No. 2 are therefore sealed when the system is delivered. The disc valve on the inlet connection has to be newly adjusted since the water pressure of the system is different on every location. The seal on the inlet disc valve (Figure 7. No. 2) can be removed before the adjustment is made. Afterwards, this has to be returned.

Starting with putting the system into service.

- Open the ball valves in the inlet and outlet connections (Figure 7. No. 1).
- Open the disc valves in the inlet by turning the red drain to the left. The system will fill up with water.
- The air vent (Figure 7. No. 2) on the top side of the degasser tank will blow of air as the tank is filled up. When the air vent stops blowing off, the degasser tank is filled.

Now, first check the direction of the pump. Pay attention! The degasser tank has to be filled with water. Under no circumstance it is allowed to let the pump run dry. This will damage the pump.

- Put the switch (Figure 7. No. 6) on position 1 (manual on) and push the reset button (Figure 7. No. 5). The pump will turn. Pay attention to the turning direction of the pump.
- Put the switch (Figure 7. No. 6) back to position 0 (Off) after 1 second turning to prevent damage to the pump.
- If the pump turns in the same direction as the arrow (Figure 7. No. 4) the direction is correct.
- If the pump turns in the opposite direction of the arrow (Figure 7. No. 4) the direction is incorrect. To correct this, 2 of the 3 phases have to be swapped. Refer to the directions in chapter 4 'Electrical connection'.

If the pump turns in the correct direction, then the putting into service can be continued.

- Turn the disc valve in the inlet (Figure 7. ExitOxy back view. No. 2) to the left, completely open.
- Put the switch (Figure 7. ExitOxy back view. No. 6) to position 1 (manual on) to make the pump turn.
- Now, turn the disc valve (Figure 7. No. 2) in the inlet slowly to the right to close it until the pressure is between -0,85 Bar and -0,9 Bar.
- If the pressure continues to -1 bar the disc valve in the inlet is closed too far. In that case, open the disc valve again until the pressure is between -0,85 and -0,9 Bar.
- Put the switch (Figure 7. No. 2) on position 0 (OFF) so the pump stops and the pressure slowly increases. The pressure will increase to ± 1 Bar, which is usually the system pressure. Because of the increasing pressure the air vent won't blow off. (Figure 7. No. 3).
- If the system pressure is reached and the air vent doesn't blow off anymore, it is allowed to put the switch back to position 1 (manual on). This will make the pump turn again and a vacuum is created in the degasser tank again. The pressure needs to be set between -0,85 Bar and -0,9 Bar again.
- Adjust the disc valve in the inlet if the vacuum pressure yet stays too low or becomes too big.
- Repeat the pressurizing and the vacuum pulling until the pressure during the pumping is between the -0,85 Bar and -0,9 Bar and stays like that during 3 or more cycles.
- The ExitOxy is now ready for use. Seal the disc valve (Figure 7. No. 2) again so it's not possible to simply adjust it.

6 Operation

When the pump is functioning, it will create a vacuum in the degasser tank (Figure 1. No. 4). Water will be sprayed in the tank and because of the under pressure, air bubbles will be released. These are stored in the top of the system. If a lot of air gets into the system, the pump will stop and the system will be filled off with water and blows all the oxygen through the air vent on the top of the ExitOxy.

If there is no air present in the system, the pump will turn on/off less easily. The system will also blow off less or nothing. This is a sign that almost no air is present in the heating system anymore.

The pump needs to be turned on (using the time clock) in connection with the oxygen entry in the heating system (this can occur because of diffusion).

7 First use

The ExitOxy can be put on mode 1 (manual) in the first week. The ExitOxy will degas most of the water in its first week in this way. After a week can the ExitOxy be put on mode 2 (automatic on).

It is advised to check if the ExitOxy is degassing properly in its first week. This can be done in the following way:

- Put the switch (Figure 7. No. 6) on mode 0 (OFF) while the pump is turning. The pump will stop turning so the degasser tank can fill up with water. If the water is not completely degassed, the released air will cause an overpressure in the degasser tank. This air will be blown off through the air vent on the degasser tank (Figure 7. No. 3).

As more water is degassed, the pump will turn on/off less fast and less and less air will be relieved through the air vent. This indicates a proper operation of the ExitOxy.

If after a week there is still hardly any air coming through the air vent, the ExitOxy can be put on mode 2 (automatic on). The ExitOxy will from that moment on turn on/off according to the settings of the time clock.

**The time clock is by default set to turn on the machine for 1 hour in the morning and 1 hour in the evening. If desired, it can be customized in the switch panel. (Figure 5. No. 3)*

8 Malfunction

The ExitOxy is designed as a quality and a trustworthy product. It can however, not be ruled out that the ExitOxy can get defect. When this happens, a malfunction in the operational process of the machine is created. In that case the machine will let the user know.

On the side of the switch cabinet is a red push-button (Figure 8. No. 1). When a malfunction occurs, the light behind the push-button will start burning. This indicates a malfunction in the machine. By pushing the button, it can be attempted to reset the malfunction. If the cause of the malfunction is fixed, the light after the button will turn off. If the cause isn't fixed, the lamp will keep burning and the cause will have to be fixed manually.

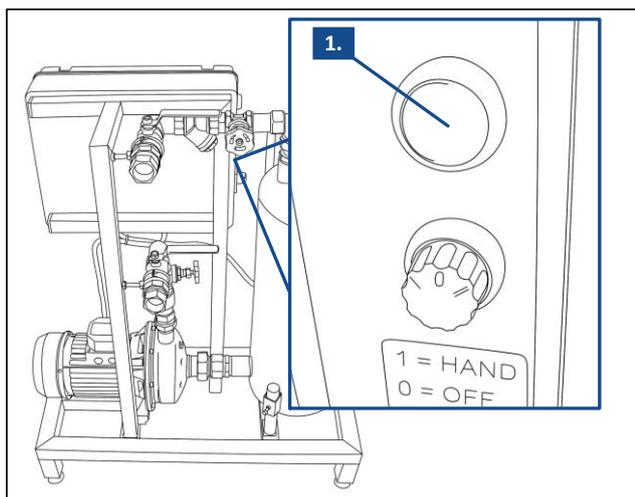


Figure 8. Reset button

If there is a malfunction of the ExitOxy system then there may be the following issues.

Malfunction	Description
Pump thermally inoperative	The thermal protection of the water pump is addressed because the power usage of the pump has been too high. Open the switch panel of the ExitOxy and reset the thermal protection (Figure 5. No. 4). Research then the cause of the high power usage of the pump.
Water level minimal	The water in the degasser tank has been too low because the water has been sucked out too fast or is supplied too slowly. Check the dirt trap and the tap of the supply line. Check the pump and the tap in the drain.

9 Maintenance

To ensure a proper working of the ExitOxy the owner must provide the system of its essential maintenance. A part of the maintenance can be performed by the owner or his/hers technical staff. Other annual maintenance has to be performed by a service mechanic. See table hereunder.

Activity	Conducted by	Weekly	Monthly	Annually	Every 2 years
Visual inspection	Owner	X			
Cleaning the dirt trap	Service mechanic			X	
Cleaning measurement pins	Service mechanic			X	
Check the pump	Service mechanic			X	

10 Warranty

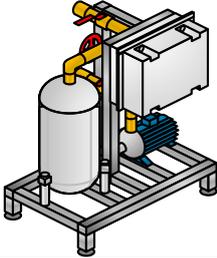
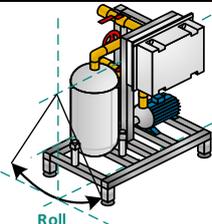
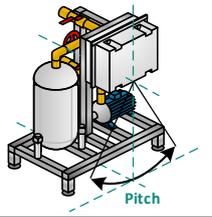
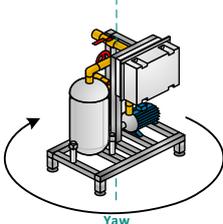
PRESSCON offers a warranty on the components of the ExitOxy for 1 year, in the assumption that the following conditions are met:

- The equipment is installed by PRESSCON or under direct or indirect supervision of PRESSCON;
- The equipment is undamaged and unprocessed and is not defect as a result of improper use;
- The equipment is not damaged as a result of insufficient maintenance or other procedures;
- The equipment is not defect or in an unreasonable state encountered because of negligence, accidents etc.

The warranty includes compensation of defect components and equipment if the defect is proved. Defect parts and equipment that are replaced become property of PRESSCON.

With regard to the products supplied by PRESSCON in the Netherlands, PRESSCON refers to the general terms and conditions. All terms and conditions for supply of goods and / or services within the Netherlands are subjected to the terms and conditions for the technology industry, lastly submitted by the FME-CWM at the court in The Hague. A Dutch copy of these terms and conditions is included in any Dutch offer and agreement. Other terms are explicitly denied.

11 Technical data

Appearance		
		
Description	Unit	Value
Dimension L x W x H	[mm]	750 x 350 x 900
Voltage/frequency	[V/Hz]	400AC / 50
Number of phase	[-]	3 fase + N
Electrical power of the pump	[kW]	1,5
Protection value	[A]	16A
Water inlet dimension	["]	1"
Water outlet dimension	["]	1"
Max allowable water inlet temperature	[°C]	40°C
Max capacity water inlet / pump flow rate	[m³/h]	400 m³/h
Number of level sensors		3
Type level sensors		Meetpen elektrode
Noise level	[dB(A)]	76
Allowed stance	<p>The ExitOxy only functions in a straight standing stance. The ExitOxy is securely attached to the local pipe network and can therefore not move after mounting. The ExitOxy can however still function properly when it is turned over the yaw-axis or slightly tilted over de roll-axis or the pitch-axis.</p>	
	Angle	Picture
Maximal rotation over roll-axis	+/- 10°	
Maximal rotation over pitch-axis	+/- 10°	
Maximal rotation over yaw-axis	360°	

12 Appendix

In addition to this document, the description of the content extends to the following appendixes:

Appendix ID	Description	Versie
-	-	-

13 Document history

- Version **1.0** to **2.0** indicates : **Modification**, in lay-out, structure or other major modifications;
- Version **1.0** to **1.1** indicates : **Supplement**, a chapter or paragraph has been added to the document;
- Revision **_R01** to **_R02** indicates : **Correction**, an image, language error or text error has been corrected.

Version	Date	Modification
1.0_R00	21-01-2014	First release
2.0_R00	28-10-2016	Manual released in renewed template Chapter 3. Text modified for the description of the allowed temperature.
2.1_R00	07-02-2017	Chapter 3. Description provided with the size of the inlet and outlet connection. Chapter 8. Malfunction added to the manual. Chapter 9. Maintenance added to the manual. Chapter 10. Warranty added to the manual. Chapter 11. Technical data added to the manual.
2.2_R00	22-05-2019	Chapter 4. Added description about the power supply cable at the pre-checkpoints.

14 Final

This manual has been written in order to support the mechanic, installer or customer in adjusting, modifying or working with a product of PRESSCON. Its aim is to maintain and possibly improve the quality of its products. If additional information or support is requested then PRESSCON can be consulted through the following information.

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