



FLEXIHEAT UK LTD
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OXeN X2-W-1.2-V | X2-N-1.2-V | X2-W-1.2-H | X2-N-1.2-H | X2-E-1.2-V

OXEN

TECHNICAL DOCUMENTATION OPERATION MANUAL

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1. APPLICATION

OXeN is a ductless heat recovery unit. Two stage heat recovery in cross flow exchangers ensure high efficiency. OXeN units are dedicated for use in medium and large size areas where mechanical air exchange is a must. There are two types available

X2-N-1.2-V – w/o additional heater, wall montage

X2-W-1.2-V – with additional heater (water supplied) to warm up fresh air, wall montage

X2-E-1.2-V – with additional electric heater to warm up fresh air, wall montage

X2-N-1.2-H – w/o additional heater, ceiling montage

X2-W-1.2-H – with additional heater (water supplied) to warm up fresh air, ceiling montage

OXeN is dedicated to operate indoor, ambient temperature in range +5°C + 35°C, maximal solid pollution 0,3 g/m³. Materials which were used: EPP, aluminium, brass, copper, galvanized steel: substances which can cause corrosion/damage of listed cannot be present in the room.

Water heat exchanger could be supply by water or glycol solution up to 60%. The heat exchanger tubes are made of copper. The feed medium should not cause corrosion of this material. In particular, the parameters as below should be provided:

Parameter	Value
pH	7,5-9,0
Content of impurities	free of sediments/particles
Total hardness	[Ca ²⁺ , Mg ²⁺]/[HCO ₃ ⁻] > 0.5
Oil and grease	<1 mg/l
Oxygen	<0.1mg/l
Bicarbonate, HCO ₃ ^s	60-300 mg/l
Ammonium	< 1.0 mg/L
Sulphide	< 0.05 mg/L
Chloride, Cl	<100 mg/l

2. TECHNICAL DATA				2. DANE TECHNICZNE				
2. TECHNISCHE GEGEVENS				2. ТЕХНИЧЕСКИЕ ПАРАМЕТРЫ				

EN				X2-W-1.2-V	X2-N-1.2-V	X2-W-1.2-H	X2-N-1.2-H	X2-E-1.2-V
Max. air stream				1200 m ³ /h				
Air stream range				Horizontal 15.0 m		Vertical 4.5 m		Horizontal 15.0 m
Air flow regulation range				Stepless				-
Acoustic pressure				49 dB(A) ⁵				
Power supply				230 VAC / 50 Hz				3x400 V
Max. current consumption				1,9 A				14 A
Max. power consumption				420 W				8,5 kW
Main dimensions (HxWxD)				1370 x 1180 x 760				
Casing material				EPP - expanded polypropylene				
Colour				Grey				
Unit weight				77.5 kg	75.1 kg	80.5 kg	78.1 kg	82.5 kg
Unit filled with water				78,3 kg	-	81,3 kg	-	-
Installation				Indoor				
Max. solid pollution				0,3 g/m ³				
Ambient temperature				5 – 45°C				
Operation position				Vertical		Horizontal		Vertical
IP				42				
Filter class				EU4				
Filter status control				Pressure transmitter				
Type of heat recovery exchanger				Two stage recovery, cross flow heat exchanger				
Heat recovery efficiency dry / wet				74,7 / 80,9 % ⁷				
Type of additional heater				Water heater	-	Water heater	-	electric heater
Heating capacity				10,0 kW ⁸	-	10,0 kW ⁷	-	3,5 / 5,5 / 8,5 kW
Connection				½"	-	½"	-	-
Max. water pressure				1,6 MPa	-	1,6 MPa	-	-
Max. water temperature				95°C	-	95°C	-	-
Controlling				External touch panel				
Anti-freeze protection: heat recovery exchanger				Decrease of supplying air volume				

3.1. INSTALLATION TO THE WALL

¹ Max. air flow with installed filter EU4 and wall intake/exhauster OXS.

² Horizontal range of isothermal stream, at velocity boundary equal to 0,2 m/s.

³ Vertical range of non-isothermal stream (Δt=5°C), at velocity boundary equal to 0,2 m/s.

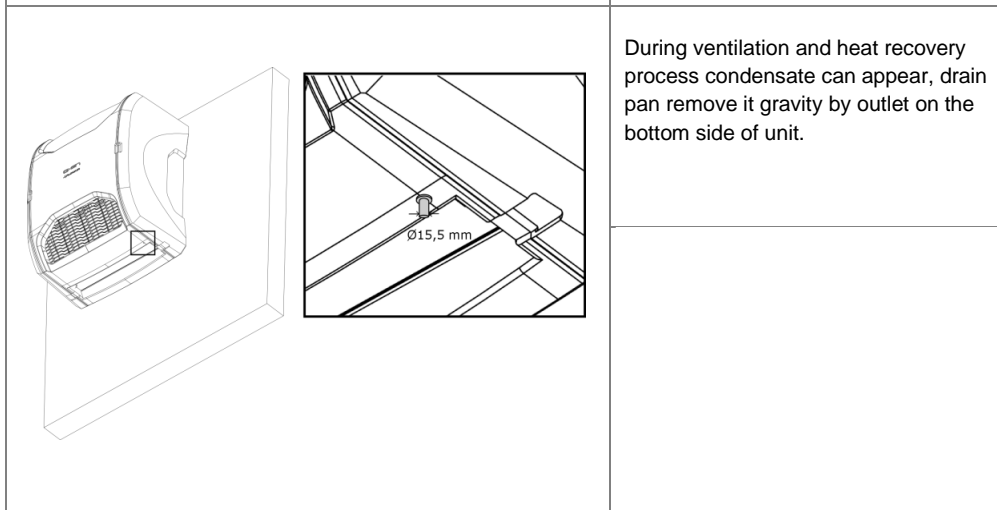
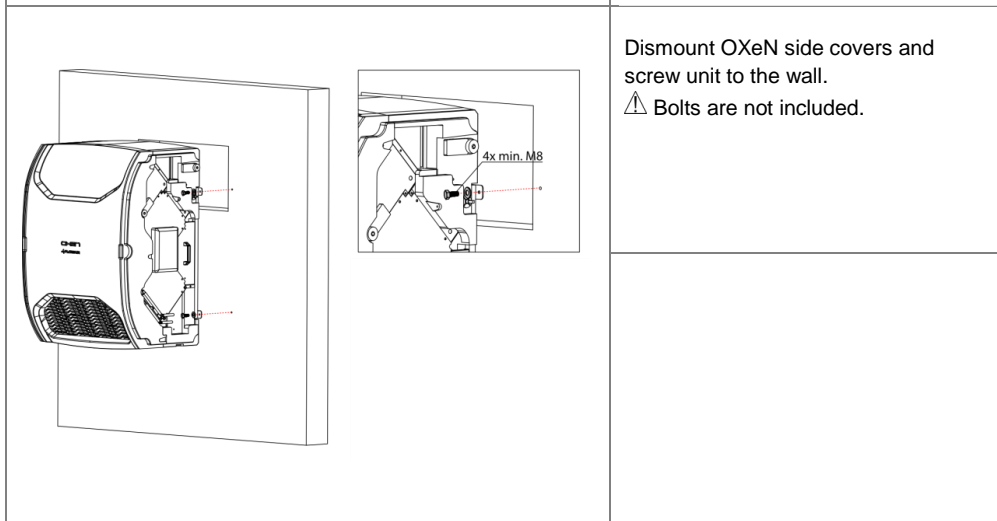
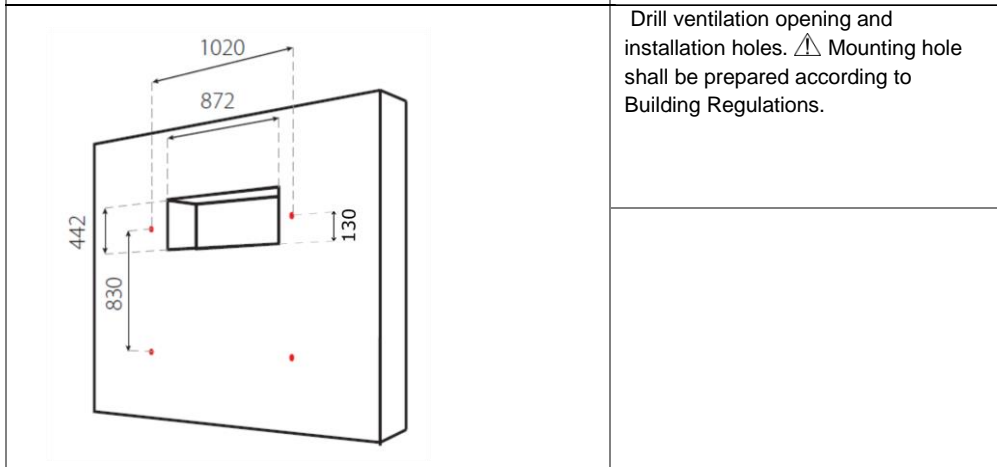
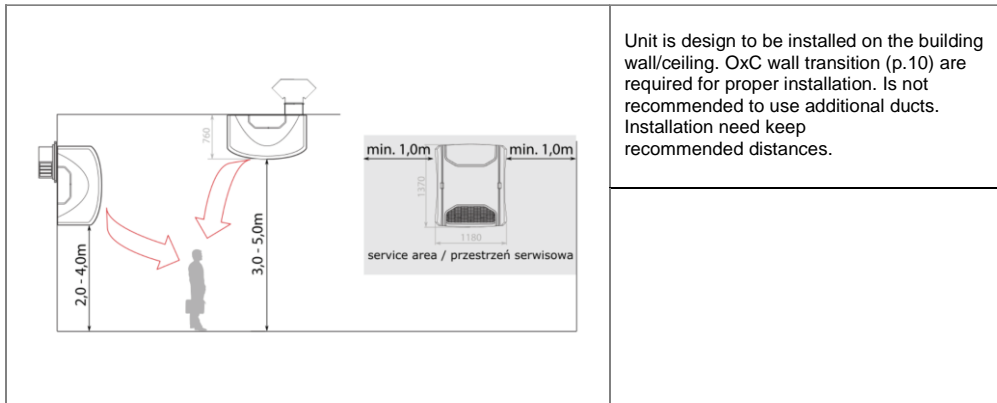
⁴ Horizontal range of isothermal stream, at velocity boundary equal to 0,2 m/s.

⁵ Acoustic pressure level measured in the room of average sound absorption, capacity 500m³, at distance of 5m from the unit.

⁶ Similar to RAL 9007

⁷ According to directive 2009/125/EC measured with balanced mass flow, an indoor-outdoor air temperature difference of 20K

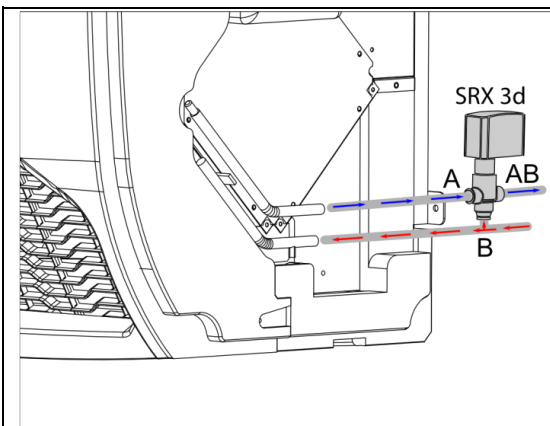
⁸ At max. air flow stream, inlet/outlet water temperature 80/60°C, inlet air temperature 5°C, air volume 1200 m³/h.



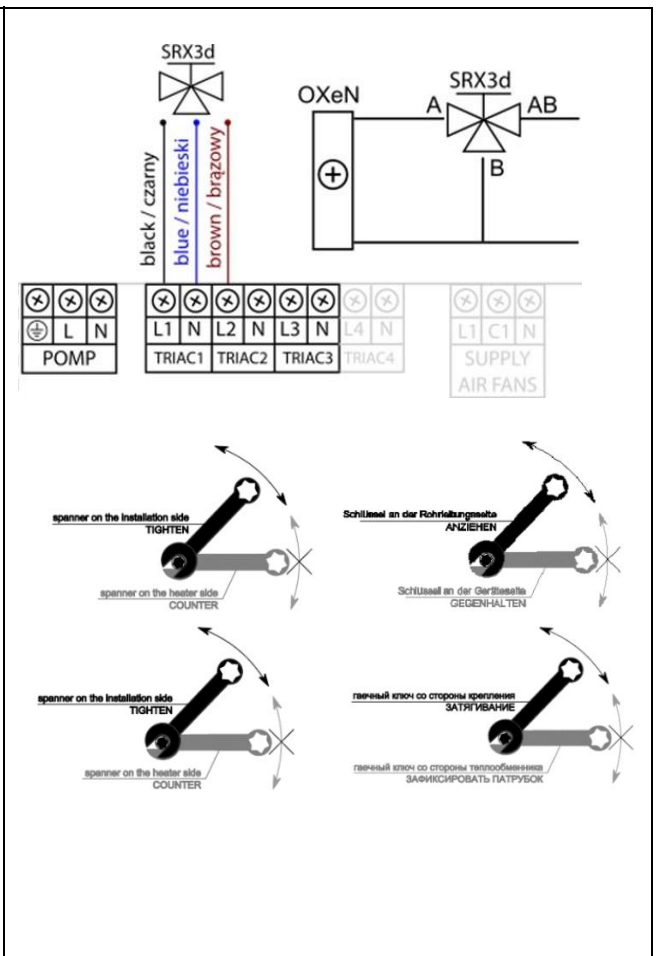
3.2. WATER CONNECTION

Regards OXeN X2-W-1.2-V/H.

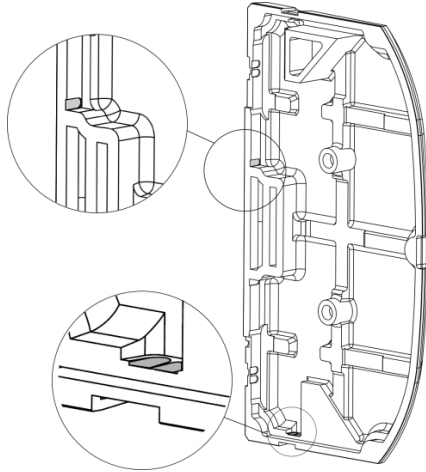
- The connection should be executed in a way which does not induce stresses.
- The system should be executed so that, in the case of a failure, it is possible to disassemble the device. For this purpose it is best to use shut-off valves just by the device.
- The system with the heating medium must be protected against an increase of the heating medium pressure above the permissible value (1.6 MPa)
- Before start up is recommended to check water connection and heating pipeline tightness
- While screwing exchanger to pipeline - connecting stubs must be hold by wrench.



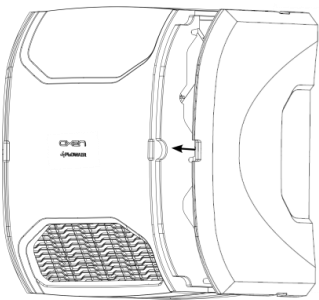
Index of protection				IP42
Supply voltage				230VAC
Max. medium temperature				120°C
Max. operating pressure				2,0 bar
Kvs				(A-AB) 1,6 (B-AB) 1,0
Connection				1/2"



3.3. SIDE COVER INSTALLATION

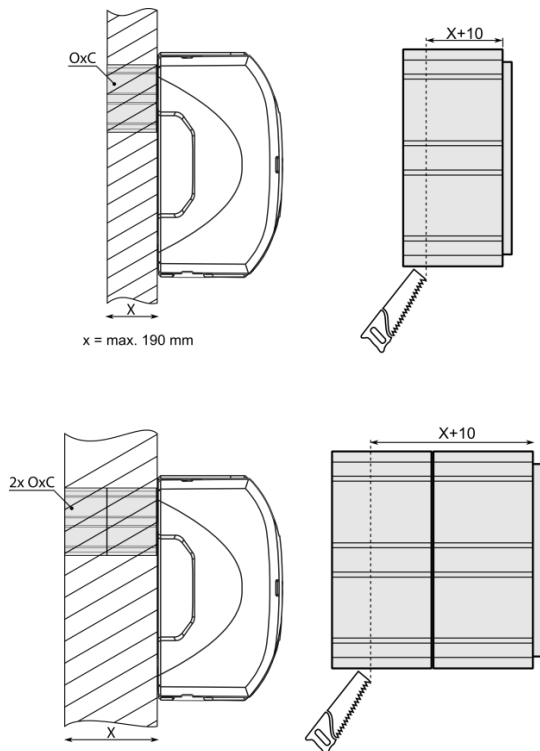


If needed cut out ways in side cover to pass pipelines or/and cables.



Put on the side cover.

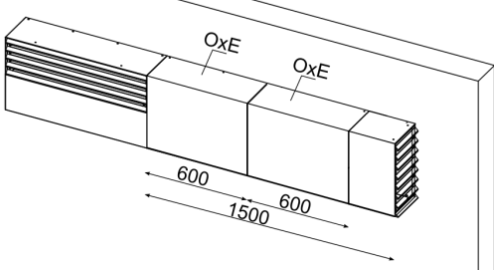
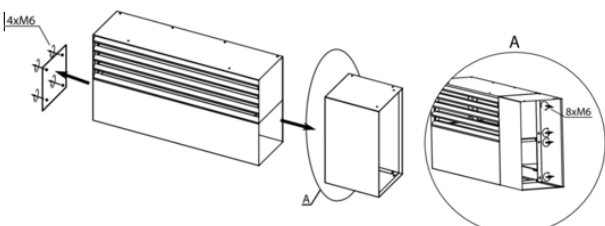
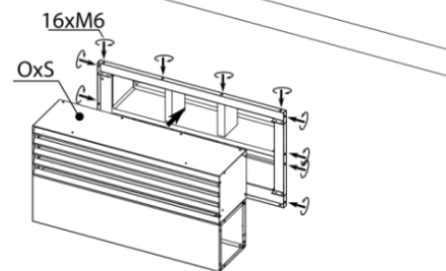
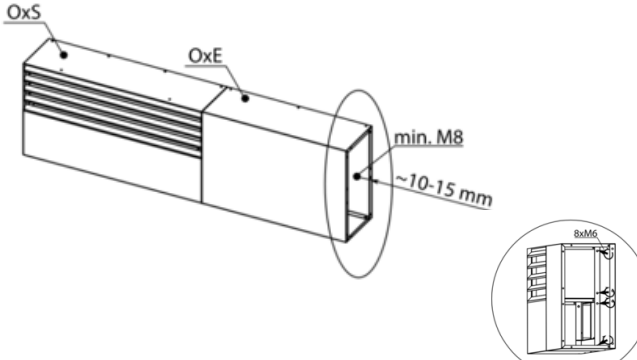
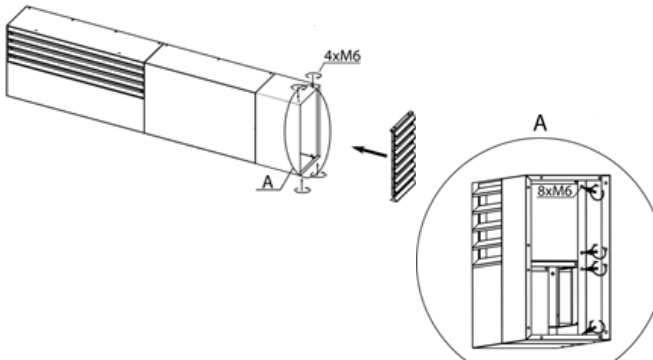
3.4. OXS INTAKE/EXHAUSTER INSTALLATION



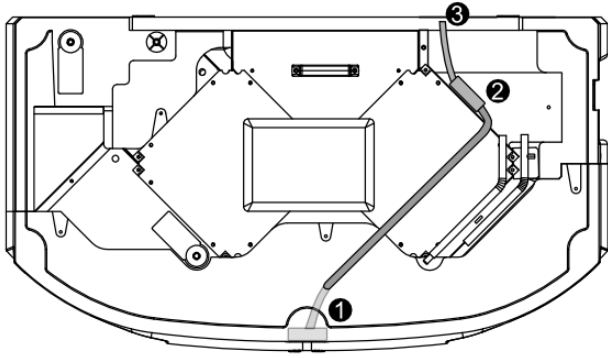
Prepare proper length of OxC transition. Max. wall thickness of 190 mm, with a greater wall thickness must be used several pieces OxC.

	<p>Install OxC transition (from outside) with OXeN and seal connection with low-expansion foam or silicone.</p>
	<p>Dismount installation frame and side grill.</p>
	<p>Screw frame and seal the connection with low-expansion foam or silicone.</p>
	<p>Install OXS to screwed frame.\ It is necessary to make tight connection between OXS & OxC (rys.B)</p>
	<p>Install side grill</p>

3.5. OXE EXPANDER INSTALLATION

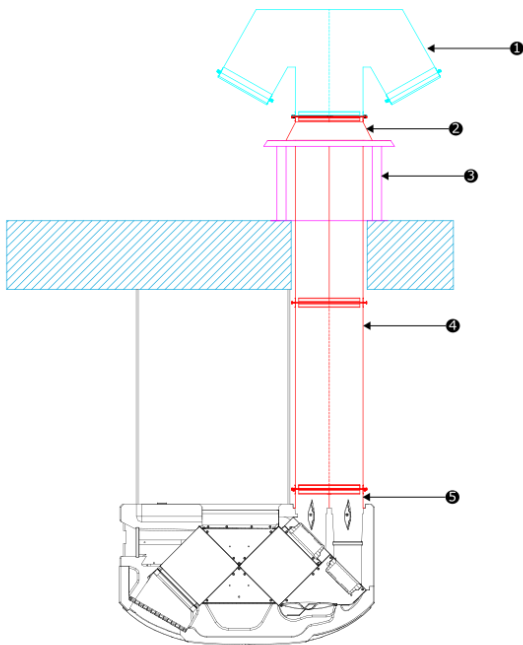
	<p>OxE – extension for OxS. It allows to dismiss air intake from air exhaust.</p>
	<p>Dismount side duct.</p>
	<p>OxS should be installed on the frame already.</p>
	<p>Install OxE expander. Max. number of OxE expanders is 4 pcs.</p>
	<p>Reinstall side duct and grill.</p>

3.6. HORIZONTAL INSTALLATION

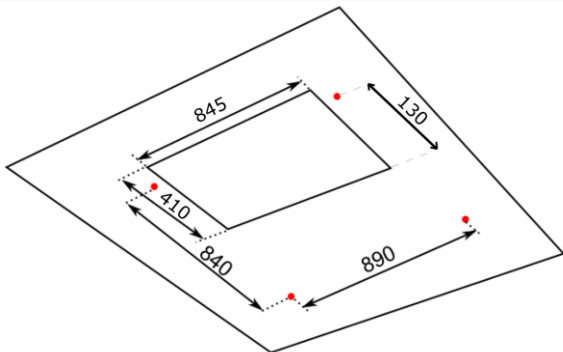


During ventilation and heat recovery process condensate can appear, condensate pump remove it automatically by outlet on the top side of unit.

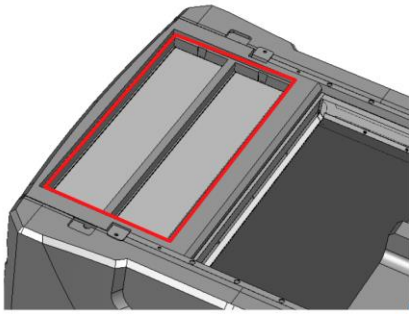
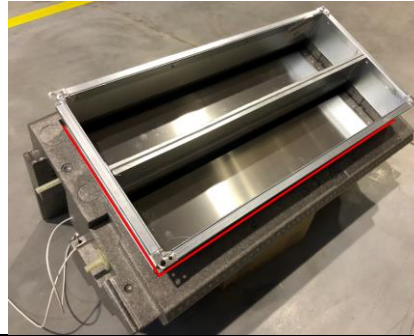
- ❶ sensor
- ❷ condensate pump
- ❸ connecting tube Ø9mm



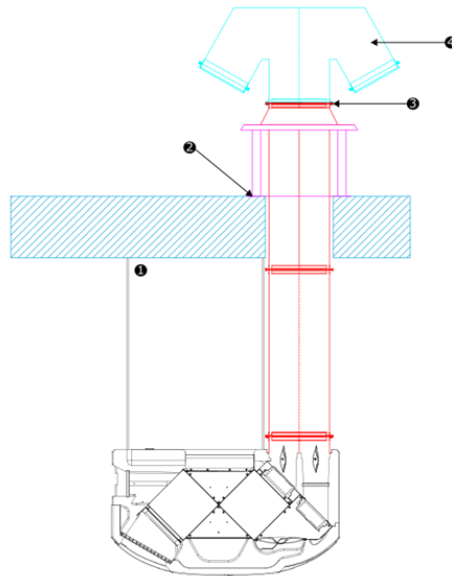
- ❶ OxS-H- roof-mounted air inlet/outlet
- ❷ OxPD-H- Roof base
- ❸ OxCB-H- Insulated plinth
- ❹ OxE-H- Extension duct (optional)
- ❺ OxC2-H- Adaptor



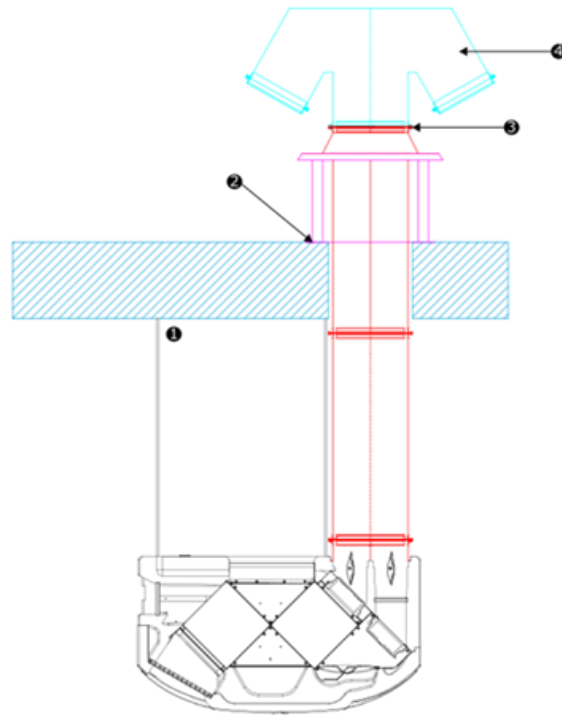
Drill ventilation opening and installation holes.
Mounting hole shall be prepared according to Building Regulations.

1**2**

- 1** Insert the OxC2-H adapter into the EPP casing on the top of the OXEN device. Niche at the dampers.
2 Seal the connection between OXC2-H and OXEN with the roofing sealant around the perimeter.



- 1** Install unit under the ceiling using mounting pins, min. Ø8 mm
2 Install OxCB-H to the roof and seal connection
3 Install OxPD-H to OxCB-H using sheet metal roofing screws (every 150 mm, avoid fixing on the corner of the base), seal the contact area from the bottom with polymer roof sealant, then install OxE-H (optional).
 ⚠ Oxen can't carry the load of OxH
 ⚠ The device must be horizontally levelled.

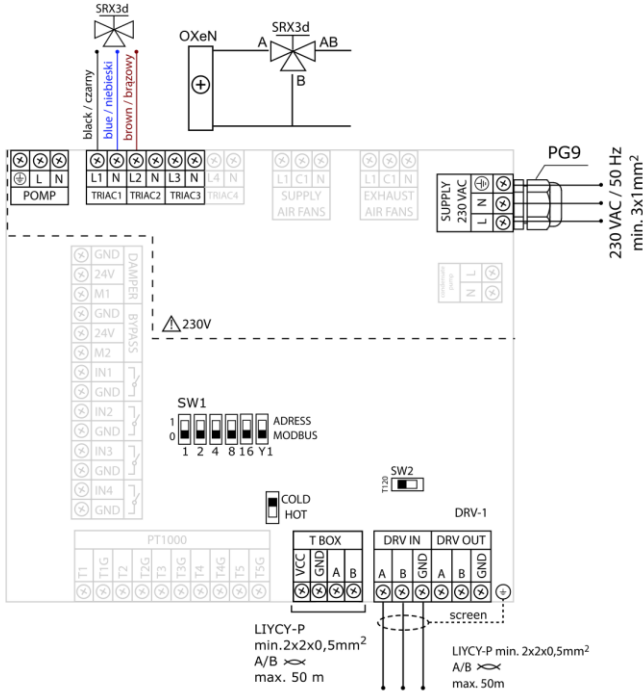


④ On the cleaned and degreased frame OxPD-H carefully stick the gasket PES-15x4 in such a way that it is continuous along its entire length, lead the gasket from the inside of the duct. Then put OxS-H on the gasket a way from above and align the mounting frames with each other. Be careful not to tear or fold the gasket, as this may lead to leaks. Using M10x30 mounting bolts, enlarged washers and nuts, screw the mounting frames together in the corners until the corner tips are joined together. Apply a polymer sealant in the gap between the metal frames. Then fasten the frames with clamps. Place the clamps symmetrically along the entire length every 150 mm. After tightening the clamps, tighten the M10 screws located in the corners. Spread the excess of the sealant evenly in such a way that it completely fills the place of contact between the frames. For sealing, use a silicone-free polymer sealant, suitable for galvanized sheet metal. Using the wrong sealant can cause leakage.

4. CONTROL SYSTEM

Single unit connection.

X2-W-1.2-V / X2-W-1.2-H / X2-N-1.2-V / X2-N-1.2-H



Wires size and type should be chosen by the designer.



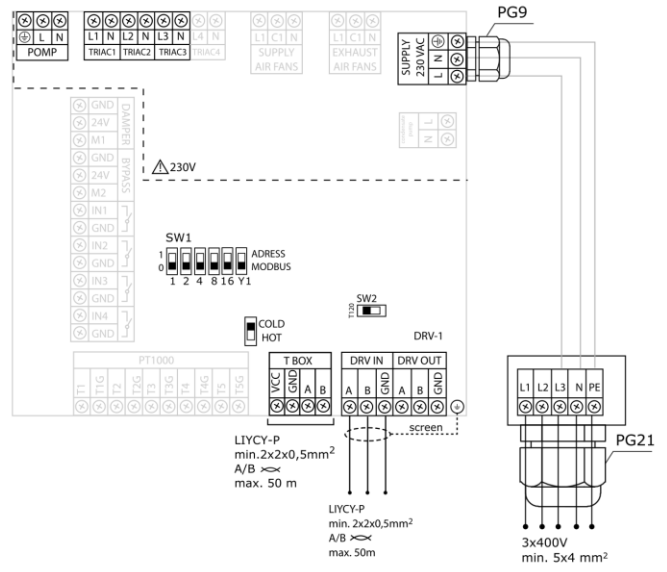
COLD – OXeN X2-N-1.2-V/H
(w/o additional air heater)
HOT – OXeN X2-W-1.2-V/H
(with additional heater)



Set unit address. Each unit must have unique number. Example:

Address	Dipswitch SW1					
	1	2	4	8	16	Y1
1	1	0	0	0	0	0
2	0	1	0	0	0	0
6	0	1	1	0	0	0
31	1	1	1	1	1	1
	1	2	4	8	16	

X2-E-1.2-V



Wires size and type should be chosen by the designer.



COLD – OXeN X2-N-1.2-V/H
(bez wymiennika wodnego)
HOT – OXeN X2-W-1.2-V/H
(z wymiennikiem wodnym)



Adres	Dipswitch SW1					
	1	2	4	8	16	Y1
1	1	0	0	0	0	0
2	0	1	0	0	0	0
6	0	1	1	0	0	0
31	1	1	1	1	1	1
	1	2	4	8	16	



COLD - OXeN X2-N-1.2-V/H
(zonder extra luchtverwarmingselement)
HOT - OXeN X2-W-1.2-V/H
(met extra verwarmingselement)



Adres	Dipswitch SW1					
	1	2	4	8	16	Y1
1	1	0	0	0	0	0
2	0	1	0	0	0	0
6	0	1	1	0	0	0
31	1	1	1	1	1	1
	1	2	4	8	16	

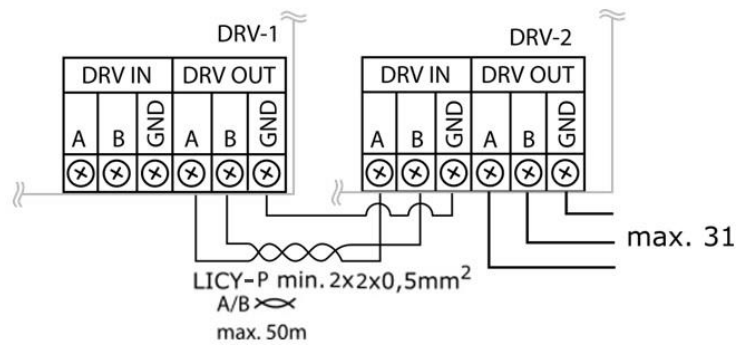


COLD – OXeN X2-N-1.2-V/H
(без водяного теплообменника)
HOT – OXeN X2-W-1.2-V/H
(с водяным теплообменником)



Настроить адрес аппарата. Для каждого аппарата следует установить новый адрес. Пример:

Адрес	Переключатель SW1					
	1	2	4	8	16	Y1
1	1	0	0	0	0	0
2	0	1	0	0	0	0
6	0	1	1	0	0	0
31	1	1	1	1	1	1
	1	2	4	8	16	



Several OXeN units controlled via single T-box controller.

Connection units among themselves ensure forwarding controlling signals. However, each unit should be supplied with power separately.

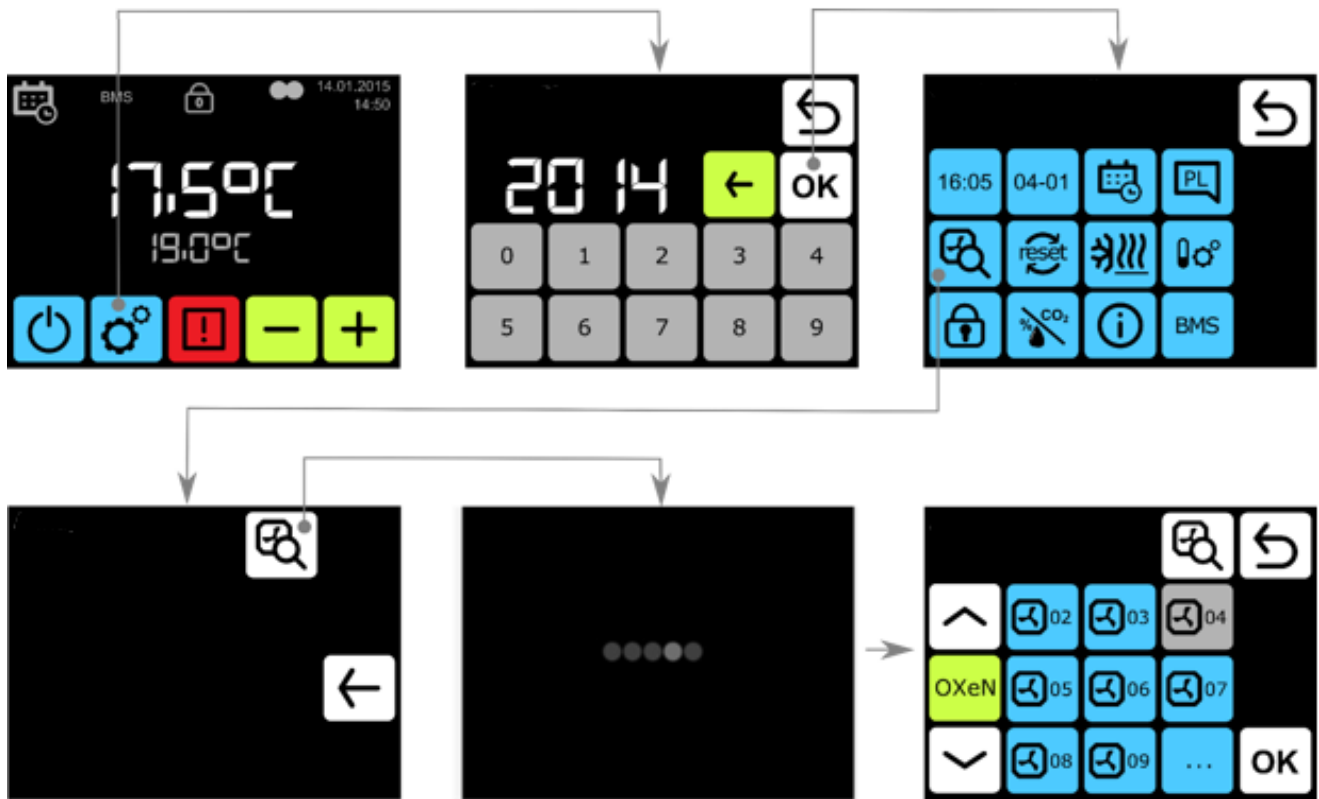
In case of chaining OXeN's (max. 31) - last unit in line should has SW2 dipswitch in position T120. If controlling only 1 OXeN SW2 dipswitch also has to be in T120 position.

Recommended wires*:

OXeN → OXeN min. – LIYCY 2x2x0,5mm²,
twisted pair A and B, max 50 m.

* Wires size should be chosen by the designer

Tbox controlling touch panel shows founded OXeN units. While start up run search procedure.

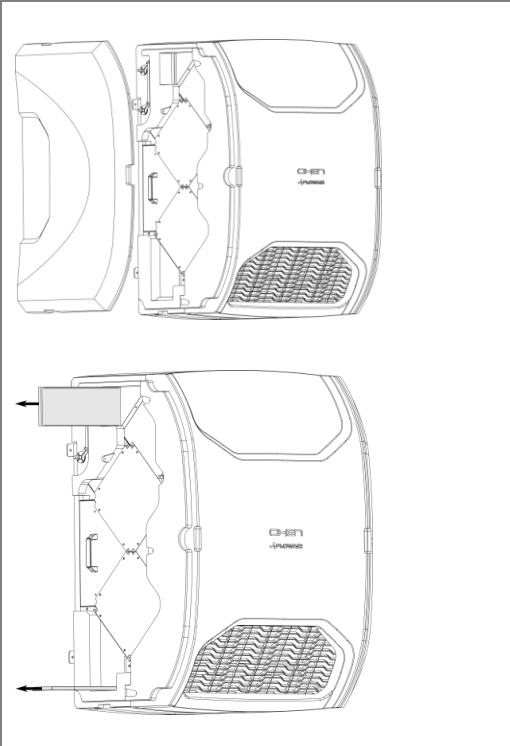


- Before connecting the power supply check the correctness of connection of the fan motor and the controllers. These connections should be executed in accordance with their technical documentation..
- Before connecting the power supply check whether the mains voltage is in accordance with the voltage on the unit data plate.
- The electrical system supplying the fan motor should be additionally protected with a circuit breaker against the effects of a possible short-circuit in the system.
- Starting the device without connecting the ground conductor is forbidden.
- Minimal diameter of power supply wires is 1,5mm², final decision make electrical designer which suit diameter to given conditions. Wires should be finished with wire end sleeve.

5. OPERATION

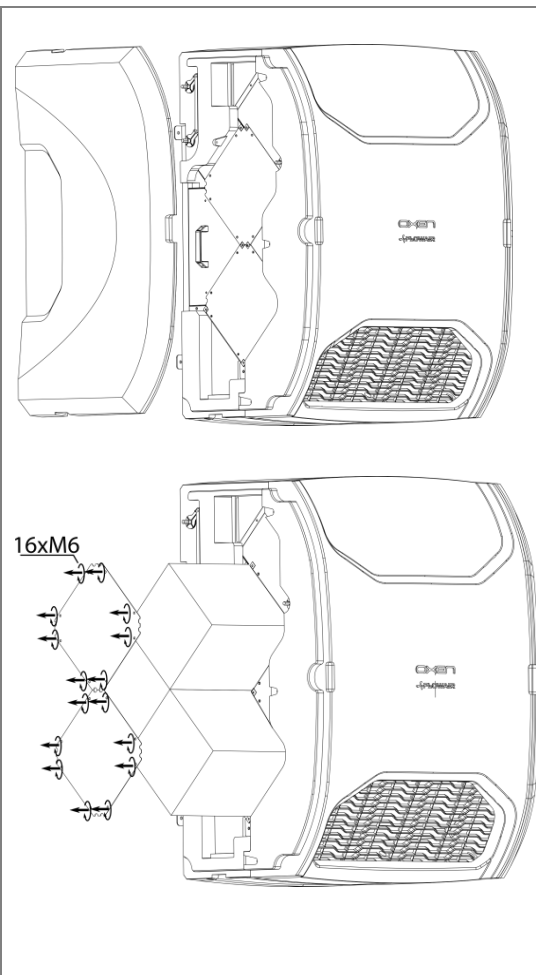
- It is forbidden to place any objects on the unit.
- It is not allowed to make any modification in the unit. Any modification causes in warranty loss
- In the case of incorrect operation of the device it should be switched off immediately.
- **To ensure proper operation unit should be inspected periodically (six months), during inspection is needed to clean heat recovery exchangers. Filters need to be replaced according to the needs.**
- For the time of performing inspection or cleaning unit, power supply should be disconnected. .
- Casing can be cleaned with water and mild detergents.
- **The manufacturer bears no responsibility for damage of the water heat exchanger resulting from freezing of the medium in the exchanger. To protect water heater against freezing it is recommended to use glycol solution as a heating medium.**

5.1. FILTERS REPLACEMENT



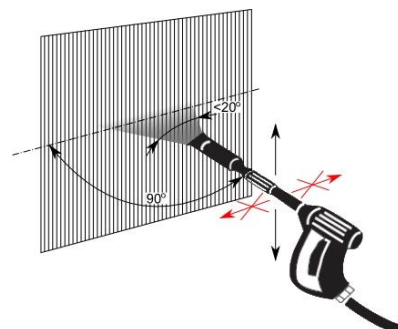
The condition of filter is controlled by pressure transducer. When the filters are too heavily soiled, an alarm is displayed on the T-box controller screen. In this case, replace the filters is necessary.

5.2. HEAT RECOVERY EXCHANGE CLEANING



Heat recovery exchanger should be cleaned with pressured air along lamellas.

Be careful not to damage the aluminium lamellas.



6. SERVICE AND WARRANTY TERMS

Please contact your dealer in order to get acquainted with the warranty terms and its limitation.

In the case of any irregularities in the device operation, please contact the manufacturer's service department.

The manufacturer bears no responsibility for operating the device in a manner inconsistent with its purpose, by persons not authorised for this, and for damage resulting from this!

7. CONFORMITY WITH WEEE DIRECTIVE 2012/19/UE

Running a business without harming the environment and observing the rules of proper handling of waste electrical and electronic equipment is a priority for FLOWAIR.



The symbol of the crossed out wheeled bin placed on the equipment, packaging or documents attached means that the product must not be disposed of with other wastes. It is the responsibility of the user to hand the used equipment to a designated collection point for proper processing. The symbol means at the same time that the equipment was placed on the market after August 13, 2005.

For information on the collection system of waste electrical and electronic equipment, please contact the distributor.

REMEMBER:

Do not dispose of used equipment together with other waste! There are financial penalties for this. Proper handling of used equipment prevents potential negative consequences for the environment and human health. At the same time, we save the Earth's natural resources, reusing resources obtained from the processing of equipment.

Declaration Of Conformity

FLOWAIR hereby confirms that heat recovery units OXeN:

typ / type: X2-W-1.2-H, X2-N-1.2-H, X2-W-1.2-V, X2-N-1.2-V, X2-E-1,2-V

with control system and T-box controller were produced in accordance to the following European Directives:

1. **2014/30/WE** – Electromagnetic Compatibility (EMC),
2. **2006/42/WE** – Machinery,
3. **2014/35/WE** – Low Voltage Electrical Equipment (LVD),
4. **2009/125/WE** – Energy-related products

and harmonized norms, with above directives:

PN-EN ISO 12100:2012

Safety Of Machinery - General Principles For Design - Risk Assessment And Risk Reduction

PN-EN 60204-1:2010

Safety of machinery – Electrical equipment of machines – Part 1: General requirements

PN-EN 61000-6-2:2008

Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments

PN-EN 60335-2-40:2004/A2:2009E

Household and similar electrical appliances - Safety - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers

PN-EN 60730-2-9:2011

Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls

Gdynia, 01.12.2021r.
Filip Konieczny
Product Manager

Filip Konieczny