

counterflow heat exchangers

**OPERATIONAL AND INSTALATION
MANUAL**

CLEANING MANUAL

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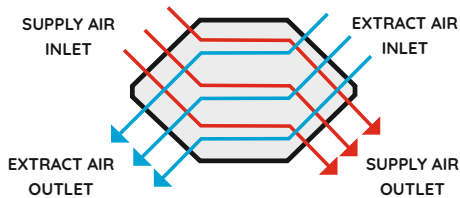
Horní Kostelec 284
Červený Kostelec
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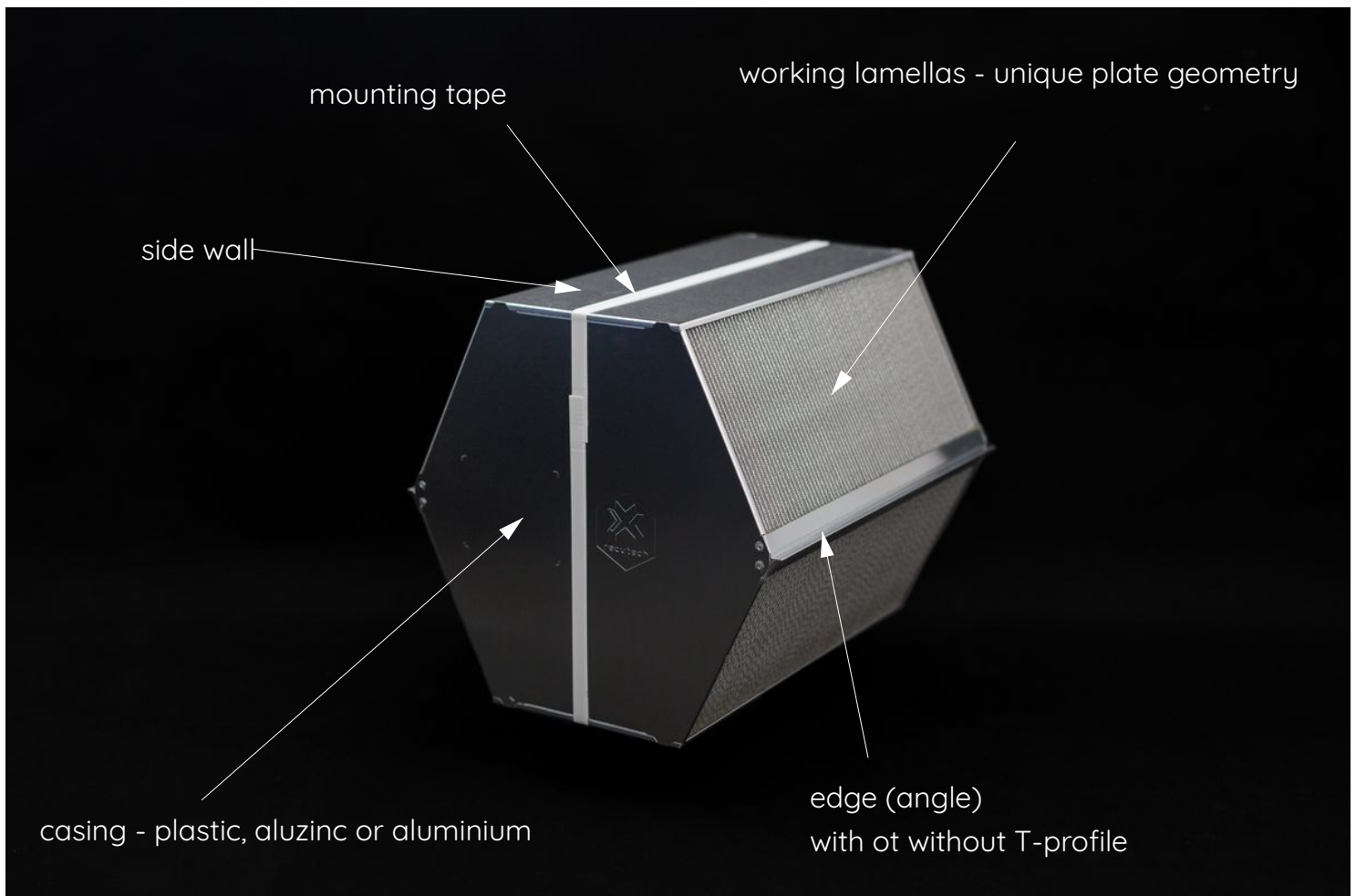
DESCRIPTION

The air-to-air plate exchanger is utilized in heat recovery units heat from exhaust air. The recovered heat is redirected back into the space, contributing significantly to reducing energy consumption.

The efficiency of the exchanger depends on the external temperature and the specific type of exchanger



The working principle of a counterflow plate heat exchanger is straightforward. Within the exchanger core, two air streams flow along adjacent lamellas in opposite, crosswise directions, as illustrated beside



GENERAL GUIDELINES

- > Avoid direct UV rays.
- > Avoid exposing the product to aggressive environments: acids, abrasives, etc.
- > Avoid exposure to high temperatures and fire.
- > Avoid heavy mechanical impacts on the product.
- > Do not apply force or mechanical stress to the core plates.
- > Do not toss or drop the product.
- > Do not twist or crush the product.
- > To remove/mount and move the product, carefully use the mounting tape.
- > Do not use any lubricants during installation/dismantling of the product.

OPERATING CONDITIONS:

Operating Temperature [°C]: -25 to +50*

Maximum Pressure Drop [Pa]: 300

Relative Humidity [%]: 0 to 100

Maximum Recommended Flow Rate [m/s]: 3*

Your heat recovery unit must be equipped with protection against the exchanger freezing.

STORAGE GUIDELINES:

Storage temperature should be between 5°C and 25°C.

Avoid exposure to direct UV rays. Store in a dry, dust-free environment.

Maintain a minimum distance of 1 meter from any heat source.

Do not store near solvents or chemicals that may react with the product.

Do not place other pallets or objects on top of the box, as the products are not designed to withstand mechanical stress.

Ensure the products and packaging are securely fastened when moving.

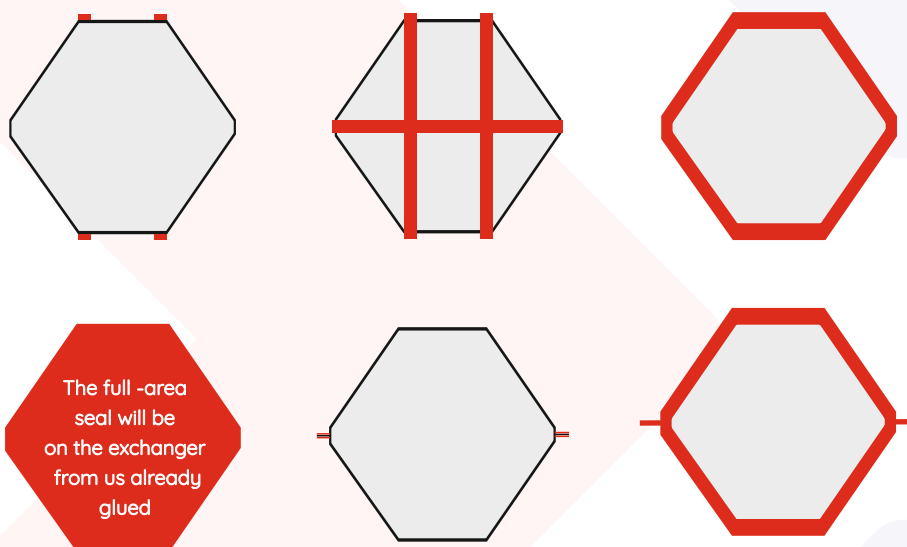
Unpack the product carefully to avoid damage.

Do not tilt or store the pallet with heat exchangers more than 5° from the vertical axis.

SPECIAL MODIFICATION AND SEALING TAPES

Individual ventilation equipment manufacturers adjust the exchangers and seal with sealing tapes. The sealing tapes have either a sealing function on the exchangers or as a drip edge. If the heat exchanger has a sealing tape glued in your device, you will get it attached in the shipment.

POSSIBLE POSITION OF SEALING TAPE



HOW TO STICK THE SEALING TAPE?

Sticking the tape to your new enthalpy heat exchanger is primitive.

Proceed as follow:

- > Prepare the sealing tape, scissors, ruler, marker and knife.
- > First measure the position of the sealing tape on your original (non enthalpy) exchanger.
- > Then measure the exact location on the new enthalpy heat exchanger (you can draw the exact position with a marker).
- > Then take the sealing tape and stick the seal to the same position as the original non enthalpy exchanger according to the signs drawn.
- > You can bend the seals into mild arches.
- > Always end the seal into sharp angles with a knife and continue again with a close new piece.

EXAMPLE OF INSTALLING THE PRODUCT INTO A UNIT

this is a general installation guide.

However, always follow the manufacturer's instructions for your particular ventilation unit.

- > Align the heat exchanger with the mounting surface and carefully push it straight into the unit.
- > Ensure there are no obstructions inside the unit that could interfere with the installation (e.g., resistance from internal components, damage, or unusual noises).
- > Continue pushing the heat exchanger until it reaches its final position. Visually inspect the heat exchanger once installed to confirm a secure fit. Check for any looseness, potential unwanted vibrations during operation, or any mechanical damage to the stack or heat exchanger that may have occurred during installation.



- > If you are not sure about the installation of the heat exchanger, please contact a professional company.
- > If you have any problem during installation please contact a professional company

CLEANING

- > Please check properly filter cleanliness
- > If your filters are always clean, just clean the heat exchanger once a year
- > Use the mounting tape carefully when removing, installing, or moving the product.
- > Avoid twisting or compressing the exchanger
- > Avoid throwing or dropping the product.
- > Do not use sharp tools or hard brushes during cleaning, as they may damage the exchanger
- > Avoid using high-pressure washing for cleaning.
- > Do not use cleaning chemicals that are not specifically suited for this procedure.
- > Avoid using open flames or high temperatures when drying the product.
- > Avoid applying force or mechanical stress to the core plates.

CLEANING PROCEDURE

> You can use a vacuum cleaner with a soft brush attachment to remove dust, dirt, and other impurities. Adjust the suction power carefully to avoid causing mechanical damage to the core (plate stack), ensuring that dust and dirt are removed from all exposed surfaces in the working area (core, plate stack) mechanical damage to the stack or heat exchanger that may have occurred during installation.

If using a vacuum cleaner does not achieve the desired result, proceed to rinse the product with water by following the steps outlined below.



1. Place the product in a suitable container (basin, bathtub, shower tray, etc.).



2. Gently rinse the product under running clean water on all sides.
NOTE: Standard tap water pressure (0.3 – 6 bar; 0.03 – 0.6 Mpa) is recommended to avoid unintentional damage to the core.



3. For added effect, fill the container with water, dip the product in the water and with smooth reciprocating movements run the water through the core (plate stack) to remove any dust, dirt or other impurities.



4. Remove the product from the container.
It is allowed to dry the product planes with a dry cloth, except for the working space (stack of plates, core).



5. In the event that the membrane adheres during the cleaning procedure, allow the water to drain completely by alternately turning the product upside down.

Then use a domestic hair dryer of approx. 3000 W to blow through the core (working space) in coolingmode several times until you are sure that the membrane has stopped sticking.

6. Leave the product to dry in a well-ventilated room for 48 hours.
Before installing the product in the unit, make sure that there is no moisture left in it

PROVIDING FREEZE PROTECTION

Because the RECUBOX is equipped with a high-efficiency exchanger, depending on the air humidity, when the outside temperature drops below freezing, the condensate formed on the exchanger fins may freeze. This phenomenon results in increased pressure losses in the exchanger and reduced recovery efficiency and can permanently damage the heat recovery exchanger.

For proper function and protection of the RECUBOX at long-term temperatures below freezing, we recommend providing appropriate anti-freeze protection.

TYPES OF ANTI-FROST PROTECTION:

1./ Automatic or manual shutdown of recuperation

This protection ensures that the heat recovery is switched off for the time necessary to defrost the exchanger when the temperature at the exhaust air outlet drops below the set value - usually below 2 °C.

Protection can be implemented using a thermostat with a temperature sensor on a cable inserted through the neck at the waste heat outlet from the exchanger.

2./ Automatic or manual switching off of the fresh air supply fan

The protection switches off the supply of freezing fresh air when it detects a drop in the temperature at the exhaust air outlet below the set value - usually below 2 °C. The fan starts again when a higher set temperature is reached.

This protection is faster and more effective than switching off the unit. The fan on the warm exhaust air supply is still running when this protection is activated and quickly defrosts the entire exchanger. anti-freeze protection. When this protection is activated, there is a negative pressure in the entire house and it is necessary to take into account gas heaters and heat sources without their own air supply.

3./ Reducing the power of the fresh air supply fan

This protection works on the same principle as the anti-freeze protection in point 2./, but the fan is not completely stopped, but its power is continuously reduced.

4./ By mixing

This method is suitable if the unit is located in a heated, clean space. With this function, warm air from the unit's surroundings is sucked into the fresh air below freezing point using the 5th unit outlet with a throttle valve or a mixing box, to such an extent that the resulting air temperature is above 0°C. Such a product is, for example, MSK-AFP

5./ Preheating

The fresh air is preheated above freezing point using an electric heater, water exchanger or ground register.

6./ By opening the BY-PASS

Opening the by-pass will cause cold air to flow outside the exchanger until the warm exhaust air defrosts the exchanger.