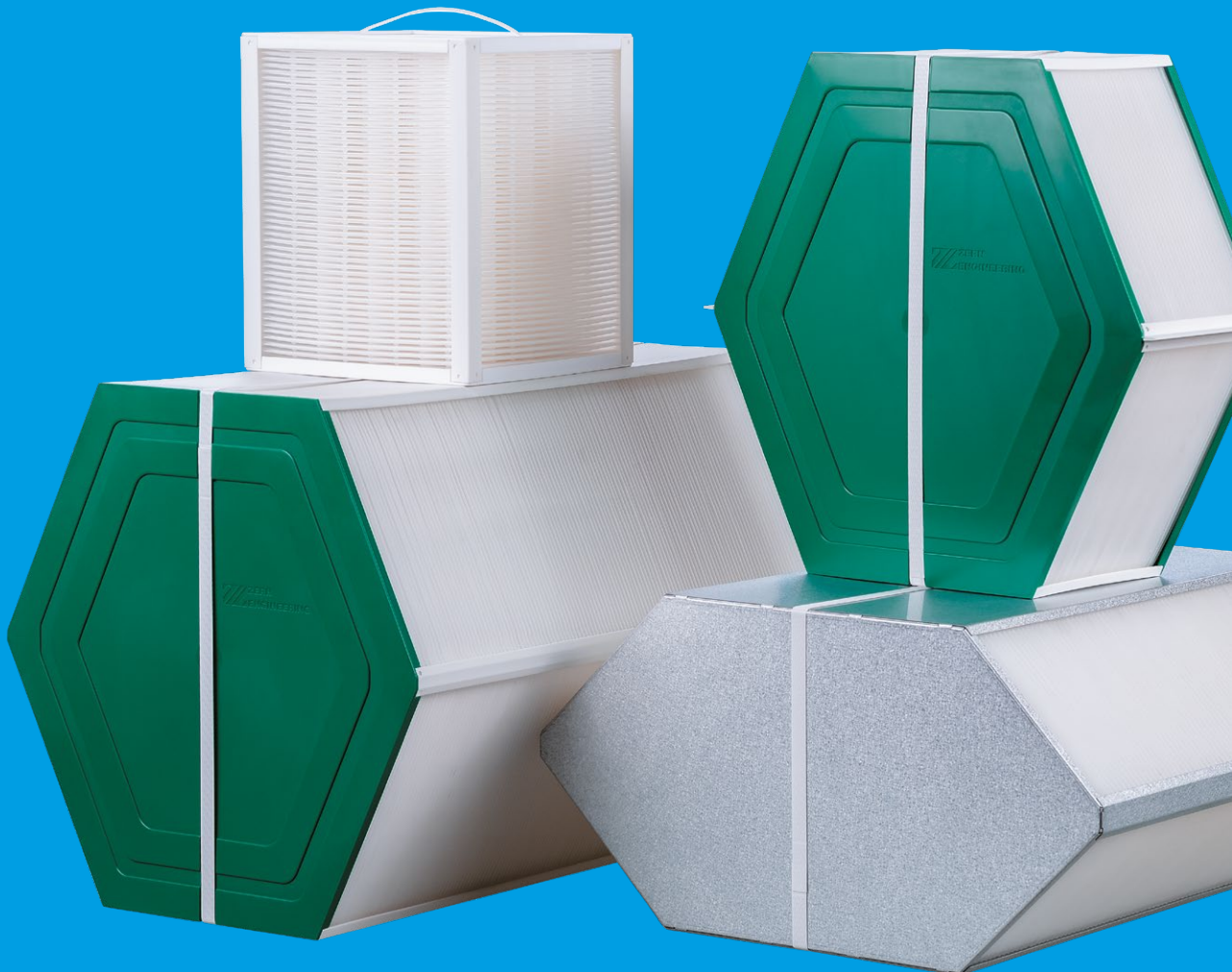


GUIDELINES

FOR CLEANING AND DISINFECTING
POLYSTYRENE PLATE HEAT EXCHANGERS



- This manual serves to prevent undesirable consequences which may arise if the recommendations for the procedure are not followed.
- Please read this manual before cleaning and disinfecting the product and follow the recommendations until the procedure is completed.
- This manual serves to prevent undesirable consequences which may arise if the recommendations for the procedure are not followed.
- This manual has been compiled with the utmost care and attention to all relevant standards.
- The manual cannot be subject to any legal claims.
- ZERN ENGINEERING reserves the right to change the contents of the manual, in part or in full, at any time without prior notice.
- ZERN ENGINEERING is not liable for any damage that may be caused to the product during cleaning and disinfection.

GENERAL RECOMMENDATIONS FOR CLEANING AND DISINFECTING THE PRODUCT



Carefully use mounting tape to remove/install and move the product.



Avoid heavy mechanical impact on the product.



Do not use lubricants when assembling and disassembling the product.



Do not use sharp tools or hard brushes during cleaning which may damage the core.



Do not twist or squeeze the product.



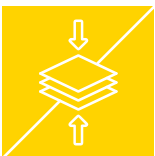
Do not use high-pressure washing for cleaning.



Do not throw or drop the product.



Do not use cleaning chemicals which are not suitable for this procedure.



Do not apply force or mechanical stress to the core plates.



Do not use open flames or high temperatures when drying the product.

INSTRUCTIONS FOR CLEANING THE PRODUCT

Procedure



The heat exchanger should be cleaned every 6 months as recommended by VDI6022. If the heat exchanger shows traces of dirt, dust or other unwanted inclusions on visual inspection, it can be cleaned more frequently.

You can use a vacuum cleaner with a soft brush nozzle to remove dust, dirt and other impurities. Reasonably adjust the draft of the product to avoid mechanical damage to the core (plate stack) and collect dust, dirt from all open plates of the working space (core, plate stack).

If blowing with a vacuum cleaner does not bring the desired result, rinse the product with water, following the steps 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: it is desirable to use a standard tap water pressure (0.3 – 6 bar; 0.03 – 0.6 MPa). When using high-pressure sprayers, mechanical damage to the core of the product is possible, which will lead to the loss of the product's working properties.



3. If rinsing with water does not provide the desired results, add the detergent in the proportions recommended by the manufacturer (ml of detergent to litres of water) to the container used.

Then rinse the product with this solution from the container and rinse under running water afterwards.





4. In case of more severe contamination, in addition to the steps in point 3, add a small amount of cleaner by spraying with a low pressure sprayer (spray gun) or with a measuring vessel on each open side of the working space (plate stack, core).

Then rinse the product with running water until the detergent is completely removed from the product.

NOTE: Household detergents that are suitable for cleaning plastic and do not react actively with it (dish-washing detergents, soap solutions and the like) can be used as cleansers.



5. Rinse the product under running water one more time and make sure that the product is completely clean from dirt, dust, other impurities (and detergent, if it was used).

6. If the product is still dirty, repeat steps 2-5 until it is completely clean.

NOTE: when cleaning the product from dust, dirt and other impurities, in addition to water, it is allowed to use soft brushes.

7. Remove the product from the container.

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



8. Turn the product upside down during the drying process to ensure that the water is completely drained from all plates.

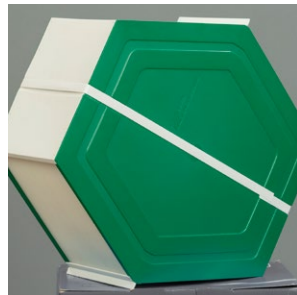
9. The product must be dried in a well-ventilated room for at least 24 hours.

Every 12 hours, turn the heat exchanger to the opposite side to better remove residual moisture.

Position the heat exchanger on the air duct side as shown in the photo.

To ensure constant moisture evaporation, raise one side of the heat exchanger 5-10 mm from the plane on which it is located.

Before installing the product in the unit, make sure that there is no moisture left in it.



INSTRUCTIONS FOR DISINFECTING THE PRODUCT

Safety precautions when working with peracetic acid

- Before starting the process of disinfecting the product, please read the safety precautions for working with peracetic acid below, as well as the manufacturer's label on the product packaging.
- Peracetic acid is a highly active and at the same time harmless agent.
- As a rule, when working with peracetic acid, there is no need for additional protection such as glasses, gloves and overalls. If you have any doubts about the use of protective clothing, check the label on the package, the specification of ingredients, or consult your doctor.
- Peracetic acid has oxidising properties, decomposes in a self-accelerating manner and is sensitive to heat and contamination. Therefore, proceed in accordance with the following recommendations for the transport and storage of the disinfectant:
 - the substance must be stored and transported at a temperature $< 30^{\circ}\text{C}$;
 - avoid contact of the acid with an open flame or heat source;
 - avoid exposure of acid to direct UV rays;
 - avoid contamination of the acid with other objects and substances;
 - do not mix acid with other chemical agents (acids, alkalis, cleaning agents, etc.);
 - do not pour the used acid back into the packaging.

Procedure



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: it is desirable to use a standard tap water pressure (0.3 – 6 bar; 0.03 – 0.6 MPa). When using high-pressure sprayers, mechanical damage to the core of the product is possible, which will lead to the loss of the product's working properties.



3. Apply the disinfectant using a low-pressure sprayer (spray gun) or measuring cup, to each open side of the work area (plate stack, core) and ensure that the disinfectant is distributed over the entire surface. Leave the product for a couple of minutes while the disinfectant will work.



4. Tilt the product before removing it from the container to remove disinfectant remnants. Then empty the container from the remnants of the disinfectant and rinse it with water.



5. Place the product back into the cleaned container and rinse the working space (plate stack, core) with running water from all open sides.



6. Prepare any convenient soap solution and apply it with a measuring cup to the workspace (plate stack, core) from all open sides.



7. Rinse the product with running water until the soapy solution is completely removed.



8. Remove the product from the container.

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

9. Turn the product upside down during the drying process to ensure that the water is completely drained from all plates.

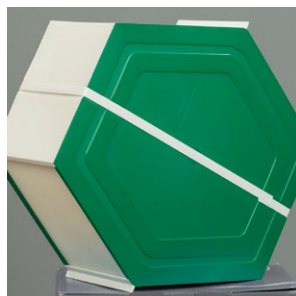
10. The product must be dried in a well-ventilated room for at least 24 hours.

Every 12 hours, turn the heat exchanger to the opposite side to better remove residual moisture.

Position the heat exchanger on the air duct side as shown in the photo.

To ensure constant moisture evaporation, raise one side of the heat exchanger 5-10 mm from the plane on which it is located.

Before installing the product in the unit, make sure that there is no moisture left in it.



Stäblistraße 6
81477 München

HQ Tel. +49 89 23166620
HQ Fax. +49 89 78069521

sales@zern-engineering.com
zern-engineering.com

The Company reserves the rights to modify any of its products' features, designs, components and specifications at any time and without notice to maintain the development and quality of manufactured goods.