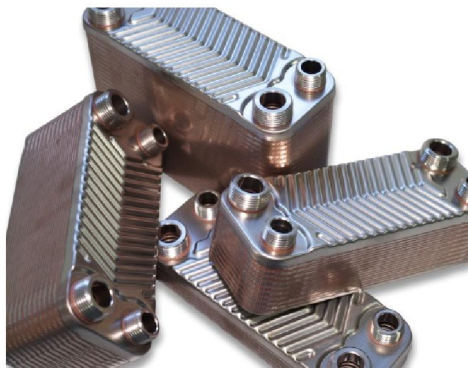


Operation Manual

Plateheatexchanger



Read and follow the operating instructions and safety information before using for the first time.

Technical changes reserved!

Due to further developments, illustrations, functioning steps and technical data can differ insignificantly.

Updating the documentation

If you have suggestions for improvement or have found any irregularities please contact us.

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Although WilTec Wildanger Technik GmbH has made every effort to make sure that this user manual is complete, accurate and updated, errors cannot always be avoided. In the event of problems with this user manual please complete and send this form back to us.

FAX-notification (+++49 2403 55592-15),

from: _____

Name: _____

Firm: _____

Tel/Fax: _____

I would like to report the following mistakes:

Customer Service WilTec Wildanger Technik GmbH

e-mail: service@WITec.info

Tel:++ +49 2403 55592-0

Introduction

Thank you for purchasing this quality product. **To minimize the risk of injury by means of fire or electric shock we urge that our clients take some basic safety precautions when using this device. Please read the operation instructions carefully and make sure you have understood its content.**

Always use a grounded power connection with the appropriate mains voltage. You can find the corresponding mains voltage on the type plate. If you have any doubts about the connection being grounded, have it checked by a qualified professional. Never use a faulty electric cable.

Do not inspect the electrical part of the pressure pond filter in a wet or damp environment or when you are wet yourself and protect it from direct sunlight. Install this device in a safe location so that nobody can step on the cable, fall over or damage it. Disconnect the power plug before cleaning it and use only a damp cloth for cleaning. Avoid using cleaning agents and make sure that no liquid enters the electrical part of the pump.

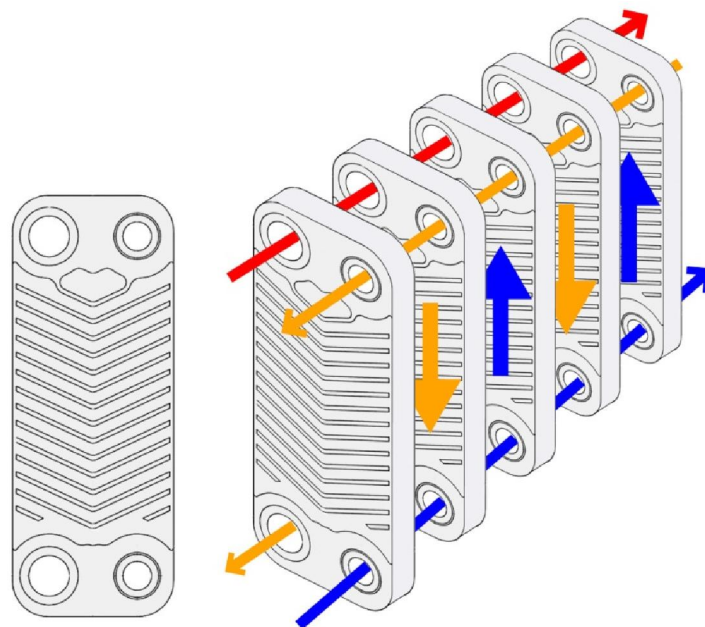
The electric part of the device contains no parts that can be inspected or serviced by the user. Leave the maintenance, adjustment and repair to qualified technical personnel. In case of unauthorised intervention the 2-year warranty is no longer valid! Keep these operation instructions safe.

A plate heat exchanger is a form of heat exchanger. Heat exchangers are also called heat carriers. The term is appropriate because during the process there is no heat exchange that takes place but a heat transfer from one medium to another one. As suggested by its name, the plate heat exchanger consists of wave-shaped panels that are assembled in a unique way. There are interspaces between the plates.

These interspaces are flown alternately by the heat-absorbing and the heat-dissipating medium. The device is sealed both towards the outside and beneath the mediums which is effected by different way. There are screwed plate heat exchangers disposing of a variety of advantages. They are expandable for example and conduct the flow in different ways.

As for the construction, there are different types of plate heat exchangers. It is the so-called soldered plate heat exchangers that are preferred being characterized by the fact that the different plates are soldered with each other. By this means you can renounce any other assembly. Plate heat exchangers work efficiently because they ensure a strong heat transfer which can even be increased by generating turbulences during the process of flow-through. The turbulent flow-through is effected by the corrugated profile of the plates. Albeit plate heat exchangers need not necessarily be large they are efficient by providing for a large heat flux density. Plate heat exchangers are components that dispose of a high power density. Thanks to compact dimensions and low weight they are highly efficient.

Soldered plate heat exchangers consist of embossed stainless steel plates being soldered with copper by the use of a vacuum procedure. When being assembled, each second plate is rotated by 180 degrees in the plane, thus forming two separately rotated flow chambers by the means of which the mediums being involved in the heat transfer are conducted in counter flow. The plates' embossing generates a highly turbulent flow-through thus providing for an effective heat transfer even in low volume flows. Due to said highly turbulent flow-through even at low speed, a self-cleaning process is caused which essentially reduces the danger of calcification and contamination.



It is not only used in the field of industrial heating technology but also in cooling and solar technology.

- CHP
- Air conditioning systems
- Heating pumps
- Floor heating
- Thermal power station
- Heat extraction
- Air heating
- Air conditioning in buildings
- Food industry
- Refrigeration and air-conditioning systems
- Heating domestic waters
- Heating supply networks
- Solar thermal systems
- Frost-endangered heating systems
- Heating of regenerative fuels
- Heat recovery systems
- Vegetable oil conversion for cars and trucks
- System division for underfloor heating
- Chemical and pharmaceutical production process
- Transfer stations in district heating supply network

Plate heat exchangers should be assembled in a way that there is sufficient space to perform maintenance.

The position for installation should be selected the way that the plate heat exchanger can be ventilated and emptied. The minimum distance for the mounting on the thermal insulation is 40 mm. As for heat-technical applications the vertical mounting position is most effective. Any other position for installation could lead to power loss.

Refrigeration applications such as evaporator or condenser systems always require vertical installation.

Never assemble the heat exchanger with the connections in a downwards position. The heat exchanger should be preventively mounted on a console. A support only on the ports is not sufficient. Make sure that there are no vibrations and/or pulsations affecting the heat exchanger.

If necessary, you install expansion joints to ensure that there are no forces acting directly on the ports.

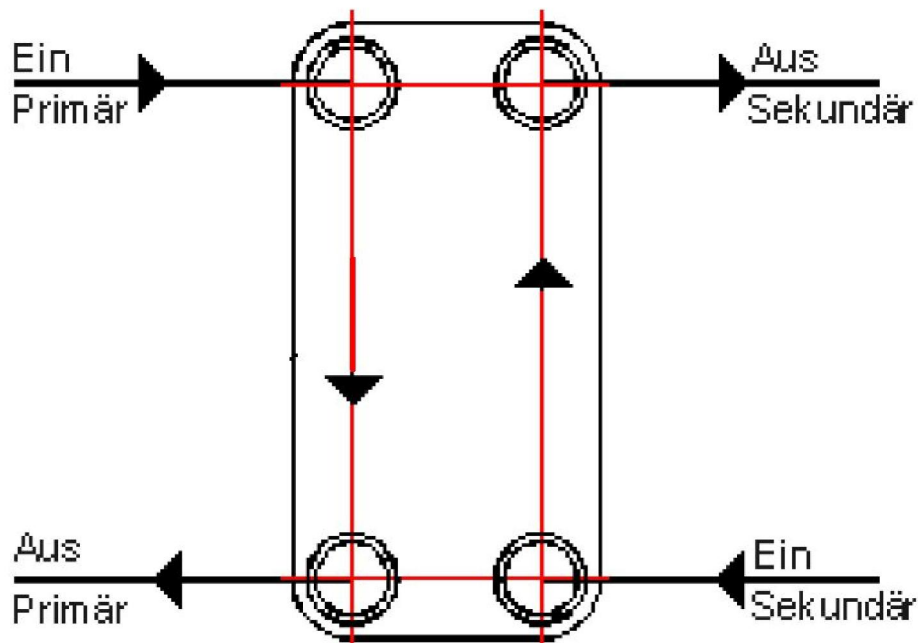
Connection to the pipe network:

A – Primary side heating technology: primary on / off

B – Primary side refrigeration: Refrigerant on / off

Heat exchangers are connected in reverse flow.

ATTENTION: Pipelines should be routed the way that movements inside the pipes or improper forces to not act on the plate heat exchanger!



ON

OFF

Primary

Secondary

OFF

ON

Primary

Secondary

Before commissioning it is necessary to compare the operating data with the manufacturer's indications with regard to their agreement. Moreover, all screw connections have to be checked. The pumps that are providing the plate heat exchanger must be equipped with shut-off valves. The pumps must not suck in air in order to exclude possible malfunctions caused by strokes of water. During the filling of the system, the plate heat exchanger has to be ventilated in order to achieve fully performance.

For prolonged deadlock of the system, the heat exchanger must be completely emptied and cleaned. This holds especially true for danger of frost, aggressive media and media tending to biological fouling. After start up you have to check that there are no pressure pulsations. In case the heat exchanger is mounted between a control valve and a differential pressure regulator it has to be ensured that in case of simultaneous closing of the two regulatory entities there is no vacuum pressure. This is to prevent any steam impacts.

Generally, it must be ensured that there are no operating conditions being in contradiction to this assembly – operation – and maintenance manual.

The formation of ice causes the destruction of the heat exchanger. At temperatures close to freezing point it is recommended to use antifreeze agents (e.g. glycol).

There are many different factors that may influence the fouling and contamination. These are for example: speed, temperature, turbulences, distribution and the quality of water. As for the use of media which may be contaminated such as for example surface waters, cooling circulation water (open circulation),



heating water and the like it is advisable to install filters on the plate heat exchanger thus minimizing the danger of contamination.

The media have to be effected with a maximum of mass flow. Low mass flows (partial load) the turbulence inside the heat exchanger can be affected thus increasing the tendency for contamination.

ATTENTION! Poor water quality causes an increased susceptibility to corrosion!

With temperatures above 60°C there can be lime sediments on the heat exchanger's surface. A turbulent flow-through and lower temperatures reduce the risk of calcification.

During the process of shutdown it must be ensured that first the primary side and thereafter the secondary side is closed. When starting the system it is the secondary side first to be opened and then the secondary one.

By this means overheating of the heat exchanger is excluded.

ATTENTION: The regular maintenance as well as the compliance with all regulations concerning the water quality reduces the risk of fouling. Fouling increases the susceptibility of corrosion.

In case you expect the formation of sediments due to poor water quality (e.g. extensive values of hardness or high contamination) there should be a purification at regular intervals. There is the possibility of cleaning by flushing.

The heat exchanger is to be flushed against the normal direction of flow with a suitable cleaning solution.