RAUCELL PLATE HEAT EXCHANGERS, THE USE AND SERVICING

RauCell Plate Heat Exchangers are newest plate heat exchanger technology.

The heat exchangers have of all parts (primary/ secondary circuits and surfaces) been manufactured by welding using materials equal to the plate materials (AISI 316L, EN 1.4539). The construction does not include any brazings, gaskets or pressed joints.
The material label and allowed conditions of use (pressure/ temperature) are marked on the end cup of the heat exchanger.

All the heat exchanger units are checked in connection with the manufacture in respect to the internal and external leaks by using the helium leak test.

The corrosion endurance of the heat exchangers is nearly equal with the base material.
Conditions of use difficult for the heat exchangers (thus to be avoided if possible) are for example:

- Heating up of the untreated domestic water over 100 ºC, which accelerates the corrosion induced by the chlorides. The automatics and the other components shall function in a way in which the named situation does not appear inside the heat exchanger in normal or deviating conditionsas servicing or repairing of the system.
- Boiling of the water (or some other corroding material) inside the heat exchanger. This situation can occur due to the too low a pressure (note also situations of the maintenance and repair). Inside the heat exchanger accumulates hard calcium and equal formations, under which can occur corrosion induced by chlorine ions.
- The progressive effect of the previous situations is emphasized by the strong pressure blows (water-blows), which can origin from the quick closing and opening of the valves. If possible the valve components should be of slow function type, and their opening and closing in such order that preriodic overheating inside the heat exchanger can be avoided.
- Freezing of the water (or repeated freezing) inside the heat exchanger can cause internal breach.

THE CLEANING

The cleaning of the heat exchangers is done by flushing with water, washing using different types washing mediums or solvents or by pickling. The heat exchanger has smooth, grooved surfaces, which do not willingly collect dirt and their self-cleaning in a flow is good.

The washing substances including chlorine shall not be used.

By using flushing often can accumulations of organic dirt be cleaned.

When needed the sodiumhydrokside (NaOH) water solution wash can be used in order to remove organic dirt. Extra flush connections of the heat exchanger are useful and practical when flushing or washing.

When untreated domestic waters or washing liquids are heated up by using steam, it is recommended to clean the water circuit or washing liquid circuit occasionally by washing.
Blocking the spaces between the plates can cause overheating and premature corrosion**.**

The heat exchanger can be pickled when an especially effective cleaning is needed (mostly in case of the calcium and salts accumulations) or for other reasons as hygiene, by using 10 - 20 % nitric acid. Pickling can be done either by flooding or by filling the circuit in question with the pickling fluid. The temperature of the fluid can be 20 - 30 ºC and the durance of the pickling a. 45 min. In case of the complete blocking with calcium and salts is the keeping time 3 - 4 hours.
Observe: when handling the nitric acid the special care is needed. Especially the splashes are to be cared because the acid reacts with the dirt by forming gas.