1. Use in calorifier product specification

External HEX Flyers.pdf

High Capacity Water Heaters: the best solution for industries, hospitals and hotels

These water heaters save up to 95% space
Similarly, the energy saving increased up to 25%
The maintenance requirement is up to 80% less
These water heaters can be installed with ease
These are controlled by a microprocessor control

Lime scale formation covers heat exchanger

Lime scaling rapidly decreases the efficiency and performance of conventional water heaters. Lime scale is build up inside the heat exchanger. Acting as an undesired thermal insulation, lime scale of even 0.5mm can reduce the heat transfer efficiency.

More lime scale = more primary energy

Heat transfer rate reduction of 62% means that it consumes more 62% of primary energy (gas, oil etc.), which is a notable waste of both, energy and money.

Shell & tube heat exchanger with turbulator rods helpful in scaling reduction

High capacity water heaters after a year operational: almost no lime scale.
Tube heat exchanger after a year of operation: entirely calcified.
Plate heat exchanger after half year of operation: a large part of the paths are calcified – intensive cleaning is required.

External cold water flushing controls scaling in the heat exchanger

An internal cold water flushing in the high capacity water heaters is automatically activated by the microprocessor control. An extra external cold water flushing migh be required for water with a hardness from 13 dH to 23 dH. The heat exchanger becomes hot when the operation in the system stops after loading the storage tank (at 60ºC). The storage tank's two motorized valves are automatically closed and the two motorized valves at the extra cold water connect are opened. The cold water flushes the heat exchanger to cool it down to 0ºC. This process reduces scaling build up.

Applications
- Industry
- Apartmentbuildings
- Hotels
- Hospitals

Possible primary energies
- Heat pump
- Solar thermal

- Gas boiler
- Oil boiler

Shell & tube heat exchanger with turbulator rods enables space saving in the boiler room

Customers can get the most superior heat exchanger, which is this heat exchanger with free floating turbulator rods. This heat exchanger is an accumulative of all the perks of all other kinds of heat exchangers or heating coils.

High performance

This high capacity heat exchanger is not like conventional shell and tube heat exchangers. It contains free floating turbulator rods that reduce the heat exchanger size and increase the performance. In less than a second, the domestic hot water flow through the heat exchanger at high speed. In one pass, the cold water doesn't heat up from 10°C to 60°C.

Space saving = money saving

The shell and tube heat exchanger can continue to heat up 36,000 litres water and even more from 10ºC to 60°C within an hour. It eliminates the requirement of storing hot water in large storage tanks for the peak demand of a building. This way one can save 95% of the space in the plant room.

Purchasing a high capacity water heater is a beneficial decision in terms of saving money. It heats water from 10°C to 60°C in just one second.

Energy saving with smaller storage capacity and reduced lime scale

Energy saving because of smaller storage tanks
There is large surface area and often a poor insulation on the large storage tanks. This significantly increases the radiation losses.
75% less radiation losses**

Energy saving because of lime scale reduction
Heat transfer is reduced by 62% by only one 0.5mm of thick layer of scale. Scale builds up rapidly with plate heat exchangers and higher temperatures. Scale is reduced by the free-floating tubulator rods.

Internal HEX New.pdf

ECOTHERM High Capacity Water Heaters with internal spiral heating coil

High performance spiral heating coil : The spiral coil takes up the maximum heat exchange area in the cold water zone or in the required temperature zone, given to the design and horizontal installation.

Top performance

The spiral heating coil is made by a special production process, which involves deforming of the steel strips into a profile, welding and wounding in the form of a spiral. Production in mild steel and stainless steel is possible with this new production process, which also reduces the weight to half. This

new spiral heating coil allows to provide up to 1000 kW capacities in a 2000 litres tank.

Advantages of patented spiral heating coils

Heating coils

Conventional heat exchangers have reduced transfer rate, given to the mixing temperature zones from 10°C to 60°C. Heating coils during the heating process produce circulations in the storage tank and require extra primary energy. Thus, the available standby volume is only around 70% of the storage tank's capacity.

- Primary energy consumption is increased
- Effective volume and risk of legionella are reduced up to 30%
- Power consumption is reduced as well as poor heat layering is minimized
- Limited heat exchanger surfaces and installation options are reduced

Spiral heating coils

The spiral heating coil is usually installed horizontally at the storage tank's bottom. This coil is entirely in the cold water zone, moreover only in a single temperature zone. Complete heating of the storage tank is possible as it is installed directly above the tank bottom and the low height (13cm).

The special register construction ensures:
- High standby volume (97% of the tank capacity)
- Hygienic water
- High efficiency because of efficient heat transfer
- Optimized heat layering
- Primary energy savings

Typ EHSF-...-... stainless steel:
High Capacity Water Heater with High Performance Spiral Heating Coil

Design

Stainless steel duplex / V4A made storage water heater with flat heating coil mounted at the bottom of the tank, are provided in two different profile lengths and heights. The water heater makes available 100% storage volume. It features optimal performance and layering, improved hygiene, bath pickled, minimal maintenance. There is a flange DN 200 (and DN100 up 500 litre) at front for cleaning purpose or for mounting an extra heat exchanger or screw-in heating element. Heating element in the upper third is screwed-in by sleeve 6/4". There is also a sleeves ½" for thermometers and temperature sensors, hot water outlet at the center top as well as cold water connection at the front.

- 100% volume use
- Highly efficient heat exchanger
- Improved hygiene

Fiber-fleece insulation

Fiber-fleece along with PP outer sheathing RAL7037 is used for the storage tank insulation. There is an

aluminum closure strip and self-fixing sleeve caps. It allows rapid and convenient installation. Insulation thickness can be from 80 mm up to 1,000 liters and above 100 mm. This is completely recyclable and fire protected under class B2 (B1 upon request).

The fibre-fleece insulation solution provides great value for money. In comparison to standard foam insulation, the insulating polyester fibre-fleece minimizes the heat loss in the standby mode for up to 30%. Recycled PET bottles are used in the production of the material, and no chemical additives are used. This material is entirely recyclable. The insulation is flame retardant based on the DIN 4102-1 class B2, and is provided upon request in B1. The outer PP cover is easily transportable, food safe and resistant to impact.

The closure strip enables fast and convenient opening of the outer sheathing by only a single person. It simplifies and quickens the service and maintenance work. An optimal and reliable seal is provided by a newly developed covering rosettes for the connecting sleeves. The heat loss is prevented at the connection points with a tight and secure fit.

Individual design

According to the requirement, the sheathing can be printed individually. The visual enhancement is helpful for storage tanks in the visible interior or exterior.

High Capacity Hot Water Calorifiers.pdf

Model EHRE: High capacity water heater 100 - 1,000 kW for water / water operation

Description

• High quality, corrosion resistant SS 1.4571/Duplex is used for the production of pressure-resistant storage tank and external shell & tube heat exchanger. The systems are made according to the DVGW guidelines in order to reduce a Legionella infection risk at large-scale systems.
• The high performing heat exchanger, small storage capacity short storage time of the hot water enables optimum hygiene, minimum stand by losses and small space requirements of the compact system.
• Fibre-fleece insulation of storage tank with PP (RAL7037) outer sheathing, aluminum closure strips and self-fixing closure caps. It enables 80mm insulation up to 1,000 litres and 100mm above. This is entirely recyclable and fire protected under class B2 (B1 upon request)
• Shell & tube heat exchangers with free floating SS turbulator rods enables heat transfer and prevents liming and scaling through self-cleaning effect.
• Constant hot water temperature during charging and thus motorized three-way control valve can adjust primary flow for the hot water supply. Pre-wired and pre-assembled heat exchanger unit is available. We provide primary pump and control valve for flexible on-site assembly.
• Shell & tube heat exchanger features a microprocessor controlled storage regulation with differential pressure monitoring for safer plant operation without any risk of creeping performance decrease. As soon as changing process completes, the internal and external (optional) cold water flushing is carried out to minimize scaling by fast cooling of the heat exchanger.
• There is a microprocessor control with touch screen for easy operations. Ethernet interface is used for possible remote monitoring and control of the system. It requires to log in to monitor the performance of the system as well as the individual components.
• Production by TÜV certified welding company based on the HP-0 and ISO 3834-2, approval to

SVGW, ÖVGW and DVGW and certified to ISO 9001: 2008.
• Pre-assembled units simplify installation and reduce the mounting time.
• Maximum pressure/testing pressure: primary 10/15bar; secondary 6/9bar

Model EDRE: High capacity water heater 100 - 2,000 kW for steam / water operation

Description

• SS 1.4571/Duplex is used for the production of pressure-resistant storage tank and external shell & tube heat exchanger. DVGW guidelines are followed by the system to reduce a Legionella infection risk at large-scale systems.
• The compact system requires small space and small storage capacity. The high performing heat exchanger maintains optimum hygiene through short storage time of the hot water, low stand- by losses.
• Fibre-fleece insulation of storage tank with PP (RAL7037) based outer sheathing, aluminum closure strips and self-fixing closure caps. It is possible to achieve 80mm insulation up to 1,000 litres and 100mm above. It is completely recyclable and fire protected under class B2 (B1 upon request)
• Shell & tube heat exchangers with free floating SS turbulator rods has a self-cleaning effect that promotes highly efficient heat transfer and prevents liming and scaling.
• During charging, the hot water temperature remains constant and which is why it is possible to supply hot water by primary flow adjusting by condensate control valve. Over-heating of hot water in the heat exchanger can be prevented with the steam-side barrier. At the factory, the heat exchanger is pre-wired and pre-assembled, along with the safety valve non-return valve, shut off valve, condensate drain and strainer.
• The plant operates safely without any risk of creeping performance, because of the microprocessor controlled storage regulation with differential pressure monitoring of the shell & tube heat exchanger.
• Easy to use with microprocessor control with touch screen. Ethernet interface allows for the system remote monitoring and control. It is possible to log and monitor the performance of the system and the individual components.
• TÜV certified welding company carries out the production according to HP-0 and ISO 3834-2, approval to ÖVGW, DVGW and SVGW and certified as per ISO 9001: 2008.
• Simple to install and minimum mounting time because of the pre-assembled units.
• Maximum pressure/testing pressure: primary 10/15bar; secondary 6/9bar

Model EF: High capacity water heater 40 - 350 kW with internal flat heating coils for water / water operation

Description
• Stainless steel 1.4571/Duplex based pressure-resistant high capacity water heater with flat heating coils installed horizontally at the bottom of the storage tank. The performance is improved and layering is optimized by the oval cross-section of the flat heating coils.
• Hygiene by entirely using the volume, minimum storage time of the hot water, reduced standby losses and little space needed of the compact system because of the high performance of the heat exchanger as well as the small storage tank capacity.
• Storage tank pickled both inside and outside in dip tanks requires low maintenance. The flange DN200 is there for cleaning or for installation of an extra heat exchanger. It is optimal to mount an electric heating element on the flange or the 6/4" socket in the upper third possible, 3x sleeve ½" for thermometers and/or temperature sensors, circulation connection. There is cold water supply at the front, all connections in one layer, hot water outlet at the top center, covered by a powder coated

aluminum front panel. There is a remote thermometer installed in the aluminum front-panel.
• Fibre-fleece insulation of storage tank with robust, PP (RAL7037) based outer sheath, aluminum closure strips and self-fixing closure caps. 80mm insulation up to 1,000 litres and 100mm above is possible.
• TÜV certified welding company produces the water heater according to HP-0 and ISO 3834-2, approval to SVGW, DVGW and ÖVGW and certified according to ISO 9001: 2008.
• Pre-assembled units simplify installation work and reduces mounting time.
• Maximum pressure/testing pressure: primary 10/15bar; secondary 6/9bar

Standard accessories (included)
• Violet front cover, powder-coated aluminum
• Two front connections ½" for optional temperature sensors
• 270mm inspection flange plate with gasket and fixings set
• Pre-assembled dial thermometer

Optional accessories
• Non-sacrificial electric anode
• Electric heating element 3-12 kW, 230V or 400V for 1½" connection
• Tube heat exchanger for auxiliary heating source

Benefits

Hot water system can be employed because of the low initial costs, stable operation, longer life, energy efficiency, hygienic hot water, low maintenance costs and easy control. A hot water system can fulfill all aforementioned criteria and even more. The initial cost is reduced as the system requires minimal floor space due to the individual design of each system and the shell & tube heat exchanger with turbulator rods. Hygienic hot water is generated by using high quality stainless steel along with automatic anti-fouling cycles.

Customers can be assured of stable operation and low maintenance costs. The efficiency of the system can be monitored with a microprocessor control unit. The hot water system using minimal storage tank capacities saves water and energy. Heat loss is reduced up to 30% by the self-developed fibre-fleece insulation.

High performance shell & tube heat exchangers with free floating turbulator rods

Heat exchangers with free floating turbulator rods are the best heat exchangers available, incorporating all the benefits of other types of heat exchangers or heating coils.

High performance

High capacity heat exchangers is not like conventional shell and tube heat exchangers, and contain free floating turbulator rods, which improves the performance and reduces the heat exchanger's size. The domestic hot water flows at high speed through the heat exchange in less than a second. In one pass, the cold water is heated from 12°C to 60°C.

Compact
In comparison to conventional water heaters, the high capacity water heaters are more compact. The

high capacity water heater can save floor space up to 95% and is completely compliant with the current building trend for reduced building costs through compacter heating systems. The small surface area of the heat exchanger reduces the radiation heat loss, which further enhances the overall fuel efficiency of the water heater.

Anti-fouling
Fouling deposits do not collect in the heat exchanger, all because of the high speed water flow and the oscillating action of the free floating turbulator rods. This ensures optimum hygiene and maximum efficiency throughout the life of the water heater.

Lifelong corrosion free service
Stainless Steel 1.4571 / duplex allows for lifelong corrosion free service. Stainless steel is a valuable raw material that can be recycled.

Fast maintenance access with zero down time
There is no need to drain the water heater for accessing and cleaning the heat exchanger because of the external configuration. The inspection and cleaning can be performed by closing the shut-off valves to the tank, opening the end flange and pulling out the free floating turbulator rods. In a fraction of time, inspection and cleaning can be done. The service is not interrupted, thanks to the stored hot water in the tank.

Plate Heat Exchangers
High maintenance cost incurs for plate heat exchanger, even though it is compact in size. Fouling and quick performance decay are due to the slow rate of water flow inherent in their design. During the maintenance work, the plant heat exchanger has to be completely dismantled, each plate is individual cleaned with chemicals or replaced. The economical variety of plate heat exchangers can not be dismantled but discarded and replaced completely. Plate heat exchangers are to be frequently inspected in areas of hard water.