

Energy-efficient Range of HRS FUNKE Plate Heat Exchanger

HRS Process Systems Ltd is the trusted heat transfer technology provider to a range of process sectors across India and has licence to manufacture, design, supply and service of Plate Heat Exchanger (PHE) in collaboration with FUNKE Warneustauscher GmbH. Funke is a leading company in quality heat exchangers, having a state-of-the-art facility in Germany focused on plate heat exchangers.

The construction of a PHE is the stack of embossed plates with suitable portholes fitted parallel to each other, resulting in equal fluid distribution on each side. Each plate is separated from the next with a gasket which separates the two and seals the flow gap from the atmosphere. The heat transfer plates separate two fluids and avoid mixing of process and utility fluids.

There are a variety of corrugation patterns designed on heat transfer plates, which can be selected for specific applications to achieve higher heat transfer rate and optimum pressure drops. These plates allow different heat transfer area with acute and obtuse angled corrugation. Heat transfer plates are mostly produced in: 1.4404/ AISI 316 as this material

generally more corrosion-resistant and more resistant to chloride damage than 1.4301/AISI 304; 1.4529/254 SMO (higher chloride and acid-resistance than 1.4401/ AISI 316); Hastelloy for highly resistance against acids and chlorides; Titanium ASTM B 256; Titanium-Palladium for chlorides at higher temperatures; 1.4539/ AISI 904L (with good nickel content against stress corrosion cracking, good performance ratio in the case of media with the low acid and chloride content). HRS Funke also offers a wide range of plate sizes designed for a range of processes right from pharma, chemical to power, marine, shipping, etc, sectors.

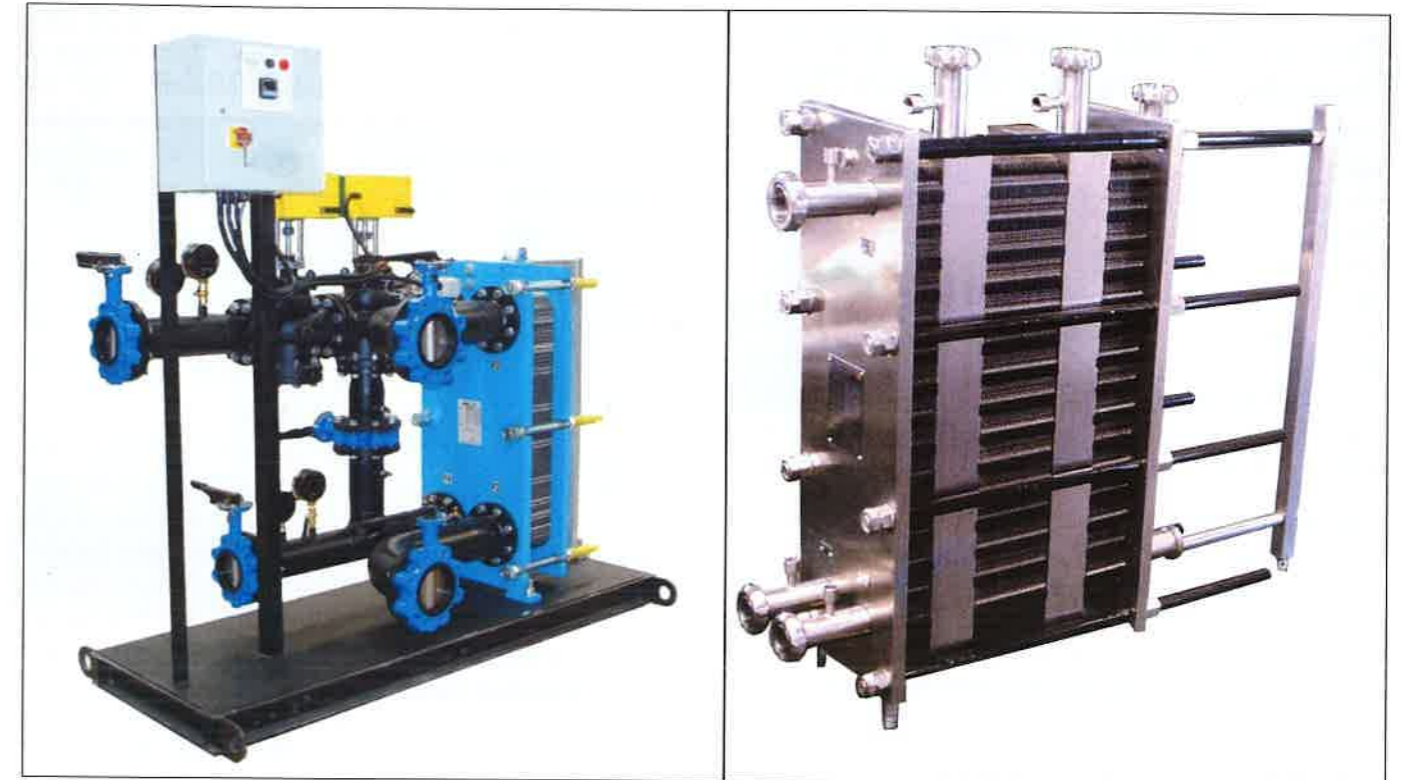
The heat transfer plates comes with double gaskets in the entry and exit area with leakage groove between two media; it prevents the media from mixing if the gasket leaks. The installation of gaskets

is depending upon the design and type of plate heat exchanger; it comes with two different types, ie, adhesive and clip-on gasket. Following are the various types of gaskets available for suitable processes, (see Table)

HRS FUNKE PHE comes in following different models:

- **Gasketed Plate Heat Exchanger:** It is the most widely used variant of PHE which consists of a set of embossed plates fitted adjoining to each other and each plate separated by a gasket. This is used for most oil, water, etc, applications. The gasket, which is mechanically secured or glued on to every plate, ensures that the flow gaps are securely sealed to the outside and from the second medium involved in the heat exchange. Also, for different

NBR (Nitrile-butadiene rubber)	Universal use for water or oil applications
EPDM (Ethylene-propylene rubber)	Uses for chemical compound which do not contain mineral oil and grease and also for water and steam application
Flororubber (Viton)	Uses for high temperature of vegetable oil, sulphuric acid and organic solvents



compositions and corrosive properties, the best fit material of construction of plates and gaskets are used.

- **Brazed Plate Heat Exchanger:** Consists of embossed plates, fit into one another and vacuum brazed with copper, nickel or stainless steel to form a compact and pressure proof unit. It is designed for applications like cooling of lube oil, condensing in refrigeration plant.
- **Cladded Plate Heat Exchanger:** This is a well-researched in-house design where the fixed plate and pressure plates are cladded with stainless steel or similar metals to make the outer surfaces compatible with process and utility fluids. This is effective in food, dairy, brewery and similar hygienic applications.

Thermodynamically optimized designs make HRS FUNKE PHE efficient and cost-effective equipment for the heat transfer industry. Depending on the conditions of use, the plates and gaskets can be replaced, added, removed and re-assembled several times. HRS FUNKE PHEs are low investment and lower in operation and maintenance cost as well. They have self-cleaning quality due to

highly turbulent flow behaviour. It can also be used for smallest temperature difference $\leq 1^\circ\text{C}$. HRS FUNKE PHEs are effectively used in applications like heating, cooling, chilling, pasteurizing, sterilizing and the industries who perform such applications are food and beverages, chemical processing, polymers, pharmaceutical, pulp and paper, vegetable oil, textile, sugar processing, power, HVAC, marine.

HRS PSL has extensive service support network all across India. PHE spares, ie, gasket, plates, etc, as required are easily made available to the customers. HRS PSL provides following service support solution to enhance productivity:

- Servicing of PHE at site
- Root cause detection for PHE malfunction
- Deputation of HRS personnel at site
- Expert telephonic and online support
- Performance validation of PHE.

HRS PSL is part of UK-based HRS Group of Companies, is at the forefront in innovative thermal process technology. HRS Group is equipped with a strong network all across the globe in UK, Spain, USA, India, Australia, New Zealand and

Malaysia. With a well-equipped ISO and ASME Certified design and manufacturing set-up in India, HRS PSL empowered to supply heat exchangers and systems to the domestic and international geographies.

HRS FUNKE PHE is one of the most reliable thermal processing equipment for a wide spectrum of processes adding to the accountability on HRS PSL as an innovative and trusted brand in the heat exchangers market. ■



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