

# HRS Funke Plate Heat Exchangers (PHE)

Solution for heat exchange requirements in Power Sector

Heat exchangers are required in power plant for various cooling purposes, typically for cooling gear box oil (lubricating oils), seal water cooling, generator core cooling, etc. These can be closed loop primary secondary circuits or direct cooling circuits. The size of heat exchangers can be from few 100 sq mt to over 1,000 sq mt. HRS Funke plate heat exchangers can be offered for these cooling applications. It can be also used for heat recovery in power industry or heating application in cold climate.

A plate heat exchange provides efficient heat transfer in compact size. HRS Process Systems Ltd part of UK based HRS group, one of the leading heat exchanger specialist in India has acquired exclusive rights for design, manufacture, supply and service of plate heat exchangers from FUNKE Waermaustauscher GmbH. FUNKE is established with worldwide presence for more than three decades in the development and production of quality heat exchangers.

The heart of HRS PHE is a pack of embossed plates with apertures. The plates are assembled in a 180° angle to each other, resulting in flow gaps on each side. Each plate is provided with a gasket, which securely seals the flow gaps from the atmosphere and separates the two media used in the heat exchange. The gasketed plate pack is mounted in a rack and is compressed with tightening bolts between the fixed plate and the movable plate. To guarantee maximum heat transfer, warm and cold media are normally fed through the PHE in one-pass or multi-pass counter flow. Connections are on the fixed plate, but can also be on the movable plate for multi-pass flow.

HRS Funke Plate Heat Exchangers range consist of



gasketed, brazed and clad PHEs for specialized applications in food and dairy industry. PHE can be offered in various sizes to allow heat transfer area up to 2,400 m<sup>2</sup>.

Funke heat transfer plates are usually produced in AISI 316 as this material is generally more resistant to corrosion and chloride damage than AISI 304. Depending on the design, titanium is also available in serial production. As an additional option HRS also provides plates in AISI 304, AISI 904 L, AISI 254 SMO, hastelloy, Titanium ASTM B 265 and Titanium-palladium material as per process requirement.

All gaskets in HRS Funke PHE have double sealing - in the entry and exit area creating a safety room which is open to the outside. It prevents two media from mixing if the gasket leaks. As sealing material, we use well known, tried and tested materials for gasket like NBR (nitrile-butadiene rubber), EPDM (ethylene-propylene rubber) and Fluororubber (viton).

## FEATURES

- Very high heat transfer rates due to thermodynamically optimised design.
- Specially embossed entry fields for optimum distribution of media.
- Gaskets fastened by "Clip-system" for easy maintenance.
- Gaskets have a special ribbed surface, enabling more exact centering and stabilization of the entire plate pack.

- Double gasket with leakage groove between two media preventing mixing of the media.
- Special plate profile at the edges, reinforcing the plate pack and ensuring high pressure resistance of the gasket during operation.
- Multi sections units consisting two or more plate packs separated by intermediate plate or C-plates in clad PHE.

## ADVANTAGES

- Low investment, operation and maintenance costs.
- Highly efficient heat transfer.
- Use of smallest temperature difference  $\leq 1^\circ\text{C}$
- Up to 75 per cent less space required.
- Self-cleaning effect due to highly turbulent flow behaviour.
- Future additional capacity is possible by fitting extra heat transfer plates.
- Double gasket with leak groove gives high safety with regards to media mixing.
- Easy to open/clean.
- Low operating weight/low liquid content.
- Easy availability of spares and quick supplies to service requirements.

Application industries: Along with Power PHE is also used in cement, steel, chemical, petrochemical, pharma, fertilizer, paper and pulp, sugar, dairy, food and beverage, HVAC, distillery, breweries, automotive, textile, oil and fats, DG sets, effluent treatment, etc.

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