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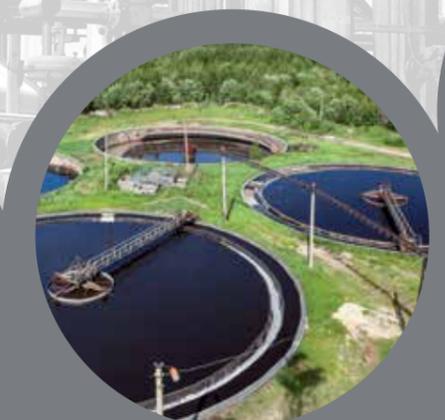
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MANAGING
ENERGY
EFFICIENTLY



HRS Heat Exchangers operates at the forefront of thermal technology, offering innovative and effective heat transfer products worldwide, focusing on managing energy efficiently.

With over 35 years experience specialising in design and manufacture of an extensive range of corrugated tube and scraped surface heat exchangers, in compliance with the European Pressure Vessel Directive.

HRS has a global network of offices including UK, Spain, USA, Malaysia, Australia and India; with production units in the UK, India and Spain.

Our patented and proven heat transfer technologies, combined with our knowledge make it possible to offer best in class solutions for a wide range of industries and applications:

- Food
- Environmental
- Chemical (Processing)
- Pharmaceutical
- Heating
- Cooling
- Evaporation
- Crystallisation

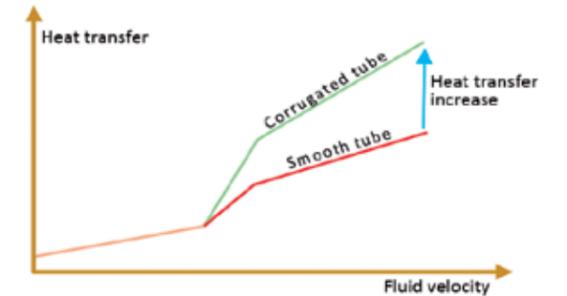
Fluid types: If the product can be pumped, even where extreme viscosities are present we can provide a solution.

PRODUCT RANGE

- **Heat Exchangers:**
 - Corrugated Tube
 - Scraped Surface
 - Gasketed Plate
 - Brazed Plate
- **Piston Pumps**
- **Aseptic Fillers**
- **Thermal Processing Systems:**
 - Food
 - Environmental
 - Industrial
 - Pharmaceutical

CORRUGATED TUBE HEAT EXCHANGERS

Using HRS' corrugated tube technology, both heat transfer and efficiency are increased over standard smooth tube heat exchangers. In addition potential fouling is minimised. Making it possible to supply more compact and economical heat exchangers.



HRS offers a wide product range, with models developed for various types of industries, manufactured from stainless steel. Bespoke designs and other materials are also available:

AS Series

Triple tube or annular space heat exchangers for highly viscous fluids. **F**



DTI Series

Tube in tube heat exchangers for fluids with large particles in suspension. **E P**



DTA Series

Tube in tube heat exchangers for fluids with large particles in suspension. **A**



DTR Series

Tube in tube heat exchangers with removable inner tube. For direct heat recovery processes involving liquids with large particles in suspension. **E P**



F Series

Multitube heat exchangers with double tube plate design. **Ph**



G Series

Multitube heat exchangers for heating and cooling of gases. **E P**



K Series

Multitube heat exchangers. **P**



MI Series

Multitube heat exchangers with hygienic design. **F**



MR Series

Hygienic multitube heat exchangers with removable tube bundle. For direct heat recovery applications. **F**



SCRAPED SURFACE HEAT EXCHANGERS

For difficult heat transfer applications, with high viscosities and where fouling can become a problem, **the preferred option is a scraped surface heat exchanger**. Scraped surface heat exchangers keep heat transfer high and the heat transfer surface is constantly cleaned.

HRS offers two technologies for scraped surface heat transfer: Unicus Series which reciprocates and R Series which rotates. Both of these are patented solutions, each designed for specific needs.

HRS R Series

The R Series is a compact scraped surface heat exchanger **designed for extreme viscosities and applications with limited space for installation**. Each inner tube contains a scraping axis with helical blade that spins at high velocity. The high velocity keeps heat transfer very high and the helical blade moves the product forward, reducing pressure drop. When run in reverse product from the unit is recovered. Fouling is eliminated constantly, assuring a clean heat transfer area.

The R Series can be used in **food, environmental and industrial applications**.



HRS Unicus Series

Based on a traditional shell and tube heat exchanger, the Unicus contains scraping rods inside each heat exchanger tube. These rods move in back and forth, powered by a hydraulic power unit. The scraping system **eliminates fouling from the tube wall and the mixing of product increases the heat transfer**.

The Unicus is **ideal for large duties for viscous and fouling fluids in food, environmental and processing industries**.

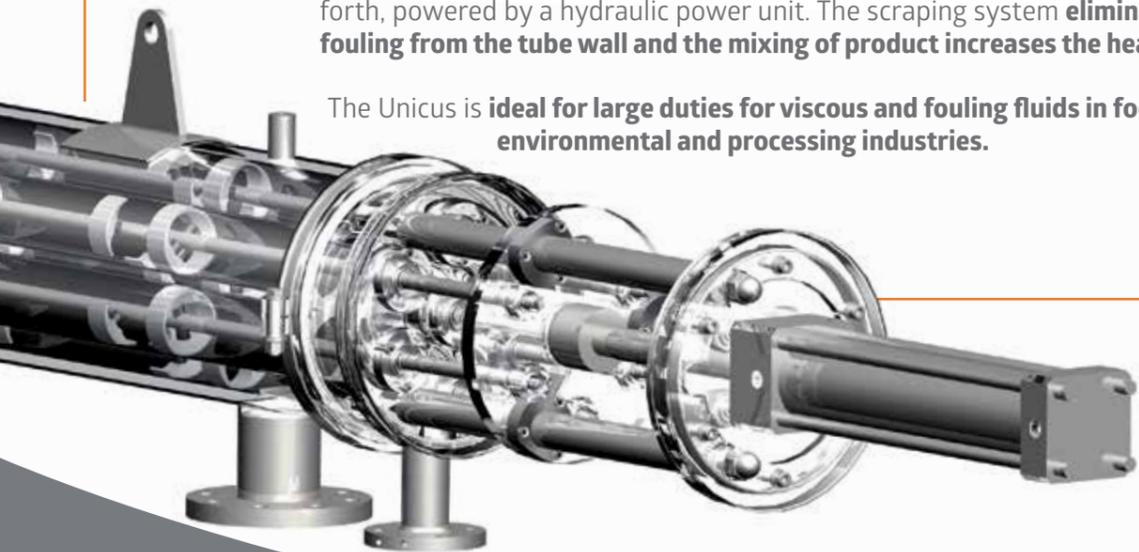


PLATE HEAT EXCHANGERS

Gasketed and Brazed Plate Heat Exchanger

A plate heat exchanger is the ideal solution for less demanding heat transfer applications, where viscosity and fouling are not present: **clean fluids with low viscosities operating at relatively low pressures**.

Our range of **gasketed plate heat exchangers** offer high flexibility: many different sizes of plates, with various channel types and configurations make it easy to adapt to limitations on flows, duties, temperatures and maximum defined pressure drops.



Brazed Plate Heat Exchangers work on the same principle as the gasketed plate heat exchangers. The difference being that the heat transfer plates are brazed together. Resulting in a very compact heat exchanger.

PISTON PUMPS

HRS BP Series

The BP Series piston pump is designed to overcome two typical problems seen when handling delicate food products:

- **Excessive shear** that can damage the product integrity.
- **High viscosity** that requires high pumping pressures.

The pump is manufactured to withstand high pressures, whilst the gentle piston movement avoids high shear.



ASEPTIC FILLERS

HRS AF Series

The AF Series of aseptic fillers are designed for filling food products into aseptic bags in a total sterile atmosphere.

Our fillers can be integrated with our food processing systems (pasteurisers, sterilisers) making it possible to supply complete processing lines, taking the product from reception to filling aseptically.

Depending on configuration and capacity, **the filler is supplied with a single filling or double filling head**, with a maximum filling capacity of 12000 litres per hour.





Pasteurisation Systems

HRS applies corrugated tubular heat exchangers in complete systems for pasteurizing food products.

The characteristics of the product define what heat exchanger type is used. **Our systems include heating and cooling sections, holding and energy recovery.** Indirect and direct energy recovery options can be designed. Our systems include tanks, pumps, process lines, valves and instrumentation and a control system.

Integration with our aseptic fillers can also be provided.

Concentration / Evaporation Systems

HRS supplies evaporation systems for concentration of products such as juices and tomato based products. Application dependant we install corrugated tube or our Unicus scraped surface heat exchangers as the evaporator, in a forced recirculation setup.

Multiple effect systems or use of mechanical or thermal vapour recompression can be supplied increasing energy savings.



Cleaning Systems (CIP / SIP)

HRS supplies cleaning in place (CIP) or sterilisation in place (SIP) systems for cleaning and disinfection of food industry systems.

Our CIP and SIP systems are supplied with a control system included enabling automated cleaning cycles.



Effluent Concentration and Evaporation Systems

Our concentration systems offer the possibility to reduce the volume of environmental effluents such as brines, manures, digestates and others. Corrugated tube and our Unicus scraped surface heat exchangers are used to guarantee maximum running time for effluents that can foul.

Multiple effect systems or use of mechanical or thermal vapour recompression can be supplied increasing energy savings.



Sludge Pasteurisation Systems

HRS applies its corrugated tube heat exchangers in continuous or batch sludge pasteurisation processes. **An energy recovery section can be included to reduce operational costs.**



MARKETS

HRS has developed unique solutions for the following industries and applications:

FOOD INDUSTRY

- Beverages and Drinks**
Juices, carbonated drinks, beer, distilleries
- Dairy**
Milk, cheese, concentrates
- Fruit**
Purees, diced fruit, concentrates
- Vegetables**
Purees, sauces, concentrates
- Oil & Fats**
Oils, butter, margarine
- Prepared Food**
Soups, sauces, fillings
- Protein**
Meat and poultry

ENVIRONMENTAL INDUSTRY

- Waste Water**
Sludge treatment
- Agricultural Effluents**
Manure concentration
- Biogas Plants**
Digestate pasteurisation and concentration
- Exhaust gas energy recovery
- Digester heating

PROCESS INDUSTRY

- Chemical and Fine Chemical**
- Petrochemical**
- Oil and Gas**
- Pharmaceutical**
- Cosmetics**