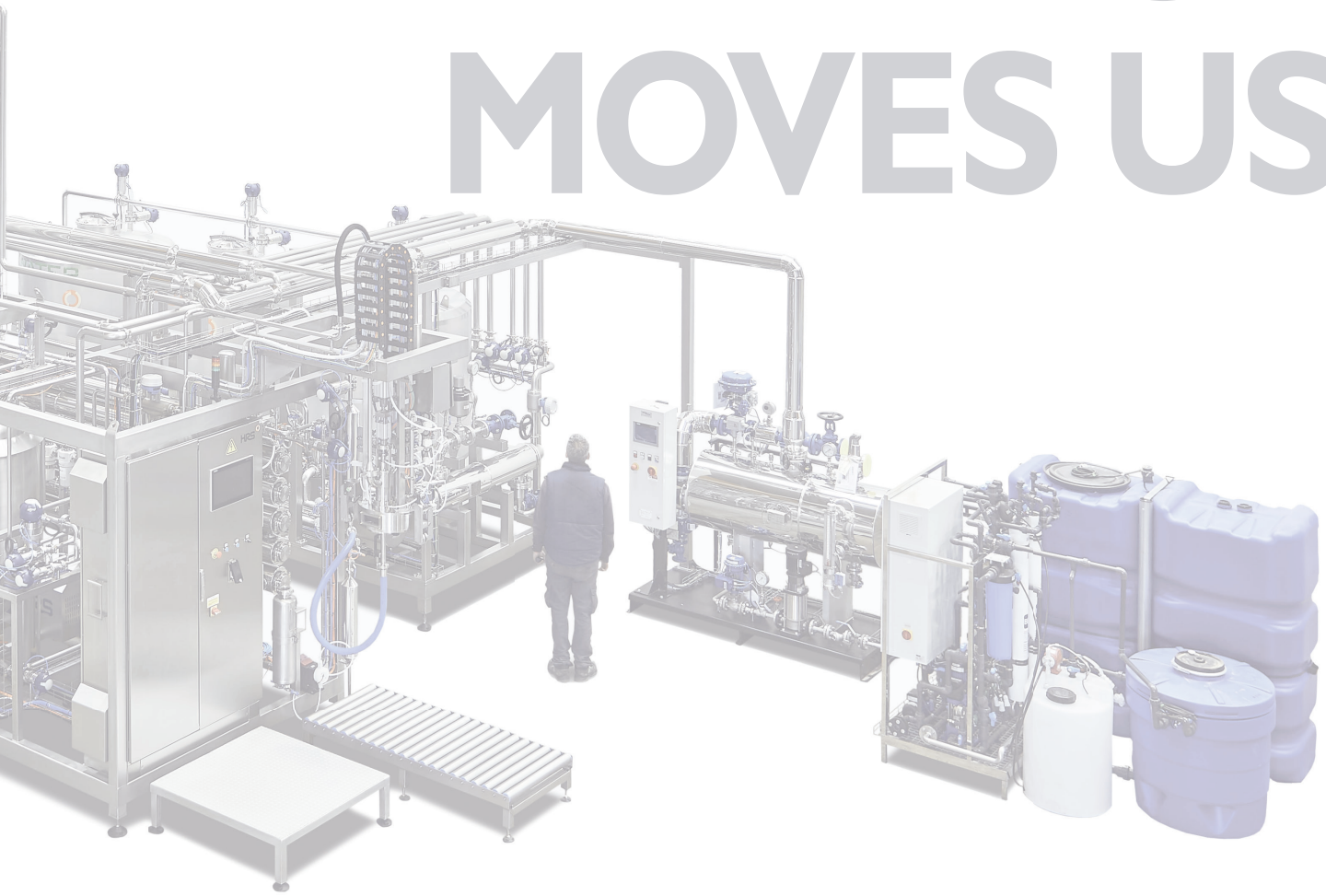
ENERGY MOVES US



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PRODUCT RANGE

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

Providing a range of heat exchangers, modules and complete processing systems that help you to optimise production, make the most of raw materials, whilst reducing energy consumption, waste and emissions.

With over 40 years' experience **specialising in design and manufacture of an extensive range of turnkey systems and components incorporating our corrugated tube and scraped surface heat exchanger technology**, in compliance with the Global Standards.

HRS has a global network of offices: UK, Spain, USA, Canada, Malaysia, Australia, and India; with manufacturing plants in 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**

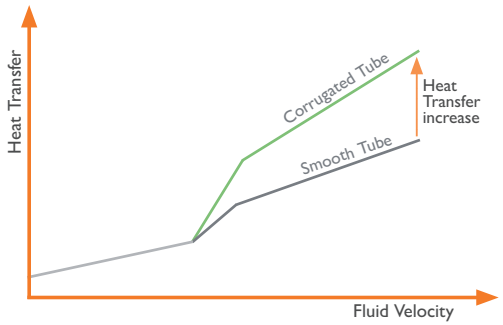
Fluid types: If the product can be pumped, even where extreme viscosities are present we can provide a solution.

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

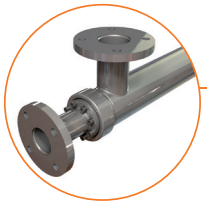
Using HRS' corrugated tube technology, **both heat transfer and efficiency are increased over standard smooth tube heat exchangers. In addition, potential fouling is minimised**. Making it possible to supply **more compact and economical heat exchangers**.



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 or quadruple annular space heat exchangers for highly viscous fluids. (F)



DTI Series

Tube in tube heat exchangers for fluids with large particles in suspension. (E) (I)

DTA Series

Tube in tube heat exchangers for fluids with large particles in suspensions. (F)

DTR Series

Tube in tube heat exchangers with removable inner tube. (E) (I)

G Series

Multitube heat exchangers for heating and cooling of gases. (E) (I)

K Series

Multitube heat exchangers. (E) (I)

MI Series

Multitube heat exchangers with hygienic design. (F)

MP Series

Multitube heat exchangers with multipass. (F) (I)

MR Series

Multitube heat exchangers with removable tube bundle. (F)

S Series

Multitube heat exchangers with double tube plate design. (Ph) (F) (I)

Industries: (F) Food (I) Industrial (E) Environmental (Ph) Pharmaceutical

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 with patented solutions designed for specific needs: Unicus Series which reciprocates and R Series which rotates.

HRS R Series

The HRS 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.

In addition to the standard R series a heavy duty version is available. The HRS RHD Series has been developed for the more demanding applications with extreme viscosities. It has all the features and benefits of the standard model, with increased motor size, scraping rods, extra mounting supports for the scrapers and motor enable the unit to be used under extreme conditions.

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

HRS Unicus Series

Based on a traditional shell and tube heat exchanger, the HRS 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 gentle movement of the scrapers allows the system to be used with delicate products, such as whole fruit or vegetable pieces, without destroying the integrity.

Unicus Series models are available from just one tube up to 198 tubes. This gives the Unicus Series heat transfer areas between 0.7 and 180m2.

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

PLATE HEAT EXCHANGERS

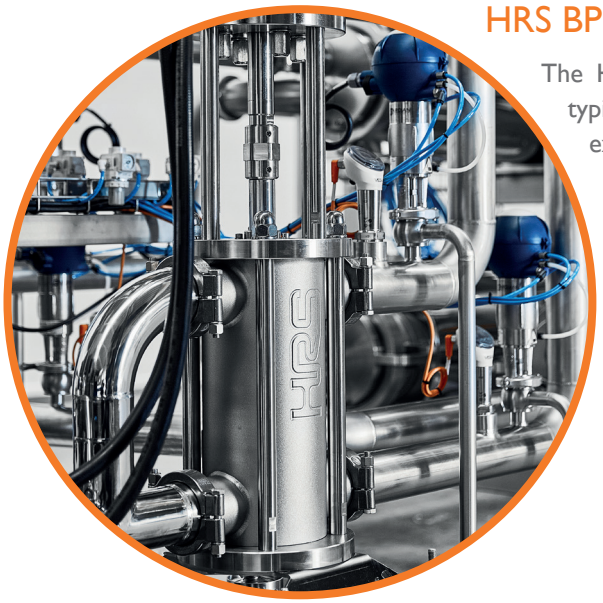
Gasketed and Brazed Plate Heat Exchanger

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

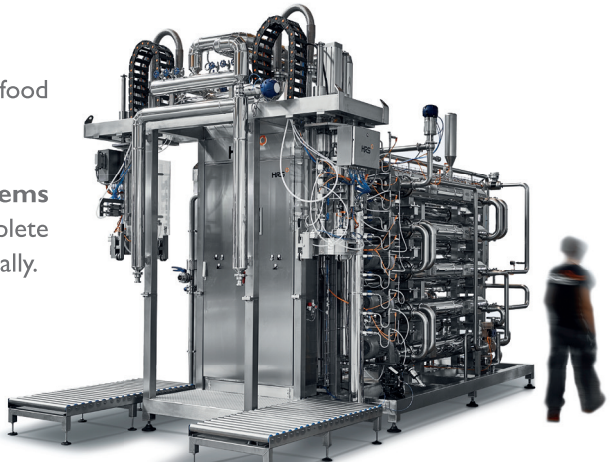
The HRS BP Series piston pump is designed to overcome two typical problems seen when handling delicate food products excessive shear that can damage the product integrity and high viscosity that requires high pumping pressures. The pump is manufactured to withstand high pressures, whilst the gentle piston movement avoids high shear.

There are several variety of HRS BP Pumps:

- The HRS BPM Series is a mobile version of the standard BP Series pump
- The HRS BPSC Series is specifically designed for highly viscous materials using a gravity-fed hopper, together with a screw conveyor
- The HRS BPH pump is mounted horizontally and the inlet is vertical

ASEPTIC FILLERS

HRS AF Series



The HRS 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.

HRS also has a skid-mounted unit version, HRS Asepticblock Mini Series, which combines a pasteuriser or steriliser system with an aseptic filler for food manufacturers requiring a compact portable solution to complete smaller batch runs.

THERMAL PROCESSING SYSTEMS
FOOD INDUSTRY

Pasteurisation/Sterilisation Systems

HRS applies corrugated tubular heat exchangers in complete systems for pasteurising 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 dependent we install corrugated tube or our Unicus scraped surface heat exchangers as the evaporator, in a forced recirculation setup.

Multiple effect systems or the use of mechanical or thermal vapour recompression can be supplied **to reduce energy consumption and operational costs**.

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.**

THERMAL PROCESSING SYSTEMS
ENVIRONMENTAL INDUSTRY

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 the use of mechanical or thermal vapour recompression can be supplied to reduce energy consumption and operational costs.

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 by up to 60%.

The digestate is efficiently pasteurised to ensure it can be used safely for fertilisation.

Biogas Dehumidification Systems

The HRS BDS Series is an efficient solution to cool and dehumidify biogas for combustion with two standard options. The system condenses up to 90% of the water contained in the gas, which is continuously separated before the lean biogas is ready for use. This is a necessary process for all bio-energy plants that use biogas as fuel in CHP engines.

A heat recovery step can be included as a standard option thus reducing energy costs up to 20%. The BDS comes complete with controls in a packaged 'plug and play' skid.

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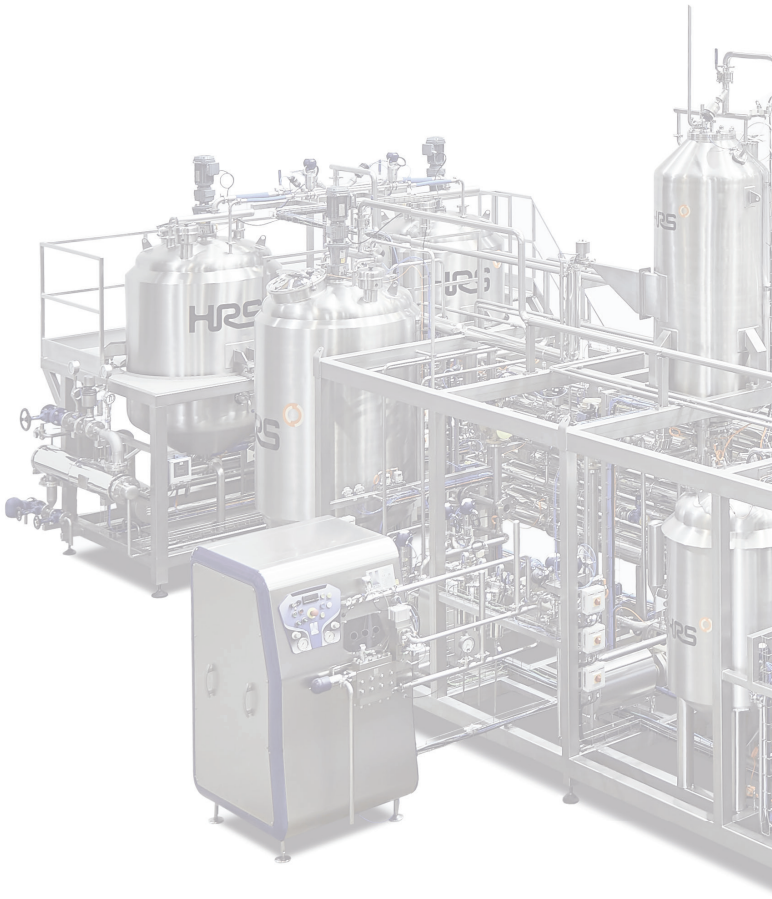

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