MATERIALS:
Service Side: AISI 304 Stainless Steel
Product Side: AISI 316 Stainless Steel
Other material options available

CONNECTIONS:
Service Side: Flange
Product Side: Clamp/Flange
All flange & clamp types available

SURFACE FINISH:
External: Polished
Internal: <0.8μ

DESIGN CONDITIONS:
Service Side: 10 bar/185°C
Product Side: 16 bar/185°C

APPLICATIONS
The HRS Unicus Series is suitable for heat transfer applications in a wide range of industries including:

- Dairy
- Fruits
- Vegetables
- Convenience Food
- Process
- Confectionery
- Beverages
- Cosmetics
- Environmental Waste
- Biofuels
- Oil & Gas

PRODUCT BROCHURE: HRS UNICUS SERIES
SCRAPED SURFACE HEAT EXCHANGERS

HRS UK
+44 1923 332 335
HRS Spain
+34 968 676 157
HRS USA
+1 770 726 3540

HRS Malaysia
+60 3 8081 1898
HRS India
+91 20 5166 3581
HRS Australia
+61 3 9489 1866
HRS New Zealand
+64 9 889 6045

www.hrs-heatexchangers.com
A special version of the Unicus has been developed for use in environmental applications. The patented design consists of a shell and tube heat exchanger with scraping rods in the interior tubes. During evaporation, fouling and reduced heat transfer can become a problem for traditional evaporators.

With the Unicus, the scraping action keeps the heat transfer surface clean and maintains high heat transfer, allowing the Unicus to concentrate to levels where traditional technologies fail.

The Unicus when used as an evaporator can be applied in a multi-effect setup or in combination with mechanical vapour recompression. The scrapers allow continuous operation and increase uptime of the plant.

The Unicus evaporator can operate under vacuum and is ideally suited for volume reduction of environmental waste and reducing transportation costs.

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 effect of scraping is twofold, it ensures potential fouling is minimised by keeping the tube wall clean while elaborating turbulence and increasing the heat transfer rate. This patented design makes the Unicus an ideal heat exchanger for high fouling and viscous fluids.

Some of the unique features of the Unicus Series include:
- Larger heat transfer area per unit
- Maintained product identity
- Increased uptime
- Reduced footprint
- Suitable for highly viscous fluids

Hydraulic Drive Cylinder
This part provides the energy that moves the scraper bars. This cylinder can be pneumatic (smaller models) or hydraulic (bigger models).

Separation Chamber
This separates the shell and tube heat exchanger from the drive cylinder that moves the scraper bars.

Scrapers
A key component of the Unicus Series is the seal that separates the inner tube volume from the separation chamber. The seal prevents leakage of the product to the exterior. Several types of seals have been developed depending on the application.

SEPARATION CHAMBER
The separation chamber of the Unicus Series is the seal that separates the inner tube volume from the separation chamber. The seal prevents leakage of the product to the exterior. Several types of seals have been developed depending on the application.

HYDRAULIC DRIVE CYLINDER
This part provides the energy that moves the scraper bars. This cylinder can be pneumatic (smaller models) or hydraulic (bigger models).

SEALING SYSTEM
A key component of the Unicus Series is the seal that separates the inner tube volume from the separation chamber. The seal prevents leakage of the product to the exterior. Several types of seals have been developed depending on the application.

SCRAPER BARS
Inside each interior tube, a scraper bar is fitted, which can move along the longitudinal axis of the tube.

SCRAPERS
Designed to be lightweight, resistant to the working environment and thermally efficient in order to allow easy movement of the scraping bar, reducing the weight of the unit and lowering its energy consumption.

Range of different scrapes available:

- Scraper 120° mechanical
- Scraper 180° mechanical
- Scraper 180° compact
- Scraper 360° with 3 holes
- Scraper 360° with 3 holes and a peek ring
- Scraper 360° with 6 holes and a peek ring

FEATURES
HRS UNICUS SERIES - ENVIRONMENTAL
HRS UNICUS SERIES - FOOD
HRS UNICUS SERIES
The solution for applications with delicate products
The patented design is based on a traditional shell and tube heat exchanger with scraping elements inside each tube. The reciprocating movement of the scrapers mixes the fluid whilst cleaning the heat exchange surface. This keeps heat transfer high and reduces downtime. In addition, the scraping movements introduce turbulence in the fluid increasing levels of heat transfer.

The design makes the HRS Unicus Series the ideal heat exchanger for hygienic applications where fouling or low heat transfer is a limiting factor.

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.

The Unicus 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 effect of scraping is twofold; it ensures potential fouling is minimised by keeping the tube wall clean while elaborating turbulence and increasing the heat transfer rate. This patented design makes the Unicus an ideal heat exchanger for high fouling and viscous fluids.

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.

The HRS Unicus installed in a sauce cooling skid
PRODUCT BROCHURE:  
HRS R SERIES  
SCRAPED SURFACE HEAT EXCHANGERS

HRS R SERIES

STANDARD SPECIFICATIONS

CONSTRUCTION MATERIALS:
Service Side: AISI 304 Stainless Steel
Product Side: AISI 316L Stainless Steel
Other material options available
Screws: PEEK, PTFE, TFM
Gaskets: EPDM, Viton, PTFE
Mechanical Seals: Carborundum, Tungsten Carbide

CONNECTIONS:
Service Side: Flange
Product Side: Clamp
All flange & clamp type available

SURFACE FINISH:
External: Polished
Internal: <0.8μ

DESIGN CONDITIONS:
Service Side: 10 bar/185°C
Product Side: 21 bar/185°C

POWER:
Standard R Series: 4kW - 30kW
Heavy Duty RHD Series: 7.5kW - 55kW

HRS R SERIES

APPLICATIONS

The HRS R Series is suitable for heat transfer applications for a wide range of products including:

- Viscous Food Products
- Convenience Foods
- Protein
- Cosmetics
- Oil & Gas

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HRS Australia
+61 3 9489 1866

HRS New Zealand
+64 9 889 6045

www.hrs-heatexchangers.com
Some of the unique features of the HRS R Series include:

- Large heat transfer area
- Single and multiple tube options, all with removable tubes
- Reduced-pressure drop
- High level of product recovery
- Low noise level gearbox
- Energy efficient
- Multipass version available

The HRS R Series is the ideal solution for high value viscous applications such as honey, treacle, curd, and cream where fouling or low heat transfer is a problem.