Scraped Surface Heat Exchanger

Inline Heating and Cooling
Kelstream builds scraped surface heat exchangers for inline heating and cooling of low, medium and high viscosity fluids, whether it is feed, food, pharma or non-food.

Features and Principles

The Kelstream SSHE is commonly utilized in aseptic processing of foodstuffs. These heat exchangers are preferred because of their capability to process heat-sensitive, viscous, or particulate-laden products, enhance the heat transfer of viscous products, and minimize the extent of burn-on, or fouling on the heat transfer surface.

We bring together the know-how of our specialists and your specific preferences. Only then can it be the infallible link in your demanding production process.

All in one package

The Kelstream is a vertical scraped heat exchanger with double concentric heated surfaces for an optimal heat exchange.

This unique design in thermal processing brings all the benefits of different types heat exchangers together in one package: it can handle high viscous products like mashed potato, it has a large heated surface per unit, it takes only a small footprint and it doesn’t damage your product.

Perfect for a growing company

The flexibility of the Kelstream, by controlling the jacket surface temperatures, together with choosing the correct ancillary equipment, allows the customer to achieve a flexible processing system by which new product developments can be easily and quickly adapted to production and quickly to the consumer market.
The Kelstream’s economical and efficient design is fully suited to your product and process. An overview of its advantages:

**Benefits**

**The scraping principle: economical and clean**

The mixing system continuously scrapes the whole heated or cooled surface, resulting in an extremely efficient transfer of heat. This scraping principle has a major efficiency advantage compared to conventional plate or tube-shaped heat exchangers. Furthermore, this prevents the product from sticking to the side.

**Mixing with preservation of consistency**

An additional advantage of the mixing system is that the liquid also mixes while scraping. This promotes heat transfer and keeps the liquid homogenous. In some cases it is even possible to aerate the product, with or without compressed air or nitrogen.

**Cooling/heating products with firm components**

With the Kelstream Scraped Surface Heat Exchanger you can cool and heat products that contain firm components. The maximum product identity is preserved. You can cool/heat products with particles of a maximum size of 25 mm.

**Thorough cleaning**

The Kelstream Scraped Surface Heat Exchanger can be fully included in the existing CIP system. You can clean the Kelstream with or against the stream, whereby the mixing system can turn clockwise or anticlockwise. This results in optimum cleaning.

**Constant capacity and temperature**

Kelstream is equipped with two covers through which a cooling/warming medium is pumped. Your product will be monitored and evenly warmed or cooled on two sides (inside and outside the cover). The cooling/warming medium is completely isolated from your product.

**Low downtime**

The Kelstream is easy to maintain, because the wearing part can be inspected via the hinged lid. It is not necessary to disassemble the shaft seal and bearings first. This easy way of inspection can prevent loss of time. This saves a considerable amount of downtime during servicing or replacement.
The extremely versatile Kelstream Scraped Surface Heat Exchanger can be used for all thin, medium and high viscous products.

These can be heated and cooled inline in a controlled way. The Kelstream is used in various markets: feed, food, pharmaceutical and non-food.

**Markets**

Feed
- Animal feed
- Pet food
- Fish food
- Poultry feed

Food
- General foods
- Fruit
- Confectionary
- Dairy

Pharma
- Pharmaceuticals applications
- Creams
- Vaseline

Non-food
- Chemical applications
- Personal care
- Petrochemical applications
The Kelstream has found its way into a wide variety of applications and processes. The following is an overview of the many possibilities:

**Processes**

**Cooling**
- Bringing down the temperature of your product as much as your process is asking for.
- Cooling can be done with several cooling mediums, like glycol and (ice)water.

**Heating**
- Heating your product can be done by using steam to heat the surfaces. We can calculate how much steam you need to achieve the desired temperature.

**Tempering**
- Tempering is a method of increasing the shine and durability of chocolate couverture by melting it and cool it down.
- With Kelstream, you can temper chocolate in a very controlled way.

**Jellification**
- Jellification is defined as the process of turning a substance into a gelatinous form. With this process, liquid substances are converted into solids with the help of a gelling agent.

**Crystallisation**
- Crystallisation is the formation of solid crystals from a solution.
- Crystallisation is applied in the sugar and dairy industry, but also for crystallize Sodium Kelstream is applied.

**Pasteurisation**
- Pasteurisation is a temperature treatment of food whereby microbiological organisms are destroyed in order to make the product safe to consume and to provide biological stability of the food product to improve its shelf life.

**Sterilisation**
- Sterilisation is the removal of living micro-organisms, and can be achieved by using steam to heat the product. Steralisation is a heat treatment of over 100°C for a period long enough to lead to a stable product shelf-life.

**Boiling**
- Boiling is heating the product till it reaches boiling temperature. Kelstream is able to calculate the amount of heat needed to reach boiling temperature.
### Models

All models are available with customer specific options that are custom made. This ensures that integration into your existing processes is achieved successfully.

<table>
<thead>
<tr>
<th>Model</th>
<th>Product capacity:</th>
<th>Cooling/heating-medium, in-and outside jacket:</th>
<th>Footprint:</th>
<th>Total Height:</th>
<th>Connection product in:</th>
<th>Connection product out:</th>
</tr>
</thead>
<tbody>
<tr>
<td>F50</td>
<td>50-120 ltr/hr*</td>
<td>2-8 m³/hr</td>
<td>0.8 m</td>
<td>1.3 m</td>
<td>50DN</td>
<td>50DN</td>
</tr>
<tr>
<td>F100</td>
<td>100-200 ltr/hr*</td>
<td>4-8 m³/hr</td>
<td>0.8 m</td>
<td>1.6 m</td>
<td>50DN</td>
<td>50DN</td>
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<tr>
<td>F150</td>
<td>150-300 ltr/hr*</td>
<td>4-8 m³/hr</td>
<td>0.8 m</td>
<td>1.9 m</td>
<td>50DN</td>
<td>50DN</td>
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<tr>
<td>F200</td>
<td>250-500 ltr/hr*</td>
<td>4-12 m³/hr</td>
<td>0.8 m</td>
<td>2.3 m</td>
<td>50DN</td>
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<tr>
<td>F450</td>
<td>800-1500 ltr/hr*</td>
<td>15-25 m³/hr</td>
<td>1.3 m</td>
<td>2.9 m</td>
<td>80DN</td>
<td>80DN</td>
</tr>
<tr>
<td>F700</td>
<td>1000-2500 ltr/hr*</td>
<td>15-45 m³/hr</td>
<td>1.3 m</td>
<td>3.5 m</td>
<td>80DN</td>
<td>80DN</td>
</tr>
</tbody>
</table>

*The production capacity is only an indication and can vary widely per product and process.

Provided with specific properties of your product, your plants servicing capabilities and the desired product outcome, we make the heat transfer calculation, recommend any plant requirements and determine what equipment is best suited and provide you the most economical system.

### Options

To provide you with the best possible solution, every Kelstream can be equipped with several features.

- **Material scraped surfaces:** 1.4404/1.4462 Duplex
- **Seals:** Single Mechanical; Double Mechanical (flushed); Lipseal
- **Lid/Cover:** Single walled; Double Walled; Scraped; Not Scraped
- **Scrapers:** Regular; Detectable
Are you in the neighbourhood? Join us for a cup of coffee!

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You want more information about Kelstream? And want to know what model is most suitable for your process? Please contact us via the contact details below.

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