



Contherm[®] Scraped Surface Heat Exchanger

The Ultimate Food Heat Transfer Solution from Alfa Laval



Contherm® – The ultimate food heat exchanger

Convenience food plays an important role in the lifestyle of people today. However, fresh flavor and pleasing texture at an affordable price are critical qualities for modern consumers.

This presents a challenge to food manufacturers, particularly as regards prepared foods made from delicate raw materials or with consistencies that demand special processing.



Viscous



Crystallizing/phase change



Particulate



Sticky

Why a scraped surface heat exchanger?

Many prepared foods prevent optimal heat transfer because of their consistency or content. For example, food or products with the following characteristics can quickly block or foul certain types of heat exchangers:

Viscous

Ketchup, mayonnaise, chocolate, fruit pie filling, gravy and sauces, whipped products, aerated products, peanut butter, pizza sauce, pudding, salad dressing, salsa and taco fillings, sandwich spreads, mechanically deboned meat, gelatin, scrambled eggs, baby food, ointment, lotions, mascara and candle gels.

Crystallizing/phase change

Coffee extracts, tea extracts, icings and frostings, lard, sugar concentrates, margarine, shortening, spreads, beer and wine.

Particulate

Chicken pieces, fish meal, jams and preserves, pet food, rice pudding, yogurt and fruit.

Sticky

Caramel, cheese sauces, lecithin, process cheese, confectionery and starch.

The heart of the system

Scraped surface heat exchangers (SSHE) are at the heart of many modern continuous and semi-continuous processes of various food products. Also at the heart of many of today's systems are the Contherm SSHEs, which have earned the trust of many producers of today's food products.

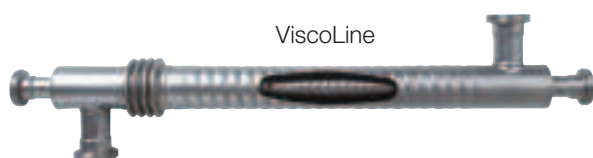
Optimizing thermal efficiency

Continuous production is a prerequisite for modern food processing because it promotes:

- high throughput
- uniform heat transfer
- better economy

A complete range

Alfa Laval have a complete range of scraped surface heat exchangers, tubular units, and plate heat exchangers covering the full range in terms of flexibility and cost. The complete range thus available will help ensure that we can always provide customers with the best possible solution, with processes adapted to specific product properties, such as the presence of particles, viscosity, etc.



ViscoLine



Frontline



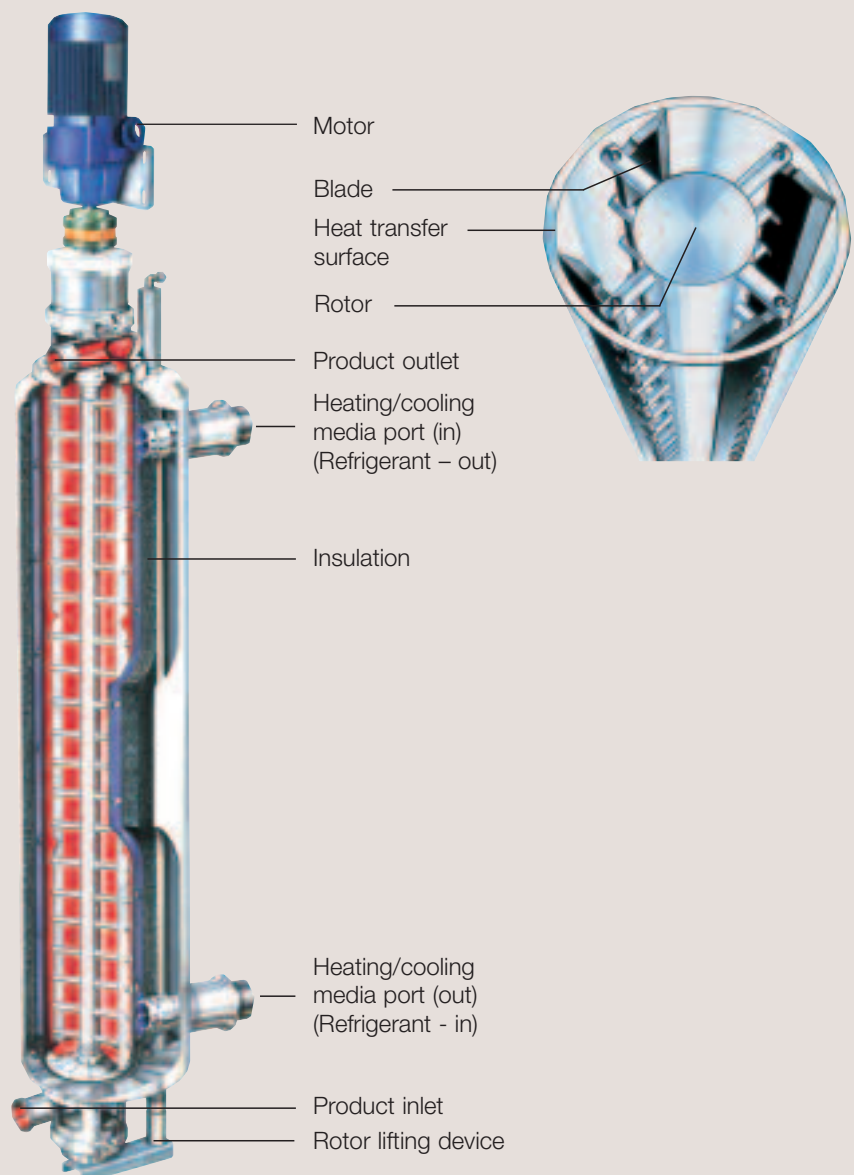
Contherm



How it works

- Product enters the cylinder through the lower tangential port and flows upwards through the cylinder.
- Simultaneously, the media travels in a countercurrent flow through the narrow annular channel.
- Rotating blades continuously remove product from the cylinder wall to ensure uniform heat transfer to the product.
- A coil in the annulus increases media velocity, adding to the heat transfer efficiency.
- Product exits the cylinder through the upper tangential port.
- Product flow and rotor speed can be varied to suit the properties of the product flowing through the cylinder.
- Numerous configurations of the Contherm are available. By varying materials of construction, features and options, you can customize your SSHE to meet your requirements.

Contherm Scraped Surface Heat Exchanger



Features and options for lifetime economy

Contherm design features and options ensure reliability, flexibility and maximum runtime, adding up to increased lifetime economy and return on investment.



Tangential head



Seal



Hydraulic lift

Tangential product head design

- Product enters the cylinder under the rotor in a corkscrew pattern in the direction of the rotor to assure gentle product treatment. Product enters and exits the cylinder in the same direction as the turning rotor, maximizing product integrity and quality. This gentle handling is a must for products such as pie fillings, fruit preserves and soups and stews.

Aseptically sealed units

- minimize the risk of microbial contamination
- are 3A approved
- have a closed-system design that keeps air, bacteria and foreign material out
- remove the risk of contamination with flushable seals that are able to withstand the high pressures and temperatures found in aseptic processing
- offer a variety of seal designs and materials to choose from
- feature steam flush to maintain sterility of the product seal.

Dedicated hydraulic rotor lift system

- daily or weekly inspections
- only one person required to raise and lower the rotor assembly, translating into reduced labor
- reduces clean-up time significantly
- maintenance and inspection times are cut in half as all Contherms have a devoted hydraulic rotor lifting device
- fast and easy to use, keeping down time to a minimum
- fixed and secure integral design ensures safe operation.

Automatic maintain-status feature

- This feature provides a customer's process with an automated control function, preventing product freeze-up that can occur when rapidly cooling with expansion refrigerants.

Contherm: mounting options to maximize space

Contherm is available in both vertical and horizontal configurations. However, it is most effective when mounted vertically. Contherm's design has proven to be the most effective in providing a comprehensive range of benefits, including:

- saving valuable floor space – requires only 0.33 m² (3.6 ft.²) of the floor space
- maximizing product recovery by providing effective air purging/plug flow
- optimizing cleaning-in-place (CIP) and reducing the risk of contamination
- facilitating rapid and safe removal of the rotor assembly for simple inspection and labor-saving maintenance through the use of Contherm's dedicated hydraulic rotor lifting system.

Horizontal mounting may be required when there is insufficient ceiling height for vertical installations. Portable frames are also available to accommodate your SSHEs.

Bellows thermal expansion joint

- welded product cylinder and media jacket employ a bellows thermal expansion joint, eliminating maintenance associated with gasket-style expansion joints.
- allows for more production time
- ensures that steam or toxic media, such as ammonia, do not leak.

Technical Information

| Model | Heating surface m ² | A mm | B mm | C mm | D mm | E mm | Net* weight kg | Floor space m ² |
|-------|--------------------------------|------|------|------|------|------|----------------|----------------------------|
| 6x3 | 0.279 | 854 | 2502 | 864 | 933 | 717 | 140 | 0.33 |
| 6x6 | 0.557 | 1387 | 3645 | 864 | 933 | 1326 | 234 | 0.33 |
| 6x9 | 0.836 | 1997 | 4864 | 864 | 933 | 1936 | 274 | 0.33 |
| 6x11 | 1.020 | 2355 | 5689 | 864 | 933 | 2205 | 306 | 0.33 |

| Model | Heating surface ft ² | A in | B in | C in | D in | E in | Net* weight lb | Floor space ft ² |
|-------|---------------------------------|------|-------|------|------|------|----------------|-----------------------------|
| 6x3 | 3.0 | 33.6 | 98.5 | 34.0 | 36.8 | 28.2 | 308 | 3.6 |
| 6x6 | 6.0 | 54.6 | 143.5 | 34.0 | 36.8 | 52.2 | 515 | 3.6 |
| 6x9 | 9.0 | 78.6 | 191.5 | 34.0 | 36.8 | 76.2 | 605 | 3.6 |
| 6x11 | 10.5 | 92.7 | 224.0 | 34.0 | 36.8 | 86.8 | 675 | 3.6 |

*Excluding motor

Contherm Specifications

Working temperature range:

-35°C to +150°C

(-30°F to +300°F)

Maximum working pressure:

20 bar (300 psig) on the product side,

17 bar (250 psig) on the media side.

27 bar (400 psig) option for the product side.

Connections - product side:

51mm (2") and 76mm (3"), union

Connections - media side:

51mm (2"), upper; 37mm (1½"), lower



Horizontal mounting

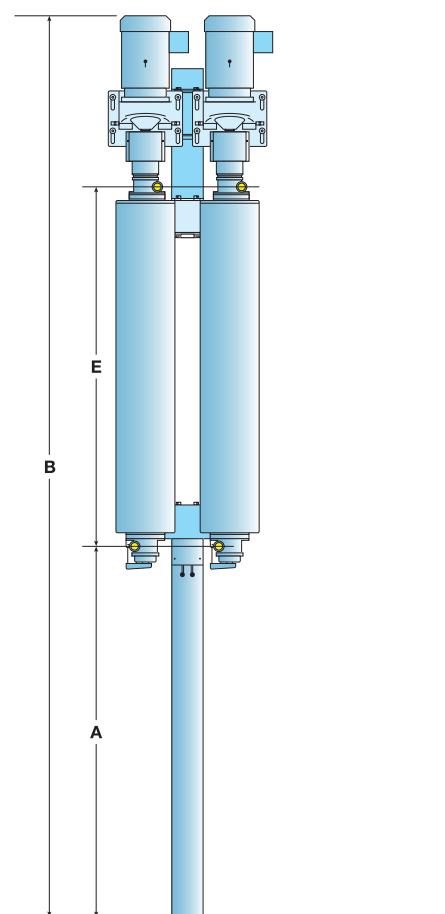
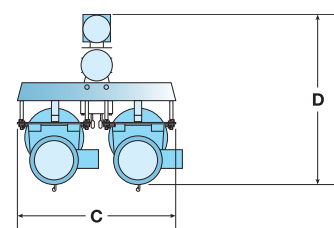
Options

- Alternative drive systems are available
- Standard stainless steel, Hipex stainless steel or nickel cylinders with or without single or triple-chroming
- Mounting column
- Stainless steel, Alfalon II plastic blades, or Nylon are offered in standard, slotted, and spring loaded types
- Standard, hard face, and aseptic seal designs available
- Rotors: 76mm (3"), 102mm (4"), 114mm (4½") and 127mm (5")
- Eccentric rotor
- Staggered blades to prevent channeling of product
- Connections with a larger diameter
- A horizontal Contherm option is available for use in facilities with limited ceiling height
- Cryogenic units.

Particulars required for quotation

To enable our representative to tailor a Contherm system to your exact requirements, inquiries should be accompanied by the following information:

- Flow rates required
- Temperature program
- Physical properties of your product(s) or a description
- Type of heating and/or cooling media preferred.



Alfa Laval reserves the right to change specifications without prior notification.



Convap evaporation module

The Contherm SSHE can be modified to form the Convap evaporator, which is particularly suited to concentrating viscous products. The system normally operates under vacuum. The entrainment separator connected to the SSHE by means of a specially designed vapour head allows the separation of the concentrate from the vapour phase.

Over 35 years of successful processing

Contherm, supplied by Alfa Laval®, embodies more than 35 years of efficiency and reliability. Units installed worldwide are fulfilling the demand for premium, uniform product quality. The Contherm is designed to meet the strictest sanitary standards and is widely used for aseptic processing applications. ISO9001 certification ensures that quality and dependable manufacturing practices are in place.

Customer support: an innovative technology that never ends

From initial contact to system operation, there are many ways in which we can help you get the most out of your investment in Alfa Laval. Our customer support programme includes application advice, test units, process development and configuration, and service contracts. By listening to your views and following processing trends at the source, we can fine tune our systems to satisfy your demands.

To enable your staff to run and maintain your Contherm SSHE during everyday production, we offer training courses and seminars covering all aspects of their use. And, of course, because we provide local support on a worldwide basis, we can respond rapidly to your emergency situations.

Rental units are also available

For reasons of confidentiality, if you prefer to carry out processing trials using Contherm in your own plant and with your own personnel, we can offer you a Contherm test unit on a rental basis along with qualified Contherm personnel during start-up.

Parts and service

Parts and service agreements tailored to your individual requirements are an important part of Alfa Laval's customer care programme designed to maximize your production uptime.

Food Development Centers at your disposal

Put the Contherm and your product to the test. We have fully equipped Food Development Centers in the USA and Belgium, which are available for the cost-effective development and definition of process conditions prior to scale-up. Whether you want to test processing methods or plant efficiency, we have the facilities and application knowledge to help your decision-making.

For further information, please contact Alfa Laval at e-mail address: contherm@alfalaval.com or your local Alfa Laval sales office.



Relying on Alfa Laval

Alfa Laval stands behind many innovations that have brought better, safer food at lower prices to more people. As your source for reliable food processing performance, Alfa Laval offers components and processes to meet all of your requirements.



Fluid Handling

- Our comprehensive range of centrifugal pumps provide high efficiency and low maintenance costs
- Positive displacement pumps feature a tough, innovative construction and offer reliable, gentle pumping action
- The widest selection of valves for the food processing industry, our single seat, mixproof, and manual and specialty valves will meet your exacting demands for safety, efficiency and hygiene while ensuring the careful handling of your product
- Our wide range of control units provides a high degree of precision, reliability and performance
- Fittings, tank equipment and other accessories for clean and efficient processes.

Heat Transfer

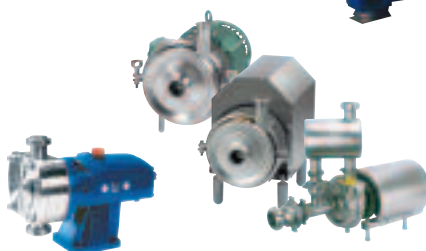
- Plate heat exchangers meet your exacting demands for food safety, efficiency and hygiene
- ViscoLine™, corrugated tubular heat exchangers have a wide variety of thermal food applications
- Contherm, scraped surface heat exchangers for heating, cooling, slush-freezing, pasteurizing, sterilizing and crystallizing media that is viscous, sticky or particulate
- Spiral heat exchangers for heating, cooling, interchanging or condensing, offering high efficiency in a compact size
- AlfaCond/AlfaVap, plate heat exchangers for condensing and evaporating can be used as a booster with existing equipment or as a complete effect station
- Brazeed heat exchangers for the compact solution of many utility demands.

Membranes

Alfa Laval develops, manufactures, install and service high-quality membrane filtration systems for the food industry. The range of membranes cover all filtration processes – reverse osmosis, nanofiltration, ultrafiltration and microfiltration. They can be applied in either plate & frame or spiral wound elements.

Separation

- High performance sanitary decanter and disk-stack separators optimized for clarification, extraction, dewatering, and classification applications in the food and beverage industries meeting the highest standards of hygiene.



Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions. Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

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