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unicus





Food:

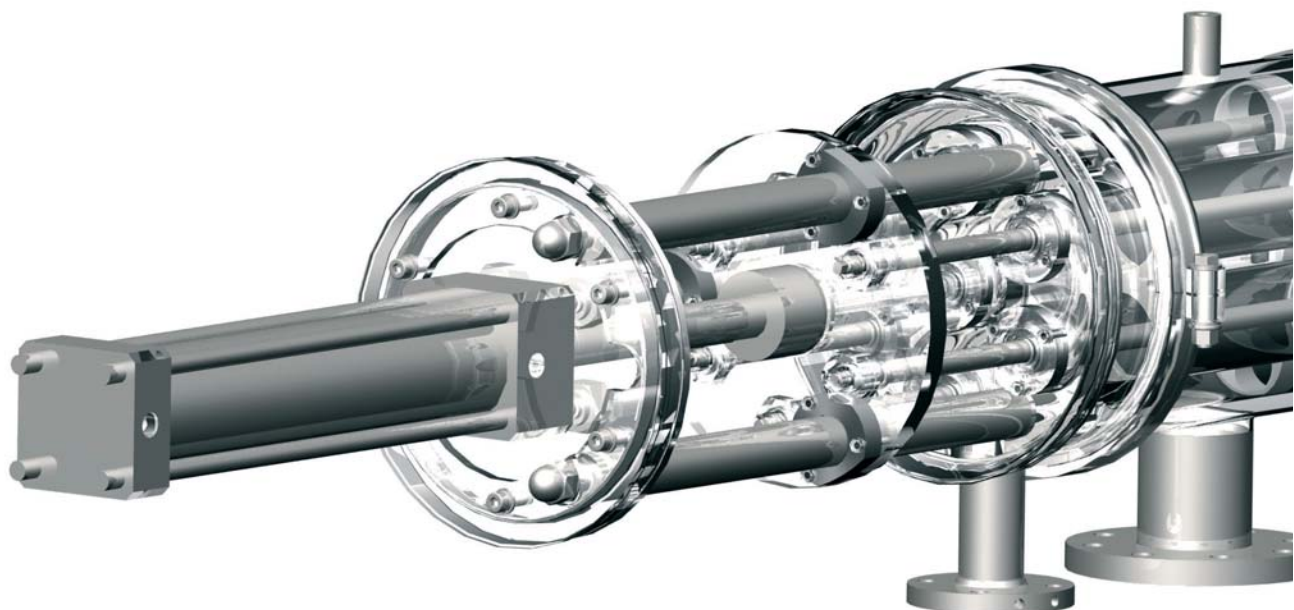
People do not eat at home, they do not have time to cook, and they want healthy individual portions of quality food.

Environment:

High energy consumption, environmental regulations and sustainable development create a need for evaporation of effluents.

Globalization:

It demands high performance production in the industrialised countries.



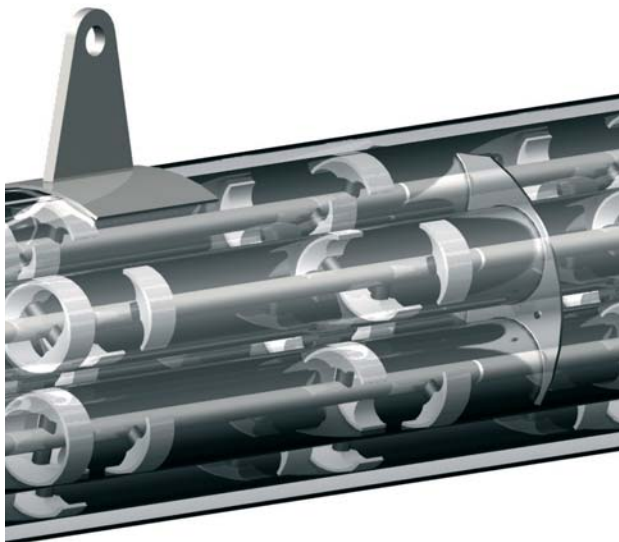


What can
industry
offer?

Current thermal technology:

Has existed for more than 50 years, and they cannot face the pressure from new demands. HRS have recognised these necessities and has created UNICUS®, a scraped surface heat exchanger, designed for processes to heat and cool with high viscosity products, crystallisation, evaporation and high fouling applications.

Long running time, without stopping, in any pasteurisation or sterilisation process.



Functions

There are two versions of UNICUS®:

- In series
- In parallel

It has a reciprocating movement, instead of rotational, which causes less damage to the product and also reduces cutting damage considerably, when compared to rotational scraped surface units.

UNICUS® can work vertically or horizontally, because its scraping is alternating. Length of up to 6 m can be manufactured and transfer areas up to 100 m² per unit.

The standard model is available in 3 and 6 m lengths. This allows the units to work at all flow rates in the Food Industry without any limitation, regardless of the temperatures, programme or product nature.

UNICUS® also breaks the laminar flow at low Reynolds numbers, and this maintains keeping quality during the thermal treatment.

in series: the product goes through every tube, one by one



in parallel: the product goes through every tube at the same time



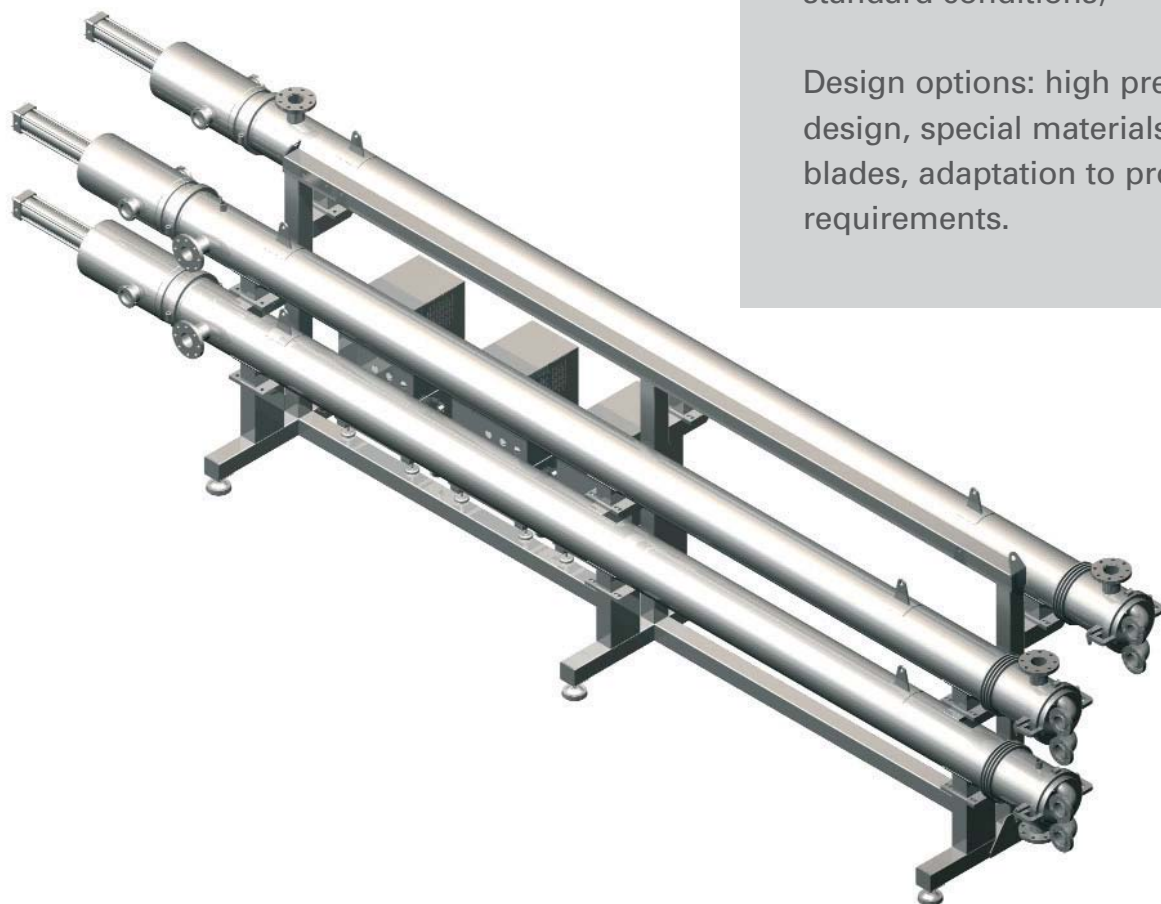
alternative movement



Design



Exclusive design of patented
sealing system



The standard design of UNICUS® is horizontal, producing its alternating movement by means of a hydraulic unit.

There are different sealing systems depending on the nature of the fluid.

It can be configured to work under aseptic conditions with steam injection into areas where there is risk of contamination.

Working temperatures: from -20°C to 250°C.

Working pressures: up to 60 bar.
(See technical brochure for standard conditions)

Design options: high pressure design, special materials, metallic blades, adaptation to product requirements.



Scraping elements

Scraping elements are manufactured in different materials and sizes.

Materials: Teflon, polysulphone, peek, etc.

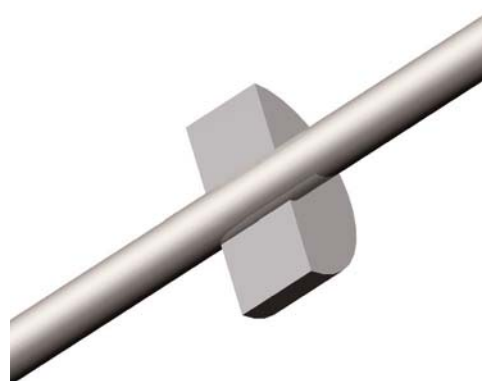
Sizes: 120° and 180° or 360°

They are combined with a silicon spring or peek segments to fit tightly to the tube surface.

Scrapers type



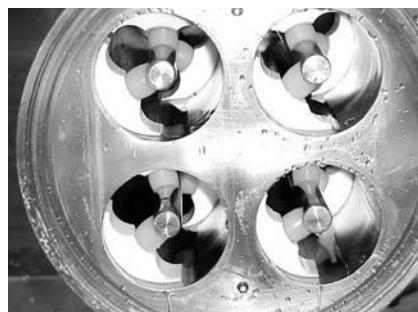
Teflon



Polysulphone



Stainless steel + peek ring





UNICUS® 1(1)



Model	Dimensions									Area	Volume Shell/Tubes	Weight	Hydraulic cylinder
	Lt	Lc	P1	P2	S	V	F	SC	EV				
U 1/1 3.0 304/316L 1T	4135	2733	DN50	DN76	DN40	1/2"	6/1/0.8	1/4"	1/4"	0,7	9,85/12.4	65.1	MDT (*) 40/18X400
U 1/1 6.0 304/316L 1T	7135	5733	DN50	DN76	DN40	1/2"	6/1/0.8	1/4"	1/4"	1,41	19.7/24.8	98.1	

(*) Hydraulic cylinder speed, can be regulated in the range of 10-30 cycles/min.

1 tube

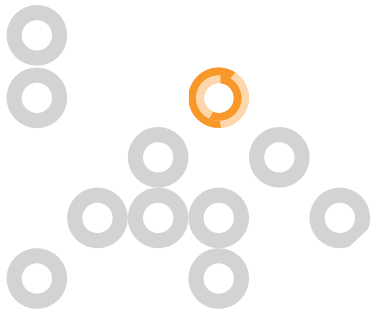
1 pass



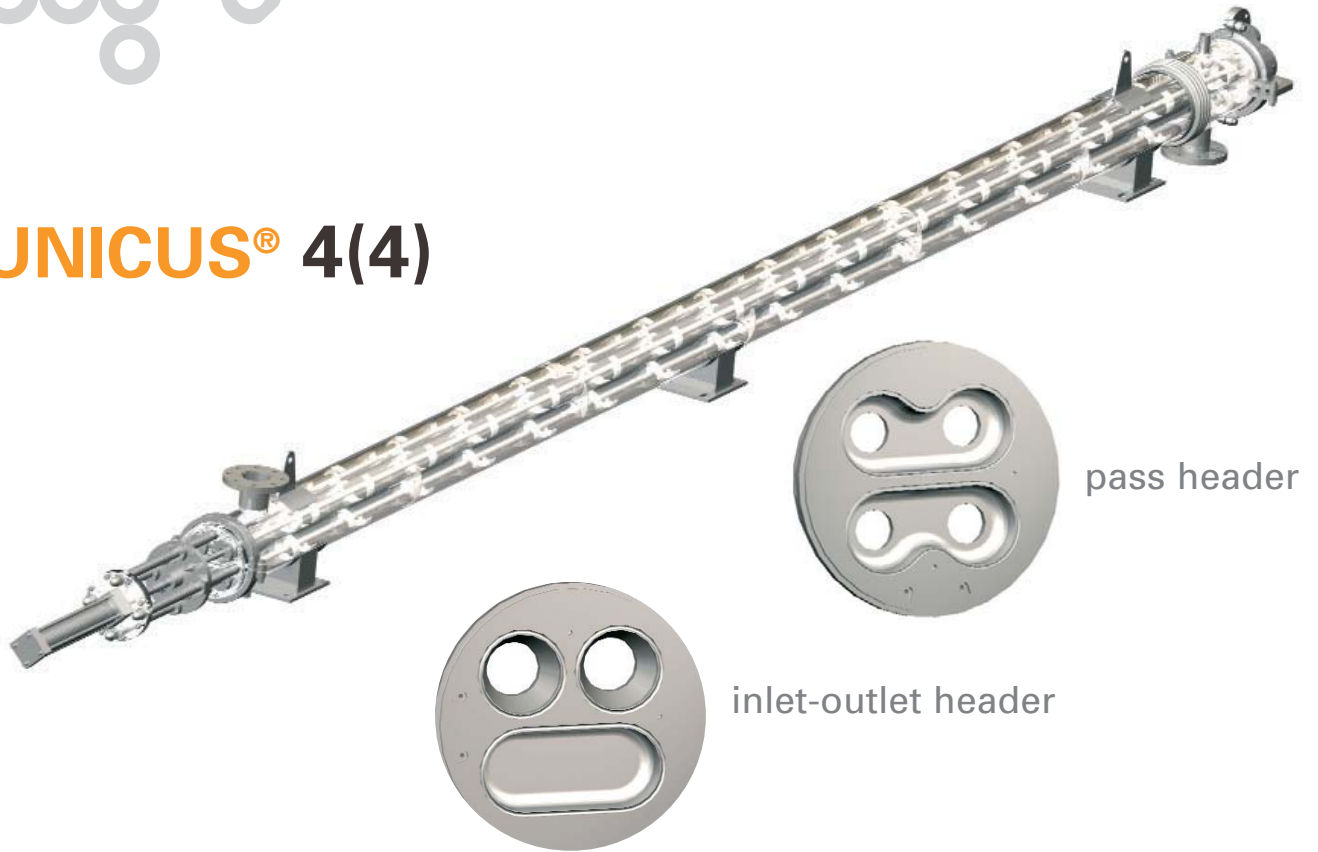
Fresh cheese



Mustard



UNICUS® 4(4)

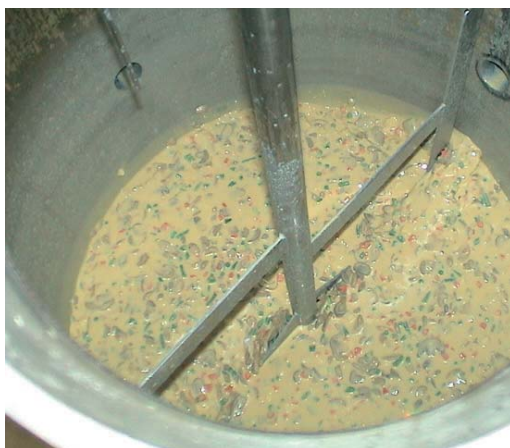


UNICUS® 7(7)



4 tubes

4 passes



Mushrooms



Cosmetics

Model	Dimensions									Area	Volume Shell/Tubes	Weight	Hydraulic cylinder
	Lt	Lc	Li	Ds	P1	S	V	F	SC				
U 4/4 3.0 304/316L	4284	2571	2939	1900	DN50	DN80	1"	6/2/0.8	1/2"	2,73	51,3/48,1	264	MDT (**) 63/28X385
U 4/4 6.0 304/316L	7284	5571	5939	4900	DN50	DN80	1"	6/2/0.8	1/2"	5,6	102.2/98.5	397	

(**) Hydraulic cylinder speed, can be regulated in the range of 10-30 cycles/min.

7 tubes

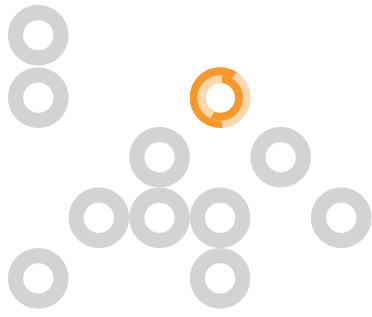
7 passes



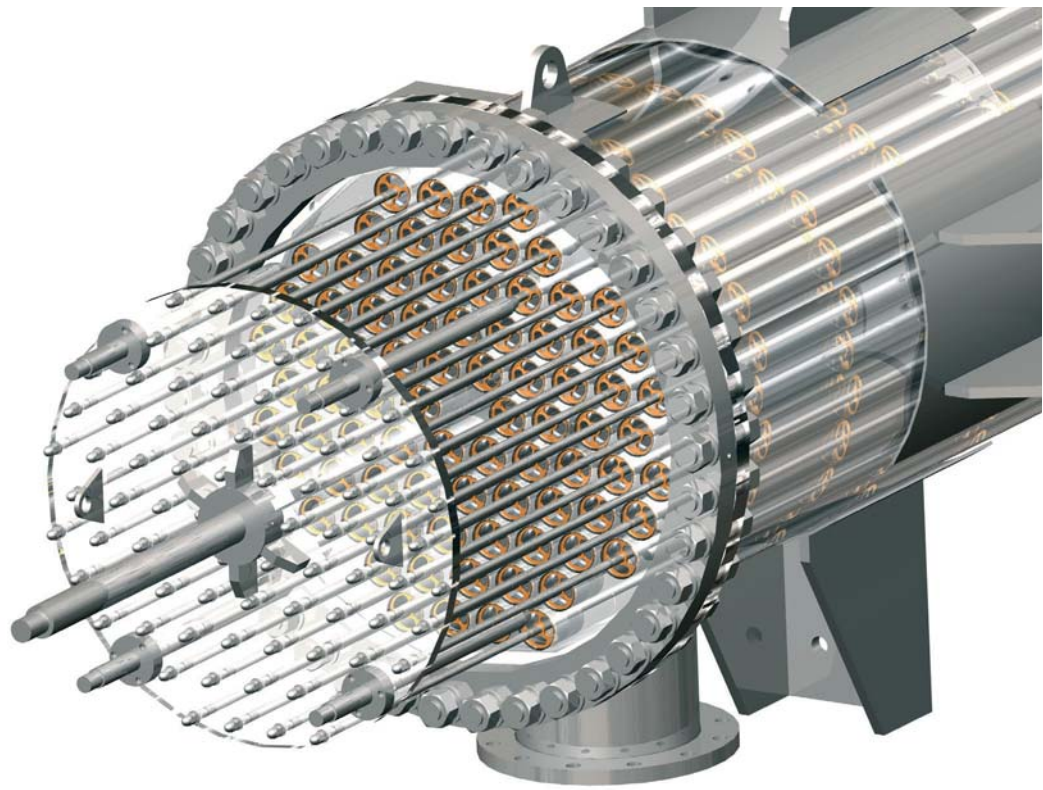
Soups

Model	Dimensions										Area	Volume Shell/Tubes	Weight	Hydraulic cylinder
	Lt	Lc	Li	Ds	P1	P2	S	V	F	SC				
U 7/7-3.0 304/316L	4294	2565	2940	1900	DN50	DN76	DN80	1"	6/2/0.8	1/2"	4,8	70,8/87	387.1	MDT(**) 80/36X385
U 7/7-6.0 304/316L	7294	5565	5940	4900	DN50	DN76	DN80	1"	6/2/0.8	1/2"	9,8	143.3/172.8	587.2	

(**) Hydraulic cylinder speed, can be regulated in the range of 10-20 cycles/min.



UNICUS® Evaporator



As well as UNICUS® for food applications, HRS has designed an UNICUS® evaporator; a multitubular unit to be used as a scraped surface evaporator for any kind of application and as continuous crystalliser and anti-fouling tubular for any thermal application, heating or cooling.

In evaporation it is used with multi-effects and also with mechanical vapour compression; in this case, the unit performance is enhanced substantially, because it allows working at high evaporation temperature thus increasing the vapour compressors performance.





Applications

Protein Industry

Cooking / cooling viscera, cooking / cooling MDM (up to 32°F), cooking / cooling chicken pieces, cooking / cooling taco stuffing, frying minced beef / pork meat, cooling minced beef / pork meat, thermal treatment for blood, cooking / cooling fish paste, cooking / cooling pet food, heating minced fruit peel, cooling emulsified fat + water, concentration of meat wastes, concentration of viscera and sub products, concentration of waste and slurries, liquid ice (freezing slushy brine).

Bakery and Confectionery

Chocolate, pie fruit filling, glazed and bakery creams
toppings, cream filling, sweets, peanut butter, syrups, gelatine, fruit preparations, marmalade / jelly, fudge, cookie slurry, nuts paste, liquid bread, yeast slurry, starch, jams and preserves, lard, butter and margarine.

Dairy

Cheese sauce, butter, margarine, non cream dairy products, yogurt with fruit, cheese creams and products /condensed milk, ice creams, milk skin, dairy desserts with or without particulates, rice pudding, flavoured puddings, custard, whey concentrate.

Beverages

Coffee extract, tea extract, sugar concentrate, iced beer, wine, slush-freezing orange juice, juice concentrate with pulp and fibres (mango, apple, cherry, strawberry, cranberry, grape fruit, tropical fruit), aseptic nectar filling, concentration of yeast extract, malt extract, wort.

Fruits and Vegetables

Juice concentrate with pulp and fibres, fruit mash, fruit purees, tomato products, fried vegetables (onions, garlic, etc), pickles and relish.

Convenience Food

Scrambled eggs, baby food, tomato based products; ketchup, pizza sauce, pasta sauce (ragu), mayonnaise, fruit preparation, gravies, sauces, salad dressing, spreads, soup with or without particulates, flavouring concentrates, mashed potatoes, starch paste, mashed corn, fried beans, fats and oils.

Pharmaceutical

Ointments, lotions, emulsions, antibiotics, blood plasma, protein gelatine solutions and vitamin

Personal care

Face masks, lotions, emulsions, gels, hand and body creams.

Environment

Chemical wastes concentration, animal manure, agricultural wastes, and petrochemical wastes.