

Heat Exchangers

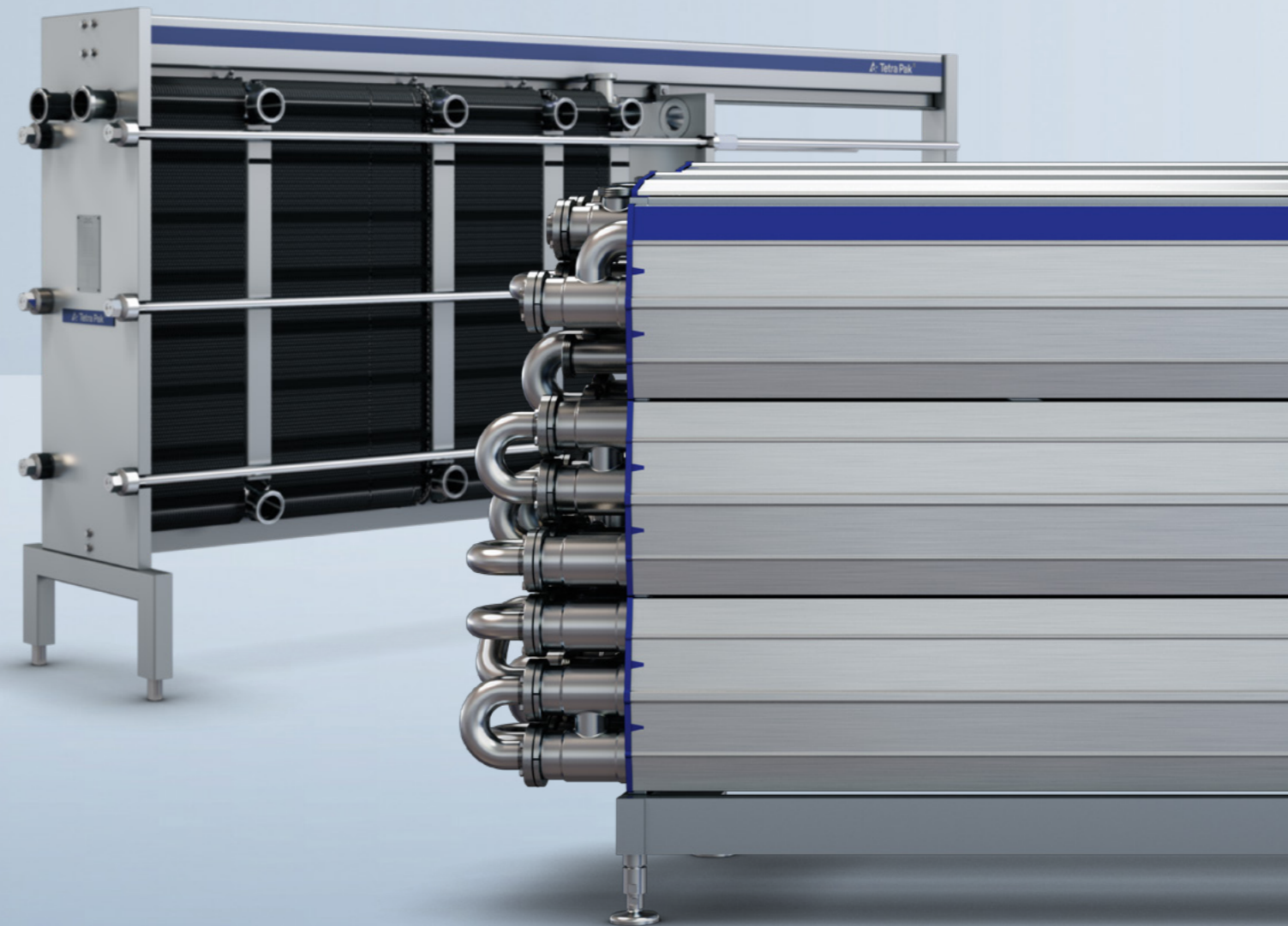
Tetra Pak portfolio

Efficient and reliable heat exchangers for optimal results

Tetra Pak delivers efficient and reliable heat transfer solutions to meet all demands for safe and attractive food products. Cost-effective and flexible, they combine high performance with low environmental impact.

Our heat exchangers can be configured to support any requirement. We sell them as standard units with additional customisable options to fit all applications as well as process and automation needs.

Our heat exchangers are fully configurable to meet any requirements.



Our range of Tetra Pak® Heat Exchangers is a combination of knowledge and equipment excellence that will give you the optimal heat transfer solution. With Tetra Pak Heat exchangers, you and your customer will have access to a cost-effective solution that ensures energy efficiency, with minimal consumption of water and other resources. With a wide range, there is always a heat exchanger to fit your requirements, and we work with you to find the most suitable solution – no matter what products and raw materials your processes.

Get the most at the best price

Each application, process and food product requires a customised solution. Every Tetra Pak® Heat Exchanger is sized on demand. With a complete portfolio of four different heat transfer technologies, Tetra Pak will always offer you the most cost-effective solution for your needs.

Food safety

We design all our components to remove all risks to food safety. The floating protection system of the Tetra Pak® Tubular Heat Exchanger eliminates the risk of product contamination due to expansion cracking. The T-clip design of the Tetra Pak® Plate Heat Exchanger gasket has specific features to enhance safety, such as a safety groove

in the seal chamber to identify any leakage visible from the outside of the unit. Our heat exchangers are designed to prevent the risk of cross contamination between product and media, ensuring food product safety every time.

Easy to rebuild

Your products and processes can change, which means being able to upgrade your heat transfer solution at the lowest investment cost. To enable this, Tetra Pak Plate Heat Exchangers have connections that are bolted, rather than welded to the connection plates. The modular design of the Tetra Pak® Tubular Heat Exchanger, meanwhile, makes operation simple.

Environmental advantages

Helping you to be more environmentally friendly is at the heart of all Tetra Pak products, and is especially key to our heat exchanger range. The unique product-to-product (P2P) design of our Tetra Pak Tubular Heat Exchanger, for example, helps reduce energy consumption by up to 55%.

Gentle food processing

Preventing a high shear rate is quite often key for food products. Tetra Pak Heat Exchangers help you achieve the highest product quality – as if your products were home-cooked food. Tetra Pak® Coiled Heat Exchangers, for example, have only one inlet and one outlet connection. This enables gentle mechanical treatment and ensures excellent integrity for particles of up to 25 mm in diameter.

In our plate heat exchangers, the narrow, tall shape of the plates, together with their surface pattern and the size of the portholes, enable even flow and distribution over the entire plate surface. This reduces fouling and allows for longer production runs. Even distribution of the flow also makes cleaning more effective, and faster.

The floating protection system of our tubular heat exchanger makes it possible to offer compact and efficient heat exchangers without any risk of cracks in the tubes.

Easy and low maintenance requirement

In our tubular heat exchanger, inspection and exchangeability of parts is easy, thanks to the floating protection system of the inner and outer tubes and the tube connection. On top of that, the tubes have a horizontal position, rather than being stacked vertically, which enables easy access for maintenance.

In Tetra Pak Plate Heat Exchangers, the gaskets used to seal the plates have a robust T-clip design, which makes them easy to remove and reassemble.

From simple to most complex food product

With over a century of heat transfer experience, Tetra Pak can support all applications for any food product, from products with high viscosity, complex thermal behaviour and more.

Product portfolio

Tetra Pak® Heat Exchangers



Our range of Tetra Pak® Heat Exchangers is a combination of knowledge and equipment excellence that will give you the optimal heat transfer solution.



Main applications

| | Tetra Pak® Plate Heat Exchangers | | | |
|--|----------------------------------|----|----|---|
| | C | CW | CD | M |
| DAIRY | | | | |
| Milk cooling / heating | ● | | ● | ● |
| Milk pasteurization | ● | | ● | ● |
| Cream pasteurization / cooling | ● | | | ● |
| Milk / cream UHT | ● | | | |
| Cultured milk cooling | ● | | | |
| Concentrated milk heating | ● | | | |
| Whey pasteurization | ● | | ● | ● |
| Ice cream mix pasteurization | ● | | | |
| BEVERAGE | | | | |
| Clear juice / still drink / water pasteurization | ● | ● | ● | ● |
| Juice / nectar fibre < 5mm pasteurization | | ● | | |
| Juice / nectar < 15mm pasteurization | | | | |
| Juice / nectar > 15mm pasteurization | | | | |
| Clear juice concentrates | ● | | ● | ● |
| Juice concentrates with pulp & fibre | | ● | | |
| Isotonic sport drinks | ● | ● | | ● |
| Tomato / vegetable juice | | ● | | |
| Smoothies | | ● | | |
| Soy milk / drinks UHT | ● | | | |
| Tea / coffee UHT | | | | |

● Recommended ● Suitable * For concentration duties

| Tetra Pak® Tubular Heat Exchangers | | | | | | | Tetra Pak® Coiled Heat Exchangers | | |
|------------------------------------|----|-----|-----|------|----|---|-----------------------------------|-----------|--------|
| CD | CM | CMP | CMR | CMRF | CC | S | Coiled | Contherm® | Convap |
| | | | | | | | | | |
| | ● | | ● | | | | | | |
| | ● | | ● | ● | | | | | |
| | ● | | | | | | ● | ● | |
| | ● | | | | | | | | |
| | ● | | | | | | ● | ● | ● |
| | ● | | | | | | | | |
| | ● | | | | | | | | |
| | ● | ● | | | | | | | |
| | ● | | | | | | | | |
| | ● | | | | | | | | |
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| | ● | | ● | ● | | | | | |
| | ● | | ● | ● | | | | | |
| | ● | | ● | ● | | | | | |

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Other applications

| <i>Tetra Pak® Plate Heat Exchangers</i> | | | | |
|--|----------|-----------|-----------|----------|
| OTHER LIQUID PRODUCTS | C | CW | CD | M |
| Tomato products | ● | | | |
| Fruit preparations | | | ● | |
| Fruit purees | ● | | | |
| Fruit mash | | | | |
| Soups & sauces | ● | | | |
| Desserts | ● | | | |
| Liquid egg products | ● | | | |
| Products with particles > 15mm | | | | |
| Sticky products | | | | |
| UTILITIES | C | CW | CD | M |
| Heating of CIP | ● | | | ● |
| Water & media heating / cooling | ● | | | ● |
| MAXIMUM CAPACITY | C | CW | CD | M |
| Pasteurization, low-viscous products, l/h | 100,000 | 30,000 | 65,000 | 80,000 |
| Heating / cooling, low-viscous products, l/h | 150,000 | 30,000 | 65,000 | 100,000 |
| Water, l/h | 200,000 | 75,000 | 130,000 | 200,000 |
| Max working pressure, bar (g) | 16 (21) | 7 | 10 | 10 (19) |

● Recommended ● Suitable * For concentration duties

| <i>Tetra Pak® Tubular Heat Exchangers</i> | | | | | | | <i>Tetra Pak® Coiled Heat Exchangers</i> | | |
|---|-----------|------------|------------|-------------|-----------|----------|--|------------------|----------------|
| CD | CM | CMP | CMR | CMRF | CC | S | Coiled | Contherm® | Convap® |
| | ● | | | | ● | | ● | ● | ● |
| ● | ● | ● | | | ● | | ● | ● | ● |
| | ● | | | | ● | | ● | ● | ● |
| ● | | ● | | | | | ● | ● | ● |
| | ● | | | | ● | | ● | ● | |
| | ● | | | | ● | | ● | ● | ● |
| ● | ● | | | | | | ● | ● | |
| ● | | | | | | | ● | ● | |
| | | | | | | | ● | ● | ● |
| CD | CM | CMP | CMR | CMRF | CC | S | Coiled | Contherm® | Convap® |
| | | | | | | ● | | | |
| | | | | | | ● | | | |
| CD | CM | CMP | CMR | CMRF | CC | S | Coiled | Contherm® | Convap® |
| 30,000 | 50,000 | 50,000 | 50,000 | 35,000 | 10,000 | | 20,000 | 5,000 | |
| 80,000 | 80,000 | 80,000 | | 10,000 | 60,000 | | 60,000 | 5,000 | |
| | 120,000 | | | | | | 15,000 | | |
| 80 | 80 | 60 | 50 | 50 | 75 | 40 | 300 | 20 | 20 |

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Tetra Pak® Plate Heat Exchangers

Durable design with plate geometry optimized for food applications

Our range of plate heat exchangers provides gentle, energy efficient heat treatment, optimized to maintain product quality. They're easy to clean, service and maintain, and can even be rebuilt for new applications or different capacities. Best of all, we can guarantee long equipment lifetime thanks to the robustness of gaskets and plate pressing technology.

Example applications:

Beverages

- Juice/nectar/still drinks
- Fruit concentrates
- Carbonated soft drinks
- Soy milk/drinks

Utilities

- CIP
- Water
- Media

Prepared foods

- Tomato products
- Soups & sauces
- Desserts

Dairy

- Milk
- Milk/cream
- Cultured milk
- Whey
- Ice cream mix



Key features

Supplier with a complete portfolio

Plate geometry

- Narrow plate shape
- Port-hole size adapted to model
- Distribution and port area pattern
- No stagnant areas

Pressing pattern

- Distribution area and port area pattern
- Heat transfer area pattern
- One step, single-tool pressing
- Optimised heat load on the product
- Optimised running time
- Optimised use of pumping power, water, heating and cooling media
- The 5-point hanger alignment system

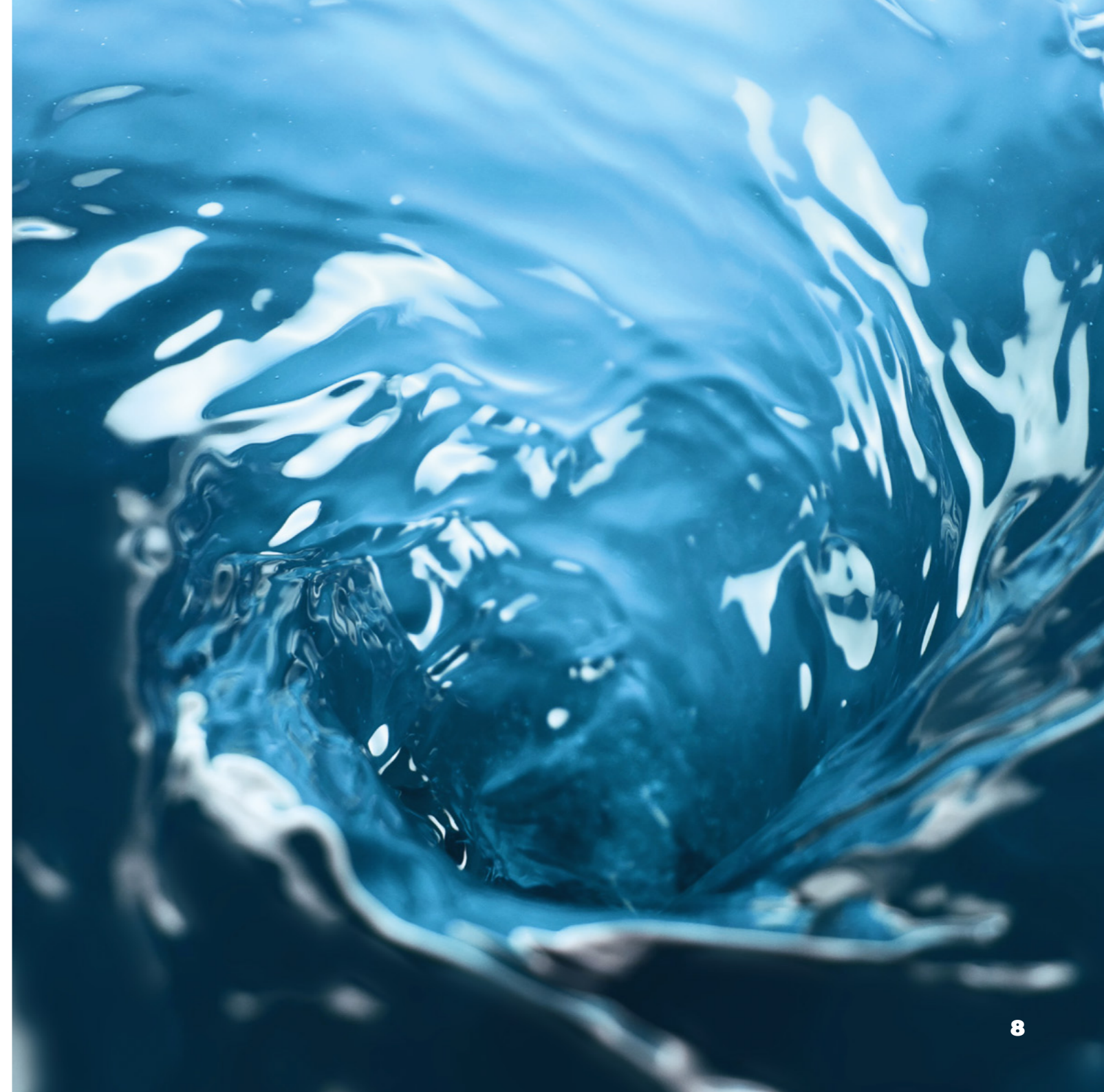


Clip-on gaskets

- Clip-on mounting
- Roof-top design with perfect fit with plate groove
- Adapted materials for food products and temperature ranges (incl. FDA approved)
- Leak indication chamber

Easy to adapt

- Modular and robust frame – simple to upgrade and rebuild
- A wide range of plates and gaskets, for different applications



Our range

Tetra Pak® Plate Heat Exchangers



Tetra Pak® Plate Heat Exchanger C



Tetra Pak® Plate Heat Exchanger M



Tetra Pak® Plate Heat Exchanger H

From 1,000 l/h up to 200,000 l/h

- Design for up to 21 bar
- Larger pressing depth:
 - » Less fouling and longer operating time
 - » Gentle treatment
 - » Higher thermal performance for lower utility consumption
- Lots of available options

- Design for up to 16 bar
- More suitable to simpler applications

- Design for up to 16 bars
- Specially developed plates for hygienic duties
- Numerous options in:
 - » Plate & gasket material
 - » Design code
 - » Connection standard



Brazed Heat Exchangers (BHE)

Stainless-steel plates, copper brazed

Applications

- Heating and cooling
- Refrigeration

Benefits

- Compact and easy to install
- Very limited maintenance requirements
- High heat transfer efficiency
- Standard items on stock for fast delivery



Alfa Nova

100% stainless steel, fusion-bonded

Applications

- Heating and cooling
- Refrigeration
- Suitable for aggressive media

Benefits

- Gasket free
- Copper free
- Compact and easy to install
- Very limited maintenance required
- High heat transfer efficiency
- Standard items on stock for fast delivery

Available options

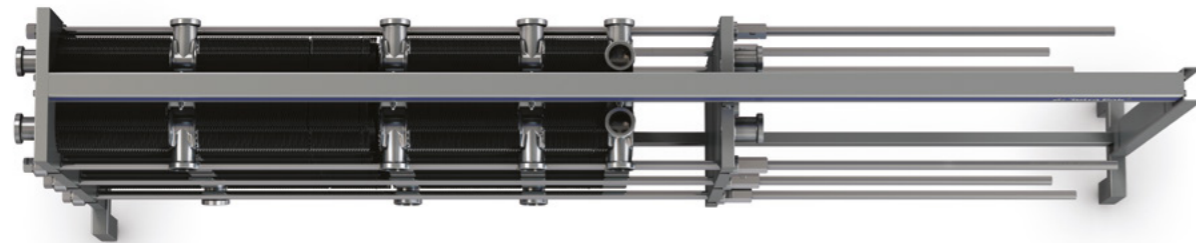
For C and M series

Valid for C series

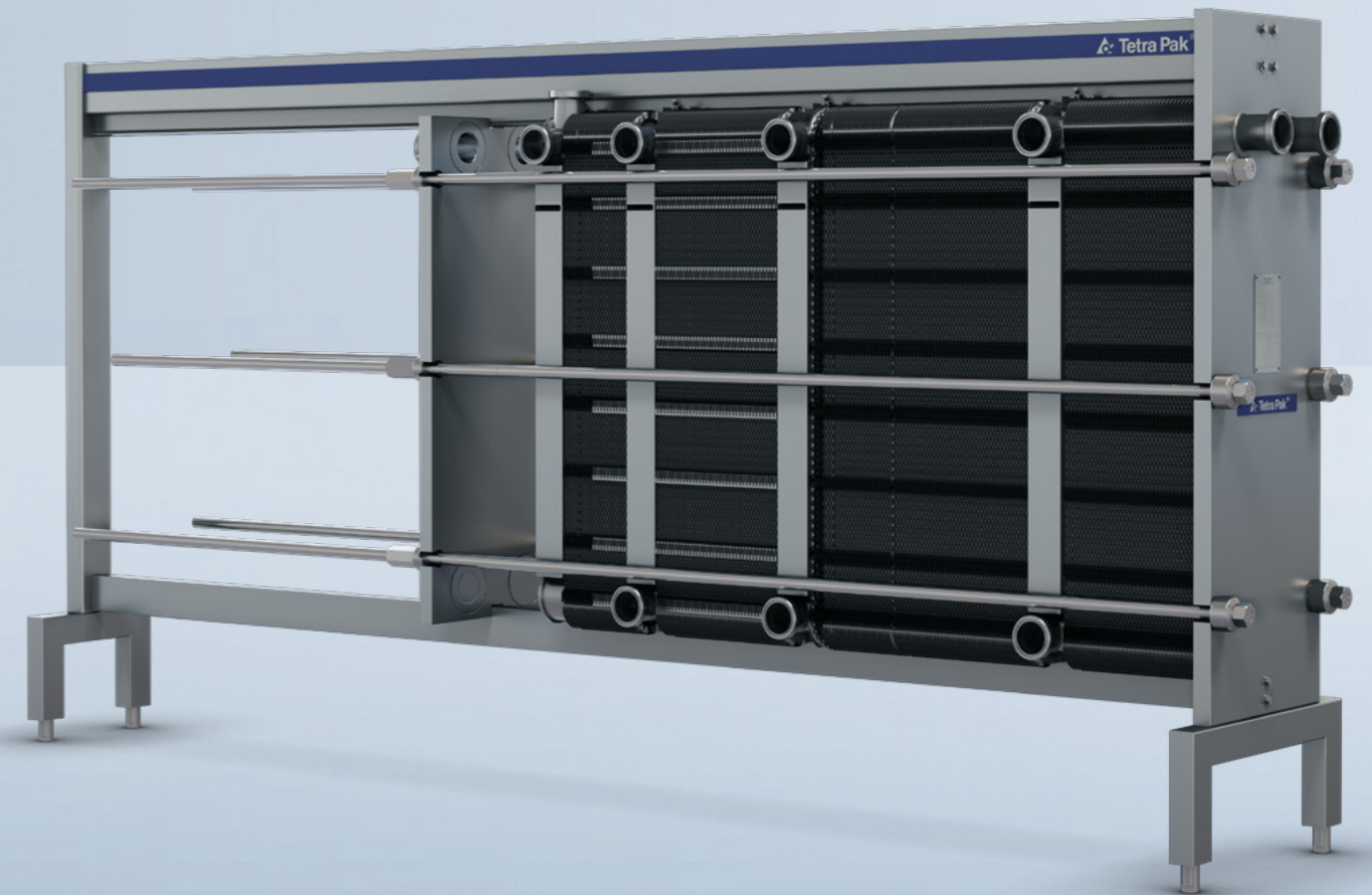
- Plates in stainless steel, titanium or SMO
- Gasket: NBRFF or EPDMFF
- Double-wall plates (sizes C6, C8, C10)
- Bolt protectors, stainless steel
- Protection sheets
- Adjustable feet
- 3-A finish
- Test and material certificates
- Testing by authorized third-party inspectors

Valid for M series

- Plates in stainless steel, titanium or SMO
- Gasket: NBRP, NBRB, NBRFF, or EPDMFF
- Double-wall plates (sizes M3, M6 and M15)
- Protection sheets
- Low-adjustable feet
- 3-A finish
- Test and material certificates
- Testing by authorized third-party inspector



Our plate heat exchangers provide gentle and energy efficient heating, optimized to maintain product quality.



Tetra Pak® Tubular Heat Exchangers

With floating protection system

Tubular heat exchangers are used to process liquid dairy products, beverages, and infant formula as well as many other food applications. The frame, tubes and other component parts of the heat exchanger are specifically assembled to allow for easy dismantling and rebuilding. This makes it possible to customise the heat exchanger for different recipes, capacities, and to run different products. More than 27,000 Tetra Pak heat exchangers are installed around the world.



Example applications

- Sterilization of milk products
- Sterilization of soy and coconut products
- Pasteurization of fruit products with fibres
- Heat treatment of tomato products, soups, desserts and egg products
- Heating of CIP liquid

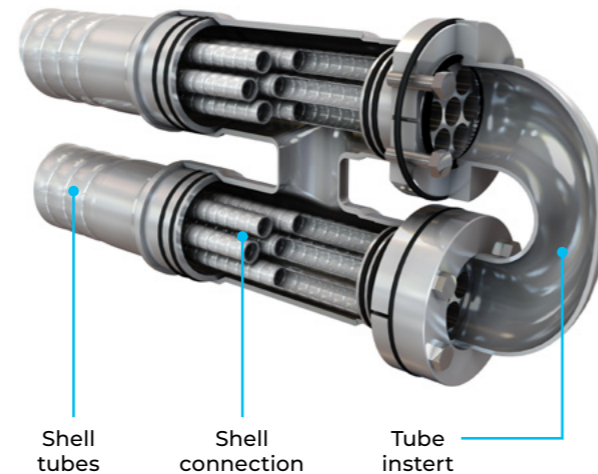


Floating protection system

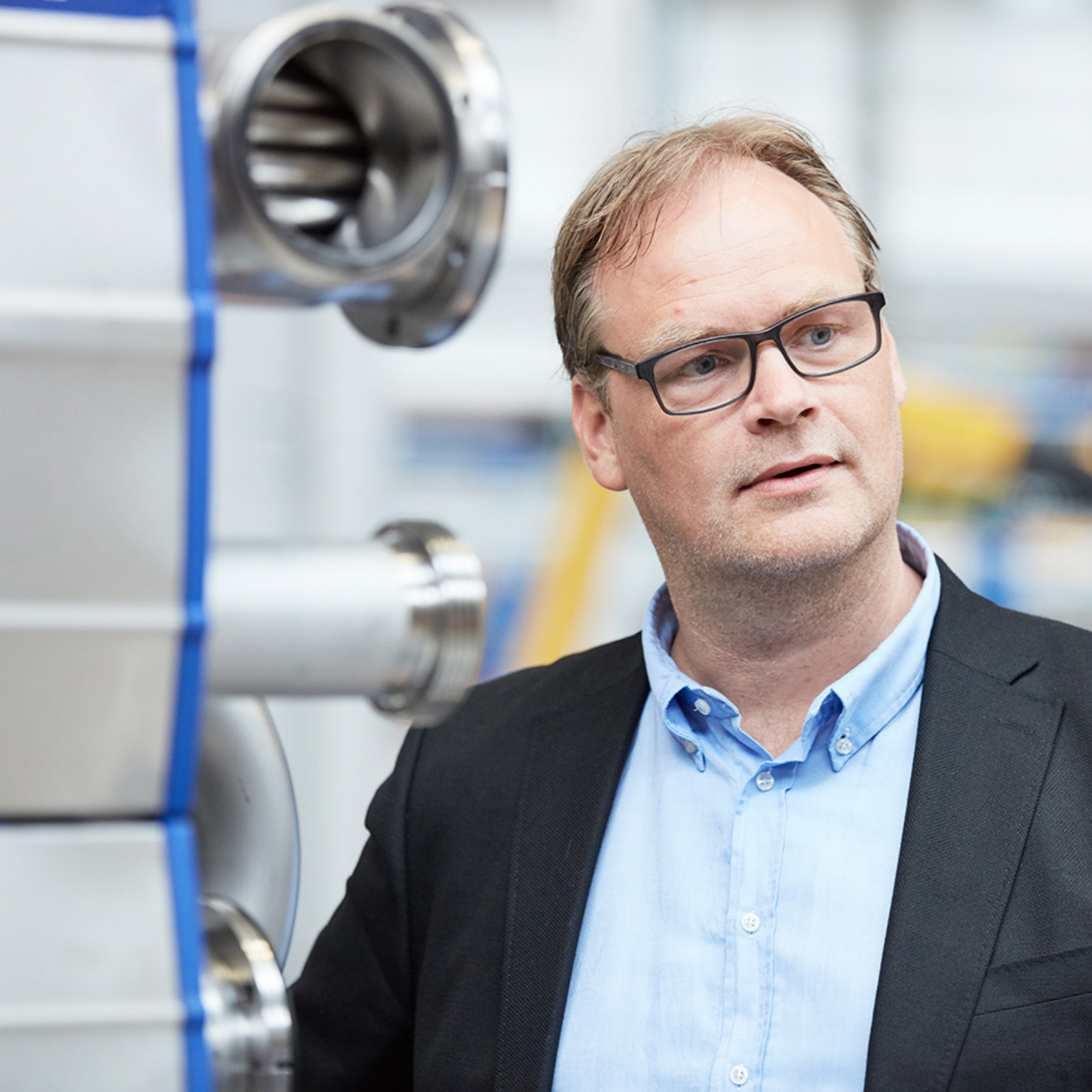
The floating protection system is a unique design with multiple, independently moving, floating (not fixed or welded) parts, which – individually and as a system – enables superior thermal stress absorption. This results in protection for your food products, production and investment. It also enables inspection and exchange of all parts.

Key benefits

- No bellow, not fully-welded
- Eliminates risks of cracking
- Ensures uncompromising food safety
- Enables product-to-product heat regeneration for exceptional efficiency
- Improves equipment lifetime



Unique thermal stress absorbing design



Key features

Efficient, reliable and durable

The floating protection system enables food safety and exceptional efficiency

- Energy-efficient compact frame with product-to-product heat recovery and insulation system.
- The modular design enables us to customise each unit and makes it easy to service and upgrade them.
- Inspectability ensures uncompromising food safety.

Everything is optimised by our unique knowledge, our technical design program (Quantum) and our complete range.



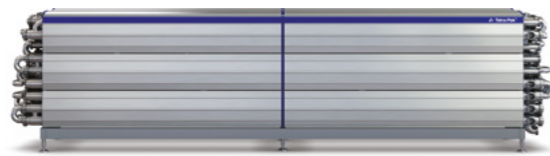
Product-to-product heat recovery

Unique design for an optimal performance

Our P2P design is of the highest standard and superior hygiene, with a patented solution that helps to avoid a potential crevice. Instead of welding the tubes from the outside, we invented a way to weld inside. This enables direct heat recovery from product to product, meaning fewer tubes and lower investment costs.

Key benefits

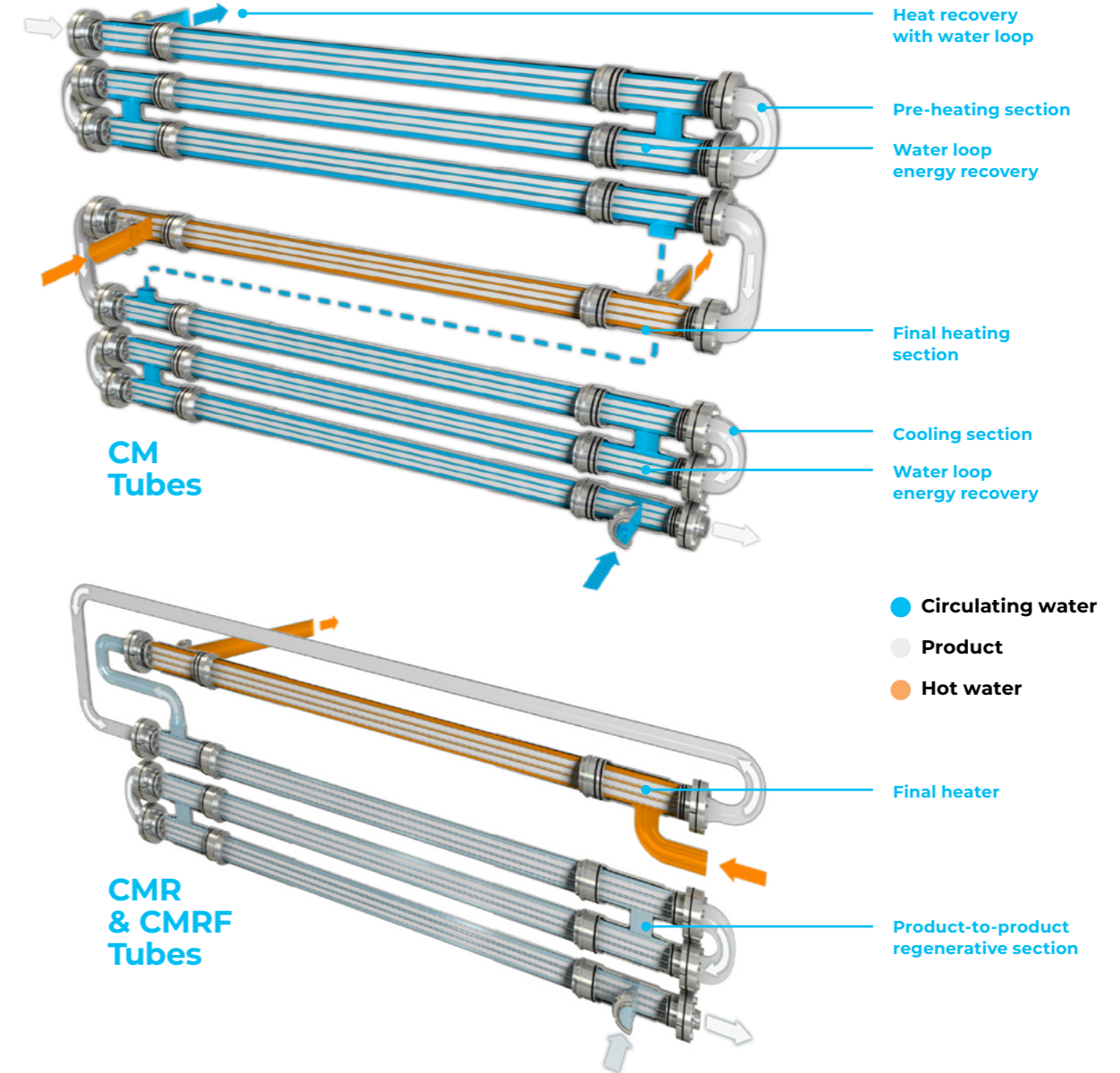
- Patent-pending solution ensuring fully hygienic P2P production
- Higher heat recovery and lower energy use
- Minimal heat loss
- Lower investment



P2W product-to-water heat recovery



P2P product-to-product heat recovery



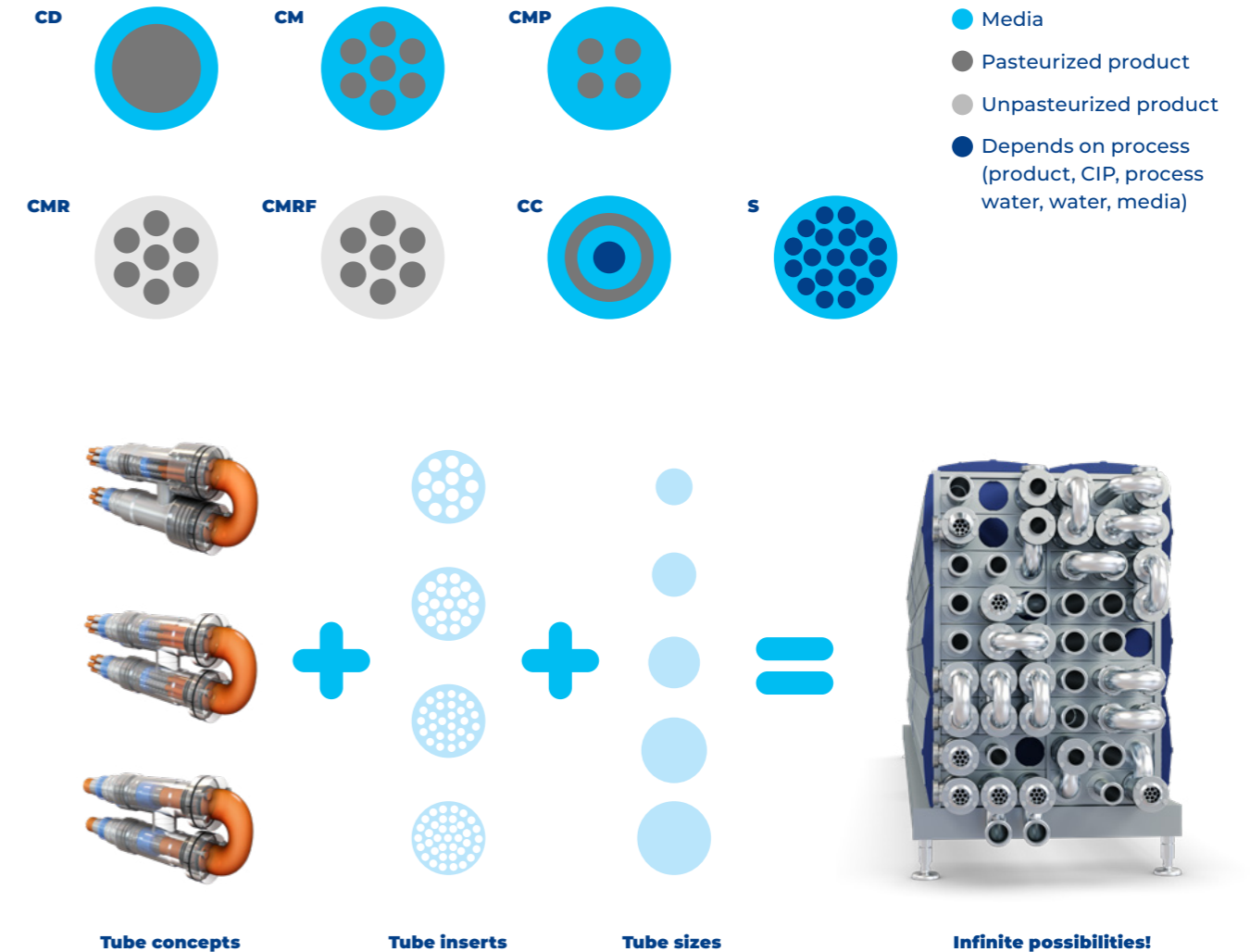
A wide portfolio

| | CD Doubletube | CM Multitube | CMP Multitube for pulp | Product-to-product heat recovery CMR | CMRF | CC Concentric tube | CIP & Water Heater |
|---|------------------|-----------------|------------------------------|--|------|--------------------------|--------------------------|
| Low viscous product without fibres or particles | ● | ● | ● | ● | ● | ● | |
| Low viscous product with fibres or smaller particles | ● | ● | ● | | ● | ● | |
| Medium viscous product with fibres or smaller particles | ● | ● | ● | | | ● | |
| High viscous product with fibres or smaller particles | | ● | ● | | | ● | |
| Product with long fibres >15 mm or high amounts of pulp >10% | | | ● | | | | |
| Products with larger particles (>15 mm) | ● | | | | | | |
| Heating of water and CIP solution | | | | | | | ● |

● Ideal ● Good

A complete product portfolio
to meet all your needs!

Tube variants



Available options

For our tubular heat exchangers

Options

- Tube inserts and bends: AISI316L, SMO
- Shell: AISI 304 or AISI 316L
- Product seals: EPDM or PTFE
- Length: 3 or 6 meters (except CMRF and CC versions)
- PED certification or other pressure-vessel codes
- Holding tubes
- Insulation
- Protective panels (compulsory for high-temperature and highpressure applications)

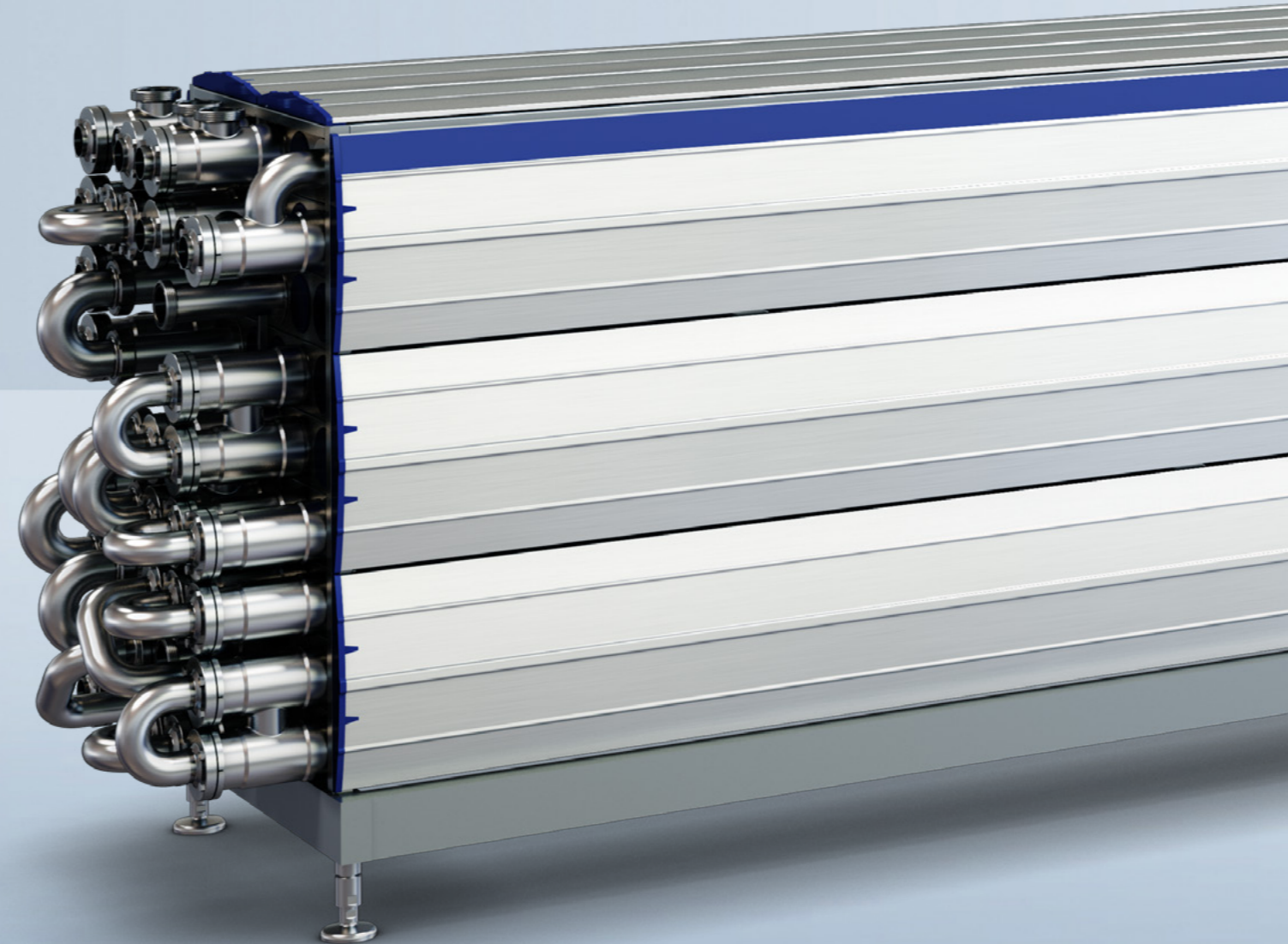
Certifications and compliance

Tetra Pak® Tubular Heat Exchangers have become the first tubular heat exchangers to receive the EHEDG certification, meeting the leading food safety standards in Europe, in accordance with new standards.

- EHEDG: possible on a range of CM modules
- 3A: available on several types of our tubular heat exchangers



Tetra Pak® Tubular Heat Exchangers give independent proof of excellent cleanability and hygienic design.



Tetra Pak® Coiled Heat Exchangers

Maximise versatility and efficiency in heat treatment

The Tetra Pak® Coiled Heat Exchanger provides efficient heating and cooling of a wide range of products, from low to high viscosity, and smooth to particulate products.

The pressure rating of the Tetra Pak® Coiled Heat Exchanger enables you to process higher capacities of high viscous products, improving production efficiency and cutting cost per litre.

Tetra Pak® Coiled Heat Exchangers are proven solutions that deliver excellent product and particle integrity, with outstanding operational efficiency and uncompromising food safety. This is thanks to the high-pressure rating and a coiled design with floating ends, as well as few welds and connections.



Low-viscous

- Milk
- Broth
- Fruit concentrates

High-viscous

- Soups
- Sauces
- Puddings

Prepared foods

- Particulates
- Yogurt fruit
- Fruit preparations
- Tomato products



How it works

In the Tetra Pak® Coiled Heat Exchanger, product flows through a coil-shaped tube and media flows around the product tube to heat or cool the product. An additional feature of the coiled design is that it creates a second flow pattern (“the Dean effect”) at high velocity, which increases heat transfer efficiency.

The coiled mono-tube unit has only one inlet and one outlet connection. This enables gentle mechanical treatment and ensures excellent integrity for particles of up to 25 millimetres in diameter.



Key features

Ensures gentle mechanical treatment

The coiled product tube is placed in a vertical chamber where media flows. The bottom product tube connection is sealed by O-rings to create a system that allows movement between the product tube and the media shell.

The unit is designed for high hygiene and easy maintenance – with a floating end through the bottom flange. This design absorbs the effects of thermal expansion and prevents the tube from cracking.

- High pressure rating up to 300 bar
- Duplex 2205 (EN 1.4462) on all parts in product contact
- Mono-tube with diameters available from 14 to 60 mm
- Up to 100 m long product pipe in one vessel
- Pressure rating on media vessel: 10 bar
- 5 gaskets in total: product, media, inlet, outlet and bottom flange
- Available in 15 different configurations



Contherm® Scraped Surface Heat Exchangers

Designed for complex products

Contherm® Scraped Surface Heat Exchangers are suited for hygienic heating and cooling of viscous, sticky and particulate food products. With a complete portfolio of design options, each unit is optimally configured for any specific application need, and can operate with a wide range of product media. The gentle-flow design of the tangential product inlet and outlet, with optimised rotor configuration, secures gentle product treatment.

Hinged-type blade mount and centrifugal force impact results in efficient scraping of the heat transfer surface, securing a fouling-free process and longer production times. With the integrated rotor lift, the service-friendly design provides safe, quick and easy inspection and maintenance for efficient and flexible production.

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High-viscous

- Puddings
- Sauces and gravies
- Peanut butter
- Hummus

Heat sensitive

- Cream cheese
- Whey protein
- Liquid and scrambled egg products

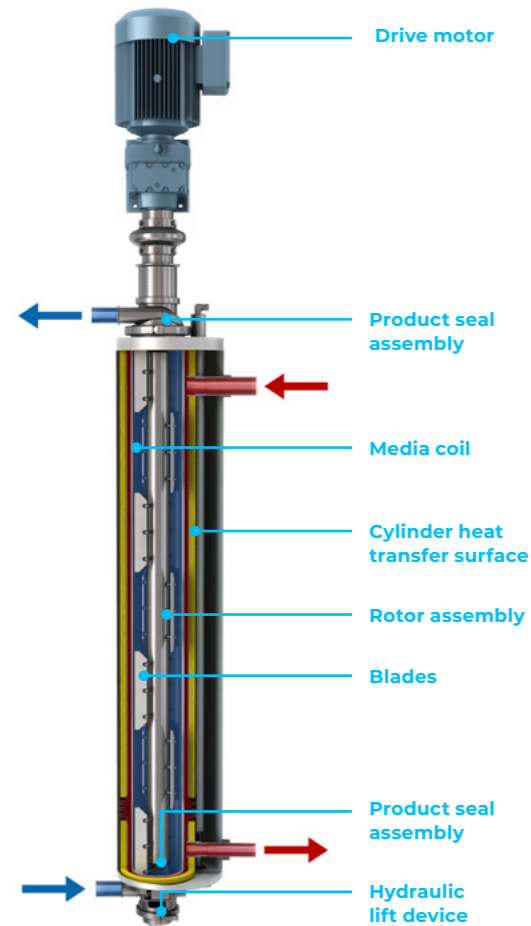
Prepared foods

- Particulates
- Yogurt fruit
- Fruit preparations
- Jams and preserves

Sticky / fouling

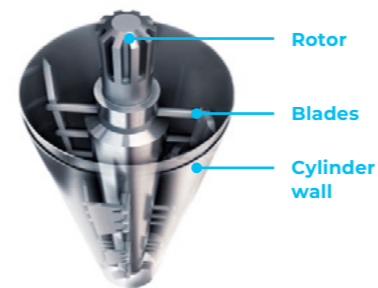
- Cheese sauce
- Rice pudding
- Custard

Fully customisable solutions



With over 179 million combinations, each Contherm® is made special according to the specifications of the product that is going to be processed.

- Cylinder materials
- Blades design and material
- Rotor size & assembly
- Media coil for hot, cool water, Steam, NH₃.
- Drive motor
- Seals type and materials



Key features

- Heating, cooling, pasteurizing or sterilizing
- Vertical mounting for lowest floor space
- No air introduction
- Adaptable configuration
- Gentle product treatment
- Integrated rotor lift for easy maintenance and inspection



