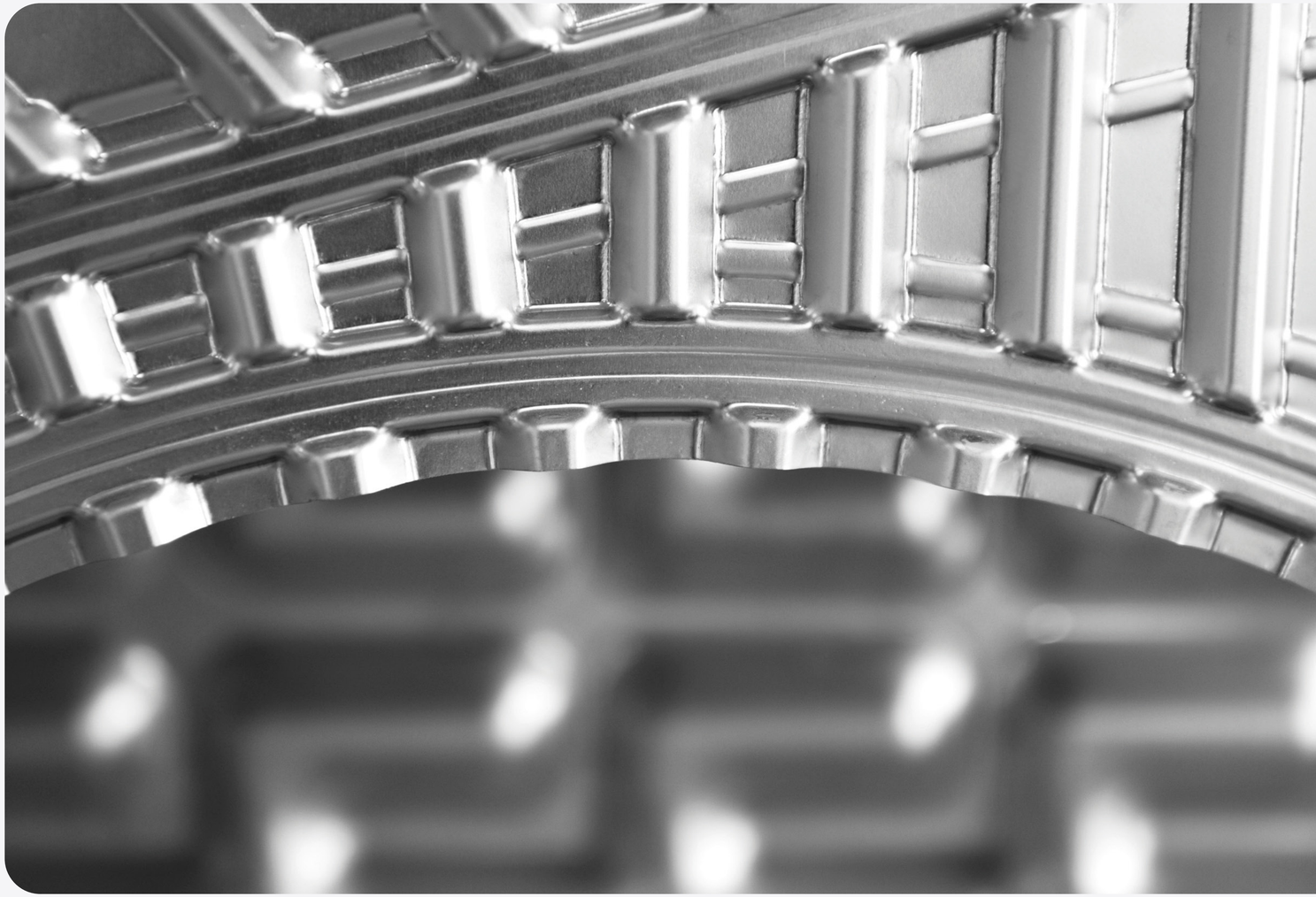
Next-generation heat transfer solutions

Customized gasketed plate heat exchangers that match your requirements. Featuring the latest in plate and pattern technology, optimized for your business.



Customized solutions that match your requirements

Take part in a brighter tomorrow with Danfoss heat transfer solutions. Our next-generation plate heat exchangers meet your individual requirements for energy efficiency and ultra-high performance.

We configure our SONDEX® brand plate heat exchangers to perfectly match your duty. Regardless of application, our second-to-none plate portfolio ensures that we can deliver a powerful gasketed, single-pass solution that exceeds the performance of anything else on the market.

By upgrading to SONDEX® you will receive a service-friendly, easy-to-install solution that provides reliable, unmatched heat transfer while lowering your energy consumption.

Built on knowledge and know-how

Knowledge is the foundation of our plate design, and our passion for expertly engineered solutions drives us to perfectly optimize each of our heat exchangers for you and your business.

Danfoss design engineers are always in direct contact with our customers to ensure that each heat exchanger is designed around your application and the properties of the media. Our many years of hands-on, technical experience across numerous market segments, afford us great knowledge and insight into the industrial processes and their thermal requirements.

At Danfoss we have specialized in the development and manufacturing of heat exchangers. We do all our own tooling as well as hydraulic presses in-house.

The benefit of this specialization is closed loop production - it is easier to control and monitor the quality without relying on sub-suppliers. We can execute product development tasks faster than most, as the tooling and engineering know-how is placed internally in Danfoss.

Extensive plate portfolio

The secret ingredient to an efficient installation is how closely your heat exchanger matches the thermal requirements of the duty.
If the heat exchanger is oversized, you will have paid too much for it. If it is undersized, you will either need additional heat exchangers, or you will have to add extra (expensive, non-regenerative) energy elsewhere in the process, to reach the desired media temperatures.

We have developed an extensive plate portfolio based on our deep process knowledge and customer input, which enables us to cover all duties with powerful solutions.

Get in touch today and let Danfoss help you lower your expenses and increase the performance of your entire system.

Product selection

Installation and commissioning

Optimized for your application

Product lifetime

After-sales service

Fishbone plates

The tried-and-true Fishbone plate pattern is featured in most SONDEX® and Danfoss plate heat exchangers.

Engineered to maximize turbulent flow, even at low flow rates, this pattern achieves unparalleled heat transfer. The pattern has proved its effectiveness through rigorous testing and is the default choice for plate heat exchangers.

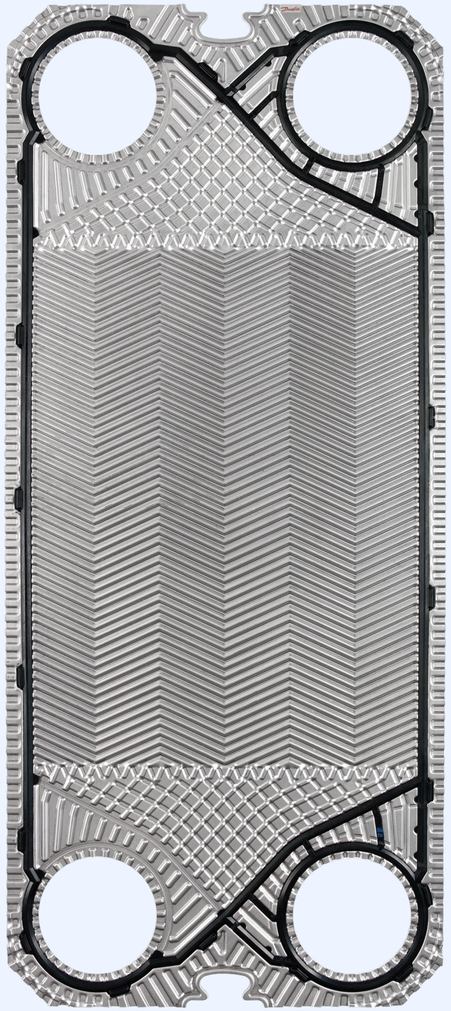
Variants of the Fishbone pattern are designed to create different levels of turbulence, use a different pressure drop and meet different thermal requirements. Each variant fills a particular niche, or is aimed at a certain type of duty. This flexibility allows us to optimally cover all your heat transfer needs, no matter the application.

Fishbone plate benefits

Special features include a reinforced hanging system for better suspension, an optimized distribution area that prevents stagnant zones, a maximized heat transmission area for high performance, and the unique SONDEX® Alignment System that ensures proper alignment of the plate pack in the assembled heat exchanger.

Quick facts

- DN25 - DN600 connections
- 175 mm - 3.4 m plate heights
- 0.05 m3/hour - 7,200 m3/hour flow rates
- Full-spectrum NTU coverage
- H, L & M plates available
- Numerous pressing depths
- Asymmetric patterns available



Fishbone plate highlights

Hanging system

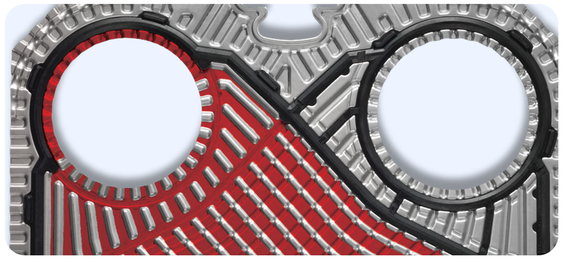
SONDEX® plates feature a reinforced hanging system. The hanging system helps the plates withstand the powerful tightening force, and prevents misalignment and corner collapses.

This makes SONDEX® plates a solid investment, as the lifetime of the plates is increased and service duration is reduced.

Distribution area

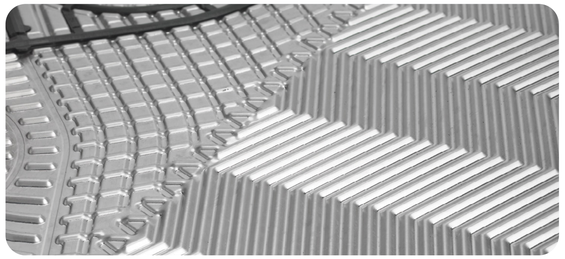
The distribution area on SONDEX® plates is designed to prevent stagnant zones, and ensures an even distribution of the media across the entire plate.

Furthermore, the pressure drop in the distribution area is minimal and used on the heat transmission area instead, which results in better heat transmission efficiency.



Heat transmission area

With a maximized heat transmission area, we are able to reduce the total number of plates needed for optimal performance. Our plate patterns increase your entire system's efficiency while lowering your energy consumption at the same time.



SONDEX® Alignment System

The SONDEX® Alignment System features stabilizing rubber bricks on the gasket that fit into the back of the adjacent plate, locking them together.

The SONDEX® Alignment System prevents misalignment of the plates and keeps the plate pack securely in place. Assembling the plate pack has never been easier!

Gasket groove

Long-term UV exposure leads to brittle and hardened gaskets, which will eventually result in leakages, as the gaskets can no longer be compressed correctly.

The gasket groove on SONDEX® plates is designed to ensure that the gasket is protected from UV exposure, maintaining its elasticity and prolonging the lifetime.

Free Flow plates

The spacious SONDEX® Free Flow pattern is designed to treat media that is unsuitable for regular heat exchangers due to high viscosity, fiber and particle contents, or considerable risk of fouling.

The deep and wide channels provide ample room for difficult media to flow effortlessly, ensuring gentle treatment of the output product, leading to sustainable quality improvements.

Free Flow plate benefits

Since there is only line contact, even long and sticky particles will not get stuck and clog the heat exchanger.

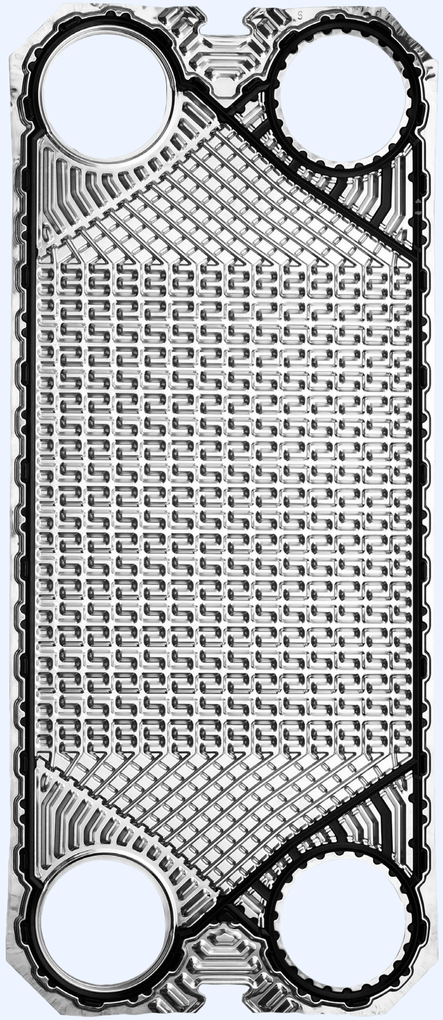
The Free Flow plates are also well-suited for media that have a tendency to cause fouling, and are designed with the fouling factor in mind.

The plate channels allow for an efficient flow and heat transfer, in spite of the accumulated fouling, deferring the cleaning downtime.

This enables a sugar producer, for example, to operate at full capacity throughout an entire campaign without losing valuable production time and product output.

Quick facts

- DN25 - DN400 connections
- 1 m - 3.5 m plate heights
- Up to 1,600 m3/hour flow rates
- Designed to handle viscous or fouling media
- Very few contact points
- Very deep pressing depths
- Asymmetric patterns available

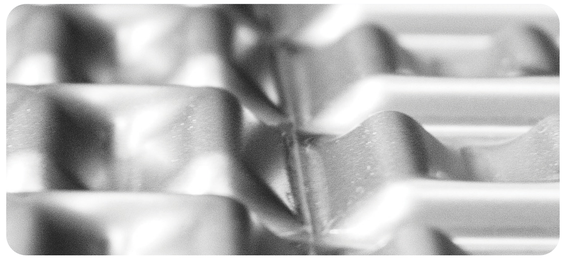


Free Flow plate highlights

Spacious channels

The SONDEX® Free Flow pattern ensures an unimpeded flow due to the deep channels, and limited contact points between the plates.

With only line-contact, the media has better room to flow inside the plate channels, benefiting greatly from the increased level of turbulence, compared to traditional tubular heat exchangers.



Contact-free inlets

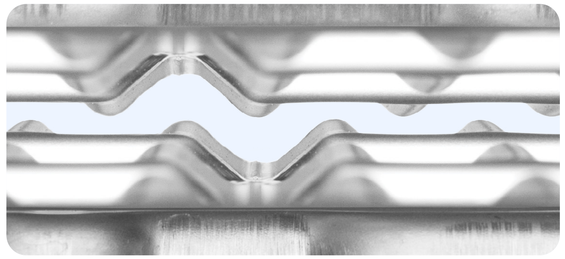
The design of the SONDEX® Free Flow inlets maintains the sturdy and robust construction of the traditional plate design, while having no contact points at all.

This severely minimizes the risk of clogging the inlets and subsequently decommissioning the heat exchanger for service and maintenance.

Large plate gap

The large plate gap is designed to handle media that would otherwise cause fouling and clog regular heat exchangers.

Our process and application knowledge enables us to design Free Flow plate heat exchangers that perform optimally, regardless of the media's viscosity, fouling tendency, and particle contents.



Line-contact

The Free Flow plates feature very limited contact between each plate. The design forms straight-line contact that maintains the sturdiness of conventional plate design, but allows for an unimpeded flow.

The pinnacle of design for hard-to-handle media, our Free Flow pattern ensures longer intervals between cleaning and service, maximizing the uptime of your installation.

Standard plate heat exchangers

SONDEX® offers the largest selection of standard plate heat exchangers in the world.

Our standard plate heat exchangers are the go-to choice for standard duties. The versatile design makes the plate heat exchangers adaptable to a wide range of applications.

What does that mean for you?

We have specialized in developing plate heat exchangers in close cooperation with our customers. Because we understand the process behind your applications, each solution is customized and configured to suit you and your business

Our extensive plate portfolio and pattern options ensure that we always have a solution that is exactly right for you.

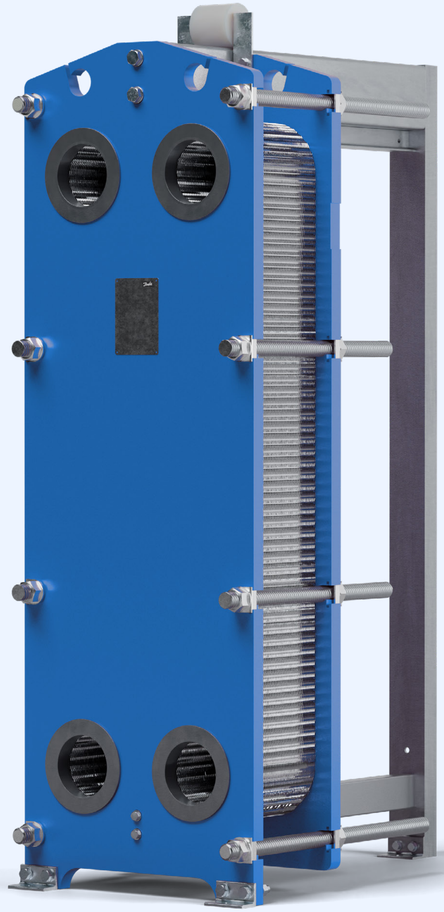
Always the efficient choice

We design all our plate heat exchangers as single-pass solutions where possible, as they are the preferred choice for almost all duties. The energy consumption is considerably lower, and the number of plates needed for optimal performance is reduced in single-pass solutions.

With all connections on the head of the heat exchanger, installation and maintenance is easier than ever.

Common applications

- Marine applications, such as central and lubrication oil cooling.
- District cooling solutions using seawater and groundwater as a cooling source.
- District heating solutions using, for example, solar and geothermal energy as heating source.
- Food and dairy applications, including pasteurization, heat recovery, and duties that require gentle treatment.
- Chemical applications, for example waste heat recovery from condenser water.



Free Flow plate heat exchangers

When your media requires gentle treatment and sizable plate channels, SONDEX® heat exchangers set the new standard for improved performance and reliability.

What does that mean for you?

Experience the benefit of maximum uptime and efficiency with SONDEX® Free Flow plate heat exchangers.

Extended production time, and loss of product on account of unscheduled maintenance or cleaning, is an undesirable consequence of operating with hard-to-handle media.

Our engineers have designed the SONDEX® Free Flow solutions to reliably deliver the highest performance and gentle media treatment, while keeping the intervals between service as long as possible. If your media contains solids, fibers, or other particles, service can be postponed even further by regularly backflushing the system.

For media with tendencies to cause fouling, CIP (Cleaning In Place) is the preferred option. The efficient design of the SONDEX® Free Flow ensures a low hold-up volume, which minimizes the amount of chemicals needed for the CIP process, and thus greatly reduces cleaning time, while also safeguarding the environment.

Common applications

- Sugar processing.
- Grain-based ethanol production.
- Cooling/heating of fibrous material, for example juice containing pulp.
- Heat recovery from industrial applications containing impurities like waste water or cellulose, for example.
- Heat recovery from fibrous waste streams in pulp and paper processing.

Semi-welded plate heat exchangers

When operating with media such as ammonia, SONDEX® offers durable solutions designed to withstand extreme conditions and minimize risks associated with aggressive media.

What does that mean for you?

The SONDEX® semi-welded plate heat exchanger range is designed to let you operate without worry, when using media unsuitable for fully gasketed heat exchangers.

Instead of regular plates, the semi-welded range uses two plates, laser-welded together to form cassettes. Each cassette features a gasketed side for the non-aggressive media, and a welded side with only a ring gasket, for the aggressive media. The material of the ring gasket is chosen based on its ability to resist the damaging media.

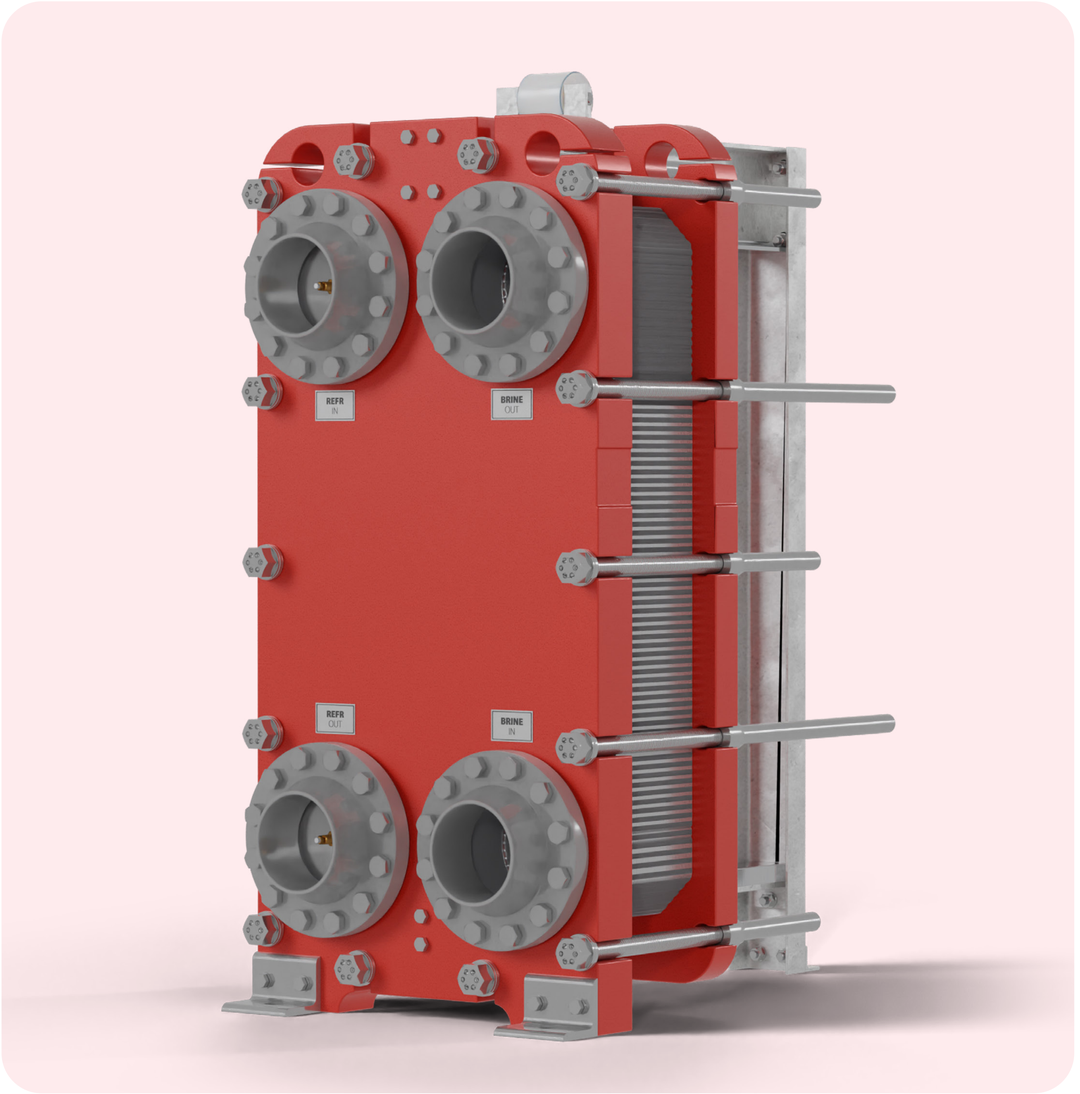
The limited exposure of the gasket ensures a long product lifetime and safe operation.

The efficient design reduces the number of plates required for high performance and consequently lowers the hold-up volume.

Engineered to use smaller amounts of potentially hazardous media, the SONDEX® semi-welded range is a sound and responsible choice for demanding duties.

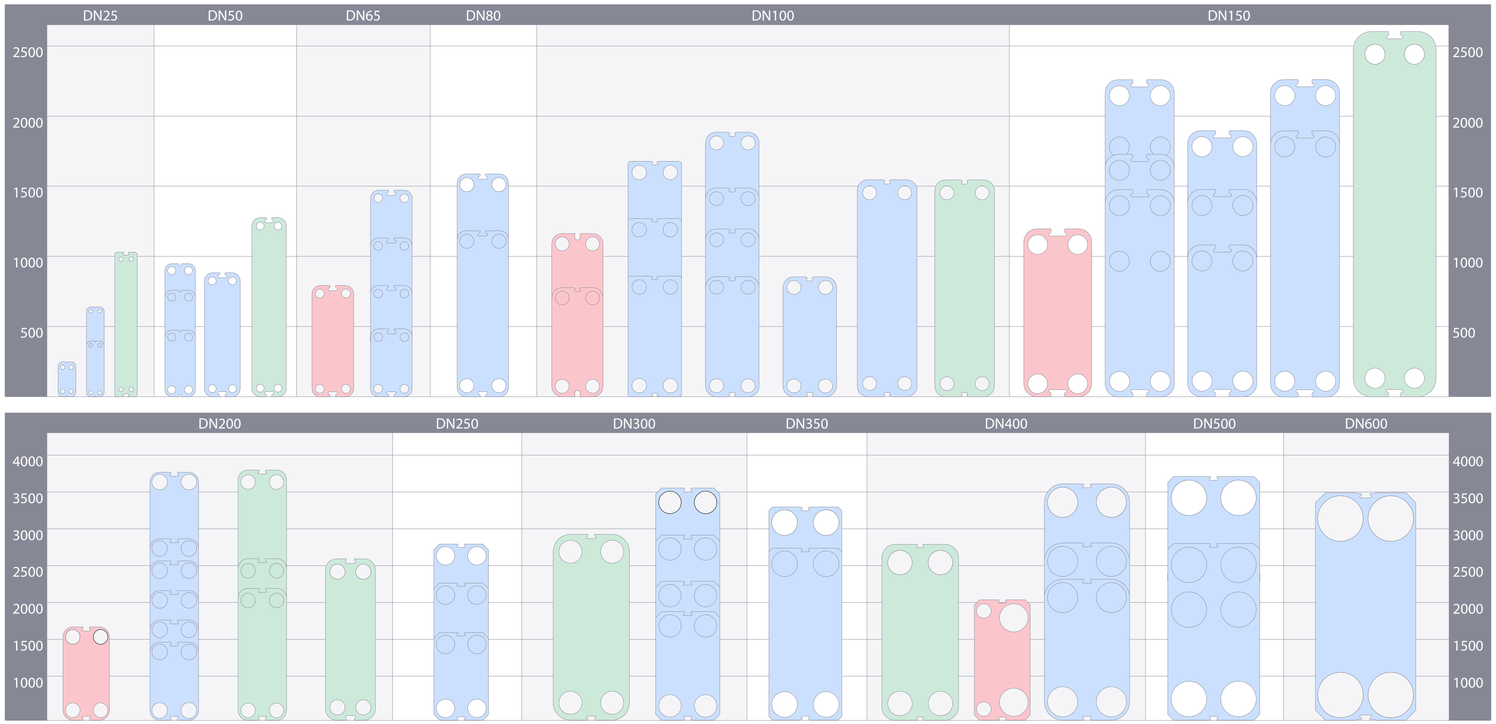
Common applications

- Industrial refrigeration, including duties that use ammonia as a refrigerant.
- Evaporation and condensing duties.
- High pressure liquid/liquid applications.
- Chemical processing, for instance rich/lean amine treatment.



SONDEX® and Danfoss gasketed heat exchanger portfolio

With our extensive plate portfolio, we are confident that we can provide you with an optimal heat exchanger solution that matches your business and applications.



Design pressure:

PN 10, 16, 25 bar.
Min. working temperature:
-20°C (depending on gasket material selected).

Plate materials:

AISI 304, AISI 316 and titanium.
Other materials are available upon request.

Gasket materials:

NBR, EPDM and Viton.
Other materials are available upon request.

Max. working temperature:

180°C (depending on gasket material selected).
Frame (head and follower) materials:
Mild steel, painted in RAL 5010.
Other colors are available upon request.

Classification societies:

Our plate heat exchangers are designed according to international standards, such as: ABS / BV / CCS / DNV-GL / LRS / NKK / RINA / CR / CSC BPV, and various other certificates for marine applications.

Construction standard:

PED 2014/68/EU (EN13445)
ASME sec VIII, Div. 1 (In select countries).

Performance certificates:

AHRI (LLHE).

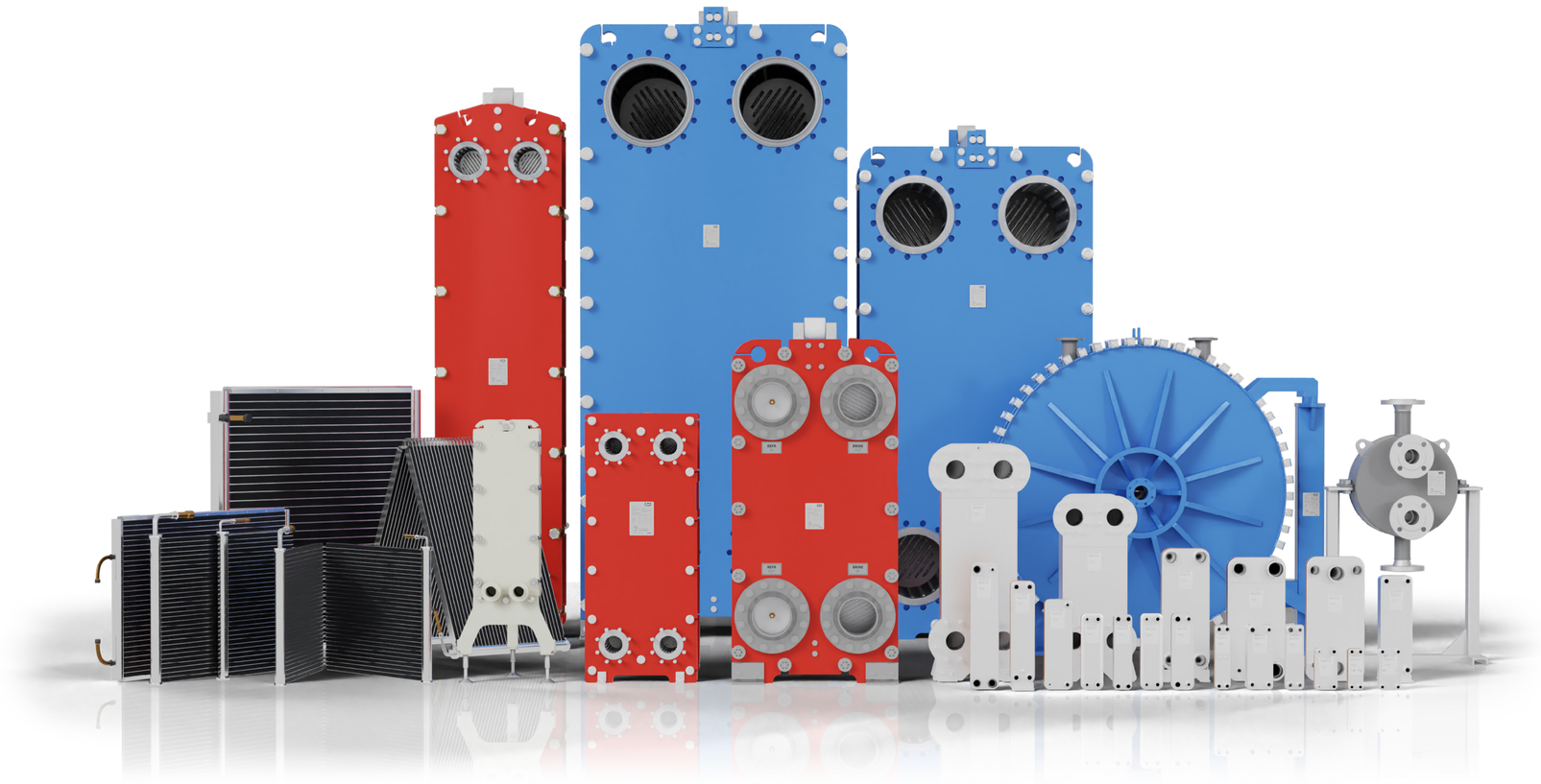
- Standard Fishbone plates
- Free Flow plates
- Semi-welded Fishbone plates

Working with Danfoss means more

Not only do you get highly reliable, efficient, and innovative solutions – you also get a partner that is a world-leading supplier in a wide range of applications.

Our partnership gives you access to a wide range of benefits. From extensive application knowledge to a wide range of solutions and tools.

Do you want to discover more?
Visit heatexchangers.danfoss.com to learn more about our heat exchanger solutions.



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