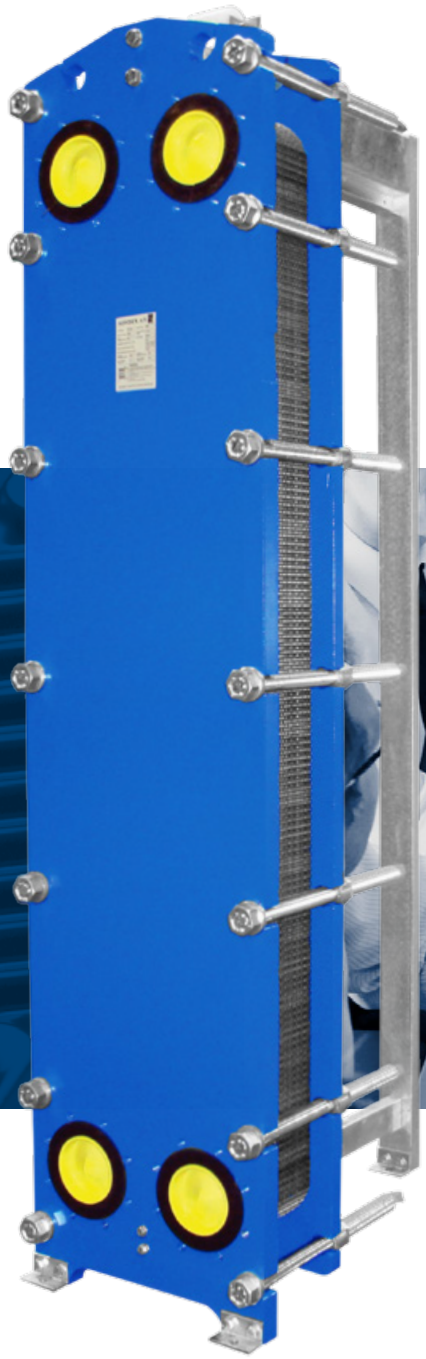
SONDEX®
by Danfoss

High-Efficiency Heat Exchangers

for All Your HVAC Applications

World-leading Product Range of Residential, Commercial and District Energy Network Solutions



Complete Range of High-Efficiency Plate Heat Exchangers

Traditional Plate Heat Exchangers for HVAC

The Sondex Traditional series is a top-of-the-line, single-pass, gasketed plate heat exchanger range that can be fully customized to meet your requirements for a large number of HVAC applications.

We perfectly match the individual thermal requirements of any duty and we want to make our plate heat exchanger solutions highly profitable for you in terms of performance, energy efficiency and return of investment.

In order to deliver the most efficient solutions, we have developed a plate programme that is second-to-none.

Matching All Thermal Requirements

We are able to match all thermal requirements with our extensive plate range that includes short plates for low thermal requirements, and long, slim plates for high thermal requirements.

We customize each of our plate heat exchanger solutions according to your specifications. Our heat exchangers are able to handle very high working pressures, and are available with different patterns and pressing depths for each plate size.

We cover all thinkable flow rates, with connections from DN32 to DN650, allowing us to provide you with the most efficient solution for every thermal duty.

AHRI-certified Plate Heat Exchangers

Each of our plate heat exchangers for use in HVAC applications can be designed and certified according to the AHRI Standard 400. This option is available upon request.

The AHRI LLHE (Liquid to Liquid Heat Exchangers) certificate ensures an accurate, unbiased measure of the quality of HVAC equipment across the globe.

Read about the AHRI certification on www.ahrinet.org

AHRI CERTIFIED www.ahridirectory.org

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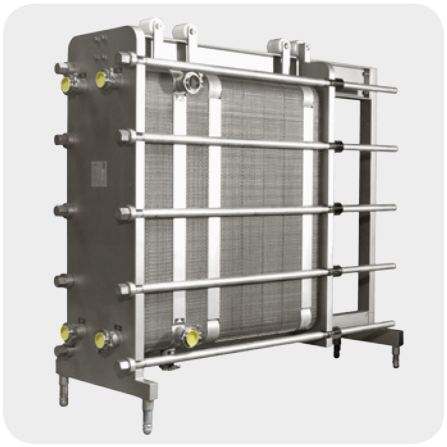
SONDEX®

Sondex - A World of Heat Exchangers

For All Applications



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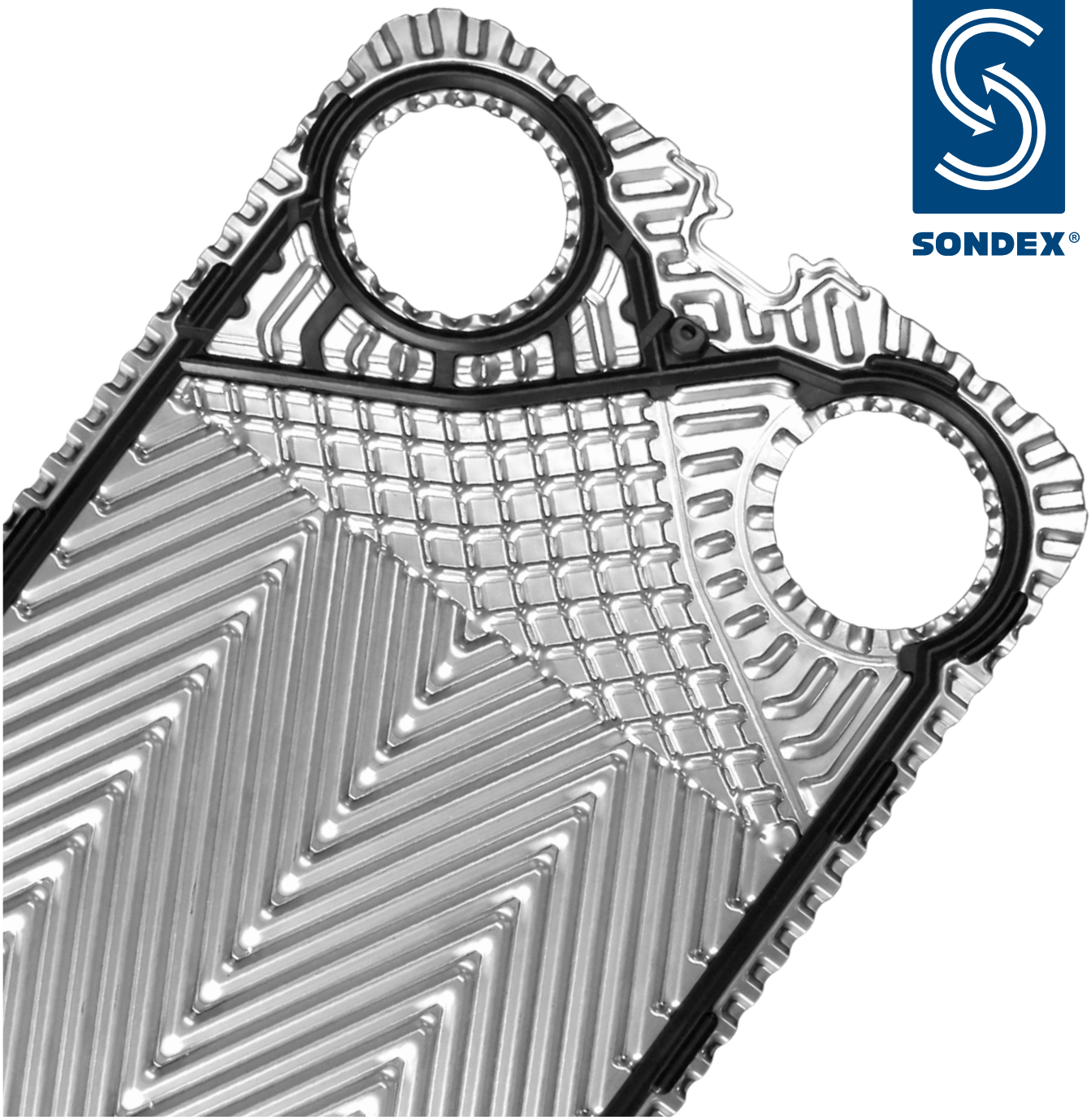


Plate Heat Exchangers

The Most Extensive Plate Heat Exchanger Range

With the most extensive plate heat exchanger range Sondex has got the optimal technical solution for any possible task. Connections from Ø25 to Ø650 mm covering a liquid flow range from 50 l/hour to 7.200 m^3/hour.

Plate Design

The construction of the inlet part makes a perfect distribution of the liquids across the heating surface. The inlet part is increased and supplied with channels preventing "dead spots" bacteria in the plate heat exchanger. The inlet with channels secures a strong inlet part with a minimum of contact points. The inlet parts are constructed with a leakage drained zone fulfilling the 3A specifications.

The plate pattern is constructed to obtain a high thermal efficiency. The plates are available in several different types of patterns and angle sizes giving high respectively low turbulent flow. Combining the large plate range and the variety of plate patterns Sondex offers an optimal plate heat exchanger that fits any duty.

The Gaskets

The "Sonder Lock" gasket locks the plates together with strong rubber buttons, and so the plates are strongly guided during the assembly of the plate heat exchanger.
Sondex in-house gasket manufacturing secures high quality within the production and design of the gaskets.

Spiral Heat Exchangers

Plate and Shell Heat Exchangers

Evaporator

Free Flow Plate Heat Exchanger

Free Flow plates are designed for liquids containing fibres or other particles which may clog up a traditional plate heat exchanger. Sondex Free Flow plates are designed without metal contact between the plates in the liquid area giving a high turbulence and thus a high heat transmission coefficient and especially a long power time.

Semi-Welded Plate Heat Exchanger

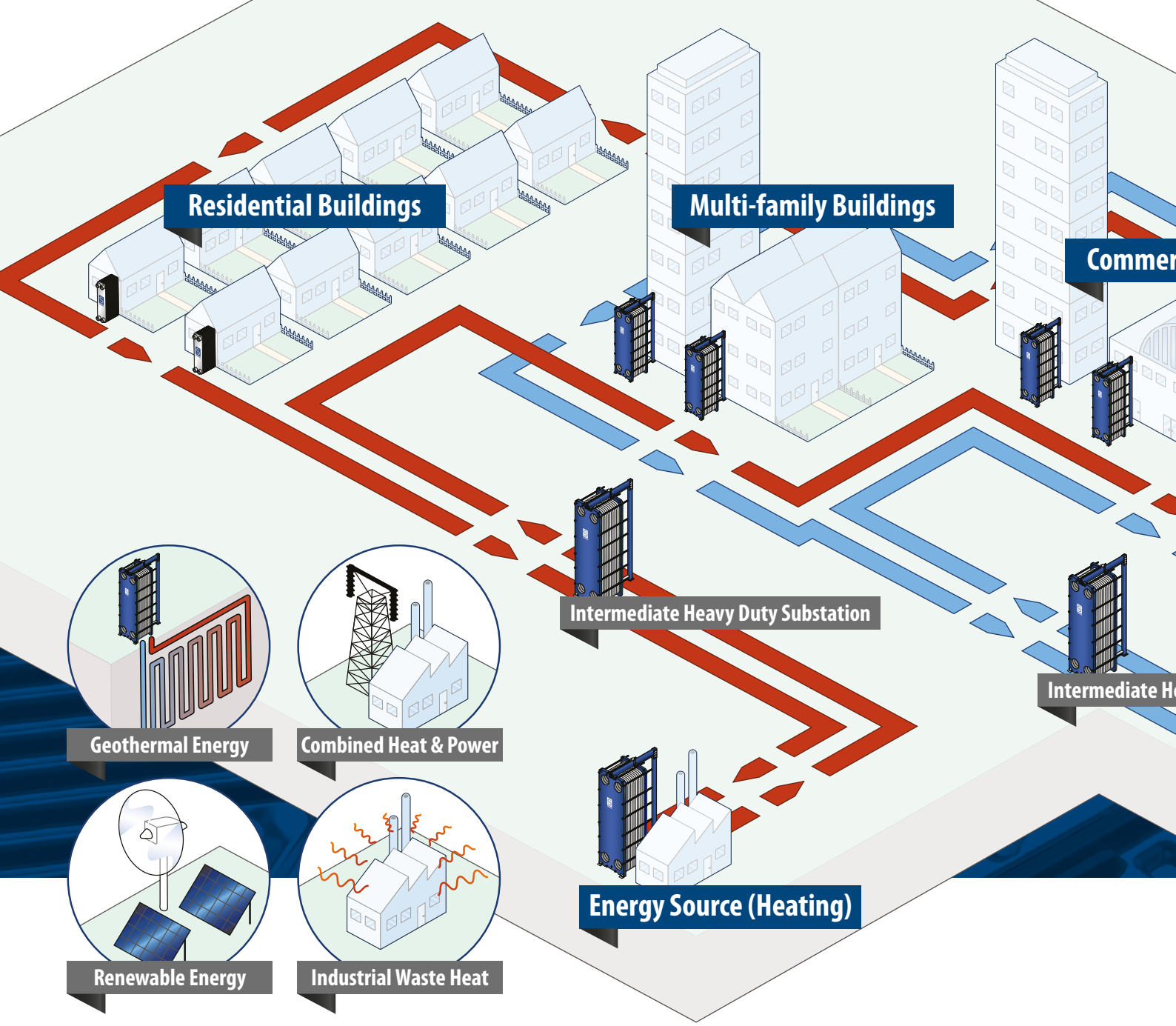
Semi-welded plates are built up in plate cassettes. A plate cassette is 2 plates welded together by means of laser welding.
The advantage of this construction is on the one side a welded plate channel and on the other side a traditional plate channel with gaskets making assembling and cleaning of this side easier. On the welded side there are two specially produced corner hole gaskets creating the tightening between the two cassettes. Thus the gasket is reduced to a minimum on the welded side.

Condenser and Evaporator

The unique evaporator and condenser plates from Sondex are especially designed for condensing low temperatures, vapour and for multistage evaporation of highly concentrated products. The unique asymmetric large port holes ensure an optimal exploitation of the available heat transfer area. The unique inlet design and high thermal efficiency make these plates the most efficient on the market today.

Brazed Heat Exchanger

A Sondex brazed plate heat exchanger consists of a number of thin acid-resistant precision stamped stainless steel plates. The plate packs are brazed with two end plates and connections. Vacuum brazing at extremely high temperatures provides a permanently sealed heat exchanger. The final result is a strong and compact plate heat exchanger with an extremely high heat transfer capability. Sondex can offer brazed heat exchangers as copper brazed or stainless steel brazed.



Deep Process Knowledge

We have the deep process knowledge of the HVAC segment that is essential for designing the right plate heat exchanger for each application. We are always in direct contact with our customers to ensure that the requirements of the thermal duty, as well as the peripheral requirements, are taken into account when designing each individual heat exchanger.

Complete HVAC Application Coverage

We design our high-efficiency plate heat exchangers for use across the entire HVAC segment. Our tall and slim plate heat exchangers can achieve very close temperature approaches and optimally relay the thermal energy; from the energy sources to the intermediate heavy duty substations that intercept and distribute the energy.

Our versatile plate range enables us to abide by varying weight and size requirements of e.g. high-rise buildings that use plate heat exchangers as pressure breakers. By customizing each solution to the individual requirements, we can ensure an even flow and uniform temperatures on all floors with minimal energy loss.

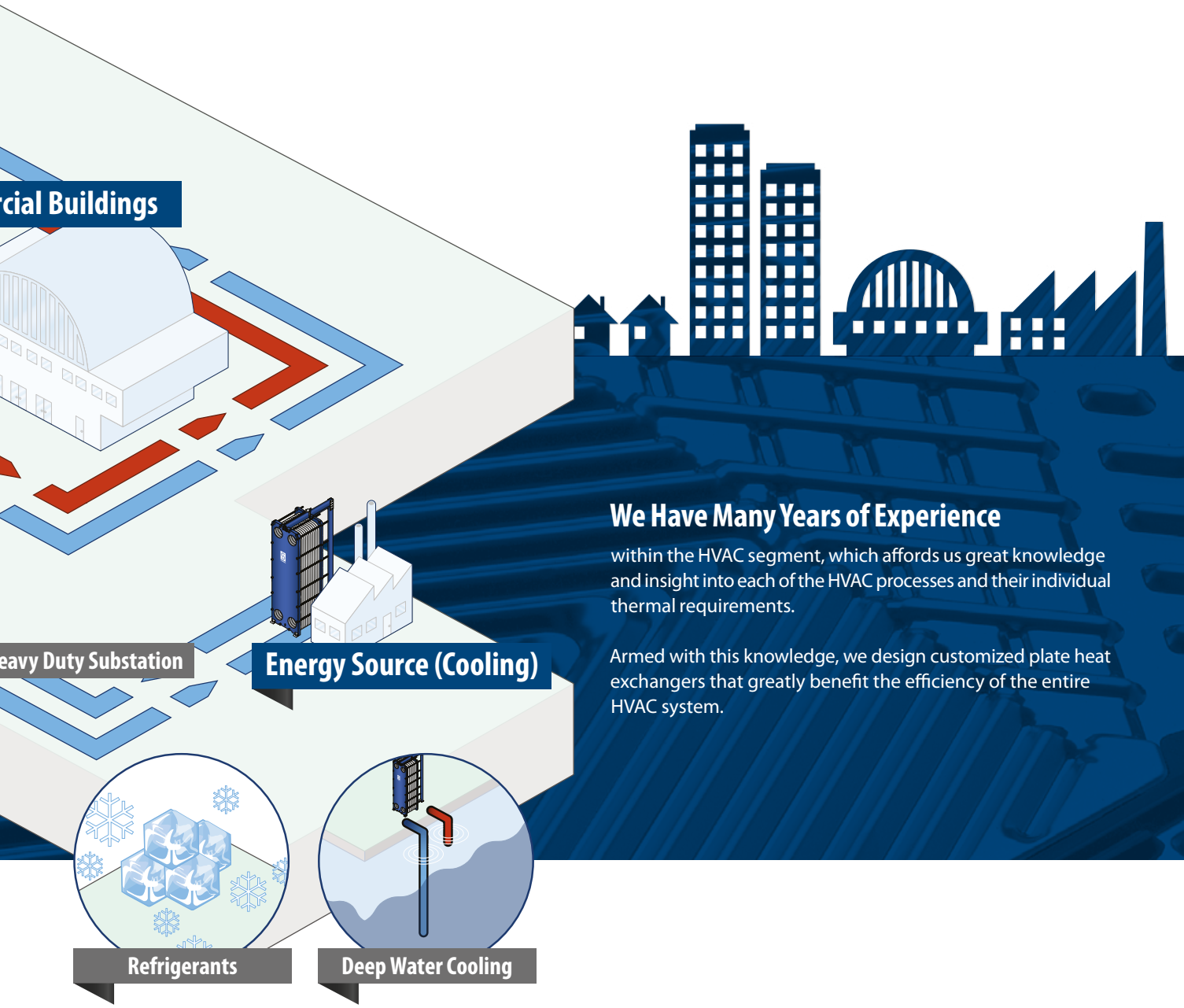
Our brazed plate heat exchangers offer complete coverage of thermal duties. They are the perfect choice for the primary component in the light duty stations commonly found in residential buildings that relay and regulate the thermal flow.

Reduced Energy Loss

In order to reduce the energy loss in a district heating system, it is important that the supply temperature is as low as possible. This way, the temperature difference between the water in the district heating pipes and its surroundings is kept to a minimum.

However, to be able to operate with lower supply temperatures, the heat exchangers that are a very important part of the system need to be very efficient.

For this reason, the existing heat exchangers should be evaluated to determine the benefits of refurbishing older heat exchangers or completely replacing them with new high-efficiency plates or plate heat exchangers. Our extensive plate portfolio enables us to upgrade existing heat exchangers of all brands. Furthermore, we can help calculate the potential savings that can be achieved by upgrading to our products.



We Have Many Years of Experience

within the HVAC segment, which affords us great knowledge and insight into each of the HVAC processes and their individual thermal requirements.

Armed with this knowledge, we design customized plate heat exchangers that greatly benefit the efficiency of the entire HVAC system.

The Future of HVAC

The future trends for plate heat exchanger performance specifications lean towards solutions that are energy efficient and system cost optimized. We are fully prepared to meet the present and future demands of low-temperature district heating systems, that specify the need for longer thermal lengths and larger heat transfer areas of the plates.

Reliable and Efficient Solutions

We design our plate heat exchangers to be able to achieve very close temperature approaches and sustain the energy during the transfer, resulting in a minimal loss of temperature in the entire circulation flow of the system.

Example of Savings

As an example, a traditional district heating network operates with a supply temperature of **80 °C**, using **164.4 MWh**, with a heat loss of **16,4%**. By lowering the supply temperature to **55 °C**, the energy usage is decreased to **132.9 MWh** and the heat loss is reduced to **13.7%**.

Supply Temperature in °C	Energy Usage in MWh	Heat Loss in %
80	164.4	16.4
55	132.9	13.7

Combined Sondex and Danfoss Product Portfolio

Sondex SL-range.

Danfoss XB-range.

Brazed Plate Heat Exchangers for HVAC
The compact, high-quality brazed plate heat exchangers offer a flexible, ultra-efficient solution for your district energy and HVAC applications.

Low operational costs and very high performance make the gasket-free brazed plate heat exchangers an optimal choice, whether your system has varying or constant pressure and large temperature swings.

Covering All Duties
The brazed plate heat exchangers from Sondex and Danfoss have been consolidated into a single, combined product programme, which enables us to offer you a complete range with connections from ½" to DN150 that covers all duties and is second-to-none.

Our state-of-the-art Copper, Copper+ and Stainless Steel brazed plate heat exchangers feature fishbone patterns or Micro Plate™ dimple patterns and are available in a large number of pressing depths, connection sizes types.

Ultimate Protection Against Leaks
Our brazed plate heat exchangers are available in a Sonder Safe solution. The Sonder Safe is a "double-walled" system, designed to make any leakage, however unlikely, visible from outside the plate heat exchanger. This is a safety measure that ensures that the malfunctioning heat exchanger can quickly be identified and replaced.

Because all leaks are external instead of internal, the media will never mix. This makes Sonder Safe and other "double-walled" brazed plate heat exchangers the ideal solution when the heat exchangers utilize media that must not be allowed to mix at any cost.

One-stop-shopping
The Sondex and Danfoss sales organizations operate side by side and we take pride in consistently providing you with products and service of the highest quality.

SONDEX® by Danfoss

High-Efficiency Heat Exchangers

for All Your HVAC Applications

World-leading Product Range of Residential, Commercial and District Energy Network Solutions

Customized Solutions

We have many years of experience designing high-efficiency brazed and gasketed plate heat exchangers for HVAC applications across the entire world.

We customize our plate heat exchangers according to your specifications, and we will provide you with highly efficient, energy-optimized solutions for your HVAC applications that will yield a considerable return of investment in the long run.

Plate Heat Exchangers For Every Step of the Way

Our versatile plate heat exchanger range enables us to cover all thermal duties in the HVAC system; from the energy source, to the intermediate heavy duty substations, to residential buildings, multi-family buildings and commercial buildings.

Sondex and Danfoss Join Forces

This step marks the merger of two strong players to create a global leader in heat transfer solutions.

By joining forces we are able to offer you a broader, even more competitive and innovative product and service portfolio within heat transfer.

Global Presence

We are constantly expanding our market share, and we are globally present with numerous sales and production companies worldwide. We are very excited to welcome you to a world of high-efficiency heat transfer solutions.

www.sondex.net
www.danfoss.com