20 %

increased thermal performance allows us to expand the existing supply network

Case story

Reduced energy consumption with new, optimized heat exchanger plates

A major renovation project in AffaldVarme Aarhus (AVA), in collaboration with the Danfoss-owned company Sondex, has increased the efficiency of the heat exchangers by more than 20 percent by replacing old plates with new ones.

Aarhus, Denmark's second-largest city is a fast-growing city with a consistent increase in residents. AffaldVarme Aarhus (AVA) operates the district heating supply for the city of Aarhus, and is focused on saving energy. The company has a target to reduce its energy consumption to minimize the negative impact on the environment and the climate. A major renovation project, in collaboration with the Danfoss-owned company Sondex, has increased the efficiency of the heat exchangers by more than 20 percent by replacing old plates with new ones.

Easy-to-replace plates without major efforts

The maintenance manager from AffaldVarme Aarhus emphasizes the importance of the great counselling provided by Sondex:

"It has been a pleasure to be challenged with our present set-up by Sondex. The knowledge and feedback provided by Sondex has opened our eyes to new solutions. Sondex has been willing to enter into a close collaboration on the innovative plate design which has given us a number of advantages," commented Finn Olesen, maintenance manager at AffaldVarme Aarhus.

The solution which includes deployment of new plates into the existing heat exchangers has been a cheap and easy renovation. While installing brand-new heat exchangers would have involved cutting the old heat exchangers into pieces and removing them unit by unit, the plates can easily be replaced with new ones manufactured with the same dimensions. Renovation of the individual heat exchangers is straightforward and can be done without any kind of operational interference.

"For many years, we have had a service contract with AVA on the heat exchangers, and at a status meeting last year with AVA, we suggested to upgrade the heat exchangers with new plates, which would provide a considerably higher rate of efficiency than renovating the 6,000 plates. In close collaboration with the customer, we have developed the new plates with less pressing depth, thinner material, and a new fishbone pattern which are much more efficient," explained John Olsen, service manager at Sondex.

Matches the needs and requirements of tomorrow

Currently, all areas of society are focused on saving energy, and the temperature requirements are different today compared to the early days when the district heating grid was established. To increase efficiency, it is important that the district heating water must run back into the heat exchanger at the lowest possible temperature. With the upgrade of the heat exchanger stations it is now possible to reduce the return temperature to 38°C.

Aarhus is a fast-growing city with a consistent increase in residents. The current upgrade of the heat exchangers represents a capacity development that will allow AVA to supply district heating and domestic hot water to the growing number of

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Facts about Sondex

Sondex is a leading global market player in heat transfer technologies and offers the world's most extensive product range in plate heat exchangers with connections from 25 mm to 650 mm in diameter. Sondex offers both standard solutions and custom-made heat exchangers adapted for flow, pressure, and temperatures in transmission and distribution grids.

Sondex is headquartered in Kolding, Denmark, and the company has around 1,200 employees located globally. In 2016, the company was acquired by Danfoss A/S.

Replacing the old heat exchangers' plates with new ones at AffaldVarme Aarhus

city residents for many years to follow without further investments in new heat exchanger stations.

"We have achieved tangible cash savings on the upgrade. Additionally, we can also get 20 percent extra power from the current heat exchangers. Consequently, we can connect more consumers to our grid prior to expanding it with new heat exchangers," Finn Olesen concluded.


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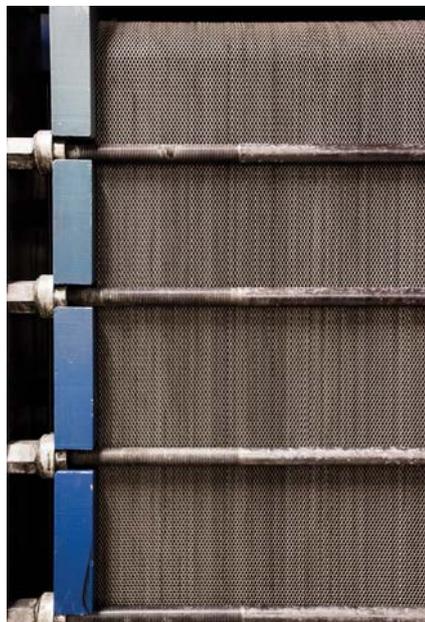
Heat exchangers plate replaced in AffaldVarme Arhus

Facts about the AffaldVarme Aarhus district heating grid:

- Supplies around 350,000 residents in Denmark's second largest city with district heating and domestic hot water

- Consists of a 160 km long transmission network and an almost 2,000 km long distribution network

- Sixty heat exchanger stations, each with two heat exchangers, connect the two networks

- Each heat exchanger contains 500 plates, each of which are 1,800 mm high and 750 mm wide, the plates are manufactured in 0.6 mm stainless and acid-resistant steel

- The transmission system is from 1983

- The nearby Studstrupværk provides the heat supply based on wood pellets and electric boilers powered by wind turbines

- Additional heat sources are waste incineration, a brand-new bale boiler and heat pumps that utilize the heat from the neighboring sea water