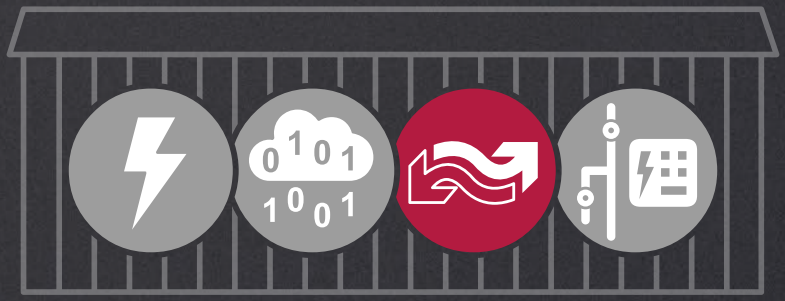



# District heating

PRIESS

# Priess District Heating A/S

## Energy efficiency for the transition

Modern district heating is the energy-efficient choice of heating in urban areas. The roll-out of district heating is central to the green transition and the conversion from the use of gas and other fuels. District heating is a versatile form of energy that can be based on different heat sources, and it is this versatility that continues to make its roll-out a high priority. But how the roll-out is achieved merits attention. Economy, flexibility and speed are key to achieving the full benefits of district heating.

## Priess can accelerate roll-out

Priess District Heating A/S helps district heating plants and utilities streamline existing plants and create highly efficient new plants. Priess delivers complete pump, exchanger and booster stations to optimise the grid and thus deliver heat to consumers. The solution comes in the form of intelligent plug-and-play stations that are tailored to the individual installation.

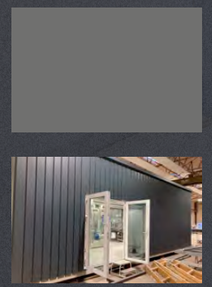
Priess can help boost the performance of existing district heating plants to connect more users to the existing network without compromising on performance. This makes it cheaper and faster to connect new users.

## Plug-and-play saves precious time

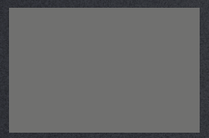
Time is of the essence in the utilities sector, and Priess can provide plug-and-play solutions that are pressure-tested and EAFIS-tested. Simply connect them to the district heating pipe and supply cable. This reduces complexity and the construction phase because the customer can work with one supplier and avoid setting up a larger construction site.

To meet demand, Priess has built a new factory in Herning, Denmark, allowing the company to continue having sufficient capacity and contributing to the ongoing expansion of the Danish district heating network.

**Jacob Eybe Holdgaard**
Business Unit Manager







### Facts about prefabricated stations

- Low temperature shunt station
- Pump and booster stations
- Meter and valve stations
- Switching stations
- Combined heat and power coupling
- Water pumping stations
- Custom solutions
- Plug-and-play solution set up on site, ready to use
- Can be delivered with all technology pre-installed
- Tested at the factory
- Thorough design phase with high customer involvement

# A New Approach to Swedish District Heating

**Innovation in large Swedish district heating project saves time and money. When the town of Sandviken to the north of Stockholm needed to be supplied with district heating from Gävle, two 96 m2 plug-and-play pumping stations were the solution. The reduced complexity promotes the green transition.**

The FELIX project is an ambitious Swedish district heating project that will supply consumers in Sandviken with district heating from Gävle. This includes the construction of a 22 km long pipeline that will transport hot water from Gävle to Sandviken via two pumping stations with cold water return as part of the green transition in the region.

According to Gävle Energi, it is Sweden's smartest district heating pipeline, which has prompted Klimatklivet to provide their largest investment support to date, due to the significant reduction in emissions of CO2 and other gases. Klimatklivet is a support scheme under the Swedish Environmental Protection Agency.

The entire project is worth SEK 450 million, with the cost of the pumping station being SEK 50 million. The project is dimensioned to deliver 70–80 MW, which is the maximum power demand, to the district heating customers in Sandviken.
– "By Swedish standards, it's quite a large district heating project", says Per Erdegren, civil engineer, project manager for pumping stations and employee of the consultancy firm ALSA JD-Gruppen.

From the outset, the client Gävle Energi wanted to reduce the complexity of the project and the pumping stations. That's why they chose to work with a single supplier for the installation of the technology and the construction of the pumping stations. Normally, this would require the creation of a large construction site, but the client decided to think outside the box.

## Ready to install straight from the factory

– "The solution was a modular plug-and-play solution, where the two pumping stations are manufactured at a factory in Denmark and installed in so-called technical houses", says Helena Edström, Head of Sales at Desmi Sweden, the turnkey supplier of the two complete pumping stations.

Each technical house consists of three modules, where the two 4 x 10 metre modules contain the pump module for supplying the hot district heating water as well as the pump module for the return water. The third module is 8 x 2 metres and contains the control technology. The houses and technology are mounted on cast concrete bases. Both pumping stations are dimensioned for DN 400 district heating pipes, and the 4 x 315 kW Desmi pumps, electricity, control technology, insulation, etc. was installed by Priess District Heating at their factory in Herning.

## The largest prefabricated solution to date

– "It is the largest plug-and-play pumping station we have delivered to date", says Jacob Holdgaard, Business Unit Manager at Priess District Heating A/S.
He adds that the technology is familiar, but at design level, the division of the technical building itself into three modules is new. The modules were transported in two phases by special transport to the final destination between Gävle and Sandviken – a journey of almost 1,000 km.

– "The critical moment is when the 40-tonne modules are lifted into place on the large sand cushion", says Per Erdegren and adds:

– "This is done to ensure the modules precisely fit the pipes that are brought out of the ground and form the district heating pipeline."

– "It took seven hours to lift the modules into place and everything fit together", says a proud Helena Edström from Desmi.

## Savings on time and construction site set-up

According to Per Erdegren, the strong result was achieved through close collaboration with Desmi and Priess. All challenges were handled along the way to make sure everything was right at installation. The pumping station will now be tested before it is finally put into operation in the fall of 2024, when the new district heating pipeline is complete.

– "This solution with a plug-and-play pumping station is definitely interesting for other district heating plants in Sweden", says Per Erdegren. He continues:

– "This saves time and avoids the need for a large construction site. There will also be financial benefits. We expect to have about five percent compared to the construction of a conventional pumping station."

At Desmi, Helena Edström is pleased with the collaboration with Priess District Heating because they have been able to deliver a unique solution that is not otherwise available on the Swedish market.

– "With the plug-and-play pumping station concept, we can deliver a unique solution at a fixed price and on time", says Helena Edström and continues:

– "There is huge potential for this kind of solution in Sweden."

– "The FELIX project, where surplus heat from Gävle is converted into district heating for the benefit of consumers in Sandviken, is one of the best things I've been involved in. It really shows what we can achieve with our plug-and-play concept. It's modular and similar to building blocks that can be put together in flexible solutions. And since it's plug-and-play, we can deliver it anywhere in the world", concludes Jacob Holdgaard, Priess District Heating A/S.

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Priess / District heating

# Pump and booster cabins

## Standard supply flow

The purpose of a supply flow pump cabin is to increase pressure in the supply line and thus ensure enough differential pressure at end consumers during cold periods.

In the past, it has been necessary to increase pressure across the entire pipeline network to ensure a sufficient level of differential pressure for end consumers at the outer reaches of the area. By installing a Standard pump cabin at a strategic location on the pipeline network, substandard supply conditions can be eliminated, providing the right amount of pressure and removing the need for a pressure increase at the heating plant.

## Plug & Play

Here at Priess District Heating A/S, we want to make things easy and convenient for our customers by delivering cabins with complete installations which have been pressure-tested and EAFIS-tested (inspection and testing ahead of deployment). This means that the only thing needed for installation is connecting the district heating pipes and the supply cable.

## Standard return flow

The purpose of the return flow pump cabin is to increase pressure on the return pipeline and thus ensure sufficient pressure to return to the heating plant.
It has previously been necessary to increase the pressure across the entire pipeline network to increase pressure for consumers at the outer reaches of the area and ensure sufficient pressure to return to the heating plant. Thanks to our solutions it is now possible to install a return flow pump cabin in an area with declining elevations where the static pressure increase on the supply pipeline provides enough differential pressure, but where the heating plant must raise the pressure to ensure returning is possible and to overcome resistance in the return pipeline and static elevations.

## Supply and return flow combination

It is possible to combine the two features above and create a cabin which contains both: supply and return flows. This means that the cabins will be larger here than they would be separately.

Take a look at our website - and see the many different **plug-and-play solutions** we have delivered over the years ...


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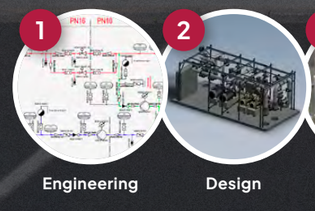

# Mobile heat exchanger station solves district plan issues

**What do you do as a utility company when district plans and green objectives get in the way? Kredsløb A/S made the unconventional decision to opt for a mobile system that takes up no more than four parking spaces. Priess provided the solution in the form of a plug & play installation.**

Kredsløb A/S is an East Jutland-based utility company with a clearly defined goal of making the green transition as easy as possible. After a steady influx of new customers, Kredsløb needed to optimise operations and increase capacity via a new heat exchanger plant at the former county hospital in Aarhus. This turned out to be harder than expected.

The district plan for the area was not in place, and Kredsløb was therefore unable to build a new, permanent heat exchanger station in the desired location. This meant rethinking how to deliver capacity and comfort to customers. The solution was a 10-MW mobile heat exchanger station from Priess District Heating A/S.

## Lifted into place in a matter of hours

The system is a mobile heat exchanger station in the form of a technical cabin that was assembled and tested at the factory. The entire cabin was transported to the site on a flatbed trailer and lifted into place in a matter of hours. It measures 10 x 4 metres and only takes up four spaces in Tage Hansens Gade car park.

"All the technology was pre-installed. The station just needed to be connected to power and the district heating network, and was up and running from day 1," says Lejla Mesanovic, Project Manager at Kredsløb.

"The entire station was supplied by Priess District Heating. We have had positive experiences with them in the past, when they supplied us with a plug & play pumping station."

With a capacity of 10 MW, the new station boosts the heat supply to optimise operations. The temperature of the supply water can be lowered, and now Kredsløb can meet the need for increased capacity for the new households in the area.

## Aesthetically integrated into the urban space

The mobile pumping station is about more than just technology. It also has an artistic side to it, as it has been decorated by a local graffiti artist. Thanks to the street art, the station integrates seamlessly into the street scene, while also telling a story about its purpose.

"The mobile pumping station has been very well received. At Kredsløb, we have solved an urgent problem by being able to supply the required heat. We have optimised operations for the benefit of consumers and the green transition, and we have a solution that is aesthetically integrated into the urban space," concludes Lejla Mesanovic.

The utility company expects the portable station to remain in the car park for at least five years until a permanent solution is put in place. The plug & play installation can then be moved to another location requiring a temporary boost of district heating.

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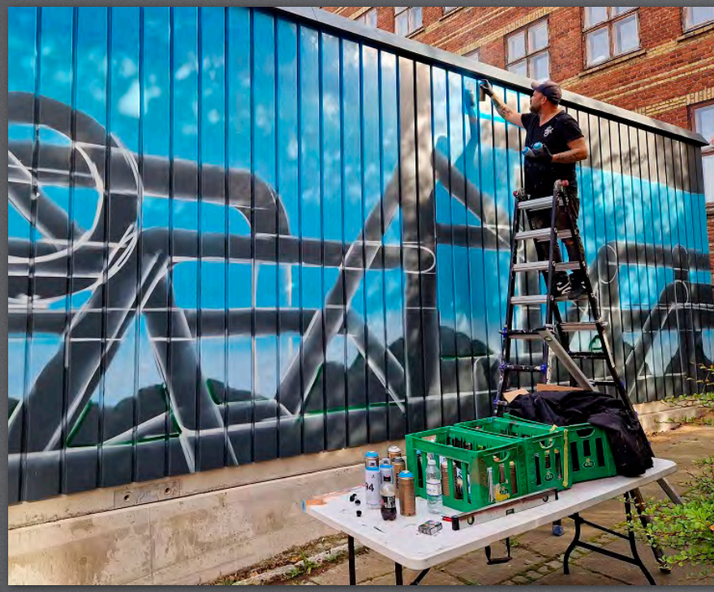

# Expansion fueled by the energy crisis

**A new exchange station in Holstebro shows how time constraints, aesthetics and storytelling can come together seamlessly when expanding the district heating network. The contractor, Vestforsyning, is a utility company that provides district heating to the Holstebro area. Priess District Heating, a specialist in pump and meter stations for district heating, provided the plug-and-play solution.**

Thanks to the new Hjermvej/Søndergård exchange station, Vestforsyning Varme A/S is now able to deliver more sustainable heating to two new areas in northern Holstebro. The station comprises two exchange stations, each with a capacity of 10 MW, and an associated hydrophore system. The station supplies district heating to the residential neighbourhoods and local industrial area, equivalent to 3,000 households.

The expansion of district heating in northern Holstebro had been in the planning stages for some time, aimed at converting the energy supply of various industrial enterprises and residential properties from gas to district heating.

## Fast-tracked expansion

The energy crisis triggered by the outbreak of war in Ukraine expedited these plans, creating an urgent need for swift project implementation while maintaining high standards in both technical solutions and aesthetic considerations.

"The expansion of district heating needed to progress rapidly to ensure affordable energy for industry and facilitate the transition from gas to district heating," says Per Bergkvist, Head of the Heating Department at Vestforsyning A/S.
"We worked with an architectural firm to design a more inviting tech house, but without allowing the architectural requirements to delay the project's tight schedule".

"Our aim was to design an exchange station that would spark citizens' curiosity and increase awareness of district heating," concludes Per Bergkvist.

## Completed within just a year and a half

It quickly became evident that constructing a traditional walled tech house would slow down the project. Drawing on past successful collaborations with Priess District Heating A/S, which had previously supplied solutions for Vestforsyning, prefabricated houses were chosen. Priess worked closely with Vestforsyning's project department and the architectural firm A2 to design these houses. The result is an aesthetically striking solution, featuring an open facade that reveals the inner workings. The tech houses are clad in corten steel, giving them a distinctive rust-red finish.

The project gained significant momentum in February 2022 following Russia's invasion of Ukraine. Work commenced that autumn, with the station set to be operational by the end of 2023. Piping work started in the spring of 2023, and by December 2023, the tech houses were installed—on time and ready for operation. However, delays in excavating the district heating network meant that the plant was only brought online in March 2024.

Both exchange stations were delivered as fully assembled plug-and-play solutions from Priess District Heating's factory in Herning. They were transported on a block wagon and placed on a foundation of eight poles, each screwed 6–8 meters into the ground

For Vestforsyning, using screw foundations was a new approach,but it provided excellent flexibility and precision during the installation of the district heating pipes. The pipes had already been prepared and only required connection to the existing installations in the structures. Vestforsyning's own employees completed the electrical installation work.

## A learning process for all

Priess's tech houses are founded on a standardised solution that streamlines production while customising the final installation for each client—in this instance, Vestforsyning. This collaboration has provided an educational experience for all parties involved.

"We can see that our concept of constructing tech houses using a standardised solution is effective, even when architects and the client push the concept to its limits," says Lars Ehlern Bech, Product Manager at Priess District Heating. He adds:
"Our tech houses were delivered right on schedule and well within the agreed quality standards. This success is largely due to our strong, trusting partnership with Vestforsyning".

The third and northernmost building, which will serve the Søndergård district, is scheduled to be delivered by Priess in early 2025, marking the completion of the project.

## Virtual reality design

Priess used a virtual reality program to design the two exchange stations, enabling users to take a virtual tour of the rooms with 3D glasses.

"We were able to walk through the houses virtually during the construction phase. It was incredibly useful. It allowed us to identify early on whether there was sufficient space for the various installations," explain Per Bergkvist and Nicolaj Thomsen.

## More sustainable heating

A key factor driving the project was the aim to enhance both heat output and sustainability. The heat is generated from waste, wood chips, straw and biogas, supplied from the Måbjergværket plant which is located 1.5 km from the Hjermvej/ Søndergård station.

With a capacity of 2 x 10 MW, the station supplies heat to the Hjermvej and Søndergård areas. The 85°C water is converted into 67°C hot water, which is then distributed to consumers. The hydrophore system maintains constant pressure across the network. The plant provides heat for the equivalent of 3,000 households.

"We recognise that the energy crisis has presented an opportunity to accelerate our expansion, allowing us to provide citizens and businesses with a more sustainable alternative," Per Bergkvist, Head of the Heating Department at Vestforsyning A/S sums up, concluding:

"The team at Priess played a crucial role by offering valuable insights throughout the process, leveraging their extensive expertise in district heating. We are all delighted to have reached this milestone".

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