



# Optimize without compromise

## Take heat transfer solutions to a new level

Danfoss substations for district heating and cooling

# 1

### money saving delivery

The ingenious substation concepts allow that you and your customers can work smarter and cut both time, money, and space used for the heating system installation.



# PRE-ENGINEERED?

## Choose the clever solution

How can you take heat transfer solutions to the next level? One way is to give customers everything they want, and another way is to give them exactly what they need. Now you can do both without any compromises.

Danfoss enables you to deliver pre-engineered district heating substations that are optimised for high performance with state-of-the-art control components.

Danfoss substations can be rapidly designed, configured and manufactured. They are tested before delivery to ensure straightforward installation and a perfect fit in building services systems. This ingenious concept enables you and your customers to work smarter, save time and money, and reduce the amount of space occupied by your heating system.

When you choose a substation from Danfoss, you ensure yourself and your customer an entirely new experience in district heating and cooling.

## That's why!

## First class

### heat transfer technology

Design, reliability, unrivalled service and expertise are wrapped into an attractive package designed to deliver optimum performance and facilitate energy-efficient buildings.

## One plan

### – an all-in-one solution

Pre-engineered substations from Danfoss optimise your performance as a system designer, installer, and building owner. Save time, money and trouble without making compromises!



# Pre-configured, pre-engineered...

Danfoss substations are available in three basic platforms, which may be adapted to suit your customers' needs and requirements.

The first option is the advanced compact substation DSA. This is a compact, pre-engineered and prefabricated heat transfer unit that is optimised with carefully selected control components and is tested and approved before delivery. The second option is a Danfoss DSP substation,

which can be tailored to suit the most common needs and requirements. DSP substations are configured with proven, optimised control components based on Danfoss recommendations and are suitable for a variety of typical applications.

Both of these options utilise advanced Danfoss heat transfer and control components to ensure compatibility, system integrity, and performance.



## ...or site-specific substations

In some situations, substations can be completely engineered to order, meaning that the system includes the technology, design, and components required by the customer, the building, or the available district heating system or network.

This third option is particularly suitable in buildings or systems with especially high performance requirements or demanding supply conditions.

Pre-engineered DSA substations, DSP substations and fully tailored heat transfer solutions all have one thing in common: they ensure optimal functionality and performance while providing excellent energy efficiency.



**1.2 MWh**

**less per year**

Increased energy efficiency, reduced heat loss and pipe length leads to a significant cost saving potential during the total lifetime of the DSA station.

## A handful of reasons...

Are you looking for new heat transfer technology and higher energy efficiency? Do you want to optimise the utilisation and appearance of your heating room? Do you want high performance and more time for your regular activities?

The last thing you want is to have substation delivery and installation take up all your time. So why not save yourself the trouble and supply an all-in-one solution, so you have more time to devote to developing your business?

Simply choose the advanced compact substation DSA, to avoid the tiresome task of coordination with various vendors for delivery, installation, testing and handover.

Simply supply a complete and thoroughly tested substation, designed to meet customer requirements and ready for installation. The elegant cabinet protects the system components and ensures that the substation will fit in any environment or building while contributing to highly increased energy efficiency.

Danfoss DSA substations make planning and layout easy and efficient. Typical customer requirements can be fulfilled by a range of pre-selected and in some cases exclusive Danfoss control components. All components are thoroughly tested and certified to ensure excellent system performance and minimum maintenance and enable extended warranty options, and continued component availability is assured for the lifetime of the system.



H ~1610 mm

D ~740 mm  
(700 mm excl. cover)

W ~1100-1350 mm

## ...to choose DSA substations

### Key principles of DSA substations:

- » Complete heat transfer substation including all control components and accessories
- » Design based on pre-defined flow and application diagrams for 1 and 2 circuit systems
- » A range of customisation options
- » Shorter lead time and delivery time
- » A modern, attractive solution for your building
- » Enhanced energy efficiency for your building
- » Typical capacity range: 100-400 kW (DHW)
- » Pressure range: PN 16/25 bar

### Your assured benefits with DSA:

- » Efficient planning and project documentation
- » A complete substation – ready to use
- » Reduced handling, installation and commissioning time
- » Optimum energy saving potential due to compact size, cover panel, A-class pump and exclusive control components
- » Optimised for long system lifetime
- » Satisfied customers

# Trim

## your energy consumption

Danfoss DSP substations come with a complete insulation option that contributes to better energy performance and lower total cost of ownership.

## Have it your way...

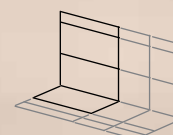
– or any way your customer requires. The answer to built-to-site substations is pre-engineered flexibility. Customer demands may vary, but by combining a pre-defined range of structural designs, application option flexibility and a recommended set of key Danfoss components and controls, you can ensure a perfect fit and optimum system performance.

Furthermore, you only have to deal with one supplier for design, component selection and service. This ensures short delivery time, easy installation, low maintenance and after-sales support, which in turn means that you'll have plenty of time to attend to other aspects of your business.

DSP substations are suitable for almost all domestic hot water and heating systems and feature a very high degree of comfort and operational performance. These systems are customisable to suit any typical requirements, and the availability of a wide range of recommended components gives you several advantages.

Design is quick and easy, components fit perfectly together, and the sturdy frame ensures stability during transportation and ease of installation. Excellent system performance and a long service life is guaranteed by the use of a standard range of components.





Frame modularity  
Dividable frames

Current range:

1300x550x1700 mm  
1600x550x1700 mm  
1600x750x1700 mm  
1900x750x1700 mm

## ...with a DSP substation

### Basic principles of DSP substations:

- » Pre-defined design rules for modular frame sizes and construction guidelines
- » Design based on flow and application diagrams according to customer requirements
- » Perfect component fit with a key range of control components recommended by Danfoss
- » Reliable lead time and delivery time
- » Attractive design with quality in every detail
- » Applicable for 1, 2 and 3 circuit systems
- » Typical capacity range: Up to 400 kW (DHW)
- » Pressure range: PN 16, 25, (40) bar

### Your benefits with a DSP:

- » Ease of design, planning, and project documentation
- » Meets your typical needs for a customised solution
- » Trouble-free handling, installation, and commissioning
- » Substation design ensures easy operation and minimal maintenance
- » Optimum system performance and energy efficiency
- » Low total cost of ownership

# For special requirements...

Sometimes local building conditions and requirements make a special solution necessary.

This may arise from the output requirements for a new building or the need to integrate the substation with an existing system which does not comply to standards. In such cases we often choose to engineer to order, which means working with you to carefully select the components required to do the job. Engineered-to-order substations usually require more time for design and dimensioning, with the objective of achieving downstream time and cost savings.

With a Danfoss DSE substation, you receive an exclusive solution designed to optimally cater to specific requests and stringent requirements for district heating and cooling systems.

## Danfoss DSE substations, engineered to order:

- » Full design and component flexibility
- » Exclusive customised heat transfer solutions, supported by Danfoss consultancy and expertise
- » High-level solutions that perfectly fulfil the most demanding system requirements

## ...Rely on built-to-site



# Plug & heat...

The heat is on. Controlling your entire heating system has never been easier or more efficient. The Danfoss ECL Comfort controller ensures smooth operation, optimisation of building energy efficiency, and cost savings for years to come.

The ECL Comfort controller is designed to function as the intelligent hub of the district heating system. Communication with the controller takes place via the controller's front-panel push dial wheel and graphical display, and the ECL Comfort controller offers features such as auto tuning, system motor protection, data logging and alarm monitoring.

This means that both reliability and performance are ensured.



## ECL Comfort 210 and 310 features:

- » Elegant no-fuss user interface
- » Intuitive ECL Application Key software makes operation a breeze
- » Menus and system data readings displayed in your own language
- » Access to user data, alarms, logs and settings
- » User-friendly technical documentation

## Countless advantages

Only a few steps are required to commission a Danfoss ECL Comfort controller.



### Setup wizard – Language selection

After wiring and connecting system components, such as pumps, actuators and temperature sensors, you can insert the ECL Application Key. Use the turn/push dial to select your preferred language and follow the setup progress on the display.



### Setup wizard – Application selection

Select your application from the system application range included on the ECL Application Key. You can choose from application-specific factory settings or user-specific settings if they have been stored on the key.



### Main controller settings

The main control parameters should be configured for optimum commissioning. They are located in the "Settings" menu. Room heating and DHW flow temperatures are set in the user menus.



### Heating curve

With six configurable coordinates for the flexible heating curve, the ECL Comfort 210/310 controller meets all requirements for achieving an accurate comfort temperature level in the system.



### Favorite display

Select your favorite display from a set of pre-defined displays in order to get a quick system overview. Using your favorite display, you can perform functions such as selecting the controller mode (scheduled, comfort, saving or frost protection mode) and desired comfort temperature level (room and DHW).



## We mind your business

Danfoss has a long-standing tradition of quality and reliability. For more than 75 years we have been supplying our customers all over the world with everything from components to complete district heating system solutions. For generations, we have made it our business to help you mind yours, and that remains our goal both now and in the future.

Besides district heating our activities range from applications for residential heating, domestic hot-water production and district cooling, to low energy and micro network systems, including renewable energy sources such as biomass and thermal solar heating.

We aim to supply solutions and products which give our customers advanced, user-friendly technology, minimum maintenance, and environmental and financial benefits along with high-level service and support.

**Feel free to contact us or visit  
[www.districtenergy.danfoss.com](http://www.districtenergy.danfoss.com)  
for further information.**