Efficient heat transfer substations for district heating

Are you looking for new heat transfer technology and higher energy efficiency? Do you want to optimize the utilization and appearance of your heating system?

Find out how Danfoss substations optimize your performance without a compromise and take heat transfer solutions to a new level.

Danfoss District Energy
Michael Kaare Jensen, Market Development Director
Benefits by using Danfoss district heating substations

- With the Danfoss DH station concept you will be able to achieve savings of total 3,000-4,000 EUR - during planning, installation, commissioning and operation of your district heating system project.

In practice these are realized by:

1) Design, calculation and quotation process  
   ~ 1,300 EUR

2) Technical benefits of Danfoss DH stations  
   ~ 1,550 EUR

3) Ordering, installation, commissioning and operation  
   ~ 1,225 EUR

Note: Calculation base - Consultants 210 EUR/day, Ordering person 25 EUR/day, Installer 20 EUR/day; Exchange rate: 1 EUR = 1,55 USD
Danfoss substations are available in three basic platforms, which may be adapted to suit your customers' needs and requirements.

- **Danfoss ACS**
  - *The advanced compact substation*
  The compact, pre-engineered and prefabricated heat transfer unit

- **Danfoss substations**
  - Substations “Red Frame” based or Engineered to Order (ETO)
  Tailored to suit the customer needs and requirements, configuration based on Danfoss recommendations or completely engineered to order based on customer requirements

**Pre-configured, preENGINEERED or site specific substations**
Advanced Compact Station – in more details

- Capacity range for DHW and heating min. 100 kW and max. 400 kW
- One type of heat exchanger, XB51
  - number of plates depends on the capacity
- Max. pipe sizes:
  - Prim. DN50; Sec. DHW DN50
  - Heating DN65
- Substation is covered with panels
- Cabinet sizes are fixed, four different types depending on the flow diagram and needed capacity
- Controller:
  - Danfoss ECL Comfort 210/310
  - Deliveries also without the controller
- Control valves:
  - Only Danfoss types
“Red Frame” substations - in more details

- Applicable for 1, 2 and 3 circuit systems
- Capacity range: Up to 400 kW (DHW and heating)
- PN range: 16/25/(40) bar
- Max. temp: 150 °C
- Max. pipe sizes:
  Primary connection: DN 65
  Secondary connection: DN 50 (DHW), DN 65 (Heating)
- Pipe direction – Typical pipe connection from the top
- Certificate of Quality System Approval (module H) according PED 97/23/EC European Directive

Frame modularity – Dividable frames
Current range:
1300x550x1700 mm
1600x550x1700 mm
1600x750x1700 mm
1900x750x1700 mm
Danfoss substations – Engineered to order

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

Your benefits
- 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!
Engineered simplicity – with ECL Comfort

What does the 7th generation of Danfoss ECL Comfort offer?

- A full range of electronic controllers for temperature control and weather compensation
- Applicable for use in heating, district heating, domestic hot water and cooling systems
- ECL Comfort ensures user comfort and convenience
- ECL Comfort enables energy efficient operation of the system
- Dedicated ECL Application Keys
The ECL Comfort series today

- ECL Comfort 110
- ECL Comfort 200
- ECL Comfort 300

- ECL Comfort 110
- ECL Comfort 210
- ECL Comfort 310 with communication
ECL Comfort 310 with extended communication

- Ethernet
- Modbus
- M-bus
New! Micro plate heat exchanger (MPHE) from Danfoss

**NEW plate type “dimples”**

**Conventional chevron type “Fishbone” plates**
Uniform velocity

Traditional Fishbone design

MPHE™ design

High velocity differences (1-10x)

Reduced velocity differences (1-3x)

Small brazing points

Bigger and better brazing points

Uneven distribution throughout plate

More even distribution throughout plate
Questions to Danfoss District Energy?

Automatic controls
- Electronic controllers
- Motorized control valves
- Self-acting controls
- Ball valves
- Heat meters

House and Flat stations
Large welded substations
Domestic hot water systems

Plate Heat exchangers
- Brazed HEX
- Gasketed HEX
MAKING MODERN LIVING POSSIBLE