Let's elevate energy efficiency

One grid, one block, and one building at a time

Danfoss HydronicS delivers innovative heating and cooling solutions that combine decades of expertise with the industry's broadest portfolio. From single buildings to entire energy grids, we enable smarter, more efficient and sustainable energy systems.

Learn more about
HydronicS solutions here

90+ years of innovating heating and cooling… and counting

From pioneering the world's first radiator thermostat in 1943 to leading the development of intelligent, connected hydronic systems today, Danfoss HydronicS embodies a legacy of innovation.

Danfoss HydronicS blends heritage, expertise, and technology to deliver smarter, more sustainable heating and cooling systems—solutions that not only perform today but shape the future of energy efficiency.

Our extensive portfolio is known worldwide—from components and controls to substations and software. But even more importantly, Danfoss is built on having the right people with deep application know-how, an innovation-driven company DNA, and our unwavering ambition to be your preferred decarbonization partner.

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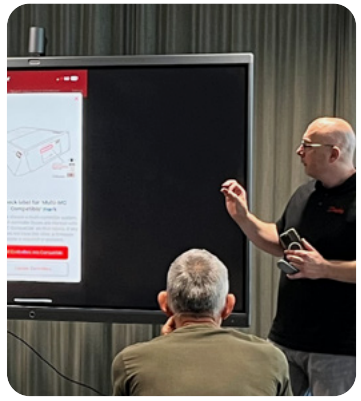


Our markets

We deliver advanced hydronic solutions and intelligent software that optimize energy performance across all building types. From single-family homes to large public facilities, our technologies ensure comfort, reliability, and efficiency. Whether it's reducing energy consumption, enhancing indoor climate control, or enabling smart data-driven management, our solutions support a more sustainable and connected environment.

Single family homes

Apartment buildings

Data centers

Office buildings

Public buildings

Schools and Universities

Airports

Hotels

Turning regulation into opportunity

As a leader in the heating industry, we are in a position to apply our own technology in practice. This allows us to meet regulatory requirements while contributing to broader ESG objectives and supporting the UN Sustainable Development Goals.

The Energy Performanceof Buildings Directive (EBPD) promotes energy efficiency across the EU's building sector, aiming for full decarbonization by 2050. The 2024 revision makes hydronic balancing a requirement when heat sources are replaced, with national implementation and reporting to follow in 2025.

In parallel, new legislation supports the wider use of district energy. Energy Efficiency Directive (EED) complements this framework with a target of reducing energy consumption by 32.5% by 2030. While hydronic balancing is not mandatory under the EED, 2025 will bring new national obligations for energy management and reporting within the public sector.

The EED mandates heat mapping for municipalities with over 45,000 residents to utilize waste heat. The directive also requires an increased share of renewables in district energy networks and cost-benefit analyses for renovated facilities. Furthermore, data centers with capacities over 1MW must reuse their waste heat.

Qualifying for Class A — ISO 52120-1 and 16484-4

Under the EU (EPBD), member states must use ISO 52120-1 and 16484-4 as the reference framework for national energy performance calculations. According to the standard, only systems that combine modulating room control, occupancy-based demand management, and dynamic hydronic balancing qualify for Class A. Conventional static or flow-limiting valves cannot reach this level. In contrast, Danfoss dynamic balancing valves, designed with the membrane principle, meet all Class A requirements by ensuring true dynamic flow control and high energy efficiency.

Danfoss RA-DV dynamic valve

Danfoss AB-QM 4.0

Legislations command smarter, greener buildings

Legislation sets the stage for transformation, pushing buildings and networks to evolve towards higher efficiency and long-term sustainability. Directives such as EU legislation set ambitious standards for buildings and networks. We help buildings and networks stay compliant—today and tomorrow.

Germany's Building Energy Act **(GEG)** requires new heating systems to use at least 65% renewable energy and aligns with EU directives to accelerate the shift toward efficient, low-carbon buildings.

The UK's **Part L** Building Regulations mandate the use of low-carbon heating and high-efficiency designs in new buildings. These measures and stricter energy standards for existing properties are designed to accelerate the shift toward a more sustainable, net-zero-ready building sector.

Driven by the Energy Act 2023, the UK's upcoming Heat Network Zoning will treat heat networks as a regulated utility. By mandating connections within designated low-carbon zones, it aims to attract investment and fast-track the decarbonization of buildings — a key step toward the nation's 2050 net-zero goal.

Denmark's Heat Supply Act and Building Regulations **(BR18)** mandate a dual approach, promoting socio-economically optimized district heating while enforcing strict energy performance standards for buildings. This strategy accelerates the shift toward a highly efficient, decarbonized building stock in line with national climate targets.

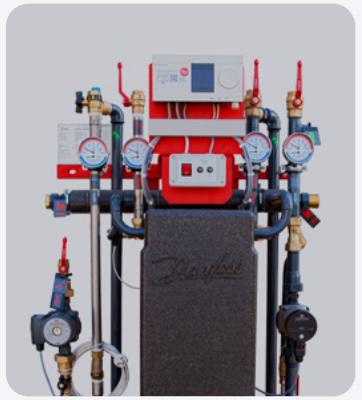
Comprehensive portfolio overviews

Our expertise in hydronic balancing, room control and the industry's only end-to-end district energy solutions helps maximizing energy flows from source to consumption—improving efficiency, comfort, and control.

From precise temperature control to intelligent system management, our solutions ensure minimal waste, predictable performance, and effortless operation. Whether it's digitalizing HVAC systems, recovering waste heat, or balancing entire networks, our experts ensure the system works seamlessly as one.










Building Solutions

HydronicS solutions adapt to every building type, from commercial to residential, cutting emissions, lowering costs, and boosting comfort—no matter the scale.

These products contribute to lower energy consumption and improved indoor comfort, helping us achieve our mission: to decarbonize our cities and communities, one building and one block at a time.

Hydronic Balancing and Control Valves with Actuators

Floor Heating Systems

Flat Stations

Radiator Thermostats

Domestic Hot Water

Electronic Room Controls

Danfoss Leanheat® Software

Smart Heating Systems

District Energy

District energy systems connect multiple buildings through a centralized heating and cooling network, enabling efficient use of energy and integration of renewables and waste heat. With Danfoss HydronicS solutions, utilities can optimize flow, temperature and performance across the grid—reducing losses, lowering emissions and ensuring stable, affordable energy supply.

Heat Recovery Units

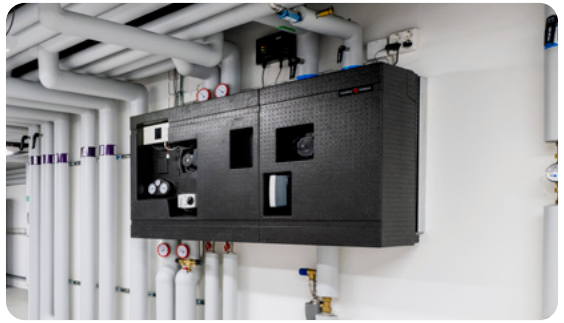
District Energy Controls

Heavy Duty Stations

Electronic Controllers

Domestic Hot Water

Energy Meters



Light Duty Stations

Danfoss Leanheat® Software

Digitalization:
End-to-end software and services

Danfoss Leanheat® offers end-to-end software systems and services for the control and optimization of energy systems – from plants and distribution to buildings and homes. By unlocking the potential of connectivity, optimization tools make it possible for utilities and service providers to effectively meet growing demands for energy efficiency while improving business operations and costs.

The Danfoss Leanheat® software suite:

Leanheat® Production optimizes district energy by forecasting demand and minimizing heat loss, to save fuel costs delivering a fast return on investment of 0.5-2 years.

Leanheat® Network uses AI to model, simulate, and optimize temperature, pressure, and consumption for better planning an operation.

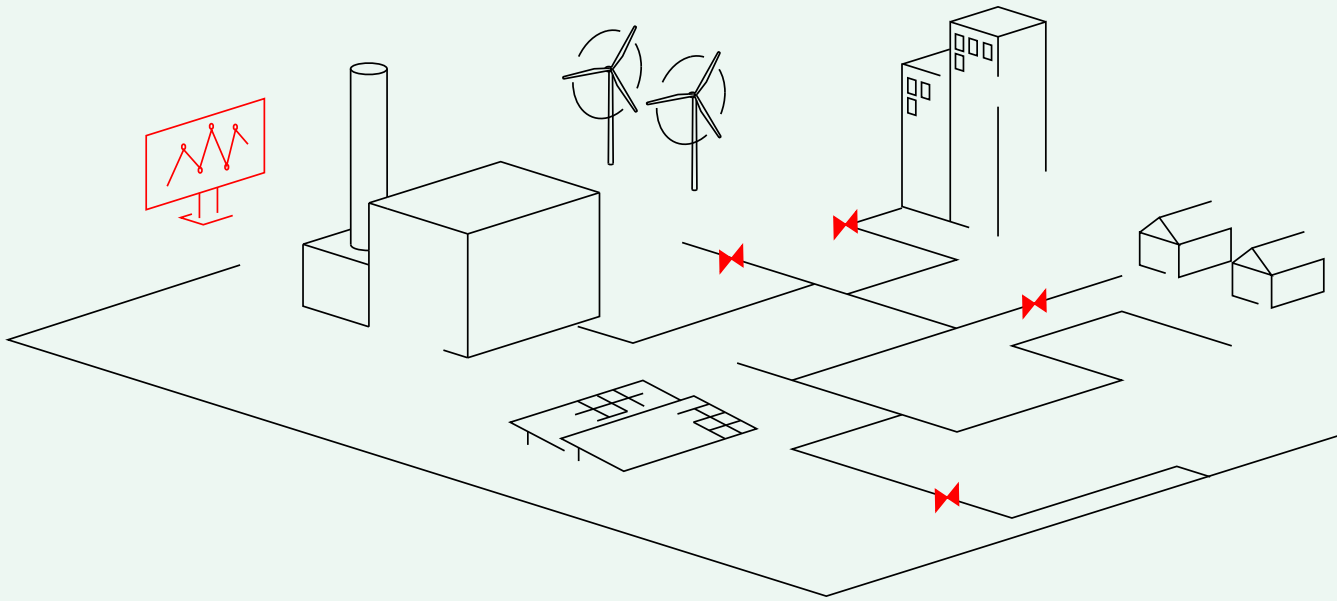
Leanheat® Monitor is a secure, web-based platform for remote monitoring and control, reducing costs and improving efficiency.

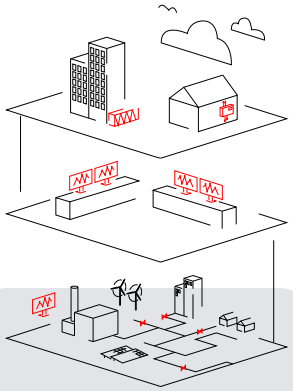
Leanheat® Building applies AI and IoT for smart heating control, lowering energy use by 10–30% while maintaining comfort in apartment buildings.

Portfolio
by building type

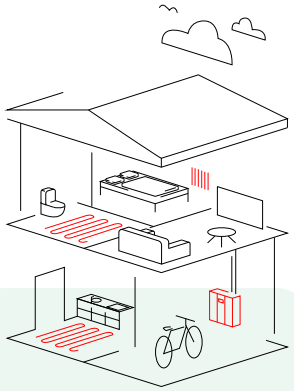
Buildings play a central role in the energy transition. Each type —from single-family houses to hospitals and large-scale district energy systems—faces distinct challenges and opportunities.

Danfoss HydronicS provides tailored hydronic solutions that optimize energy efficiency, comfort and reliability across every building category, ensuring performance from the individual room to the entire network.

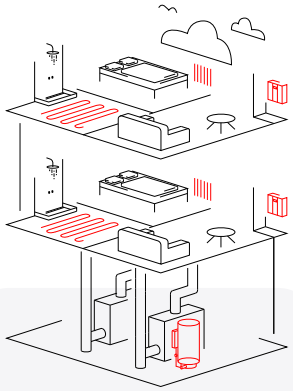




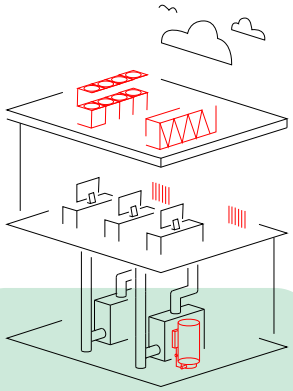
District Energy



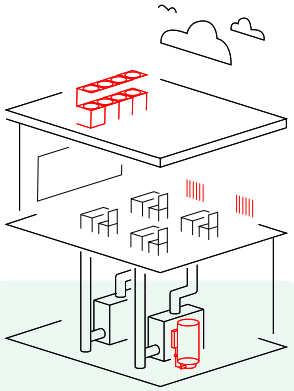
Single family homes



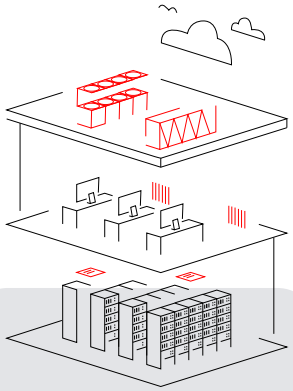
Apartment Buildings



Commercial Buildings



Public Buildings



Data Centers

District Energy

Optimization Software

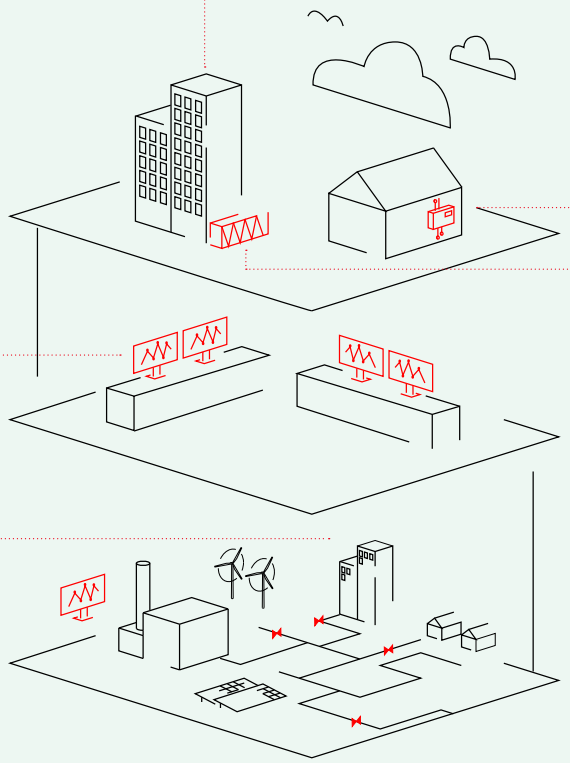
Leanheat®
Production

Leanheat®
Network

Leanheat®
Monitor

Leanheat®
Building

District heating substations



Domestic Hot Water

Heat Recovery Units for supermarkets

Heat Recovery Units for datacenters

Heat Recovery Module
— components:

- S110 Heat exchanger
- SonoMeter 40
- Virtus AFQM 2
  + AMV/E 65x
- Alsmart®
- VLT® AQUA Drive FC 102

A central source to multiple buildings creating an efficient way to decarbonize entire areas

By integrating renewable energy and waste heat, district networks reduce dependence on fossil fuels and improve energy security. With Danfoss HydronicS solutions—covering substations, controls and digital optimization—utilities can minimize return temperatures, balance flows and maintain stable supply, achieving higher efficiency and lower emissions across the grid.

District Energy

Components

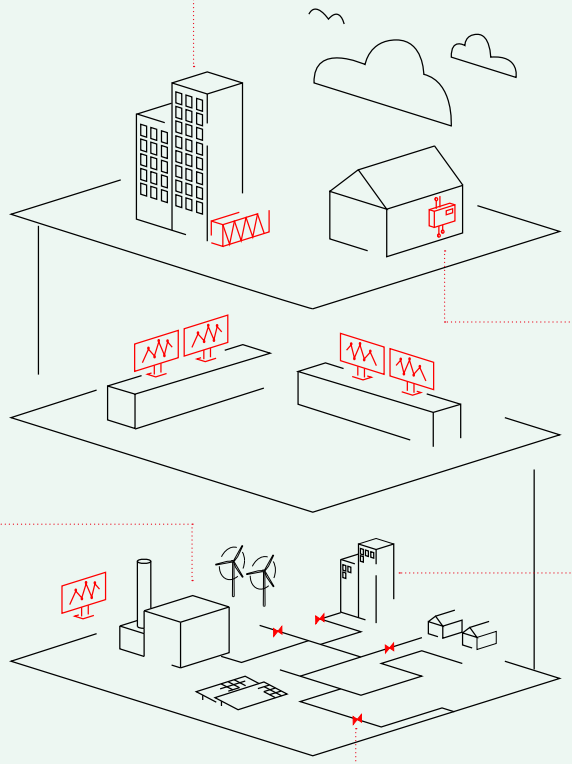
Motorized control valves

Differential pressure & flow controllers

Electronic controllers

Drives

Pressure and temperature Sensors



Components

Energy meters

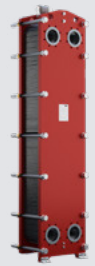
Temperature controllers

Complementary components

Shut-off valves

Brazed plate heat exchangers

Gasketed heat exchangers



Components are the foundation of every efficient hydronic system. Danfoss HydronicS offers a complete range of high-performance components—including valves, actuators, differential pressure controllers, thermostats and balancing devices—engineered for precise flow and temperature control.

Each element is designed to work seamlessly within integrated heating and cooling systems, ensuring reliability, energy efficiency and long-term performance from individual units to large-scale networks.

Single family homes

Smart heating software

Ally™ by Danfoss

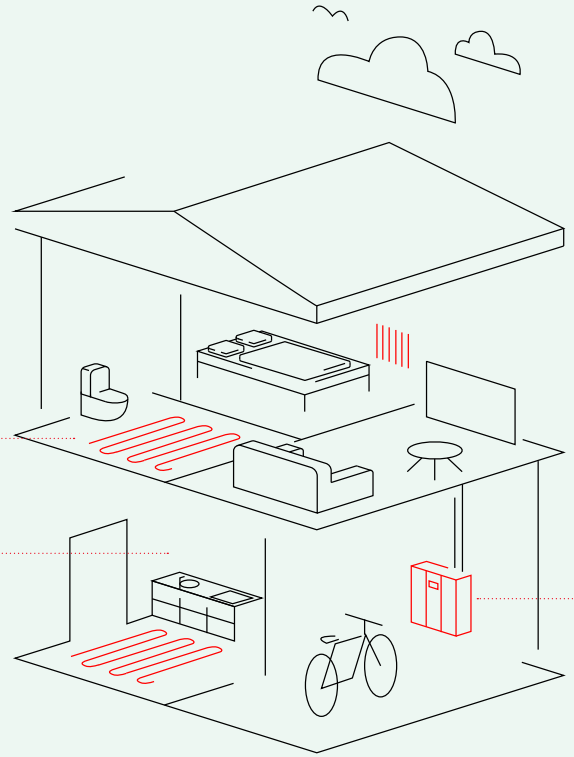
Comfort heating

Smart heating

Radiator thermostats and valves

Hydronic Floor Heating

Electronic Room Controls



District Heating Station Control

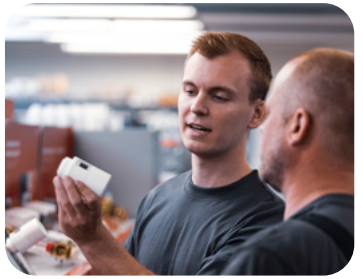
District Heating Substations

Indirect heating connected to centralized DHW

Indirect heating and centralized DHW

Direct heating and centralized DHW

Domestic Hot Water



The potential to realize significant energy savings

Most existing houses have potential to realize significant energy savings, by improving the heating system and optimizing control of heating operations.

When it comes to new builds, it is important that houses, as early as the design phase, are equipped with high-performance heating equipment, which can ensure the lowest possible energy consumption, combined with high levels of comfort for the homeowners.

Apartment buildings

Optimization Software

Leanheat® Suite

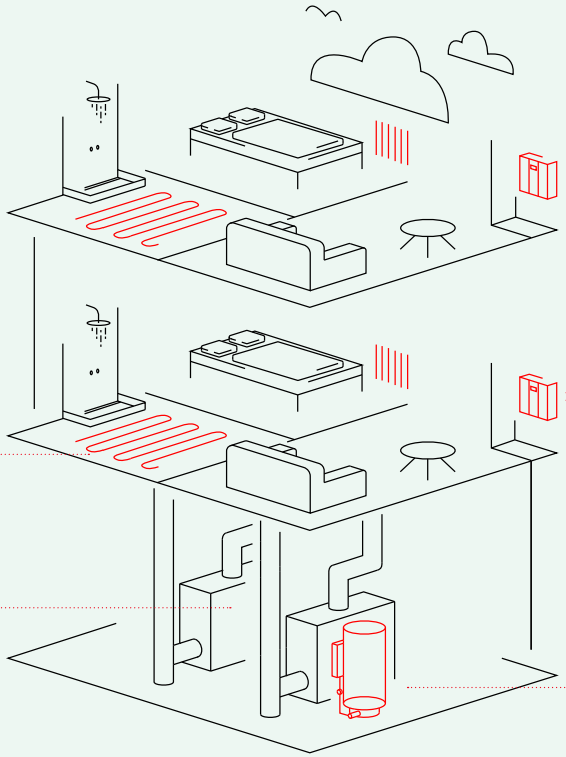
Comfort heating

Smart heating

Radiator thermostats and valves

Hydronic floor heating

Flat stations for heating and DHW distribution



Flow and measuring

Dynamic riser balancing

Domestic Hot Water

Energy metering

District heating substations

Indirect heating when connected to an apartment flat station

Direct heating and centralized DHW

Indirect heating and centralized DHW

Hydronic balancing—an important step in improving a building's energy efficiency

By cutting energy waste, reducing emissions, and optimizing indoor climate, you meet regulations while boosting property value and appeal. A key step is hydronic balancing, which ensures optimal balance, flow, and temperature control across the system. Automatic hydronic balancing can deliver 10–35% energy savings, providing comfort and sustainability while benefiting your bottom line and the environment.

Commercial buildings

Optimization Software

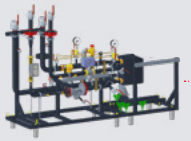
Leanheat® Suite

Source solutions — substations

Indirect heating and centralized DHW

Direct heating and centralized DHW

Indirect heating connected to centralized DHW

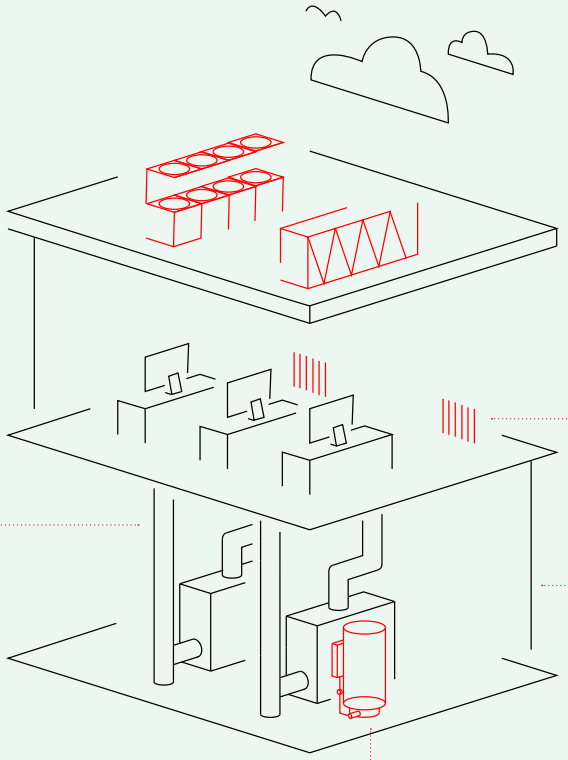


Domestic Hot Water

Air Handling Unit solutions

PICVs and actuators

Electronic controls



Distribution solutions

Dynamic Riser Balancing

Static Riser Balancing

Brazed plate heat exchangers

Gasketed heat exchangers

Space heating/cooling solutions

Terminal units — PICV's and actuators

Radiators

Energy metering

Draw upon us for expert advice

Commercial buildings need to balance dynamic growth with sustainable management. Whether shopping malls, offices, or supermarkets, building technology must adapt to market needs, regulations, and certificates.

Improving the building's envelope, energy generation and supply, or the way energy flows within it can significantly boost performance and help decarbonize.

Public buildings

Optimization Software

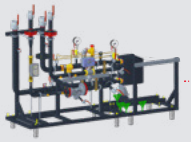
Leanheat® Suite

Source solutions — substations

Indirect heating and centralized DHW

Direct heating and centralized DHW

Indirect heating connected to centralized DHW

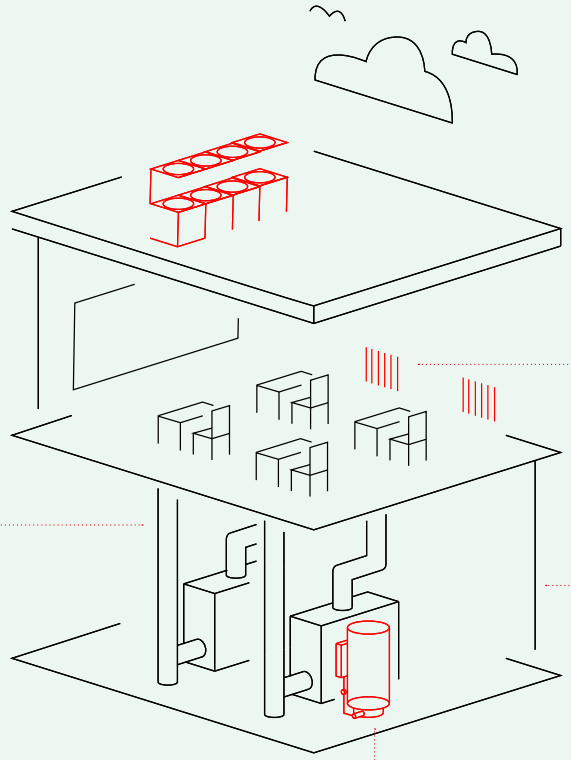


Domestic Hot Water

Air Handling Unit solutions

PICVs and actuators

Electronic controls



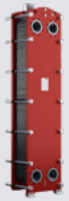
Distribution solutions

Dynamic Riser Balancing

Static Riser Balancing

Brazed plate heat exchangers

Gasketed heat exchangers



Space heating/cooling solutions

Terminal units — PICV's and actuators

Smart heating

Radiators

Energy metering

Driving Performance with hydronic balancing and heat recovery

Public buildings hold great potential for improving energy efficiency and reducing carbon emissions. With high-performance hydronic systems that balance heating and cooling and recover waste heat, energy use can be minimized and renewable energy supported—ensuring comfort in schools, hospitals, and care facilities while meeting sustainability goals.

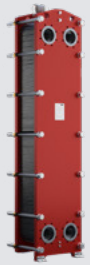
Data centers

Liquid Cooling solutions

Valve train and actuators

Brazed plate heat exchangers

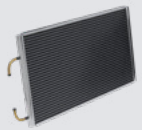
Gasketed plate heat exchangers

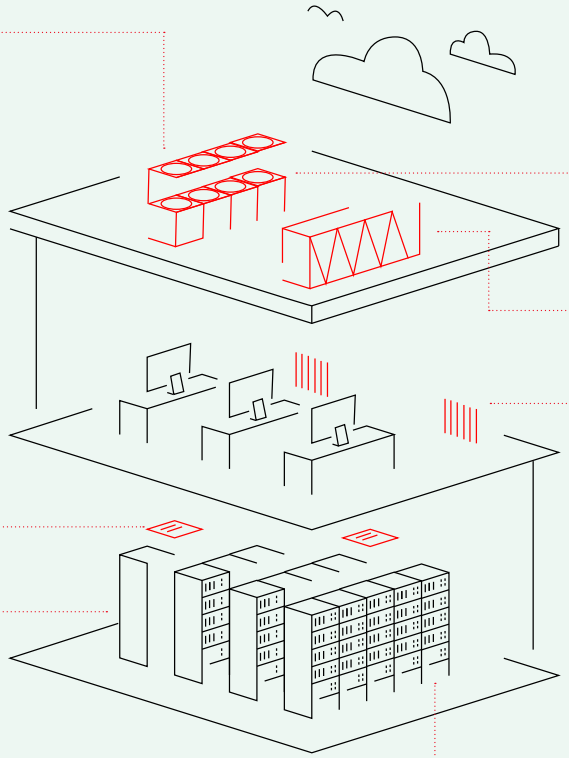


Air cooling solutions

PICVs and actuators

Microchannel heat exchangers
Condensers
Evaporators





Air Handling Unit solutions

PICVs and actuators

Electronic controls

Energy metering

Shut-off valves

Heat recovery solutions

Heat Recovery Module
— components:

- S110 Heat exchanger
- SonoMeter 40
- Virtus + AFQM 2 + AMV/E 65x
- Alsmart®
- VLT® AQUA Drive FC 102

Capture, transfer and integrate energy into local district heating networks

Data centers generate large amounts of excess heat every day, representing one of the most underutilized energy sources in modern infrastructure. By recovering waste heat from data centers, operators can lower energy costs, reduce CO_2 emissions and contribute directly to local decarbonization and circular energy systems.

Case stories

Our heritage and expertise deliver results worldwide

Across Europe, Danfoss HydronicS technologies are delivering measurable improvements in energy efficiency, comfort and system stability. From apartment buildings to large district networks, our solutions turn decarbonization goals into proven performance and documented savings.

Danfoss HydronicS turns ambition into proven outcomes.

Navigating challenges in the sustainability transformation of District Heating

As one of Germany's largest district heating networks, Fernwärmeverbund Niederrhein faced increasing operational complexity during its shift to decentralized and renewable energy sources. By upgrading its substations with Danfoss Virtus pressure and flow controllers and equipped these with AMEi 6 actuators with intelligent iSET functionality, the utility achieved automatic adjustment under varying loads and stable year-round operation.

The result: a more efficient, digitally ready network with lower return temperatures, reduced energy use and significant cost savings.

Read more here

Sygehus Sønderjylland (DK): hospital retrofit supplying 15,800 MWh to the district grid

In collaboration with Sønderborg Varme, we helped Sygehus Sønderjylland transform its energy system by recovering waste heat from the hospital's cooling plant system and MRI scanners.

Once the system is fully implemented, the hospital expects to sell back 15,800 MWh of excess heat to the grid, reducing the hospital's purchased energy by 28,300 MWh per year.

This project showcases how hydronic balancing and heat recovery create energy resilience and cost stability in critical public infrastructure.

Read more here

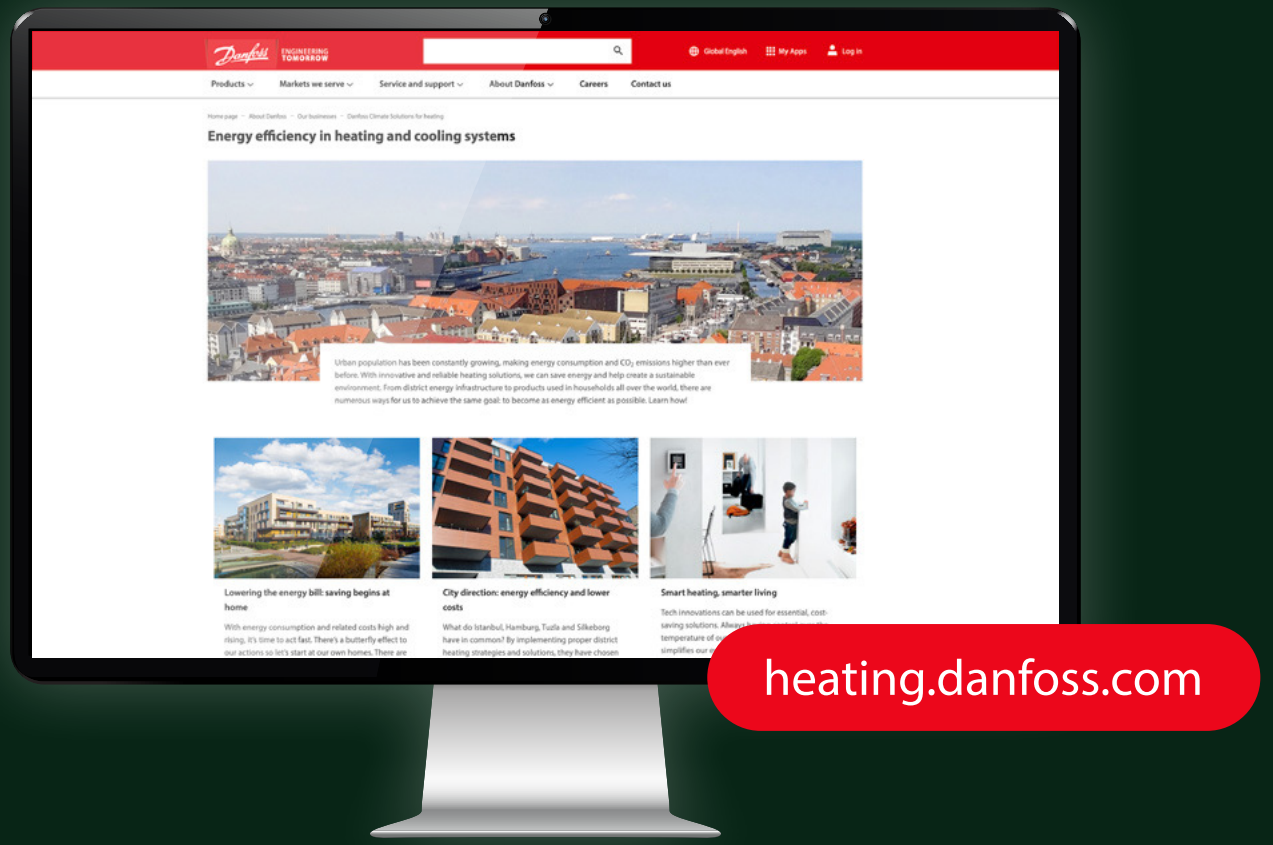
Apartment block saves energy and money with AI and dynamic balancing

In a centrally heated 12-apartment building connected to district heating, the Swedish cooperative HSB integrated Leanheat® Building into the existing substation controller without extra hardware. The software monitors system performance remotely, automates adjustments, and analyzes real-time data. Over the heating season 21–22, the system reduced energy use by 10.9 % (11,136 kWh).

By installing ASV dynamic riser balancing, RA-N valves and RA-2000 TRVs, the solution achieved ~20 % total energy savings, stabilized indoor climate, and was deployed with minimal disruption.

Read more here

Explore our solutions
heating.danfoss.com



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