ENGINEERING
TOMORROW

Discover an evolution in heating efficiency and control

Danfoss EvoFlat™ station range – Heating evolved

10 times
faster retightening with Click-fit connections.

www.evoflat.danfoss.com

Breathe new life
into your building

Rising energy costs and increasing demand for better comfort and control have made it difficult for housing associations, building owners and consultants to stay competitive.

At Danfoss, we understand these issues and have completely re-engineered the way domestic heating and hot water is produced, delivered and controlled.

Our new range of innovative heating solutions is a major leap forward in helping businesses like yours adapt to evolving customer needs, reduce costs and lower your carbon footprint.

The decentralized advantage
Traditionally, buildings have relied on inefficient, expensive and inflexible central heating systems for domestic hot water and climate control.

However, decentralized heating systems have been proven to offer a better alternative by delivering more cost-efficient performance with longer system lifetimes, less maintenance and a lower carbon footprint – all resulting in a quicker and more sustainable return on investment.

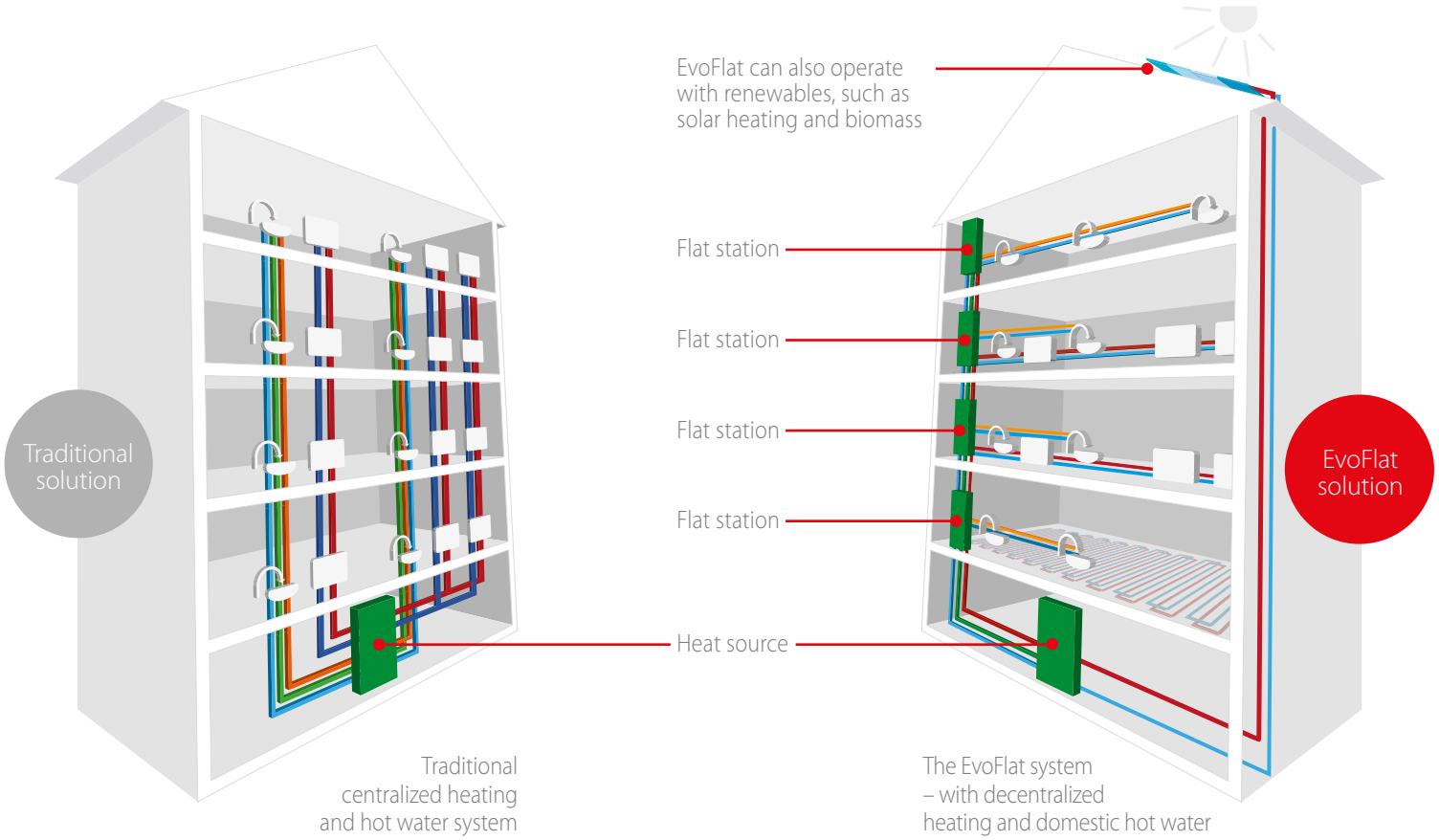
A decentralized heating system incorporates a buffer tank that can be supplied by any heat source available. The system remains efficient regardless of any subsequent changes and updates to the building's heat supply.

To help you make the most of these advantages and translate them into tangible benefits for your business and value for your customers, we have created the EvoFlat solution.

"We aim at bringing the full benefits of decentralized heating systems to all those involved with apartment block living.

This means better return on investment, lower overall costs, greater comfort and safety and reduced environmental impact."

Ana Perasic
Danfoss District Energy Division



Traditional centralized heating and hot water system

The EvoFlat system – with decentralized heating and domestic hot water

EvoFlat – the natural selection

EvoFlat from Danfoss is a complete heat transfer solution for domestic hot water and heating in flats and multi-family apartment buildings that uses a decentralized heating network.

EvoFlat stations come with all necessary components and can be easily installed. The system can be fuelled by all heat sources, including district heating and renewables, to provide instantaneous hot water, individual differential pressure control of the heating and DHW system with full energy consumption metering.

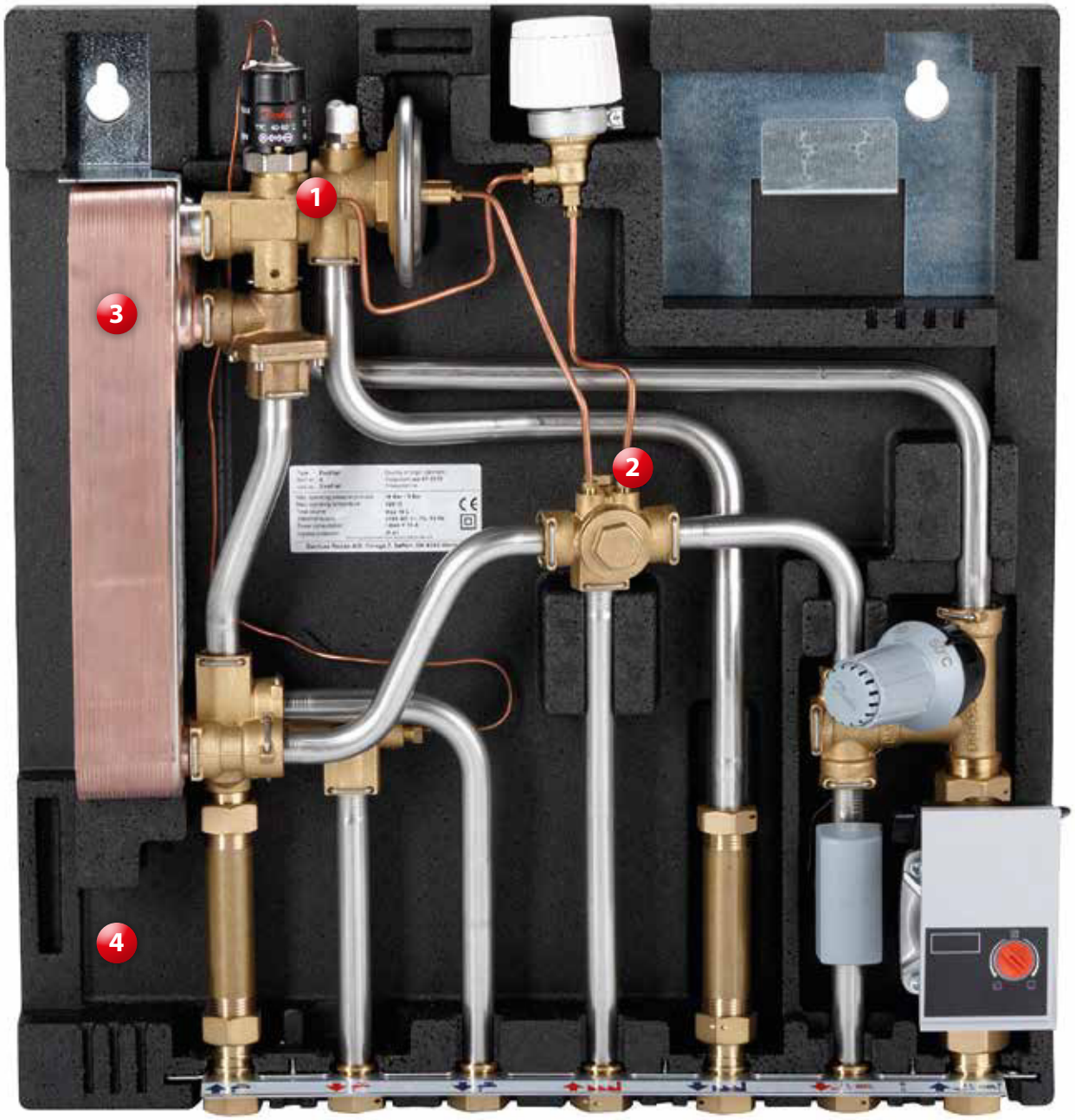
For your customers, this means complete control, better comfort and – crucially – the ability to stay in control of the amount of energy they use and pay for.

For you, it means a better solution, more satisfied customers, a lower carbon footprint and a more secure and profitable bottom line.

- Highest energy efficiency from a central heat source
- Easy renewable energy source integration
- Optimum boiler operation and no additional pump energy used
- Better heat transfer (microplate heat exchangers) and lower pressure drop
- No open fire source in apartment (gas boiler)
- No risk of gas leakage in apartment

- Easy installation with only 3 ascending pipes and Click-fit connections
- Continuous heating comfort throughout entire year
- High tapping capacity with respected flat stations sizes
- Accurate billing and recording with meters in every station
- Easy service and maintenance
- Potential faults usually affect one system only
- Less connections - lower risk of leakages

- Integrated thermostatic controller
- Lower supply temperature
- Better P-Band
- Easier hydronic balance with integrated differential pressure for DHW
- Step-by-step renovation in occupied flats (flat-by-flat conversion)
- Minimal risk of legionella bacteria



EvoFlat MSS

Next generation **engineering**

EvoFlat provides maximum comfort and control at minimum cost. To achieve this, we have combined years of engineering experience with the latest technologies to create the most efficient flat station system on the market.

This exceptional performance is directly attributable to the quality of the hard-ware that make up the EvoFlat system. We only use components designed and built by Danfoss to make sure you get the best possible results, reliability and return on your investment.

1

Unique domestic hot water controller

Developed exclusively for EvoFlat stations the multi-functional TPC controller for domestic hot water is at the heart of your system.

It features an integrated dP-controller with better P-band and auto adjustment, a flow actuator, a zone valve, air vent and a thermostat.

- Increased end-user comfort
- Low return temperatures even at low tapping volumes
- Highly reliable design
- Robust - designed even for poor tap water quality
- Legionella and lime scale protection

Fast Click-fit connections

On the EvoFlat station most screwed connections has been replaced with the unique Click-fit connections. This is the easiest and quickest way to ensure that pipes are securely joined with no leakages and no need to tighten or retighten.

- Easy mounting and installation
- Fast service
- Low risk of leakages
- Reliable, long lasting performance
- Tested up to 200 bar

2

3

Micro Plate™ heat exchangers

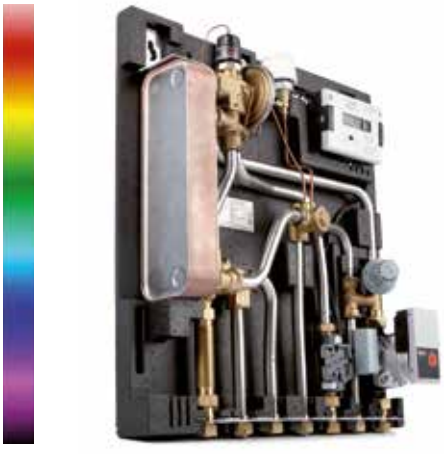
To secure optimum heat transfer and performance the EvoFlat station is equipped with a brazed heat exchanger with patented Micro Plate™ plate design.

- Energy and cost savings
- Better heat transfer and lower pressure loss
- More flexible design
- Longer life time

Insulation and energy metering

Better insulation means better energy efficiency. Heating and hot water use can also be monitored remotely via a meter installed in each station.

- Measure flow rate, temperature and energy consumption
- Dynamic range of 1:250
- Easy data collection with communication module
- Fair and accurate billing



4

Adaptable to your building

With a range of energy-efficient features, our new EvoFlat FSS stations are suitable for residential buildings with a low temperature supply and the EvoFlat MSS stations are designed for apartments with under-floor heating.

EvoFlat FSS

Complete unit for direct heating and DHW

The EvoFlat FSS is designed for a low temperature supply and comes equipped with an insulated cabinet and differential pressure control. The energy-saving multi- functional controller TPC(-M) and high performance heat exchanger delivers instantaneous hot water without no-load losses.

As with all EvoFlat stations, the FSS can be built into a wall recess box or fitted as a wall-mounted installation. It is ready for use with wall-mounted radiators and panel heating units.

FSS types

EvoFlat FSS type 1
(max DHW capacity 37 kW)

EvoFlat FSS type 2
(max DHW capacity 45 kW)

EvoFlat FSS type 3
(max DHW capacity 55 kW)

EvoFlat MSS

Direct heating with mixing loop and domestic hot water

The EvoFlat MSS is a complete flat station for providing energy-efficient direct heating with a mixing loop and instantaneous domestic hot water.

EvoFlat MSS stations are especially useful for systems with under-floor heating. Connection pipes for radiator circuits can be mounted prior to the mixing loop, so they can be quickly, easily and inexpensively attached to radiators and panel heating circuits.

MSS types

EvoFlat MSS type 1
(max DHW capacity 37 kW)

EvoFlat MSS type 2
(max DHW capacity 45 kW)

EvoFlat MSS type 3
(max DHW capacity 55 kW)

Multiple cover and insulation options

The EvoFlat system is not only designed to maximise energy savings and comfort, but also to blend in with its surroundings.

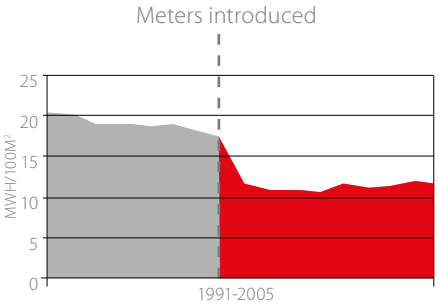
As such, EvoFlat stations are available in a variety of attractive cover and insulation options that match the mounting position inside the building, whether on-wall, in recess (built-in) or in a shaft.

EvoFlat documented benefits

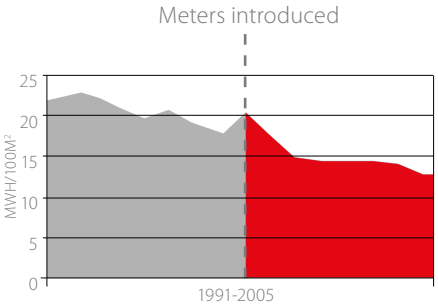
The idea behind the decentralized system with EvoFlat stations for heating and domestic hot water is not new and the benefits of such systems are well documented.

Better value for tenants

When residents pay for what they use, they tend to keep a critical eye on their energy consumption. A study carried out in Denmark in 1991-2005 examined the actual energy consumption before and after individual meters were installed. The results clearly showed that individual metering significantly reduces energy consumption per square meter by as much as 15-30%.



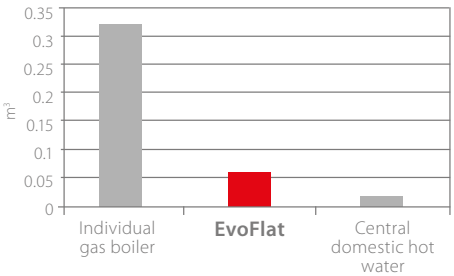
Housing association "Hyldespjældet"
Individual metering since 01.1998



Housing association "Morbærhaven"
Individual metering since 01.2000

Fit more into less space

Compared to individual gas-fuelled boilers, which are often combined with a storage tank, an EvoFlat station takes up about 80% less space and can be mounted in a wall or small cupboard. It is true that flat stations take up a little more space than centralized domestic hot water systems, however they are still very unobtrusive and free up considerable space in basement areas.



Individual gas boiler: 0.32.
Boiler (0.15 m³) + chimney (0.17 m³)

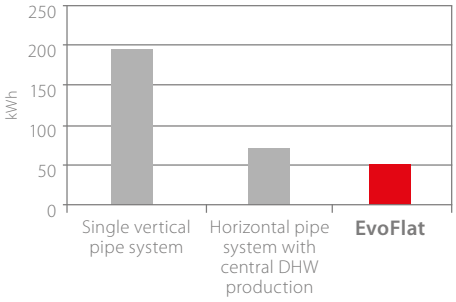
EvoFlat: 0.062. Flat station (0.062 m³)

Central domestic hot water: 0.02.
Water meter (0.01 m³) + heat meter (0.01 m³)

* Storage tank in basement will take up significantly more space than in a EvoFlat solution

Renewable energy flexibility

EvoFlat makes full use of alternative energy sources via a buffer tank which collects the heated water and distributes it to individual apartments. Individual flat stations ensure that the heated water is distributed to radiators at the desired temperature. Each of these flat stations are also fitted with a fresh water system, which sufficiently heats the domestic water only when needed and keeps the supply bacteria-free.



Reduce energy wastage

A 2008 study compared the different distribution systems available for apartment blocks and multi-family houses by comparing an EvoFlat solution with a single vertical riser pipe system and a horizontal riser pipe system with centralized production of domestic hot water.

The study revealed that compared to modern centralized domestic hot water solutions, EvoFlat reduces heat loss from the pipes by more than 40% and by as much as 80% compared to traditional one-pipe solutions.

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Learn more about how EvoFlat
can heat up your building

At Danfoss, we know what it takes to create value that you can build into your business and pass onto your customers.

Today, our advanced, reliable and user-friendly technology is helping to keep thousands of people comfortable worldwide and a wide variety of businesses, such as yours, competitive and profitable.

When planning your next project, talk to us for advice, support and the latest high efficiency, low cost heating solutions:

www.evoflat.danfoss.com

EvoFlat technical handbook

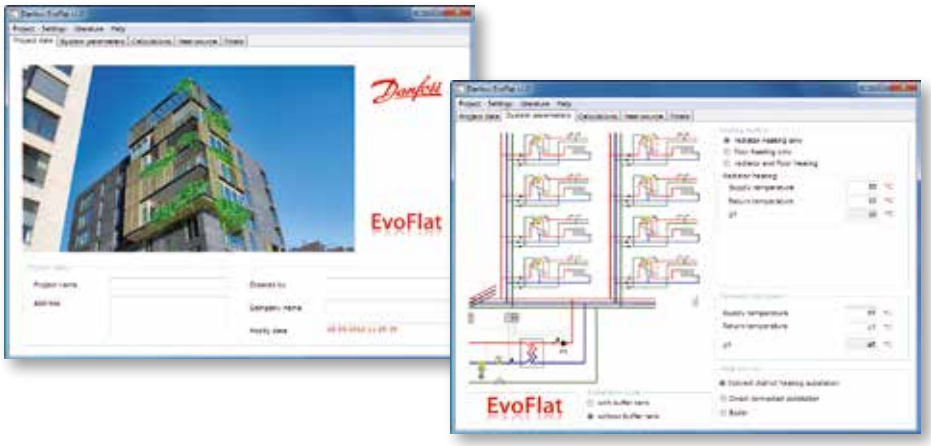
For more details about the EvoFlat system from Danfoss, we have prepared a comprehensive handbook that outlines everything you need to know before choosing your ideal EvoFlat product.

For your free copy, visit
www.evoflat.danfoss.com

System dimensioning software

Our new, user-friendly system dimensioning software can help you to choose the ideal product for your individual needs, covering all your performance, energy efficiency and specific comfort requirements.

To request your free software package, visit
www.heating.danfoss.com/evoflat



www.evoflat.danfoss.com

Danfoss A/S · DK-6430 Nordborg · Denmark · Tel: +45 74 88 22 22 · Fax: +45 74 49 03 95
E-mail: districtenergy@danfoss.com · Website: districtenergy.danfoss.com

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