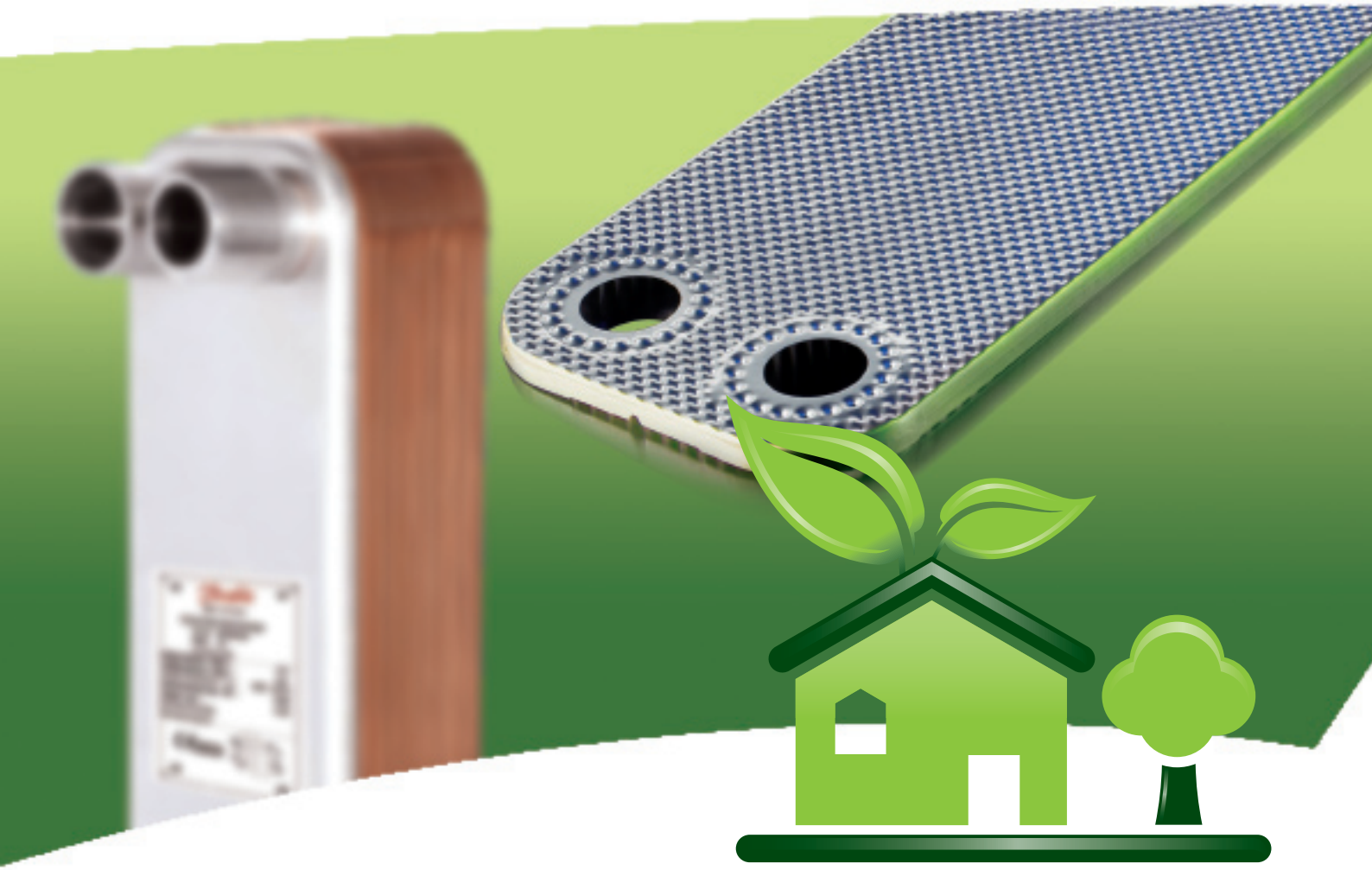


The H-range. A new design for heat pumps

Micro Plate Heat Exchangers – MPHE™

Core savings and a cleaner environment

As the global trendsetters in heat exchangers for heat pump systems, we are the ideal partner to help you meet the world's climate and energy aspirations.

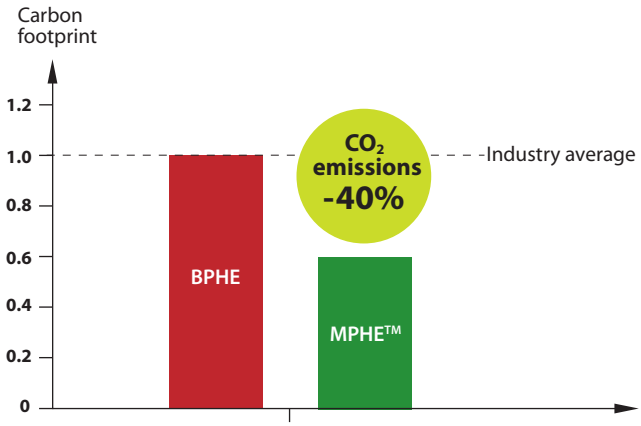
Our drive for energy conservation puts the focus on high-performance heat exchangers. With our new Micro Plate Heat Exchangers (MPHE™s) at the heart of your heat pump systems, you can design completely new solutions.
Our ingenious new technology is a major advance in heat transfer. More than just a different way of doing the job, it is a way better route to improved performance and lower environmental impact. It is the advance you have been waiting for to help you meet the environmental, economic and political challenges you face.

Clear route ahead for heat pump manufacturers

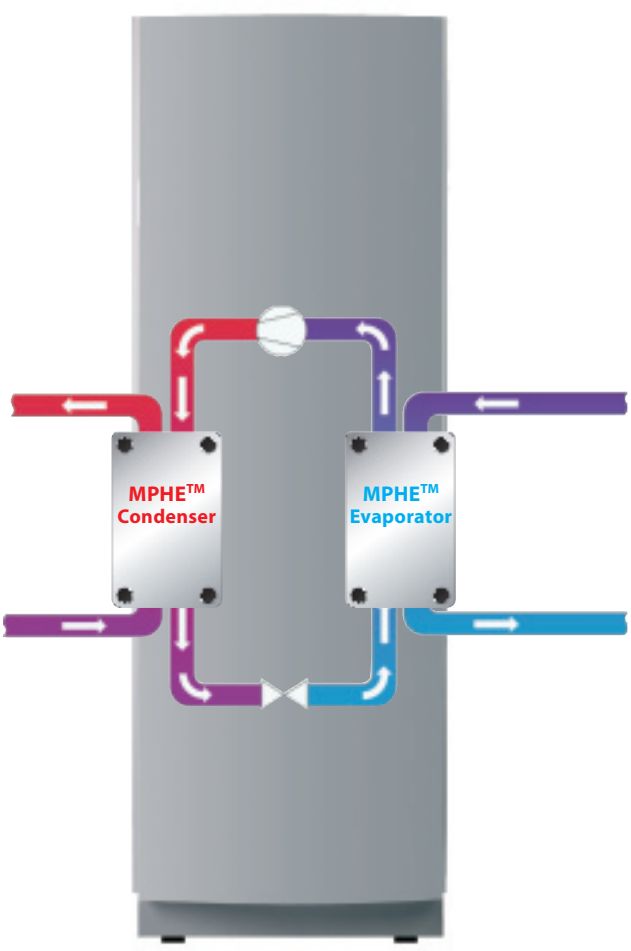
Micro Plate technology enables us to focus totally on the customer and the heat pump market's needs. The ingenious design gives us a new freedom to optimise each model to precisely match the demands of tomorrow's heat pump systems: efficient heat transfer, energy conservation and environmental responsibility.

Minimise environmental impact

Brazed plate heat exchanger (BPHE) technology has been stalled since the late 1970s. The innovative new Micro Plate technology in our MPHE™s delivers big savings on raw materials and minimises the use of refrigerants. With MPHE™, Danfoss is opening up totally new possibilities for greener applications.



THE GREEN COMPARISON *In the MPHE™, improved heat transfer is accompanied by reduced carbon footprint. This is captured here for the MPHE™ and BPHE technologies as the function of their refrigerant charges and carbon dioxide equivalents.*



The greener solution

We bring you greener solutions with a smaller CO_2 footprint overall. The MPHE™'s smaller hold up volume means a lower refrigerant charge, saving money and further reducing the CO_2 footprint. Compared with a chevron-type BPHE, an MPHE™ has a CO_2 footprint up to 40% smaller.

Maximise energy conservation

Micro Plate technology enables stronger, lighter and slimmer heat exchangers that transfer heat more efficiently. Our Micro Plate technology is always a better choice, and the smarter way to respond to the climate challenge.

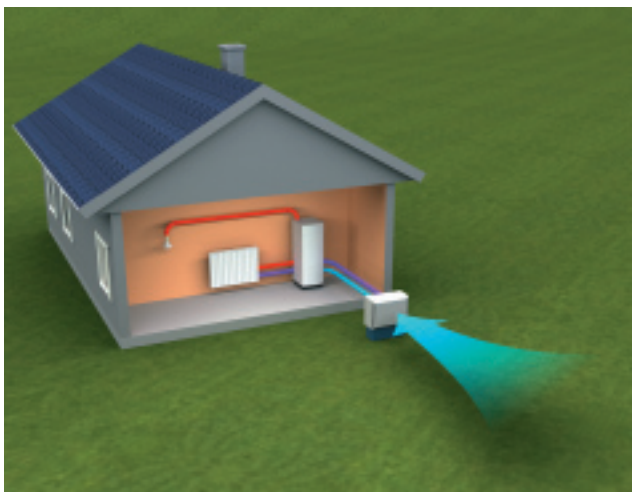
Improved system efficiency, faster payback

Naturally, the better heat transfer in our MPHE™s gives clear advantages in heat pump systems aiming for higher efficiency. The products always allow a higher and more desirable Seasonal Performance Factor – the benchmark for tomorrow's successful energy products. This increased efficiency is equally obvious to end users, too, as shorter and more attractive payback times.

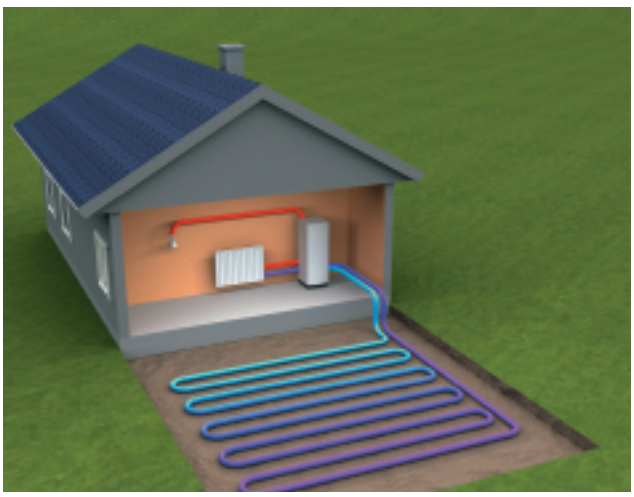
Solutions for improved heat pump performance

Our H-range is designed specifically for ground source and air source heat pump systems. We offer complete coverage of the 3-150 kW capacity range, with 16 products based on just a four-product platform that enables you to make your product development and production leaner. Each model is available fully optimised not only for different refrigerants but also for the function, e.g. condenser or evaporator duties.

With our MPHE™s you can easily overcome the challenge of close temperature approaches.



Smarter MPHE™ solutions for air source heat pumps.



Adapted heat exchangers for ground source heat pumps.

Resolve the heat pump dilemma

We know the heat pump sector is under increasing pressure from consumers and market regulations to deliver more efficient, greener and more economical solutions. The new Micro Plate technology in our H-range MPHE™s brings the core values you need to meet and exceed the market's expectations.

Overcome the challenges

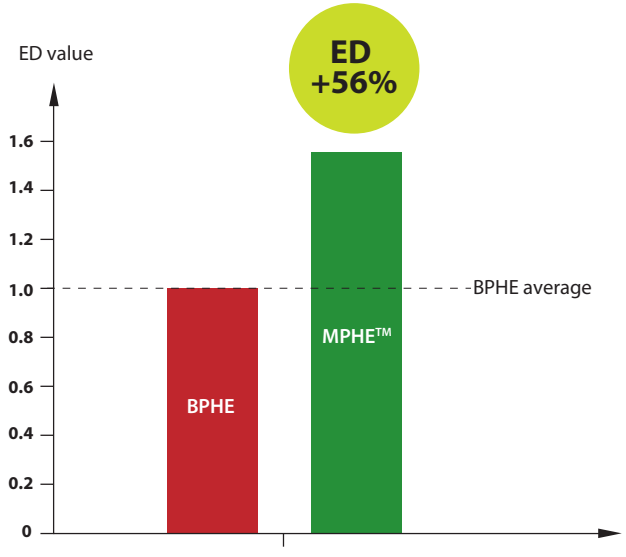
Our innovative MPHE™ technology allows us to design heat exchangers specifically for evaporator and condenser duties in heat pump applications, enabling you to overcome the many technical challenges you face. Compared with traditional BPHEs, our MPHE™s have an Energy Density (ED) value up to 56% higher under the same working conditions. Combine that with the MPHE™s remarkably small footprint and you have a heat pump solution that saves you space, energy and money.

Improved system efficiency

Our design improves the flow across the plate and utilisation of the surface area for better heat transfer. Due to the more favourable ratio between the maximum and minimum flow velocities, the new MPHE™ will be able to operate with close temperature approaches. This improves efficiency at low heat flux and the very close temperature approaches that characterise heat pump systems, and results in higher COP values. In addition, it will require less pump power for a given duty, hence boosting the overall system efficiency.

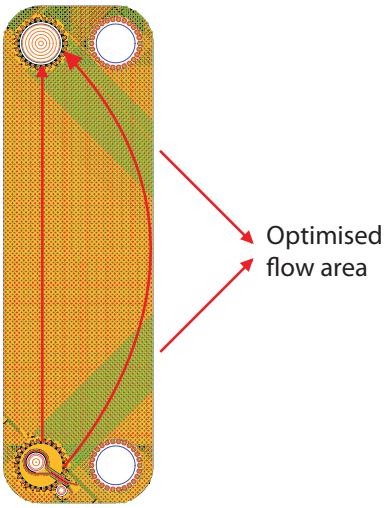
Better Seasonal Performance Factor

Heat pump systems must also deal with duties that vary with the seasons. Our innovative MPHE™ products improve the seasonal performance factor by operating with high efficiency at full or part load. The product is an ideal complement to variable speed compressors. Optimised for its specific function, it delivers lower energy costs. Furthermore, the reduction of mist in the superheat area ensures stable operation at low superheat.



THE ED VALUE *The ED value captures a heat exchanger's overall ability to conserve energy. The value is a function of three key factors: heat transfer, pressure drop and raw material usage.*

Distribution with integrated injector



Improved COP

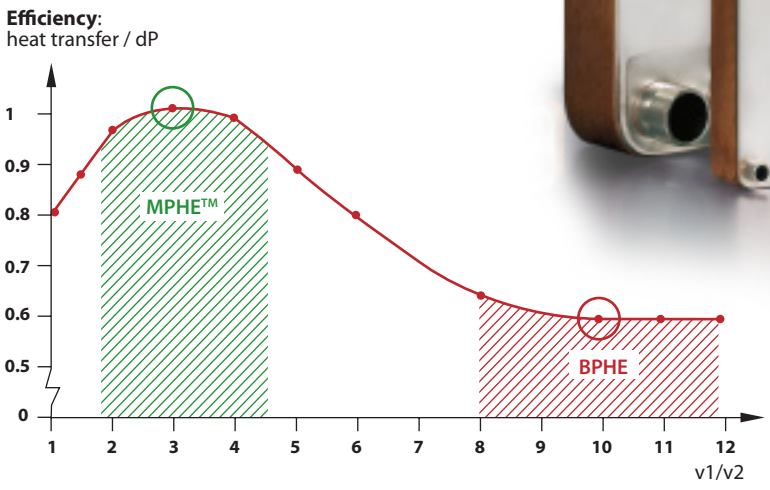
Carbon footprint -40%

Optimised solution for R407C and R410A

Tight temperature approach

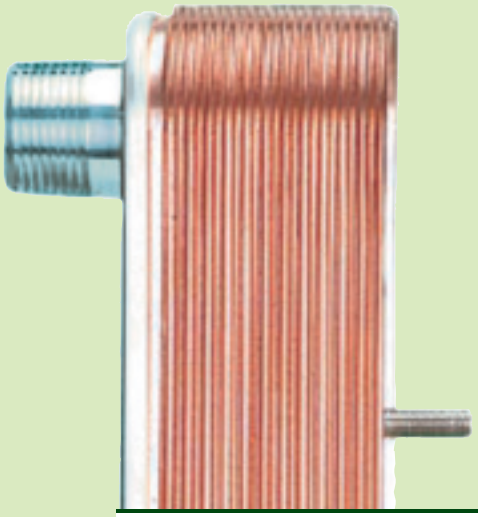
High material utilisation

ED value 56% better



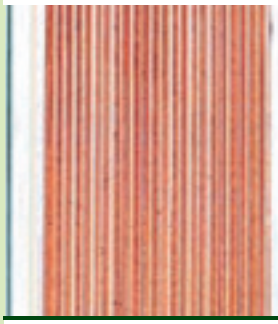
IMPROVED FLOW CHARACTERISTICS *In an MPHE™, the flow around the brazing points is more uniform than in a BPHE, with a ratio between maximum and minimum velocities only one third of that in a BPHE. Furthermore, the flow is optimised for high turbulence and low frictional losses. The improved heat transfer increases the overall ED value.*

Complete programme for heat pump applications



H-range for Heat pump applications

R407C



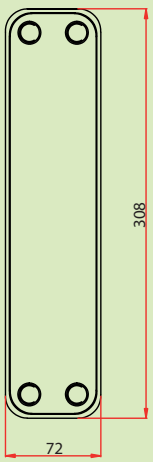
Evaporators	H22-E	H55-E
Capacity, kW	2-12	8-45
Design pressure, max	30/16 bar	30/16 bar

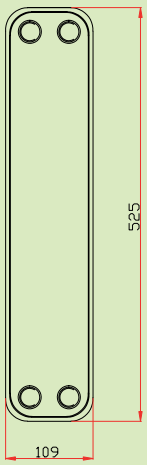
Condensers	H22-C	H55-C
Capacity, kW	3-15	10-57
Design pressure, max	30/16 bar	30/16 bar

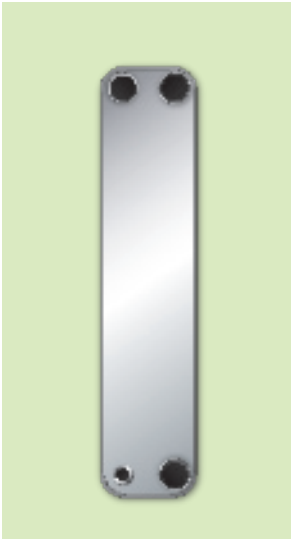
L-line for R410A

Evaporators	H22 L-E	H55 L-E
Capacity, kW	2-12	8-45
Design pressure, max	45/16 bar	45/16 bar

Condensers	H22 L-C	H55 L-C
Capacity, kW	3-15	10-57
Design pressure, max	48/16 bar	48/16 bar





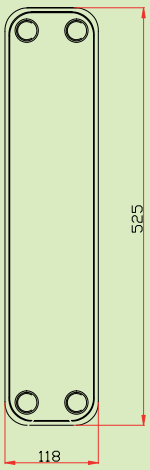


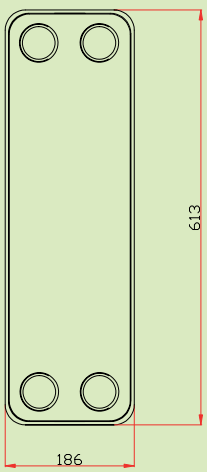
H62-E	H118-E
8-52	20-120
30/16 bar	30/16 bar

H62-C	H118-C
10-65	24-150
30/16 bar	30/16 bar

H62 L-E	H118 L-E
8-52	20-120
45/16 bar	45/16 bar

H62 L-C	H118 L-C
10-65	24-150
48/16 bar	48/16 bar





Your demand, our supply

The H-range offers a complete programme of optimised evaporators and condensers . All products are fully compliant with regulations such as PED and UL, guaranteeing consistently high performance, reliability and safety. A special prototype accessibility programme makes it even easier for you to do business with us.

Closer. Easier.

Our dedicated customer focus means it is easy to do business with us. All our products are thoroughly tested and verified in our fully equipped laboratories in Asia and Europe, which enable us to challenge the boundaries and establish innovative new trends. Our production plants are ISO 9000/14000 certified, so we can guarantee the durability, sustainability and safety of all our products. And our global Danfoss representation ensures we are always there to support you and help increase your sales wherever you are.

A NATURAL CHOICE – HEAT EXCHANGERS

We can now offer the heat exchangers that our customers have always asked for. Our Micro Plate technology, along with our market-oriented approach, simplifies life for every customer. At the same time, our innovative technology promises clear, core savings and a cleaner environment. Our sharp focus on customer solutions enables us to help our customers grow, and to make a difference wherever energy efficiency and the climate challenge are critical issues.

Address

520H4210 DKQB.PB.000.R2.02