

Heat Exchangers | Z-design MPHE

# Economic and environmental savings in chillers and heat pumps

The latest range of Danfoss Micro-Plate Heat Exchangers (MPHEs) Z-design evaporators for chillers and heat pumps facilitate a step change in economic and energy performance. Thanks to the innovative Z design, architects and specifiers can now take energy-efficient building design to the next level to help leading HVAC-R manufacturers meet the increasing demand for greener and more cost-effective solutions.



**21%**

lower hold up  
volume enables  
significant reduction  
in refrigerant charge



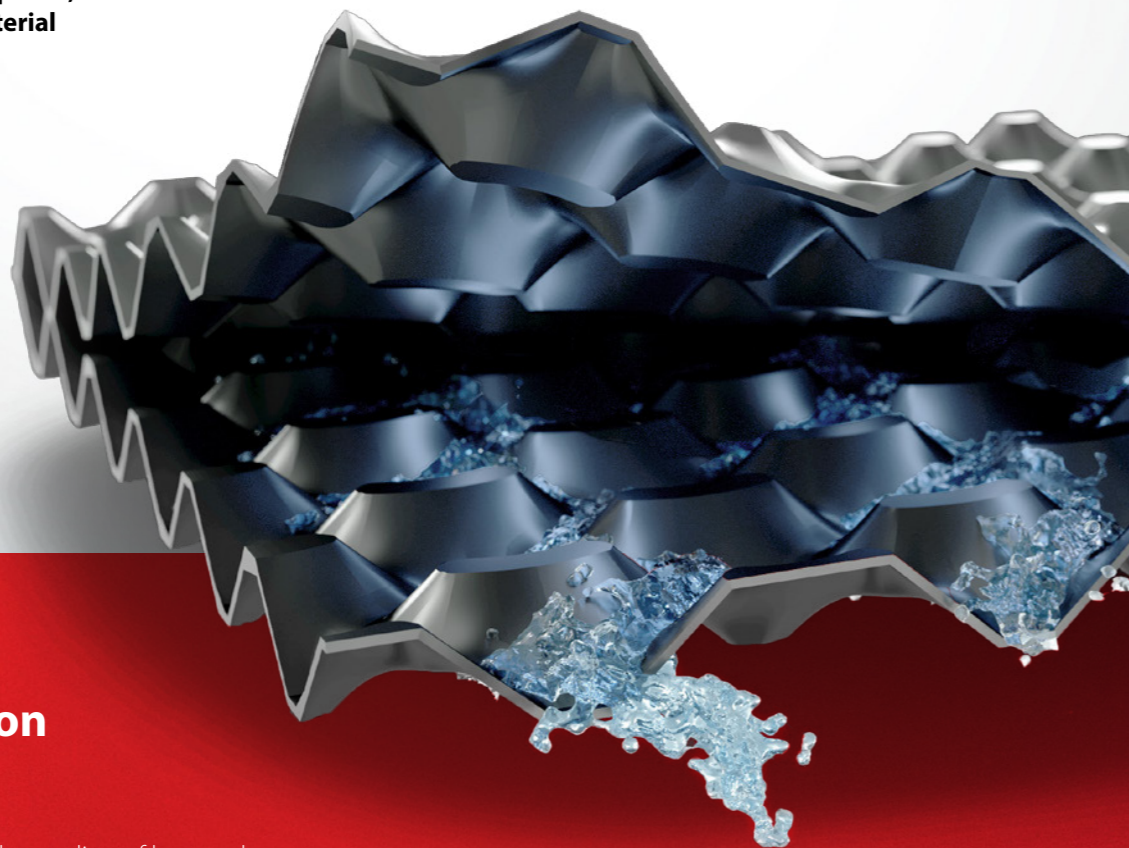
# Generation Z

– a game changer

With the new and innovative Z-design heat exchanger series, HVAC-R manufacturers can achieve significantly better economic and environmental performance with high efficiency.

The secret behind the game-changing advantages of the series lies in the use of a dimple-based design, which promotes an asymmetric Z-shaped flow of fluid across the plates. Not only does this maximize the heat transfer surface, but the liquid and vapor phases of the refrigerant also remain well mixed, ensuring even thermal contact with the water side of the system.

**As a result, the same heat transfer capacity can be achieved with fewer plates, which reduces both raw material needs and product weight.**



## A new generation with big impact

As one of the leading worldwide suppliers of heat exchangers, Danfoss takes pride in pushing the boundaries and constantly setting new standards for tomorrow. Therefore, with every new generation of heat exchangers, we improve the overall efficiency – and the new generation Z is no different.

The range of Z-design heat exchangers sets out to disrupt the status quo within the industry with a minimum of 20% more efficient heat transfer, 20% lower refrigerant charge, and 20% lower raw material weight.

**All in all, the new generation Z heat exchangers will enable the creation of a new generation of heat pumps, chillers, and other refrigeration applications for new-build or renovation projects.**

**40%**

heat transfer increase compared to traditional fishbone design

## A wide family of Z-design products



Z-design MPHEs offer high efficiency performance and are designed for chiller and heat pump applications with single or dual circuits for medium to large commercial buildings such as hotels, offices, and data centers ranging from 3 to 800 kW.

Using the same innovative technology, all Z-design evaporator models have been created with both new buildings and retrofits in mind, anticipating rooftop and cellar-compact installations. In addition, the series is also suitable for new waste-heat recovery applications, such as heat transfer from data center chillers to district heating systems.

### Key benefits include:

- Higher heat transfer and energy efficiency
- Minimal hold-up volume leading to less refrigerant charge and savings on installation costs
- Reduction in both raw material needs and product weight
- Lower CO<sub>2</sub> emissions and reduced carbon footprint
- Compatible with other Danfoss products and suitable for use in oil-free systems

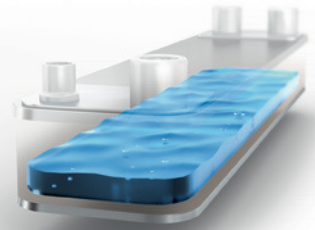
## Compatible with many refrigerants

MPHEs are optimized for R410A air conditioning systems and are compatible with other refrigerants such as R410A replacements (R32, R452B, R454B) and with other refrigerants for commercial refrigeration including R134a, R448A, R449a, R452A, R290 etc.



# A system design for tomorrow

The Z-design series for HVAC-R applications enables the creation of a new generation of highly efficient and compact systems, ultimately contributing to the development of highly efficient building concepts that are set to become the norm in tomorrow's sustainable cities.



## Chillers – R410A – R454B – R32

Platform	22	39	55	62	118	117	129	129-D	212	262
Outline, mm	76 x 312	118x332	109 x 525	118 x 525	186 x 613	246 x 486	246 x 525	246 x 525	296 x 706	358 x 744
Capacity, kW	3-30	5-50	10-65	30-90	70-250	50-250	50-300	50-300	200-450	300-800
Chiller, evaporator	C22(L)-E	C39L-EZ C39L-EZ-F	C55(L)-EU	C62(L)-EZ C62(L)-EZ-B C62L-EZ-F C62(L)-EZ-J/K	C118(L)-E C118(L)-EZ C118L-EZ-F	C117(L)-EZD C117(L)-EZD-B	C129L-EZ C129L-EZ-B C129L-EZ-F	C129L-EZD C129L-EZD-B C129L-EZD-F	C212(L)-EZD C212L-EZD-F	C262L-EZD C262L-EZD-F
Chiller, condenser	C22(L)-C	-	C55(L)-C	C62(L)-CX	C118(L)-C	-	C129L-CZ	C129L-CZD	C212(L)-CZD	C262L-CZD
VRF, economizer	C22(L)-E	-	C55(L)-EU	C62(L)-E	C118(L)-E	-	-	-	-	-
Heat recovery	C22(L)-E	-	C55(L)-C	C62(L)-C	C118(L)-C	-	C129L-CZ	C129L-CZD	C212(L)-CZD	C262L-CZD

## Heat Pumps – R32 - R290 - R410A - R454B - R454C - R455A

Platform	17	22	30	34	44	55	62	118
Outline, mm	94 x 179	76 x 312	95 x 320	118 x 289	119 x 376	109 x 525	118 x 525	186 x 613
Capacity, kW	2-15	2-20	3-20	2-20	2-15	5-40	5-50	30-130
Heat Pump, evaporator	-	H22(L)-E	-	-	-	-	H62(L)-E H62(L)-EZU	H118(L)-E
Heat Pump, condenser	H17L-CZ	H22(L)-C	H30(L)-C H30-CW	-	HDW44-C Double wall	H55(L)-C	H62(L)-C H62(L)-CX	H118(L)-C
SGHX	H17L-CZ	-	-	H34L-CL H34L-CM	-	-	-	-

Please contact your local Danfoss representative for more information about other refrigeration applications.

## Heat exchanger design software

No matter if you have a chiller, a heat pump or a domestic hot water application, our heat exchanger software will allow the right heat exchanger selection by always ensuring you get the latest product range and software features at hand. To get access to our software, simply reach out to your local Danfoss representative



## Danfoss A/S

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