ENGINEERING
TOMORROW

Data Sheet

Micro Plate Heat Exchanger
Type **C129L-EZD & C129L-CZD**

For more efficient Chillers

17% lower weight with highly efficient Z design technology for dual circuits:

The C129L-EZD is a true dual circuit evaporator optimized for high density refrigerants such as R410A, R32, R452B and the R454B for use in high-efficiency chillers with capacities of 50-300 kW. It's available in refrigerant-optimized versions to meet the best performance based on the refrigerant used. Corresponding model for condenser duties is the C129L-CZD.

The Z-pattern channel plate technology enhances performance of heat exchangers to the limits by fully mixing the liquid and gas refrigerant through a "zigzag" flow, which increases the heat transfer coefficient. At the same time, inheriting from the dimple plate pattern of the previous generation of MPHE, C129L-EZD reduces the water side pressure drop and the amount of material used. In the reversible mode of the chiller as a condenser, C129L-EZD also delivers outstanding performance.

C129L-EZD is designed to deliver high seasonal efficiency and increase comfort in modern commercial buildings while reducing both energy cost and environmental impact.

The low hold-up volume reduces the system refrigerant charge and offers also valuable savings.

Features

- High and improved heat transfer - equals higher system efficiency
- Reduced water side pressure drop – equals higher system efficiency
- Minimal hold-up volume - equals less refrigerant charge
- Smaller footprint - enables more compact chillers
- Higher efficiency, lower refrigerant charge and less raw material contribute to a reduced CO_2 footprint

Portfolio overview

C129L-EZD(-B): Evaporator optimized for R410A, R452B and R454B
C129L-EZD-F: Evaporator optimized for R32
C129L-CZD: Condenser optimized for High Density refrigerants

Table 1: Designation

a	d	e
Applications **C:** chiller **H:** heat pump **HDW:** heat pump double wall	**Specific duty** **E**= evaporator **C**= condenser	**Distributor version** Omit **B** **F** …...
b **Platform**[1] 22,30,55,62,118…	**Plate design** Omit **L**: L-type **M**: M-type	**Plate stacking sequence** Omit: a-b-a… **R**: b-a-b…
c **Pressure Service** Omit: 30bar **L**: 45/49bar	**H**: H-type **W**: W-type **X**: Asymmetric **Z**: Z flow **Configuration** Omit: single **D**: Dual circuit **U**: Mixing chamber	**f** **Number of plates**[2]

[1] Heat exchanging surface per plate 1/1000 m^2.
[2] Rule:
- Single: even number
- Dual: even number not multiple of 4

Application

The C129L-EZD(-B)(-F) are evaporators specifically designed for high efficient chiller systems dedicated to comfort applications, cooling-industrial process, data centers. The evaporators are design to operate also in reversable systems in condenser mode, in co or counter current flow configuration. The models are characterized by different distributor systems the make the evaporator optimized for the high-density refrigerants.

The C129L-CZD is condenser for high density refrigerants that operate in high pressure level.

Media

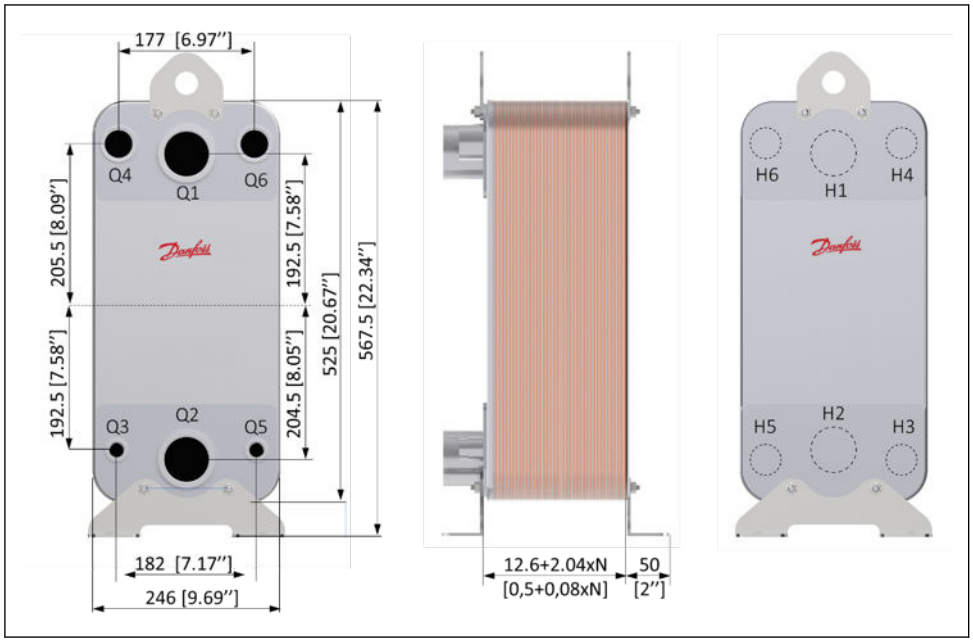
Refrigerants

R410A, R452B, R454B, R32, R290
For other refrigerants please contact your Danfoss Sales representative.

Product specification

Dimensions

Figure 1: Dimensions



N: Number of Plate

Operating conditions

Preconditions:
N = number of plates
Max number of plates: 250

Pressure and temperature data*:
Min. working temperature: -196 °C (-320 °F)
Max. working temperature: 200 °C (390 °F)
Max. working pressure: 49 bar (711psi) refrigerant side / 25 bar (363psi) water side
*For details, refer to the Third party approvals chapter.

Weight*

C129L-EZD(-B)(-F): 6.981 + 0.321xN [kg] / 15.39 + 0.708xN[lb]
C129L-CZD: 6.996+0.314xN [kg] / 15,42+0.692xN [lb]
N: Number of Plate
*Connection considered, Q1Q2: R2", Q3: H5/8", Q4-Q6: H2"1/8

Material specification

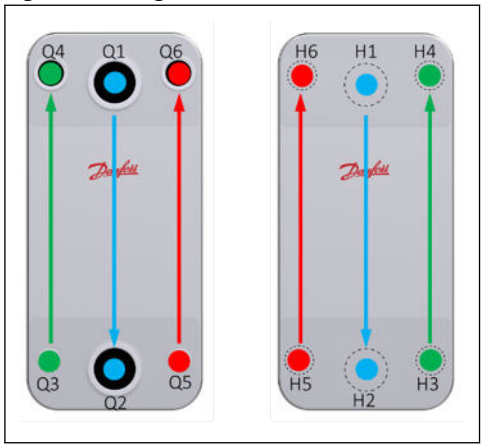
Table 2: Standard materials

Item	Material	Specification
Cover plates	Stainless steel	AISI 304L
Plates	Stainless steel	AISI 316L
Connections	Stainless steel	AISI 304L
Brazing filler	Pure copper	Cu

Other material combinations are available on request. Please contact your Danfoss sales representative for more information.

Configuration flow

Figure 2: Configuration flow



Parallel flow:
Q1-Q2 [H1-H2]: brine/secondary side
Q3-Q4 [H3-H4]: primary, first circuit
Q5-Q6 [H5-H6]: primary, second circuit

Hold up volume

Q1-Q2: 0.235xN/2 [l]
Q3-Q4: 0.229x(N-2)/4 [l]
Q5-Q6: 0.229x(N-2)/4 [l]
N: Number of Plate

Ordering

Global or local standard code numbers can be accessed via Store.Danfoss.com on local subsites, with full set of technical data as well as relevant assets such as documentation and drawings. Since the portfolio may contain different types depending on country, this document contains only a summarized list of standard code numbers with a few data relevant for the product selection.

Configuring and calculating products

The C129L-EZD & C129L-CZD can be easily customized based on the application needs; model size can be evaluated using Hexact software.

For details, product configuration and code creation please contact your Danfoss Sales representative.

Mechanical connections

Table 3: Mechanical connections

Circuits	Connection type options	Connection size option [in.]
Q1 - Q2 (water-brine side)	BSP Gas male	½, ¾, 1, 1 ¼, 1 ½, 2, 2 ½
	BSP Gas female	½, ¾, 1
	DIN R male	1, 1 ¼, 1 ½, 2
	NPT	2, 2 ½
	Victaulic	2, 2 ½
Q3-Q5 (Refrigerant side)	Soldering	½, ⅝, ¾, ⅞
Q4-Q6 (Refrigerant side)	Soldering	⅞, 1 ⅛, 1 ⅜, 1 ⅝, 2 ⅛,

Accessories and spare parts

MPHE products are not serviceable, i.e. cannot be taken apart and repaired, and there are no spare parts program. As for accessories, stud bolts, feet on front and/or back cover plates for mounting support and handling are available upon request.

Table 4: Stud bolts

Stud bolt position	Bolt sizes
230 x 92 mm, middle 140 x 100 mm, middle 240 x 160 mm, middle	M8/M10/M12 x 20mm M8/M10/M12 x 30mm M8/M10/M12 x 40mm

Contact your Danfoss sales representative for further information.

Certificates, declarations, and approvals

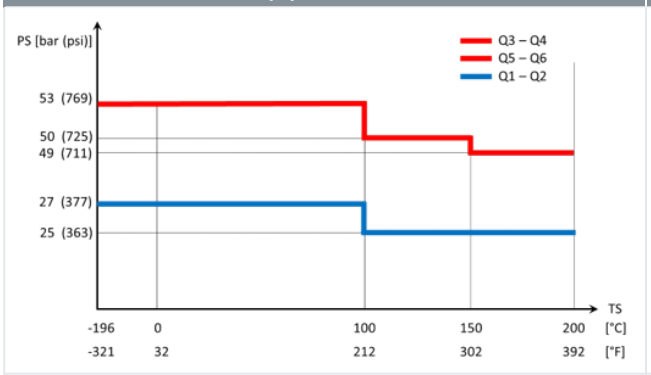
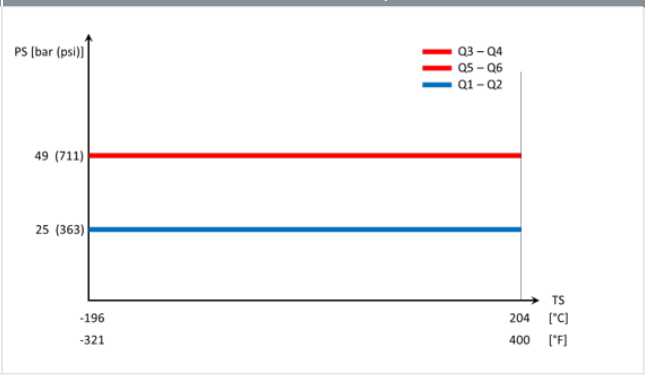
The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Third party approvals

All MPHE and BPHE are certified to European Pressure Equipment Directive (PED) and are approved by Underwriters Laboratories (UL).

Table 5: Third party approvals

Pressure Equipment Directive (PED)	Underwriters Laboratory Inc (UL)
	

Other certifications are available upon request: Kraia, EAC, UA, AS; for others and more details please contact your local Danfoss representative.

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