Data sheet



Micro Plate heat exchanger

MPHE C129L-EZ / C129L-CZ

For more efficient Chillers

Description

12% lower hold-up volume compared with best traditional fishbone plates enables significant reduction in refrigerant charge.

The C129L-EZ is a single 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-CZ.

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-EZ reduces the water side pressure drop and the amount of material used. In the reversible mode of the chiller as a condenser, C129L-EZ also delivers outstanding performance.

C129L-EZ 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 & benefits

- 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 CO2 footprint

Applications

The C129L-EZ(-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 reversible systems in condenser mode, in co or counter current flow configuration. The models are characterized by different distributor systems that make the evaporator optimized for the high-density refrigerants.

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

Ordering

Product code numbers

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-EZ & C129L-CZ 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.

Accessories code numbers

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: Stud bolts

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

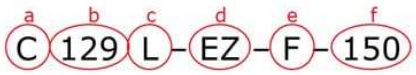
Contact your Danfoss sales representative for further information.

Overview

Product portfolio

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

Table: Designation



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

Functions

Operation

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

Media

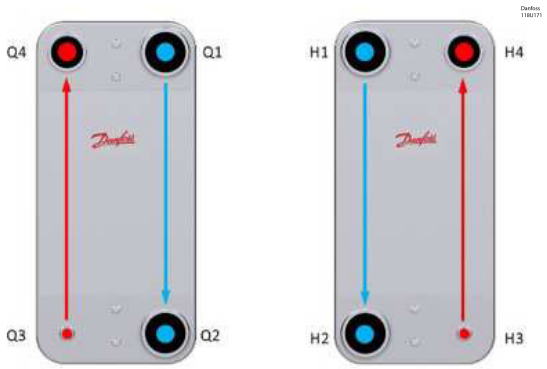
Refrigerants

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

Product details

General data

Figure: Configuration flow



Parallel flow:
Q1 – Q2 [H1 – H2]: brine/secondary side
Q3 – Q4 [H3 – H4]: refrigerant/primary side

Hold up volume
Q1 – Q2: 0.189 x N/2 [l]
Q3 – Q4: 0.156 x (N-2)/2 [l]
N: Number of Plate

Materials

Table: 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.

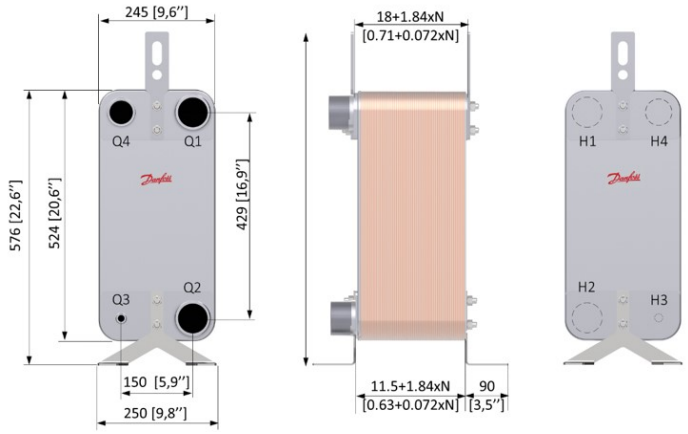
Pressure and temperature data

Min. working temperature: -196 °C (-320 °F)
Max. working temperature: 200 °C (390 °F)
Max. working pressure: 49 bar (711 psi) refrigerant side / 25 bar (363 psi) water side

Note:

For details, refer to the Third party approvals chapter.

Dimensions



Weight*
C129L-EZ(-B)(-F): 7.564 + 0.306xN [kg] / 16.68 + 0.67 x N [lb]
C129L-CZ: 9.016 + 0.0.268 x N [kg] / 169,88 + 0.59 x N [lb]
N: Number of Plate
*Connection considered, Q1Q2: R2", Q3: H5/8", Q4: H2"1/8; without feet and hooks.

Connections

Table: 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 (Refrigerant side)	Soldering	½, ⅝, ¾, ⅞, 1 ⅛"
Q4 (Refrigerant side)	Soldering	⅞, 1 ⅛, 1 ⅜, 1 ⅝, 2 ⅛, 2 ⅝

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.

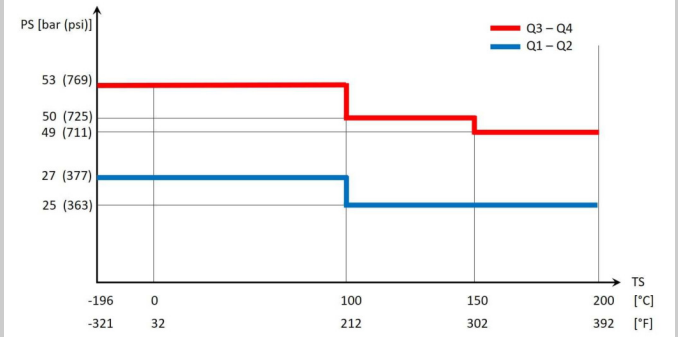
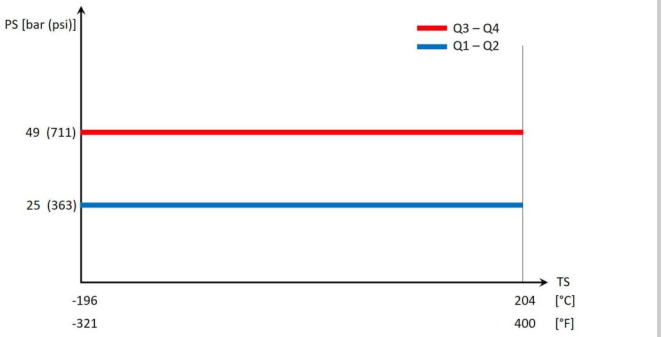
When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Pressure Safety Certificate	LLC CDC EURO TYSK UA.TR.089.0330.04.23	LLC CDC EURO TYSK - Ukraine	Pressure, PED
Manufacturer's Declaration	Danfoss UK-ROHS-MOD-202304-01.01	Danfoss	UK RoHS
Pressure Safety Certificate	BV CE-0062-PED-H-DMC 001-23-CHN-Rev.C	BV - Bureau Veritas	Pressure, PED
UA Declaration	Danfoss UA 2023-01-10 Heat Exchangers PL24 PL31	Danfoss	Pressure, PED
Manufacturer's Declaration	Danfoss MD UK-ROHS-MOD-202304-02.01	Danfoss	UK RoHS
Export Control Declaration	Micro Plate Heat Exchangers - Not dual use	Danfoss	
EU Declaration	Danfoss EU BF202604en-0002.02	Danfoss	Pressure, PED
Mechanical Safety Certificate	UL SA13363	UL - Underwriters Laboratories inc.	
Manufacturer's Declaration	Danfoss MD EU-RoHS-DoC-202309-01.01	Danfoss	EU RoHS
Manufacturer's Declaration	Danfoss MD BPHE-RoHS-DOC-201601	Danfoss	China RoHS

Third party approvals

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

Table: 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.

Contact details

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