

Data Sheet

Micro Plate Heat Exchanger Type **C129L-EZ & C129L-CZ**

For more efficient Chillers



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

- 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

Portfolio overview

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 1: 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 m².

⁽²⁾ Rule:

- Single: even number
- Dual: even number not multiple of 4

Application

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 the make the evaporator optimized for the high-density refrigerants.

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

Media

Refrigerants

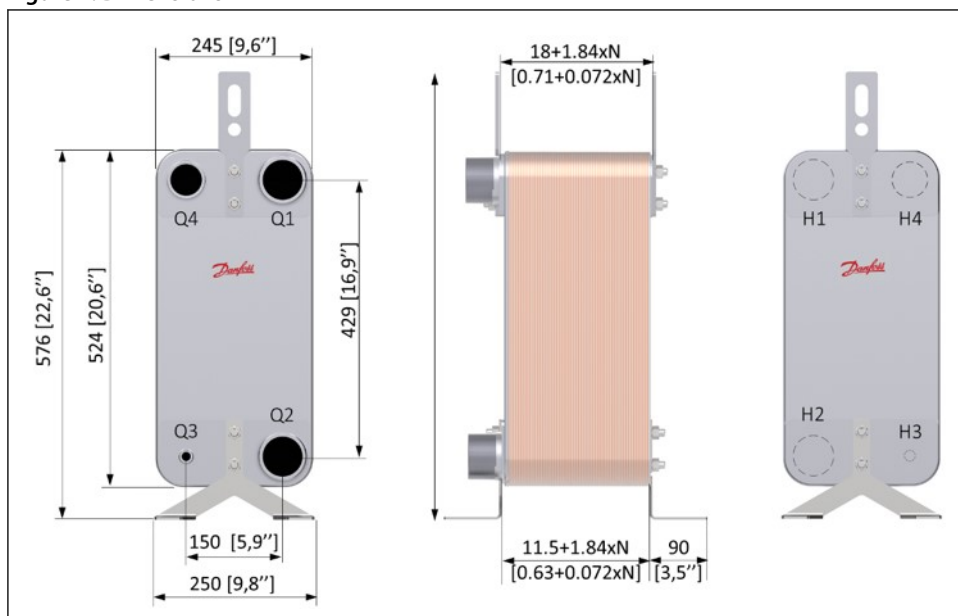
R410A, R452B, R454B, R32, R290

For other refrigerants please contact your Danfoss Sales representative.

Product specification

Dimensions

Figure 1: Dimensions



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-EZ(-B)(-F): $7.564 + 0.306 \times N$ [kg] / $16.68 + 0.67 \times N$ [lb]

C129L-CZ: $9.016 + 0.0.268 \times N$ [kg] / $169,88 + 0.59 \times N$ [lb]

N: Number of Plate

*Connection considered, Q1Q2: R2", Q3: H5/8", Q4: H2"1/8; without feet and hooks.

Material specification

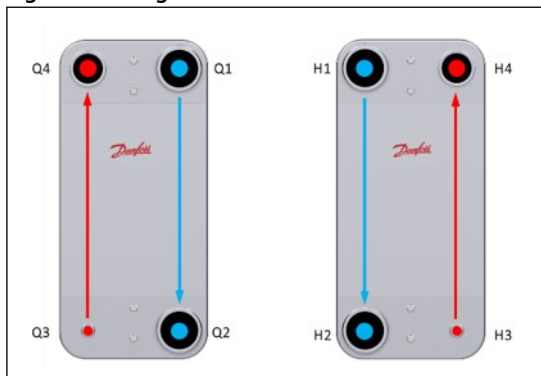
Table 2: Standard materials

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]: refrigerant/primary side

Hold up volume

Q1-Q2: $0.189 \times N/2$ [l]

Q3-Q4: $0.156 \times (N-2)/2$ [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-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.

Mechanical connections

Table 3: Mechanical connections

Circuits	Connection type options	Connection size option [in.]
Q1 - Q2 (water-brine side)	BSP Gas male	1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2
	BSP Gas female	1/2, 3/4, 1
	DIN R male	1, 1 1/4, 1 1/2, 2
	NPT	2, 2 1/2
	Victaulic	2, 2 1/2
Q3 (Refrigerant side)	Soldering	1/2, 5/8, 3/4, 7/8, 1 1/8"
Q4 (Refrigerant side)	Soldering	7/8, 1 1/8, 1 3/8, 1 5/8, 2 1/8, 2 5/8

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	M8/M10/M12x20mm
140 x 100 mm, middle	M8/M10/M12x30mm
240 x 160 mm, middle	M8/M10/M12x40mm

Contact your Danfoss sales representative for further information.

Certificates, declarations, and approvals

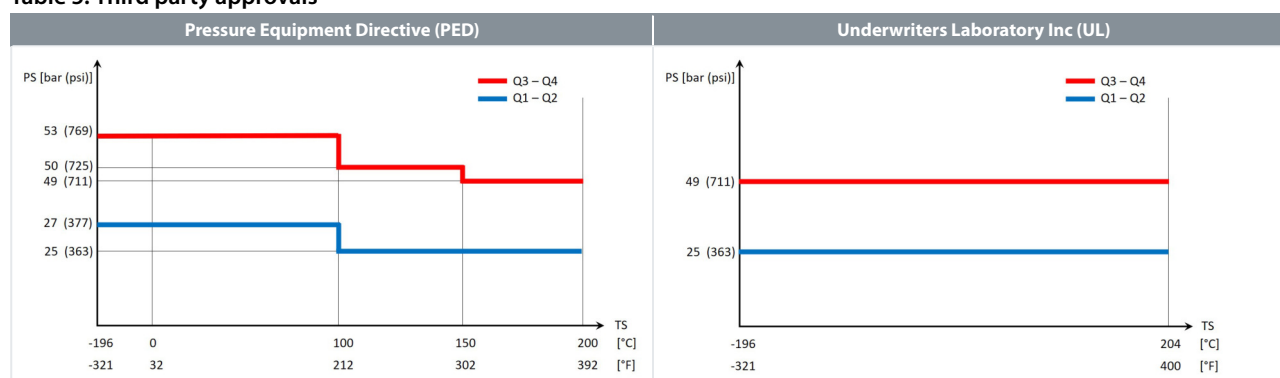
The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

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



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

Online support

Danfoss offers a wide range of support along with our products, including digital product information, software, mobile apps, and expert guidance. See the possibilities below.

The Danfoss Product Store



The Danfoss Product Store is your one-stop shop for everything product related—no matter where you are in the world or what area of the cooling industry you work in. Get quick access to essential information like product specs, code numbers, technical documentation, certifications, accessories, and more.

Start browsing at store.danfoss.com.

Find technical documentation



Find the technical documentation you need to get your project up and running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more.

Start searching now at www.danfoss.com/en/service-and-support/documentation.

Danfoss Learning



Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications, industry topics, and trends that will help you do your job better.

Create your Danfoss Learning account for free at www.danfoss.com/en/service-and-support/learning.

Get local information and support



Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert—all in your own language.

Find your local Danfoss website here: www.danfoss.com/en/choose-region.

Coolselector®2 - find the best components for you HVAC/R system



Coolselector®2 makes it easy for engineers, consultants, and designers to find and order the best components for refrigeration and air conditioning systems. Run calculations based on your operating conditions and then choose the best setup for your system design.

Download Coolselector®2 for free at coolselector.danfoss.com.

Hexact for heat exchangers



Hexact for heat exchangers helps you identify the best heat exchanger for your chiller, heat pump, or other application based on operating conditions. Works for innovative MPHE and traditional BPHE brazed heat exchangers.

Download Hexact for free at hexact.danfoss.com

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.