

Data Sheet

Micro Plate Heat Exchanger Type **C212L-EZD, C212L-EZD-F** and **C212L-CZD**

For more efficient Chillers

**21% lower hold-up volume enables significant reduction in refrigerant charge.**

The C212L-EZD is an evaporator optimized for high density refrigerants for use in high-efficiency chillers with capacities of 200-450 kW. It's available in different versions meeting the best performance for different refrigerants like the R410A or its replacement R32, R452B and the R454B. Corresponding model for condenser duties is the C212L-CZD.

The Z-pattern channel plate technology pushes the 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, C212L-EZD reduces the water side pressure drop and the amount of material used. In the reversible mode of the chiller as a condenser, C212L-EZD also has outstanding performance.

To meet demands for higher seasonal efficiency, the C212L-EZD is designed to work efficiently and increase comfort in modern commercial buildings without increasing the carbon footprint. Helping chillers perform more efficiently, it reduces both energy costs and environmental impact. The low hold-up volume reduces the system refrigerant charge and offers valuable savings.

Features

- Improved heat transfer - equals higher efficiency chillers
- Reduced water side pressure drop – equals higher efficiency chillers
- Minimal hold-up volume - equals less refrigerant charge
- Smaller footprint - enables more compact chillers
- High heat transfer
- Minimal refrigerant charge - equals a reduced CO₂ footprint

Portfolio overview

- C212L-EZD: Evaporator optimized for R410A, R452B and R454B
- C212-EZD: Evaporator for medium density refrigerants PS: 30bar
- C212L-EZD-F: Evaporator optimized for R32
- C212L-CZD: Condenser optimized for High Density refrigerants
- C212-CZD: Condenser for Low/medium Density refrigerants PS: 30bar

Applications

The C212L-EZD and C212L-EZD-F are true dual 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 system the make the evaporator optimized for the high-density refrigerants. C212L-CZD is a true dual condenser for high density refrigerants that operate in high pressure level; Lower pressure version are also available: C212-CZD.

Media

Refrigerants

R410A, R32, R452B, R454B

For other refrigerants please contact your Danfoss Sales representative.

Performance

| Model | Refrigerant | Evaporating temperature [°C] | Max capacity ⁽¹⁾ [kW] |
|------------------------|---------------|------------------------------|----------------------------------|
| C212L-EZD | R410A | 5 | 315 |
| | | 4.5 | 375 |
| | | 4 | 435 |
| | R454B / R452B | 5 | 385 |
| | | 4.5 | 445 |
| | | 4 | 480 |
| C212L-EZD-F | R32 | 5 | 320 |
| | | 4.5 | 475 |
| | | 4 | 480 |
| Max water flow (@6m/s) | | 108 m ³ /h | |

⁽¹⁾ EWT/LWT: 12/7 °C; Tliq.:43 °C, Sh: 5K, Max N°P: 250

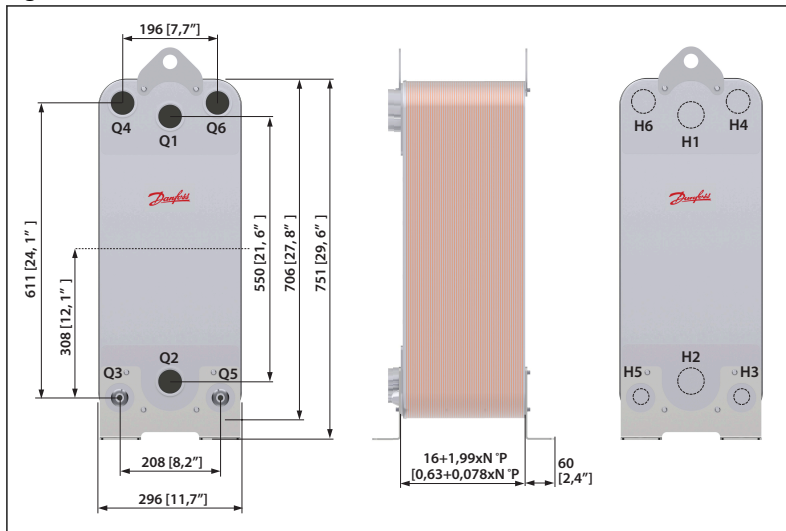
| Model | Refrigerant | Condensing Temperature [°C] | Max capacity ⁽²⁾ [kW] |
|------------------------|---------------|-----------------------------|----------------------------------|
| C212L-CZD | R410A | 37 | 310 |
| | R454B / R452B | 37 | 380 |
| | R32 | 37 | 470 |
| Max water flow (@6m/s) | | 108 m ³ /h | |

⁽²⁾ EWT/LWT: 30/35 °C; SC: 3K, Max N°P: 250

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 / 16 bar (232psi) water side
 *For details, refer to the "Third party Approvals" chapter

Weight*

C212L-EZD(-F): 14.8+0.598xN [kg] / 32.63+1.32xN [lb]
 C212L-CZD: 14.8+0.583xN [kg] / 32.63+1.29xN [lb]
 C212-EZD: 12.4+0.598xN [kg] / 27.34+1.32xN [lb]
 C212-CZD: 12.4+0.583xN [kg] / 27.34+1.29xN [lb]

N: Number of Plate
 *Excluding connections and accessories

Material specification

Table 1: 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: $0.34 \times N/2$ [l] / $0.09 \times N/2$ [gal]

Q3-Q4: $0.28 \times (N-2)/4$ [l] / $0.074 \times (N-2)/4$ [gal]

Q5-Q6: $0.28 \times (N-2)/4$ [l] / $0.074 \times (N-2)/4$ [gal]

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.

Configuring and calculating products

C212L-EZD and C212L-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 2: Mechanical connections

| Circuits | Connection type options | Connection size option(in.) |
|-----------------------------|-------------------------|--|
| Q1 - Q2 (water-brine side) | BSP Gas male | 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3 |
| | BSP Gas female | 1/2 |
| | DIN R male | 2, 2 1/2, 3 |
| | NPT | 2, 2 1/2, 3 |
| | Victaulic | 2, 2 1/2 or 3 |
| Q3 - Q5 (Refrigerant inlet) | Soldering | 5/8, 3/4, 7/8, 1 1/8 |
| Q4-Q6 (Refrigerant outlet) | Soldering | 5/8, 3/4, 7/8, 1 1/8, 1 3/8, 1 1/2, 2, 2 1/2 |

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 and hooks on front and/or back cover plates for mounting support and handling are available upon request.

Table 3: Stud bolts

| Stud bolt position | Bolt sizes |
|--------------------|------------|
| 127x297 mm, middle | M10x25 |
| 127x110 mm, middle | M12x35 |

Contact your Danfoss sales representative for further information.

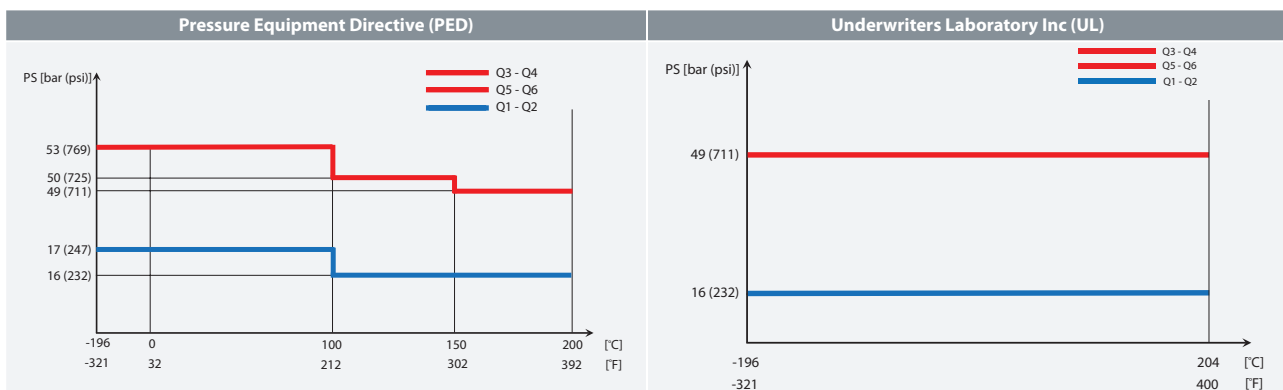
Certificates, declarations, and approvals

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).



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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