

Data Sheet

# Micro Plate Heat Exchanger Type **C118L-EZ** and **C118L-EZ-F**

For more efficient Chillers



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

The C118L-EZ and the C118L-EZ-F are evaporators optimized for high density refrigerants like the R410A and its replacement R454B and R32 for use in high-efficiency chillers with capacities of 70-250 kW.

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 features, C118L-EZ reduces the water side pressure drop and the amount of material used. In the reversible mode of the chiller as a condenser, C118L-EZ also has outstanding performance.

To meet demands for higher seasonal efficiency, the C118L-EZ is designed to work efficiently and increase comfort in modern 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 and minimal refrigerant charge - equals a reduced CO<sub>2</sub> footprint

## Portfolio overview

C118L-EZ: Evaporator optimized for R410A, R452B and R454B

C118-EZ: Evaporator for medium density refrigerants PS: 30bar

C118L-EZ -F: Evaporator optimized for R32

## Applications

The C118L-EZ and C118L-EZ-F are single circuit 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. Even if equipped with distributor device, the C118L-EZ and C118L-EZ-F can run properly in condenser mode.

## Media

### Refrigerants

R410A, R32, R452B, R454B

For other refrigerants please contact your Danfoss Sales representative.

### Performance

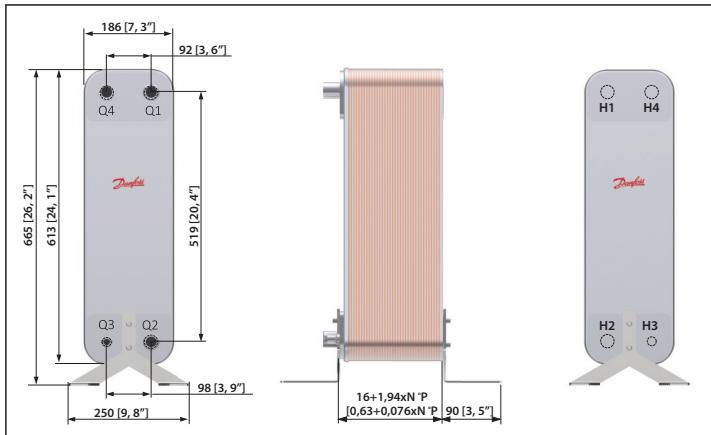
Model	Refrigerant	Evaporating temperature [°C]	Max capacity <sup>(1)</sup> [kW]
C118L-EZ	R410A	5	115
		4.5	155
		4	195
	R454B / R452B	5	150
		4.5	190
		4	225
C118L-EZ-F	R32	4.5	145
		4	250
Max water flow (@6 m/s)		49 m3/h	

<sup>(1)</sup> EWT/LWT: 12/7 °C; Tliq.:43 °C, Sh: 5K; 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 (710psi) refrigerant side\*\* / 25 bar (362psi) water side

\*For details, refer to the "Third party Approvals" chapter

\*\* A lower pressure version (30bar) also available

### Weight

C118L-EZ(-F):  $7.94 + 0.29 \times N[\text{kg}] // 17.5 + 0.64 \times N[\text{lb}]$

C118-EZ:  $5.95 + 0.29 \times N[\text{kg}] // 13.12 + 0.64 \times N[\text{lb}]$

N: Number of Plate

### Material specification

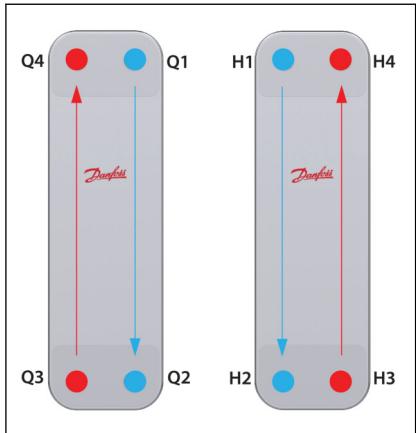
Table 1: Standard materials

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]: refrigerant/primary side

## Hold up volume

Q1 - Q2 (l):  $0.2 \times N/2$

Q3 - Q4 (l):  $0.14 \times (N-2)/2$

N: Number of Plate

## Ordering

Global or local standard code numbers can be accessed via [Store.Danfoss.com](http://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.

Model	Connections				Stud bolt	Pack format	Code
	Q1&Q2 [in.]	H1&H2	Q3 (ref,in)[in.]	Q4 (ref,out)[in.]			
C118L-EZ-40	Gas 2	-	3/4	1 3/8	Front	Single -1pcs	111B1917
C118L-EZ-50	Gas 2	-	7/8	1 5/8	Front	Single -1pcs	111B1918
C118L-EZ-60	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1902
C118L-EZ-70	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1903
C118L-EZ-80	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1904
C118L-EZ-90	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1905
C118L-EZ-100	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1906
C118L-EZ-110	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1907
C118L-EZ-120	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1908
C118L-EZ-130	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1909
C118L-EZ-140	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1910
C118L-EZ-150	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1911
C118L-EZ-160	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1912
C118L-EZ-180	Gas 2	-	1 1/8	2 1/8	Front	Single -1pcs	111B1913
C118L-EZ-200	Gas 2	-	1 1/8	2 1/2	Front	Single -1pcs	111B1914
C118L-EZ-220	Gas 2	-	1 1/8	2 1/2	Front	Single -1pcs	111B1915
C118L-EZ-250	Gas 2	-	1 1/8	2 1/2	Front	Single -1pcs	111B1916

All listed models are without feet

Model	Connections				Stud bolt	Pack format	Code
	Q1&Q2 [in.]	H1&H2 [in.]	Q3 (ref,in)[in.]	Q4 (ref,out)[in.]			
C118L-EZ-40	Gas 2	Gas 2	3/4	1 3/8	Front	Single -1pcs	111B1922
C118L-EZ-50	Gas 2	Gas 2	7/8	1 5/8	Front	Single -1pcs	111B1920
C118L-EZ-60	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1923
C118L-EZ-70	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1924
C118L-EZ-80	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1925
C118L-EZ-90	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1926
C118L-EZ-100	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1927
C118L-EZ-110	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1928
C118L-EZ-120	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1929
C118L-EZ-130	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1930
C118L-EZ-140	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1931
C118L-EZ-150	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1932
C118L-EZ-160	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1933
C118L-EZ-180	Gas 2	Gas 2	1 1/8	2 1/8	Front	Single -1pcs	111B1934
C118L-EZ-200	Gas 2	Gas 2	1 1/8	2 1/2	Front	Single -1pcs	111B1935
C118L-EZ-220	Gas 2	Gas 2	1 1/8	2 1/2	Front	Single -1pcs	111B1936
C118L-EZ-250	Gas 2	Gas 2	1 1/8	2 1/2	Front	Single -1pcs	111B1937

All listed models are without feet

## Configuring and calculating products

C118L-EZ and C118L-EZ-F 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

Circuits	Connection type options	Connection size option
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"
Q3 (Refrigerant inlet)	Victaulic	2", 2 1/2"
Q4 (Refrigerant outlet)	Soldering	3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8"
	Soldering	7/8", 1 1/8", 1 3/8", 1 5/8", 2 1/8"

## 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 2: Stud bolts:**

Stud bolt position	Bolt sizes
230x92mm, middle 140x100mm, middle	M8x20mm M8x25mm M8x30mm

Contact your Danfoss sales representative for further information.

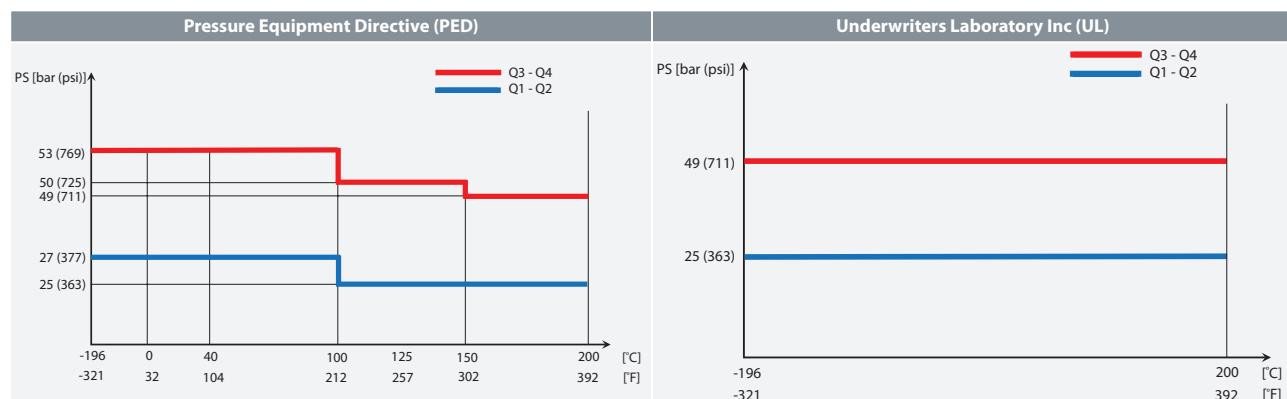
## Certificates, declarations, and approvals

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](http://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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