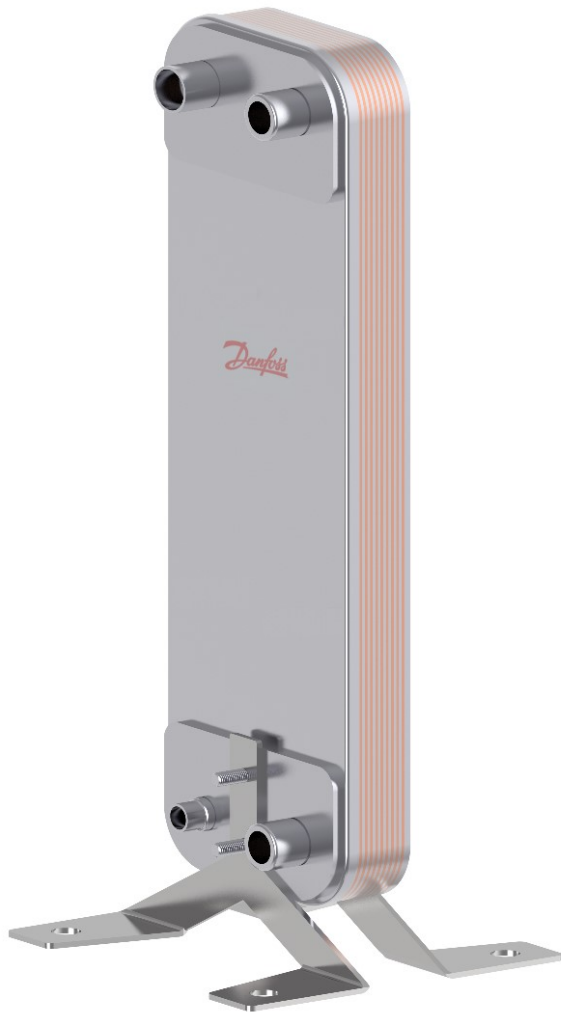


Data Sheet

# Micro Plate Heat Exchanger Type **C118 & H118**

For more efficient Chillers &amp; Heat Pumps



**20% reduction in refrigerant charge compared with a traditional BPHE, the ideal solution to help you meet the world's climate and energy aspirations.**

The C118 & H118 are families of Condensers and Evaporators optimized for high-efficiency chillers and heat pumps.

The heat exchanger features innovative Micro Plate technology that improves heat transfer and reduces the amount of material used.

To meet demands for higher COPs in heat pumps, the evaporator H118(L)-E and the condenser H118(L)-C are designed to work efficiently with close temperature approaches, while a low pressure drop on the brine side reduces the pump power and keeps the overall COP high. H118 can cover a capacity range from 20 to 150kW.

The C118(L)-E and the C118(L)-C are respectively evaporator and condenser designed to work efficiently and increase comfort in modern buildings without increasing the carbon footprint. Helping chillers perform more efficiently achieving higher seasonal efficiency levels, it reduces both energy costs and environmental impact. C118 can cover a capacity range from 40 to 200kW.

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

## Features

- Minimal hold-up volume: Less refrigerant charge
- Reduced pressure drop: For a more efficient system
- Smaller footprint: Enabling more compact system
- Reduced CO<sub>2</sub> footprint: Environmentally friendly with high heat transfer and minimal refrigerant charge

## Portfolio overview

C118L-E: Evaporator optimized for R410A in chiller application, from 40 to 200kW.  
 C118-E: Evaporator for medium density refrigerants in chiller application, from 40 to 200kW.  
 C118L-C: Condenser optimized for high density refrigerants in chiller application, from 40 to 200kW.  
 C118-C: Condenser optimized for medium density refrigerants in chiller application, from 40 to 200kW.  
 H118L-C: Condenser optimized for high density refrigerants in heat pump application, from 20 to 150kW.  
 H118-C: Condenser optimized for medium density refrigerants in heat pump application, from 20 to 150kW.  
 H118L-E: Evaporator optimized for R410A in heat pump application, from 20 to 120kW.  
 H118-E: Evaporator for medium density refrigerants in heat pump application, from 20 to 120kW.

Table 1: Designation

<b>a</b> <b>Applications</b> C: chiller D: universal H: heat pump HDW: heat pump double wall	<b>d</b> <b>Specific duty</b> E= evaporator C= condenser <b>Plate design</b> Omit L: L-type M: M-type H: H-type W: W-type X: Asymmetric Z: Z flow <b>Configuration</b> Omit: single D: Dual circuit U: Mixing chamber	<b>e</b> <b>Distributor version</b> Omit B F <b>Plate stacking sequence</b> Omit: a-b-a... R: b-a-b...
<b>b</b> <b>Platform*</b> 22,30,55,62,118... *heat exchanging surface per plate 1/1000 m <sup>2</sup>		<b>f</b> <b>Number of plates**</b> **Rule: -Single: even number -Dual: even number not multiple of 4
<b>c</b> <b>Pressure Service</b> Omit: 30bar L: 45/49bar		

## Application

The C118 & H118 are families of Condensers and Evaporators specifically optimized for high-efficiency chillers and heat pumps, 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; as well as the condensers are optimized and fully in regards to the defrost operation cycle.

## Media

### Refrigerants

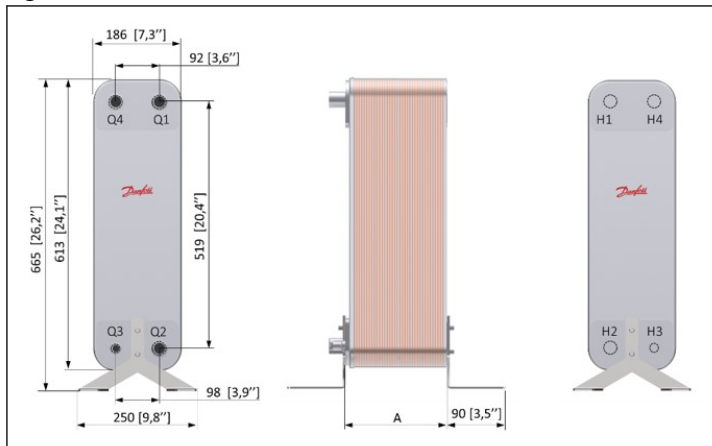
R410A, R407C, R452B, R454B, R290

For other refrigerants please contact your Danfoss Sales representative.

**Product specification**

**Dimensions**

Figure 1: Dimensions



- A:
- C118-C / C118-E / H118-E:  $11.5 + 1.74 \times N$  [0.45 + 0.069 x N]
  - C118L-C / C118L-E / H118L-E:  $15.5 + 1.74 \times N$  [0.61 + 0.069 x N]
  - H118-C:  $11.5 + 1.54 \times N$  [0.45 + 0.061 x N]
  - H118L-C:  $15.5 + 1.54 \times N$  [0.61 + 0.061 x N]

N: Number of Plate

**Operating conditions**

**Preconditions:**

N = number of plates  
 Max number of plates: 200

**Pressure and temperature data\*:**

Min. working temperature: -196 °C (-320 °F)  
 Max. working temperature: 200 °C (390 °F)

**Max. working pressure:**

C118-C / C118-E / H118-C / H118-E: Max. working pressure: 30 bar (435psi)  
 C118L-C / C118L-E / H118L-E: Max. working pressure: 45 bar (653psi)  
 H118L-C: Max. working pressure: 48 bar (696psi) [UL: 45 bar (653psi)]  
 For details, refer to the [Third party approvals](#) chapter.

**Weight\***

C118-C / C118-E / H118-E:  $5.95 + 0.26 \times N$  [kg] /  $13,12 + 0.573 \times N$  [lb]  
 C118L-C / C118L-E / H118L-E:  $7.94 + 0.26 \times N$  [kg] /  $17,50 + 0.573 \times N$  [lb]  
 H118-C:  $5.94 + 0.26 \times N$  [kg] /  $13,09 + 0.573 \times N$  [lb]  
 H118L-C:  $7.93 + 0.26 \times N$  [kg] /  $17,48 + 0.573 \times N$  [lb]

N: Number of Plate  
 \*without connections

## Material specification

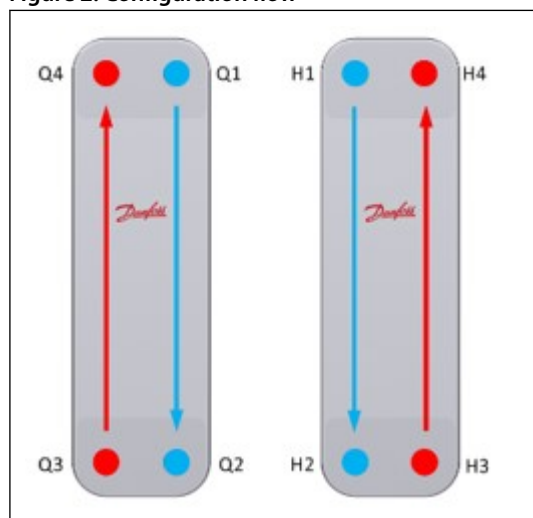
Table 2: Standard materials

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

### C/H118(L)-C/E

Q1-Q2:  $0.151 \times N/2$  [l]

Q3-Q4:  $0.151 \times (N-2)/2$  [l]

### H118(L)-C

Q1-Q2:  $0.13 \times N/2$  [l]

Q3-Q4:  $0.13 \times (N-2)/2$  [l]

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.

## Configuring and calculating products

The C118 & H118 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
Q1-Q2 (water-brine side)	BSP Gas male	½, ¾, 1, 1 ¼, 1 ½, 2
	BSP Gas female	½, ¾, 1
	DIN R male	1, 1 ¼, 1 ½, 2
	NPT	2
	Victaulic	2, 2 ½
Q3 (Refrigerant inlet)	Soldering	5/8, ¾, 7/8
Q4 (Refrigerant outlet)	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 4: Stud bolts:

Stud bolt position	Bolt sizes
230X92mm, middle	M8x20mm
140 x 100 mm, middle	M8x25mm
	M8x30mm

Contact your Danfoss sales representative for further information.

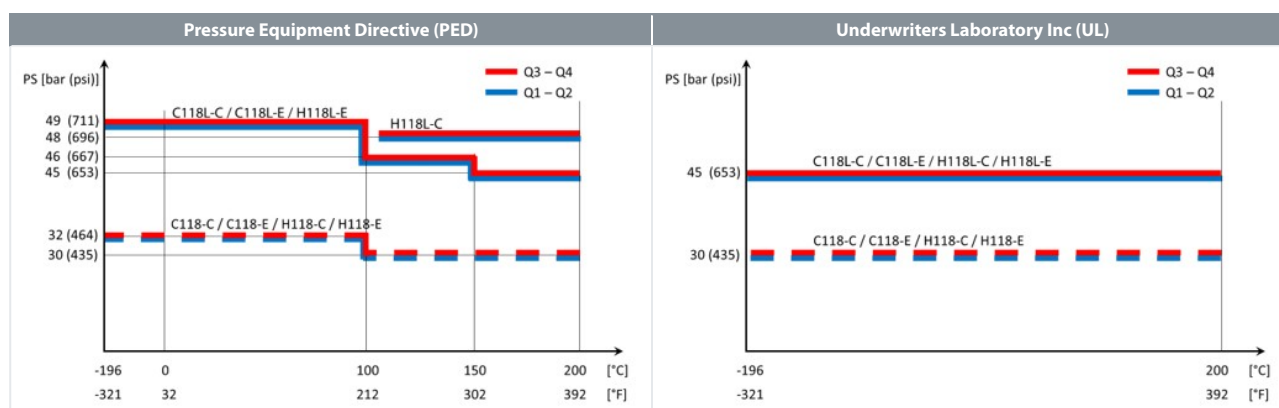
## Certificates, declarations, and approvals

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 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.

## 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.

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### 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.

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