Data sheet



# Brazed plate heat exchanger

# BPHE B3

For more efficient Chillers

# Description

**Danfoss offers a wide range of heat exchangers in a modular system based on a platform of high quality components. You can define both the capacity and the connections you need for your specific application. The heat exchangers arecompact and space saving.**

Danfoss is a worldwide leading manufacturer of refrigeration & air conditioning controls and compressors. We have extended our product portfolio to include brazed plate heat exchangers BPHE, designed for a wide range of applications.

B3 brazed plate heat exchangers BPHE can be customized to your specific application requirements. These reliable products offer the same high quality you have come to expect from Danfoss, and they are backed by our industry leading sales and support organization.

## Features & benefits

- Compact size
- Reduced internal hold-up volumes
- Superior efficiency
- Closer approach temperatures
- Higher working pressures
- Reduced fouling
- Highly flexible design for manufacturing
- Cost effective
- Wide variety of connection styles and sizes
- High technology manufacturing

## Applications

The B3 brazed plate heat exchangers BPHE are the ideal choice for chillers, heat pumps, economizers, desuperheaters and can be used for numerous other applications. The heat exchanger is designed to combine high thermal efficiency with energy savings.

# 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**
All models of the B3 range 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

B3 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:**

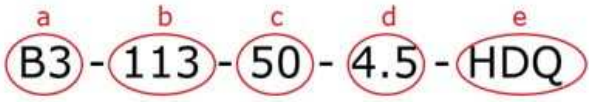
| | Stud bolts position | Bolt size |
|---|---|---|
| B3-012 | 70 mm, middle | M6 x 20 mm |
| B3-014 | 70 mm, middle | M6 x 20 mm |
| B3-018 | 100 mm, middle | M6 x 20 mm |
| B3-020 | 151 mm, middle | M6 x 20 mm |
| B3-027 | 120 mm, middle<br>89 x 64 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-030 | 120 mm, middle<br>160 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-052 | 327 mm, middle<br>140 x 60 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-095 | 230 x 92 mm, middle<br>140 x 100 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-095B | 230 x 92 mm, middle<br>140 x 100 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-113 | 300 x 110 mm, middle<br>140 x 100 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-136 | 300 x 110 mm, middle<br>140 x 100 mm, middle | M8 x 20 mm |
| | | M8 x 25 mm |
| | | M8 x 30 mm |
| B3-210 | 140 x 127 mm, middle<br>140 x 100 mm, middle | M10 x 25 mm |
| | | M12 x 35 mm |
| B3-210B | 140 x 127 mm, middle<br>140 x 100 mm, middle | M10 x 25 mm |
| | | M12 x 35 mm |
| B3-260B | 140 x 127 mm, middle<br>140 x 100 mm, middle | M10 x 25 mm |
| | | M12 x 35 mm |

Contact your Danfoss sales representative for further information.

# Overview

## Product portfolio

**Table: Designation**




**a**

**Brazed plate heat exchanger**

B3: Copper brazed
B4: Nickel brazed

**b**

**Platform*** 012, 014, 018, 027, 030, 052...

*heat exchanging surface per plate 1/1000 $m^2$

**c**

**Number of plates**

**d**

**Pressure Service (MPa)**

**e**

**Plate design**

**L**: L-type

**M**: M-type

**H**: H-type

**Configuration**

Omit: single
D: Dual circuit

**Specific duty**

Omit: without distributor
**Q**: with distributor

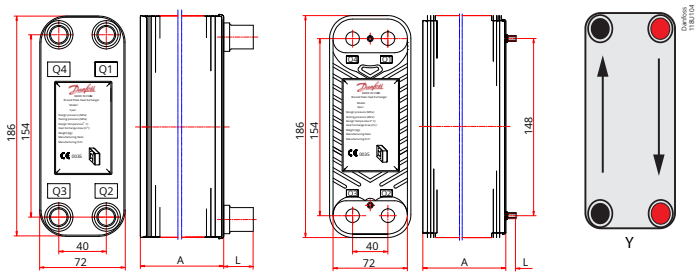
| BPHE Data | B3-012 | B3-014 | B3-018 | B3-020 | B3-027 | B3-030 | B3-052 |
|---|---|---|---|---|---|---|---|
| Cooling Capacity / Heat Load (kW) | 0.5 – 4 | 0.5 – 5 | 2 – 10 | 2 – 10 | 5 –15 | 3 – 30 | 10 – 60 |
| Design temperature (°C) | 196/200 | 196/200 | 196/200 | 196/200 | 196/200 | 196/200 | 196/200 |
| Standard Design pressure (bar) | 10 | 30 | 30 | 30 | 30 | 30 | 30 |
| High Design pressure (bar) | 30 | 45 | 45 | 40 | 45 | 45 | 45 |
| Distribution | | | | | | Q | Q |
| Dual circuit | | | | | | | |
| Dual circuit back to back | | X | | X | X | X | X |
| Channel pattern | H | H, L, M | H | H, L, M | H, L, M | H | H, L |
| Max. number of plates | 50 | 60 | 60 | 60 | 150 | 150 | 150 |
| Height / Width (mm)1 | 186/72 | 207/77 | 231/90 | 314/72 | 311/111 | 325/95 | 527/111 |
| Weight (kg) | 0.6+0.044xN | 0.365+0.05xN | 1.1+0.055xN | 0.44+0.076xN | 1.2+0.13xN | 1+0.09xN | 1.8+0.23xN |
| Channel volume (L) | 0.018 | 0.02 | 0.036 | 0.04 | 0.05 | 0.028 | 0.094 |
| Standard plate material3 | AISI 304 | AISI 304 | AISI 316L | AISI 304 | AISI 316L AISI 304L | AISI 316L AISI 304L | AISI 316L AISI 304L |
| Nickel Brazed Option | | X | X | | | | |

| BPHE Data | B3-095 | B3-095B | B3-113 | B3-136 | B3-210 | B3-210B | B3-260B |
|---|---|---|---|---|---|---|---|
| Cooling Capacity / Heat Load (kW) | 30 – 200 | 30 – 200 | 60 – 200 | 60 – 200 | 150 – 450 | 150 – 450 | 150 – 500 |
| Design temperature (°C) | 196/200 | 196/200 | 196/200 | 196/200 | 196/200 | 196/200 | 196/200 |
| Standard Design pressure (bar) | 30 | 30 | 30 | 30 | 30 | 30 | 20 |
| High Design pressure (bar) | 45 | | 45 | | 45 | 45 | |
| Distribution | Q | | Q | | Q | Q | |
| Dual circuit | | | D | | D | D | |
| Dual circuit back to back | X | X | | | | | |
| Channel pattern | H, L, M | H, L, M | H | H | H | H | H |

# Product details

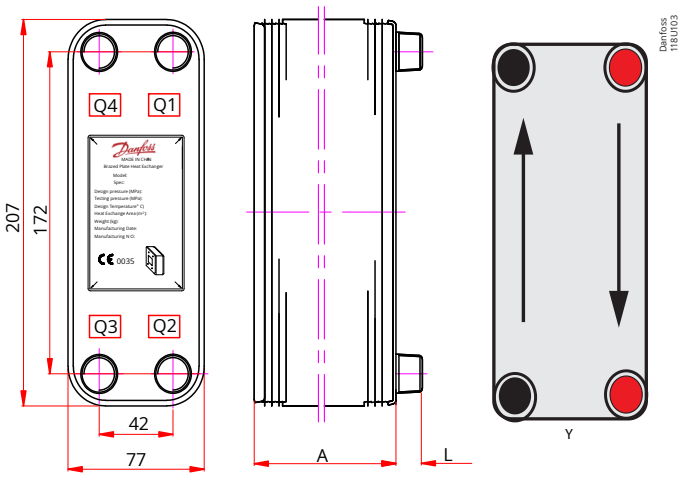
## Dimensions

**B3-012 brazed plate heat exchanger BPHE**
**Figure: B3-012 brazed plate heat exchanger BPHE**



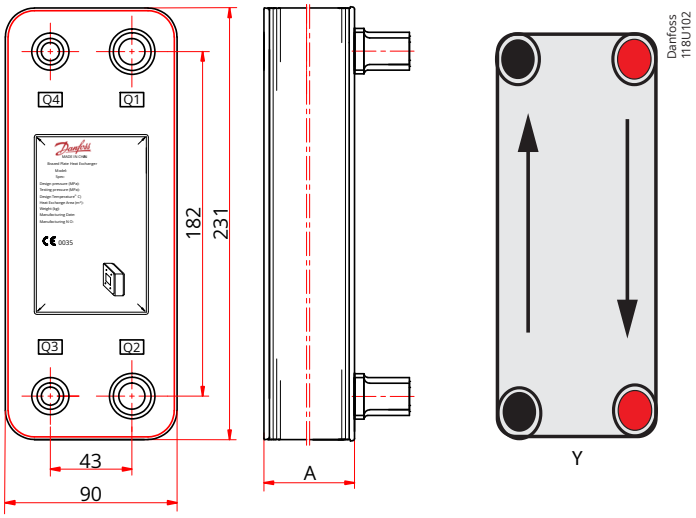

| | |
|---|---|
| **A** | 7 + 2.26 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-014 brazed plate heat exchanger BPHE**
**Figure: B3-014 brazed plate heat exchanger BPHE**



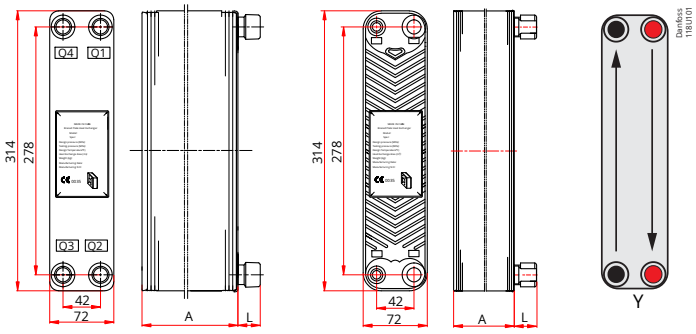

| | |
|---|---|
| **A** | 7 + 2.3 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-018 brazed plate heat exchanger BPHE**
**Figure: B3-018 brazed plate heat exchanger BPHE**



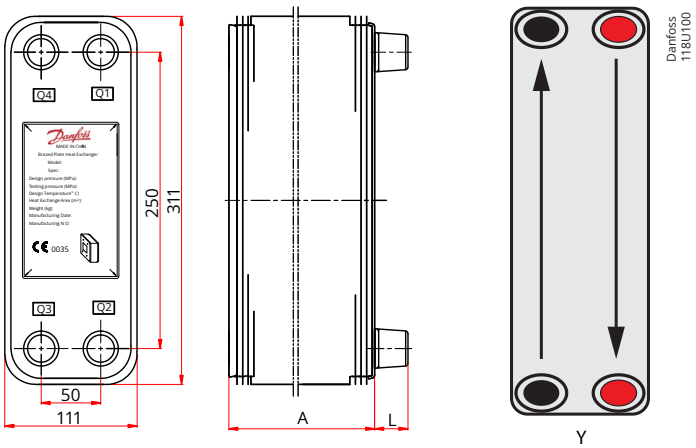

| | |
|---|---|
| **A** | 10 + 2.26 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-020 brazed plate heat exchanger BPHE**
**Figure: B3-020 brazed plate heat exchanger BPHE**



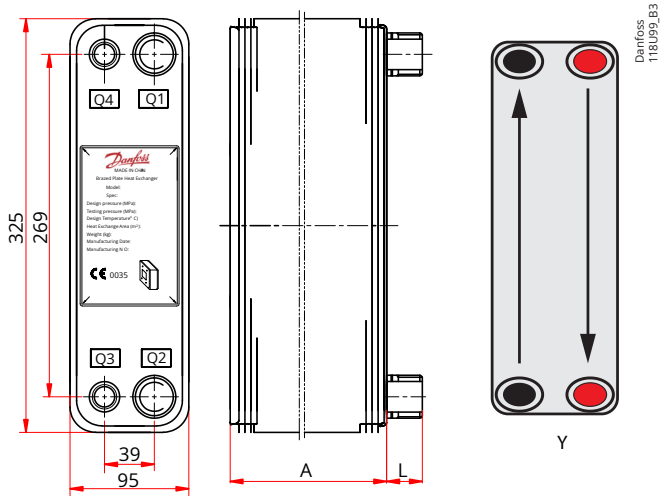

| | |
|---|---|
| **A** | 7 + 2.26 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-027 brazed plate heat exchanger BPHE**
**Figure: B3-027 brazed plate heat exchanger BPHE**



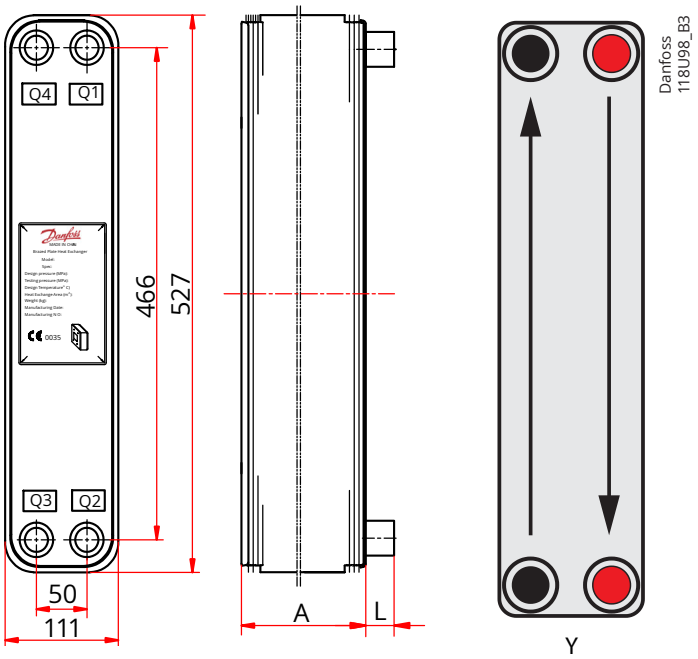

| | |
|---|---|
| **A** | 9 + 2.36 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-030 brazed plate heat exchanger BPHE**
**Figure: B3-030 brazed plate heat exchanger BPHE**



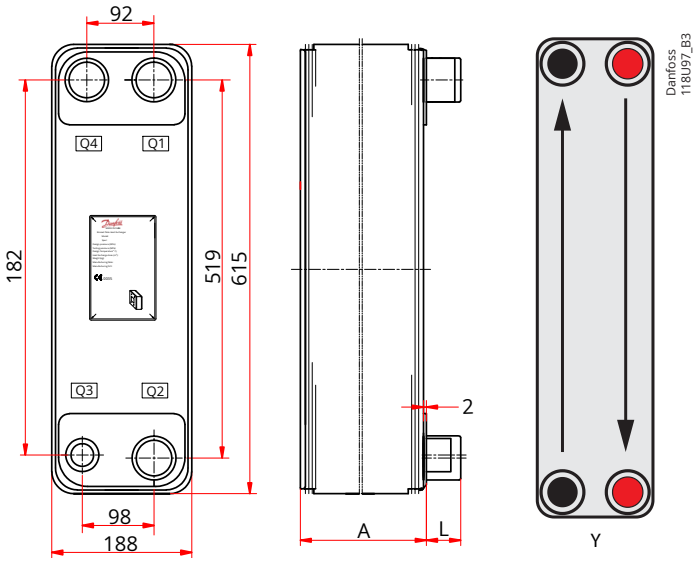

| | |
|---|---|
| **A** | 9 + 1.5 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-052 brazed plate heat exchanger BPHE**
**Figure: B3-052 brazed plate heat exchanger BPHE**



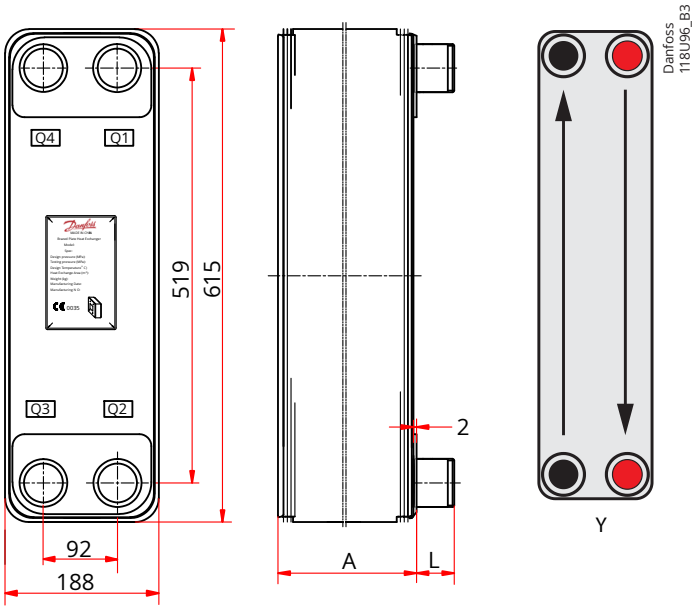

| | |
|---|---|
| **A** | 10 + 2.26 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-095 brazed plate heat exchanger BPHE**
**Figure: B3-095 brazed plate heat exchanger BPHE**



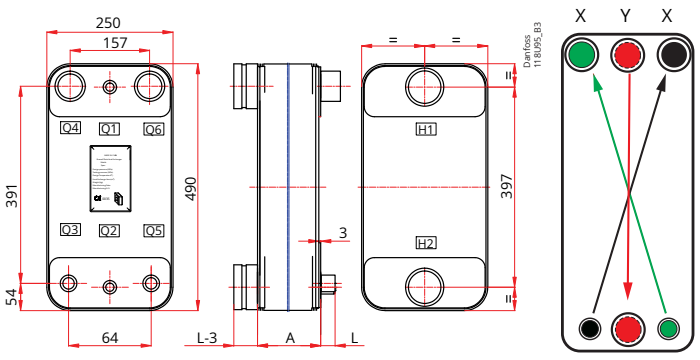

| | |
|---|---|
| **A** | 10 + 2.26 x N |
| **N** | Number of Plate |
| **Y** | Upright parallel flow |

**B3-095B brazed plate heat exchanger BPHE**
**Figure: B3-095B brazed plate heat exchanger BPHE**




| | |
|---|---|
| **A** | 12 + 2.76 x N |
| **N** | Number of Plate |
| **Y** | Upright flow |

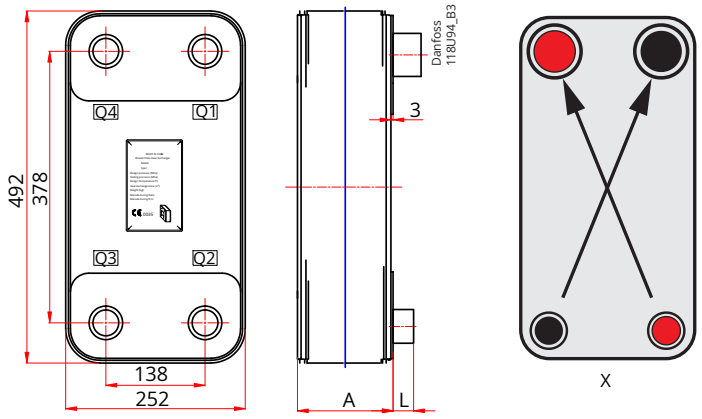
**B3-113 brazed plate heat exchanger BPHE**
**Figure 10: B3-113 brazed plate heat exchanger BPHE**




| | |
|---|---|
| **A** | 12 + 2.76 x N |
| **N** | Number of Plate |
| **X** | Diagonal flow |
| **Y** | Upright flow |

### B3-136 brazed plate heat exchanger BPHE

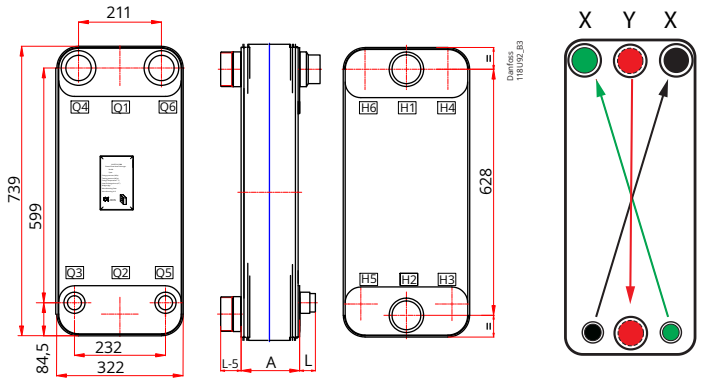
**Figure: B3-136 brazed plate heat exchanger BPHE**




| | |
|---|---|
| **A** | 11 + 2.82 x N |
| **N** | Number of Plate |
| **X** | Diagonal flow |

### B3-210 & B3-210B brazed plate heat exchanger BPHE

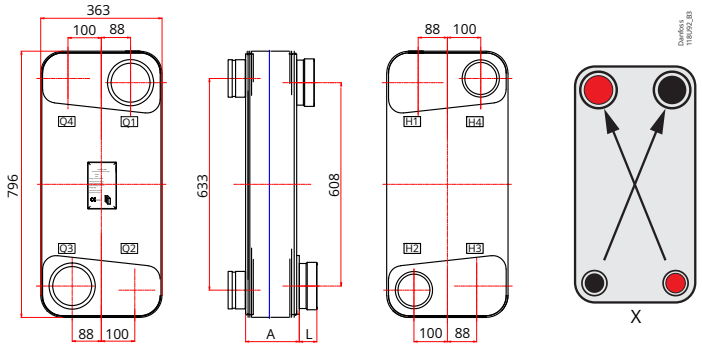
**Figure: B3-210 & B3-210B brazed plate heat exchanger BPHE**




| | |
|---|---|
| **A** | 13 + 2.76 x N |
| **N** | Number of Plate |
| **X** | Diagonal flow |
| **Y** | Upright flow |

### B3-260B brazed plate heat exchanger BPHE

**Figure: B3-260B brazed plate heat exchanger BPHE**




| | |
|---|---|
| **A** | 17 + 2.76 x N |
| **N** | Number of Plate |
| **X** | Diagonal flow |

# Connections

## Mechanical connections

### Table: Connections data

| Connection Type | Connection Size [in] | B3-012 B3-014 B3-020 | B3-018 | B3-030 | B3-027 B3-052 | B3-095 B3-095B | B3-113 | B3-113B | B3-136 | B3-210 | B3-260B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BSP-male | G½ | X | X | X | X | X | | | | | |
| | G¾ | X | X | X | X | X | X | X | X | X | |
| | G1 | | | X | X | X | X | X | X | X | |
| | G1 ¼ | | | | X | X | X | X | X | X | |
| | G1 ½ | | | | | X | X | X | X | X | |
| | G2 | | | | | X | X | X | X | X | X |
| | G2 ½ | | | | | | | | X | X | X |
| | G3 | | | | | | | | X | X | X |
| BSP-female | G¼ | X | X | X | X | | | | | | |
| | G½ | X | X | X | X | X | X | X | X | X | |
| | G¾ | | | X | X | X | X | X | X | X | |
| | G1 | | | X | X | X | X | X | X | X | |
| | G1 ¼ | | | | | X | X | X | X | X | |
| DIN-male | R½ | X | X | X | X | X | | | | | |
| | R¾ | X | X | X | X | X | X | X | X | X | |
| | R1 | | | X | X | X | X | X | X | X | |
| | R1 ¼ | | | | X | X | X | X | X | X | |
| | R1 ½ | | | | | X | X | X | X | X | |
| | R2 | | | | | X | X | X | X | X | X |
| | R2 ½ | | | | | | | | X | X | X |
| | R3 | | | | | | | | X | X | X |
| DIN-female | R¼ | X | X | X | X | | | | | | |
| | R½ | X | X | X | X | X | X | X | X | X | |
| | R¾ | | | X | X | X | X | X | X | X | |
| | R1 | | | | X | X | X | X | X | X | |
| | R1 ½ | | | | | X | X | X | X | X | |
| NPT | ½ | X | X | X | X | X | | | | | |
| | ¾ | X | X | X | X | X | X | X | X | X | |
| | 1 | | | X | X | X | X | X | X | X | |
| | 1 ¼ | | | | X | X | X | X | X | X | |
| | 1 ½ | | | | | X | X | X | X | X | |
| | 2 | | | | | X | X | X | X | X | X |
| | 2 ½ | | | | | | X | X | X | X | X |
| | 3 | | | | | | | | X | X | X |
| FPT | ¼ | X | X | X | X | | | | | | |
| | ½ | X | X | X | X | X | X | X | X | X | |
| | ¾ | | | X | X | X | X | X | X | X | |
| | 1 | | | | X | X | X | X | X | X | |
| SWT | ¼ | X | X | X | X | | | | | | |
| | ⅜ | X | X | X | X | X | | | | | |
| | ½ | X | X | X | X | X | | | | | |
| | ⅝ | X | X | X | X | X | | | | | |
| | ¾ | X | X | X | X | X | X | X | X | | |
| | ⅞ | X | X | X | X | X | X | X | X | | |
| | 1 | | | X | X | X | X | X | X | | |
| | 1 ⅛ | | | X | X | X | X | X | X | X | |
| | 1 ⅜ | | | | X | X | X | X | X | X | |
| | 1 ⅝ | | | | | X | X | X | X | X | |
| | 2 ⅛ | | | | | X | X | X | X | X | |
| | 2 ⅝ | | | | | | | | X | X | |
| | 3 ⅛ | | | | | | | | | X | |
| | 4 | | | | | | | | | | |
| | 5 | | | | | | | | | | |
| Victaulic | 2 | | | | | X | X | X | X | X | X |
| | 2 ½ | | | | | X | X | X | X | X | X |
| | 3 | | | | | | | | | X | X |
| | 4 | | | | | | | | | | X |
| | 5 | | | | | | | | | | X |

**Note:** The list above does not include all connections available, but part of connections in use. Please contact your Danfoss sales representative for more 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.

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 |
|---|---|---|---|
| EU Declaration | Danfoss EU BF202407en-0001.01 | Danfoss | Pressure, PED |
| Export Control Declaration | Braze Plate Heat Exchangers - Not Dual Use | Danfoss | |
| Pressure Safety Certificate | BV CE-0062-PED-H-DMC 001-23-CHN-Rev.C | BV - Bureau Veritas | Pressure, PED |
| Mechanical Safety Certificate | UL SA13363 | UL - Underwriters Laboratories inc. | |
| EU Declaration | Danfoss EU BF202604en-0002.02 | Danfoss | Pressure, PED |
| Manufacturer's Declaration | Danfoss MD EU-ROHS-MD-202404-01.01 | Danfoss | EU RoHS |
| Manufacturer's Declaration | Danfoss MD UK-ROHS-MOD-202304-02.01 | Danfoss | UK RoHS |
| Manufacturer's Declaration | Danfoss UK-ROHS-MOD-202304-01.01 | Danfoss | UK RoHS |
| Pressure Safety Certificate | BV CE-0062-PED-H-DAF 001-24-DNK | BV - Bureau Veritas | Pressure, PED |
| UA Declaration | Danfoss UA 2023-01-10 Heat Exchangers PL24 PL31 | Danfoss | Pressure, PED |
| Manufacturer's Declaration | Danfoss MD BPHE-RoHS-DOC-201601 | Danfoss | China RoHS |
| Manufacturer's Declaration | Danfoss MD EU-RoHS-DoC-202309-01.01 | Danfoss | EU RoHS |
| Pressure Safety Certificate | LLC CDC EURO TYSK UA.TR.089.0330.04.23 | LLC CDC EURO TYSK - Ukraine | Pressure, PED |

| | | | |
|---|---|---|---|
| Pressure Safety Certificate | NSW PDPRE7001747-24 | NSW - New South Wales Government | Pressure |
| Manufacturer's Declaration | Danfoss MD BF248486516840en-000701.01 | Danfoss | Pressure, PED, EU RoHS |

# Contact details

## Online support

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

### The Danfoss Design center

Discover the Design Center, our advanced digital platform that streamlines product selection. With integrated tools and enhanced type pages, it's simpler than ever to access product information and documentation, and to select the right products. Check the availability of Danfoss products at partner locations and enjoy seamless transitions from selection to purchase with our basket-to-basket functionality. Whether you're buying from our distributors or directly from the Product Store, the Design Center simplifies your experience. Learn more at: designcenter.danfoss.com.

### The Danfoss product store

The Danfoss Product Store is a one-stop shop available 24/7 for our customers, no matter where you are in the world or what area of industry you work in. Browse our catalog, check product details and documentation, view your prices and product availability, and quickly finalize your purchase. Start browsing at: store.danfoss.com.

### Danfoss Partner Portal/Product Data tool

Designed to support you with easy access to product data extracts, essential resources, tools, and information. The Partner Portal provides a centralized hub for product documentation, training materials, marketing assets, and technical support, ensuring you have everything you need to succeed and grow your business with Danfoss. The Partner Portal is available 24/7 at: partner.danfoss.com and is ready to support your business.

### Find technical documentation

Find technical documentation you need to get your project up 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: documentation.danfoss.com.

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### 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 reginal news, or connect with a nearby expert - all in your own language. Find your local Danfoss website here: danfoss.com.

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Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues description, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the products. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.