Dear Customer

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, designed for a wide range of applications.

Our range of brazed plate heat exchangers incorporates the following key features:

- Compact size
- Reduced internal hold-up volumes
- Superior efficiency
- Closer approach temperatures
- Higher working pressures
- Reduced fouling
- Innovative modular design for manufacturing
- Cost effective
- Available in different materials
- Wide variety of connection styles and sizes
- High technology manufacturing

Danfoss brazed plate heat exchangers 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.

The selection data in this catalogue will help you choose the right model for your needs. Please consult your local Danfoss sales manager for more information about this highly efficient and reliable product program.

Danfoss A/S
July 2007

Brazed Plate Heat Exchanger

The compact and flexible solution

Heat exchangers are used in refrigeration plants as condensers, evaporators or with other specific functions. Danfoss offers a wide range of heat exchangers in a modular system based on a platform of common components. You can determine the capacity and the connections needed for your specific application. The heat exchangers are compact and space saving.
The M channel is made by one H plate and one pressure drop lower heat transfer coefficient and lower length of plates and 3 types of channels, that are re available with 2 different types type channel is made by two plates, with high heat transfer coefficient and high pressure drop. This reduces the pressure drop and reduces the turbulence and lowers heat transfer efficiency.

The H type plate has acute angles that result in higher heat transfer efficiency by increasing the turbulence of the fluid. This type plate has acute angles. This reduces the pressure drop and reduces the turbulence and lowers heat transfer efficiency.

The L channel is made by two plates, with high heat transfer coefficient and high pressure drop. This channel is made by two H plates, with lower heat transfer coefficient and lower pressure drop.

The M channel is made by one H plate and one L plate, with both medium of pressure drop and heat transfer coefficient.

### Connections data

<table>
<thead>
<tr>
<th>Type</th>
<th>Port 1 (Internal)</th>
<th>Port 2 (Internal)</th>
<th>Port 3 (External)</th>
<th>Port 4 (External)</th>
<th>Port 5 (External)</th>
<th>Port 6 (External)</th>
<th>Port 7 (External)</th>
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<td>Copper / Lead</td>
<td>Copper / Lead</td>
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<td>Copper / Lead</td>
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<td>Copper / Lead</td>
<td>Copper / Lead</td>
</tr>
</tbody>
</table>

- **Heat Exchanger plates and channels**
  - BPHE type is available with 2 different types of plates and 3 types of channels, that are responsible for the thermal characteristics of the heat exchanger.
  - The H type plate has acute angles that result in higher heat transfer efficiency by increasing the turbulence of the fluid. This reduces the pressure drop and reduces the turbulence and lowers heat transfer efficiency.
  - The L type plate has acute angles. This reduces the pressure drop and reduces the turbulence and lowers heat transfer efficiency.
  - The M channel is made by two plates, with high heat transfer coefficient and high pressure drop.
  - This channel is made by two H plates, with lower heat transfer coefficient and lower pressure drop.
  - The M channel is made by one H plate and one L plate, with both medium of pressure drop and heat transfer coefficient.

### Technical data - Select the type that fits your application

- **Temperature standard**
  - | Type | Standard Design pressure Q1-Q2/Q3-Q4 (psi) |
  - | B3 | 145.04 | 145.04 | 145.04 | 145.04 |
  - | B3-012 | 145.10 | 145.10 | 145.10 | 145.10 |
  - | B3-014 | 435.11 | 435.11 | 435.11 | 435.11 |
  - | B3-014B | 435.11 | 435.11 | 435.11 | 435.11 |
  - | B3-014C | 435.11 | 435.11 | 435.11 | 435.11 |
  - | B3-014D | 435.11 | 435.11 | 435.11 | 435.11 |
  - | B3-018 | 435.11 | 435.11 | 435.11 | 435.11 |
  - | B3-020 | 435.11 | 435.11 | 435.11 | 435.11 |
  - | B3-023 | 435.11 | 435.11 | 435.11 | 435.11 |

- **Weight (lbs), empty (n=number of plates)**
  - | Type | Weight (lbs), empty |
  - | B3 | 0.6+0.10 x n |
  - | B3-012 | 0.7+0.13 x n |
  - | B3-014 | 0.4+0.13 x n |
  - | B3-014B | 0.7+0.13 x n |
  - | B3-014C | 1.1+0.20 x n |
  - | B3-014D | 1.2+0.28 x n |
  - | B3-018 | 1.0+0.198 x n |
  - | B3-020 | 1.8+0.51 x n |
  - | B3-023 | 2.0+0.51 x n |

- **Cooling Capacity/Heat Load (ton) (Max)**
  - | Type | Cooling Capacity/Heat Load (ton) (Max) |
  - | B3 | -320.8/+392 |
  - | B3-012 | -320.8/+392 |
  - | B3-014 | -320.8/+392 |
  - | B3-014B | -320.8/+392 |
  - | B3-014C | -320.8/+392 |
  - | B3-014D | -320.8/+392 |
  - | B3-018 | -320.8/+392 |
  - | B3-020 | -320.8/+392 |
  - | B3-023 | -320.8/+392 |

### Heat Exchanger plates and channels

- **Expression of Type of BPHE**
  - B3-059-50-3.0 3.0 3.0 3.0

- **Channel pattern**
  - Dual circuit

- **Distribution**
  - Test pressure standard (psi)
    - | Type | Test pressure standard (psi) |
    - | B3 | 50 50 50 |
    - | B3-012 | 50 50 50 |
    - | B3-014B | 50 50 50 |
    - | B3-014C | 50 50 50 |
    - | B3-014D | 50 50 50 |
    - | B3-018 | 50 50 50 |
    - | B3-020 | 50 50 50 |
    - | B3-023 | 50 50 50 |

### Technical data - Select the type that fits your application

- **Cooling Capacity/Heat Load (ton) (Max)**
  - | Type | Cooling Capacity/Heat Load (ton) (Max) |
  - | B3 | -320.8/+392 |
  - | B3-012 | -320.8/+392 |
  - | B3-014 | -320.8/+392 |
  - | B3-014B | -320.8/+392 |
  - | B3-014C | -320.8/+392 |
  - | B3-014D | -320.8/+392 |
  - | B3-018 | -320.8/+392 |
  - | B3-020 | -320.8/+392 |
  - | B3-023 | -320.8/+392 |

### Connections data

- **BPHE Data B3-012 B3-014 B3-014B B3-014C B3-014D B3-020 B3-027 B3-030 B3-048 B3-052 B3-095 B3-113 B3-136 B3-210 B3-260**

### Technical data - Select the type that fits your application

- **Cooling Capacity/Heat Load (ton) (Max)**
  - | Type | Cooling Capacity/Heat Load (ton) (Max) |
  - | B3 | -320.8/+392 |
  - | B3-012 | -320.8/+392 |
  - | B3-014B | -320.8/+392 |
  - | B3-014C | -320.8/+392 |
  - | B3-014D | -320.8/+392 |
  - | B3-018 | -320.8/+392 |
  - | B3-020 | -320.8/+392 |
  - | B3-023 | -320.8/+392 |

### Technical data - Select the type that fits your application

- **Cooling Capacity/Heat Load (ton) (Max)**
  - | Type | Cooling Capacity/Heat Load (ton) (Max) |
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  - | B3-012 | -320.8/+392 |
  - | B3-014 | -320.8/+392 |
  - | B3-014B | -320.8/+392 |
  - | B3-014C | -320.8/+392 |
  - | B3-014D | -320.8/+392 |
  - | B3-018 | -320.8/+392 |
  - | B3-020 | -320.8/+392 |
  - | B3-023 | -320.8/+392 |
The H type channel is made by one H plate and one lower plate, with both medium of pressure drop and lowers heat transfer efficiency.

- **Channel Type H-L-M**
  - Type: Copper or Nickel
  - Thickness: 0.6+0.10 x n
  - Inner Diameter: (n-2) x 0.129
  - Outer Diameter: (n-2) x 0.151
  - Test Pressure Standard (psi): 0.67+0.90 x n

Technical data - Select the type that fits your application

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<tr>
<th>Type</th>
<th>Material</th>
<th>Pressure Drop</th>
<th>Heat Transfer Efficiency</th>
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<td>(n-2) x 0.129</td>
<td>(n-2) x 0.151</td>
<td>0.67+0.90 x n</td>
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</table>

Heat exchanger plates and channels

BIPE type is available with 2 different types of plates and 3 types of channels, that are responsible for the thermal characteristics of the heat exchanger.

- **Type A**
  - Channel plate has angle sides that result in higher heat transfer efficiency by increasing the turbulence of the fluid.
  - Channel plate has straight sides.
  - Thermal pressure drop.
  - Channel is made by two plates, with high heat transfer coefficient and lower pressure drop.
  - Channel is made by two plates, with lower heat transfer coefficient and lower pressure drop.

- **Type B**
  - Channel type H, L, M.
  - Channel plate has angle sides.
  - Channel plate has straight sides.
  - Thermal pressure drop.
  - Channel is made by two plates, with high heat transfer coefficient and lower pressure drop.
The Danfoss product range for the refrigeration and air conditioning industry

Danfoss Refrigeration & Air Conditioning is a worldwide manufacturer with a leading position in industrial, commercial and supermarket refrigeration as well as air conditioning and climate solutions.

We focus on our core business of making quality products, components and systems that enhance performance and reduce total life cycle costs — the key to major savings.

Controls for Commercial Refrigeration
Controls for Industrial Refrigeration
Electronic Controls & Sensors
Industrial Automation
Microchannel Compressors
Commercial Compressors
Thermostats
Sub-Assemblies

We are offering a single source for one of the widest ranges of innovative refrigeration and air conditioning components and systems in the world. And, we back technical solutions with business solutions to help your company reduce costs, streamline processes and achieve your business goals.

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Danfoss A/S

Brazed Plate Heat Exchanger

The compact and flexible solution

Heat exchangers are used in refrigeration plants as condensers, evaporators or with other specific functions. 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 construction you need for your specific application. The heat exchangers can compact and space saving.

REFRIGERATION & AIR CONDITIONING DIVISION

Catalogue
## Connections data

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<td>1.14</td>
<td>NPT External</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>L 2B</td>
<td>099</td>
<td>x</td>
<td>NPT 2</td>
<td>1.89</td>
<td>NPT External</td>
<td>X X X X X X X X</td>
</tr>
<tr>
<td>L 3/4</td>
<td>192</td>
<td>x</td>
<td>G 3</td>
<td>2.05</td>
<td>BSP External</td>
<td>X X X X X X</td>
</tr>
<tr>
<td>L 3D</td>
<td>199</td>
<td>x</td>
<td>NPT 3</td>
<td>2.05</td>
<td>NPT External</td>
<td>X X X X X X</td>
</tr>
<tr>
<td>L 3E</td>
<td>200</td>
<td>x</td>
<td>R 3</td>
<td>2.05</td>
<td>DIN External</td>
<td>X X X X X X</td>
</tr>
<tr>
<td>H 3 1/8D</td>
<td>189</td>
<td>3 1/8</td>
<td>3.5</td>
<td>2.05</td>
<td>Clamp (victaulic) External</td>
<td>X X</td>
</tr>
<tr>
<td>H 4</td>
<td>134</td>
<td>4</td>
<td>4.4</td>
<td>2.05</td>
<td>Clamp (victaulic) External</td>
<td>X</td>
</tr>
</tbody>
</table>
B3-012 brazed plate heat exchanger is 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.

Capacity: 0.142 - 1.137 TR

**Features**
- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100% inspected

**Approvals**
- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

**Material Specification**
The standard plate material is stainless steel AISI 304. For other material (AISI 316L, SMO 254, Titanium) please contact your local sales organization.

**Dimensional Data**
- Flat front / back cover plate
- Corrugated front / back cover plate

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gall)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7 + 0.09n</td>
<td>0.6 + 0.097n</td>
<td>0.0047 x n/2</td>
<td>(n - 2) 0.13</td>
</tr>
</tbody>
</table>

**Technical Data**
- Design pressure
  - 145 psi (A type)
  - 435 psi (B type)
- Testing pressure
  - 218 psi (A type)
  - 653 psi (B type)
- Design temperature
- Plate type
- Heat load
- Number of max plates
- 50
B3-014 brazed plate heat exchanger is the ideal choice for air driers and chillers, heat pump, economizers, desuperheaters and can be used for numerous other applications. The heat exchanger is designed to combine high thermal efficiency with energy savings.

Capacity: 0.142 - 1.421 TR

- Compact design
- High efficiency
- Low internal hold-up volume
- Flexible design
- Solder and threaded connection types
- Wide variety of connections styles and sizes

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

The standard plate material is stainless steel AISI 304. For other material (AISI 316L, SMO 254, Titanium) please contact your local sales organization.

### Technical Data

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7 + 0.09n</td>
<td>0.7 + 0.132n</td>
<td>0.0052 x n/2 0.0052 x (n-2)/2</td>
<td>(n - 2) 0.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>145 psi (A type)</th>
<th>Design temperature -320.8 - + 392°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing pressure</td>
<td>580 psi (B type)</td>
<td>Plate type H, L, M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>218 psi (A type)</th>
<th>Heat load -1.422TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing pressure</td>
<td>870 psi (B type)</td>
<td>Number of max plates 60</td>
</tr>
</tbody>
</table>
Introduction

B3-014B brazed plate heat exchanger is 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.

Capacity: 0.142 - 1.42 TR

Features

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

Approvals

- CE0335 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

Product Options

Adapter/Temperature Monitoring

Material Specification

The standard plate material is stainless steel AISI 304. For other material (AISI 316L, SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Specialist

Corrugated front cover plate

Flat front cover plate

Technical Data

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal) Q1/Q2 side/Q3/Q4side</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7 + 0.09n</td>
<td>0.4 + 0.132n</td>
<td>0.0058 x n/2 0.0058 x (n-2)/2 (n - 2) 0.15</td>
<td></td>
</tr>
</tbody>
</table>

Design pressure

145 psi (A type) 145 psi (B type) 435 psi (A type) 435 psi (B type)

Testing pressure

218 psi (A type) 218 psi (B type) 653 psi (A type) 653 psi (B type)

Design temperature

-320,8 – + 392°F

Plate type

H

Heat load

-1.422 TR

Number of max plates

50
B3-014C brazed plate heat exchanger is 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. Capacity: 0.142 - 1.42 TR

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0335 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

The standard plate material is stainless steel AISI 304. For other material (AISI 316L, SMO 254, Titanium) please contact your local sales organization.

**Technical Data**

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7 + 0.3n</td>
<td>0.4 + 0.132n</td>
<td>0.058 x n/2</td>
<td>(n - 2) 0.15</td>
</tr>
</tbody>
</table>

Design pressure

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design pressure (A type)</td>
<td>145 psi</td>
</tr>
<tr>
<td>Design pressure (B type)</td>
<td>435 psi</td>
</tr>
</tbody>
</table>

Testing pressure

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing pressure (A type)</td>
<td>218 psi</td>
</tr>
<tr>
<td>Testing pressure (B type)</td>
<td>653 psi</td>
</tr>
</tbody>
</table>

Design temperature -320,8 – + 392°F

Plate type H

Heat load -1.422 TR

Number of max plates 50
**Technical leaflet**  

**Brazed plate heat exchanger B3-014D**

**Introduction**

B3-014D brazed plate heat exchanger is 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. 

Capacity: 0.14 - 1.42 TR

**Features**

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

**Approvals**

- CE0335 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

**Product Options**

[Adapter/Temperature Monitoring]

**Material Specification**

The standard plate material is stainless steel AISI 304. For other material (AISI 316L, SMO 254, Titanium) please contact your local sales organization.

**Dimensional Data**

![Diagram of brazed plate heat exchanger]

**Technical Data**

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal) Q1 Q2 side/Q3 Q4side</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7 + 0.09n</td>
<td>0.7 + 0.132n</td>
<td>0.0058 x n/2</td>
<td>(n - 2) 0.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.0058 x (n-2)/2</td>
<td></td>
</tr>
</tbody>
</table>

Design pressure: 145 psi (A type)  
Testing pressure: 145 psi (A type)  
Testing pressure: 435 psi (B type)

Design temperature: -320.8 – + 392°F
Plate type: H
Heat load: -1.422 TR
Number of max plates: 50
Introduction

B3-020 brazed plate heat exchanger is the ideal choice for boilers and 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. Capacity: 0.57 - 2.84 TR

Features

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

Approvals

- CE035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

Product Options

.readyState

- Adapter/Temperature Monitoring
- Nickel Brazed

Material Specification

The standard plate material is stainless steel AISI 304. For other material (AISI 316L, SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front / Back cover plate

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7 + 0.09n</td>
<td>1.1 + 0.20n</td>
<td>0.00105 x n/2</td>
<td>n - 2 x 0.24</td>
</tr>
</tbody>
</table>

Technical Data

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>145 psi (A type)</th>
<th>Design temperature</th>
<th>-320,8 – + 392°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing pressure</td>
<td>435 psi (B type)</td>
<td>Plate type</td>
<td>H, L, M</td>
</tr>
<tr>
<td></td>
<td>218 psi (A type)</td>
<td>Heat load</td>
<td>0.57-2.84 TR</td>
</tr>
<tr>
<td></td>
<td>653 psi (B type)</td>
<td>Number of max plates</td>
<td>60</td>
</tr>
</tbody>
</table>
B3-027 brazed plate heat exchanger is the ideal choice for air dryers and 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. Capacity: 1.42 - 4.27 TR

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

- Adapter/Temperature Monitoring
- High Pressure
- Nickel Brazed
- Back to Back
- Air Drier

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact local Your sales organization

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>9 + 0.09n</td>
<td>1.2 + 0.28n</td>
<td>0.0132 x n/2</td>
<td>(n - 2) 0.28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>435 psi (A type)</th>
<th>Design temperature</th>
<th>-320.8 – – 392°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing pressure</td>
<td>653 psi (B type)</td>
<td>Plate type</td>
<td>H, L, M</td>
</tr>
<tr>
<td></td>
<td>653 psi (A type)</td>
<td>Heat load</td>
<td>1.42-2.77 TR</td>
</tr>
<tr>
<td></td>
<td>979 psi (B type)</td>
<td>Number of max plates</td>
<td>150</td>
</tr>
</tbody>
</table>
B3-030 brazed plate heat exchanger is 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. Capacity: 1.42 - 8.53 TR

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9001: 2000

The standard plate material is stainless steel AISI 316L. For other material (SMO 254, Titanium) please contact your local sales organization.

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume [gal]</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>9 + 0.06n</td>
<td>1 + 0.20n</td>
<td>0.0073 x n/2</td>
<td>(n - 2) 0.32</td>
</tr>
</tbody>
</table>

Design pressure
- 435 psi (A type)
- 653 psi (B type)

Testing pressure
- 653 psi (A type)
- 979 psi (B type)

Design temperature: -320,8 °C ~ +392°F
- Plate type: H
- Heat load: 0.85-8.53 TR
- Number of max plates: 150
The complete range of Brazed Plate Heat Exchangers for refrigeration and A/C application is the ideal choice for many chillers, heat pumps, economizers, desuperheaters and can be used for numerous other applications. The heat exchanger plate pattern is designed to combine high thermal efficiency with energy savings. B3-048 is with a special patented design of different corrugation depths on the same plate. It allows larger water flow rates, low pressure drop and lower refrigerant charge.

Capacity: 8.53 – 22.75 TR.

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9001: 2000

The standard plate material is stainless steel AISI 316L. For other material (SMO 254, Titanium) please contact your local sales organization.

**Material Specification**

**Dimensional Data**

**Technical Data**

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Q1 Q2 side / Q3 Q4 side</td>
<td>(n - 2) 0.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>Testing pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>435 psi (A type)</td>
<td>653 psi (A type)</td>
</tr>
<tr>
<td>580 psi (B type)</td>
<td>870 psi (B type)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design temperature</th>
<th>Plate type</th>
<th>Heat load</th>
<th>Number of max plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>320.8 – + 392°F</td>
<td>H</td>
<td>8.53 – 22.75 TR</td>
<td>118</td>
</tr>
</tbody>
</table>

**Approvals**

**Product Options**

- Distributor
- Adapter/Temperature
- High Pressure
- Dual Circuit

**Introduction**

**Features**

**Approvals**

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

**Product Options**

- Distributor
- Adapter/Temperature
- High Pressure
- Dual Circuit
Technical leaflet

Brazed plate heat exchanger B3-052

Introduction

B3-052 brazed plate heat exchanger is 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. Capacity: 2.84 - 17.06 TR

Features

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

Approvals

- CE035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

Product Options

- Distributor
- Adapter / Temperature
- Nickel Brazed
- Back to Back
- High Pressure

Material Specification

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Design pressure

<table>
<thead>
<tr>
<th>Plate type</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>435</td>
</tr>
<tr>
<td>B</td>
<td>653</td>
</tr>
</tbody>
</table>

Testing pressure

<table>
<thead>
<tr>
<th>Plate type</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>653</td>
</tr>
<tr>
<td>B</td>
<td>979</td>
</tr>
</tbody>
</table>

Channel volume (gal)

<table>
<thead>
<tr>
<th>Plate type</th>
<th>Volume (gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Q2 side</td>
<td>0.0248 x n/2</td>
</tr>
<tr>
<td>Q3 Q4 side</td>
<td>0.0248 x (n-2)/2</td>
</tr>
</tbody>
</table>

Heat transfer area (ft²)

<table>
<thead>
<tr>
<th>Plate type</th>
<th>Area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Number of plates

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>9 + 0.09n</td>
<td>1.8 + 0.51n</td>
<td>0.0248 x n/2</td>
<td>(n - 2) 0.54</td>
</tr>
</tbody>
</table>

Technical Data

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>-320,8 -- + 392°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Plate type</td>
</tr>
<tr>
<td>Heat load</td>
<td>2.84-17.06 TR</td>
</tr>
<tr>
<td>Number of plates</td>
<td>150</td>
</tr>
</tbody>
</table>

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B3-095 brazed plate heat exchanger is 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. Capacity: 8.53 - 56.87 TR

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact your local sales organization.

The technical leaflet for B3-095 includes dimensional data and material specification. The dimensional data includes the number of plates, A (in), weight (lbs), channel volume (gall), and heat transfer area (ft²). The material specification includes technical data such as design pressure, testing pressure, design temperature, plate type, heat load, and number of max plates.
B3-113 brazed plate heat exchanger is 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. Capacity: 17.06 - 56.90 TR

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact your local sales organization.

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal) Q1 Q2 side/ Q3 Q4 side</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>10 + 0.09n</td>
<td>6.5 + 0.84n</td>
<td>0.0422 x n/2 0.0422x (n-2)/4</td>
<td>(n - 2) 1.22</td>
</tr>
</tbody>
</table>

Design pressure:
- 435 psi (A type)
- 580 psi (B type)

Testing pressure:
- 653 psi (A type)
- 870 psi (B type)

Design temperature: -320.8 – + 392°F
Plate type: H
Heat load: 17.06-56.90TR
Number of max plates: 200

Product Options
- Distributor
- Adapter / Temperature
- High Pressure
- Dual Circuit
B3-136 brazed plate heat exchanger is the ideal choice for air driers and 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. Capacity: 17.06 – 56.90 TR.

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact your local sales organization.

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>10 + 0.11n</td>
<td>6.5 + 0.84n</td>
<td>0.0512 x n/2</td>
<td>(n - 2) 1.46</td>
</tr>
</tbody>
</table>
Technical leaflet

Brazed plate heat exchanger B3-210

Introduction

B3-210 brazed plate heat exchanger is 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.

Capacity: 42.65 - 127.96 TR

Features

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

Approvals

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

Product Options

- © Distributor
- Adapter / Temperature
- High Pressure
- Dual Circuit

Material Specification

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Number of plates | Width (in) | Height (in) | Depth (in) | Channel volume (gal) | Heat transfer area (ft²)
--- | --- | --- | --- | --- | ---
13 | L5 | A | L | Q1 Q2 side/Q3 Q4 side | 0.1056 x n/2 | (n - 2) 2.26
23.18 | 21.38 | 9.13 | 3.14 | 13 + 0.11n | 13 + 1.76n | 0.1056 x (n-2)/4 | (n - 2) 2.26

Technical Data

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>Design temperature</th>
<th>Plate type</th>
<th>Heat load</th>
<th>Number of max plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>435 psi (A type)</td>
<td>-320.8 – + 392°F</td>
<td>H</td>
<td>42.65-127.96 TR</td>
<td>250</td>
</tr>
<tr>
<td>580 psi (B type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>652 psi (A type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870 psi (B type)</td>
<td></td>
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</tbody>
</table>
B3-260 brazed plate heat exchanger is the ideal choice for HVAC and 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. Capacity: 42.65 - 142.17 TR

- Compact design
- High efficiency
- Flexible in size
- Connection in solder or flare
- Flexible connection programme
- 100 % inspected

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000

The standard plate material is stainless steel AISI 316. For other material (SMO 254, Titanium) please contact your local sales organization.

<table>
<thead>
<tr>
<th>Number of plates</th>
<th>A (in)</th>
<th>Weight (lbs)</th>
<th>Channel volume (gal)</th>
<th>Heat transfer area (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>13 + 0.11n</td>
<td>13.5 + 2.14n</td>
<td>0.1585 x n/2</td>
<td>(n - 2) 2.78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design pressure</th>
<th>363 psi (A type)</th>
<th>Design temperature</th>
<th>-320.8 – + 392°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing pressure</td>
<td>544 psi (A type)</td>
<td>Plate type</td>
<td>H</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat load</td>
<td>42.65-142.17 TR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of max plates</td>
<td>250</td>
</tr>
</tbody>
</table>
Product Options

**Distributor**
Optimized BPHE for evaporator duties. Inlets at the refrigerant side are equipped with devices that evenly distribute the refrigerant in each channel.

**Adapter / Temperature**
One or two temperature sensor ports enable easy installation of temperature sensors for accurate system control.

**High Pressure**
Danfoss can offer a wide “High Pressure” range to meet the design requirements of new environmental friendly refrigerants (e.g: R410a), “HP” BPHE are design to withstand up to 45 psi of design pressure.

**Nickel Brazed**
For deionized water, ammonia solvents and other fluids not compatible with copper.

**Dual Circuit**
The real Dual Circuit connects two independent refrigerants circuit with the entire water circuit. This allows lower water-outlet temperatures and means full heat transfer at any load.

**Back to Back**
Danfoss “BB” type BPHE consists of back to back refrigerant circuits and handle two compressors at the same time.

Special Application

**Air Drier**
Designed specially for air driers application. BPHE for air driers available. All models deliver dry, high-quality air with a very low dew point.
The Danfoss product range for the refrigeration and air conditioning industry

Danfoss Refrigeration & Air Conditioning is a worldwide manufacturer with a leading position in industrial, commercial and supermarket refrigeration as well as air conditioning and climate solutions. We focus on our core business of making quality products, components and systems that enhance performance and reduce total life cycle costs - the key to major savings.

Controls for Commercial Refrigeration
Controls for Industrial Refrigeration
Industrial Automation
Household Compressors
Commercial Compressors
Thermostats
Sub-Assemblies
Electronic Controls & Sensors
Brazed plate heat exchanger

We are offering a single source for one of the widest ranges of innovative refrigeration and air conditioning components and systems in the world. And, we back technical solutions with business solutions to help your company reduce costs, streamline processes and achieve your business goals.

www.danfoss.us

Dear Customer

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, designed for a wide range of applications.

Our range of brazed plate heat exchangers incorporates the following key features:

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

Danfoss brazed plate heat exchangers 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.

The selection data in this catalogue will help you choose the right model for your needs. Please consult your local Danfoss sales manager for more information about this highly efficient and reliable product program.

Danfoss A/S
July 2007

Heat exchangers are used in refrigeration plants as condensers, evaporators or with other specific function. Danfoss offers a wide range of heat exchangers in a modular system based on a platform of standard components. You can determine the capacity and the connections you need for your specific application. The heat exchangers are compact and space saving.