



EnFusion™ brazed plate heat exchanger PHE

The compact and flexible solution

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 high quality components. You can define both the capacity and the connections you need for your specific application. The heat exchangers are compact and space saving.

Dear Customer

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

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

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

EnFusion™ brazed plate heat exchangers PHE 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

September 2008

Technical data – Select the type that fits your application

PHE Data	PHE B3-012	PHE B3-014	PHE B3-014B	PHE B3-014C	PHE B3-014D	PHE B3-018	PHE B3-020	PHE B3-027	PHE B3-030	PHE B3-048	PHE B3-052	PHE B3-095	PHE B3-113	PHE B3-136	PHE B3-210	PHE B3-260
Cooling Capacity/Heat Load (kW) (Max)	0.5-4	0.5-5	0.5-5	0.5-5	0.5-5	2-10	2-10	5-15	3-30	30-80	10-60	30-200	60-200	60-200	150-450	150-500
Heat exchange area (m²)	(n-2) x 0.012	(n-2) x 0.014	(n-2) x 0.014	(n-2) x 0.014	(n-2) x 0.014	(n-2) x 0.018	(n-2) x 0.022	(n-2) x 0.026	(n-2) x 0.030	(n-2) x 0.048	(n-2) x 0.050	(n-2) x 0.095	(n-2) x 0.113	(n-2) x 0.136	(n-2) x 0.21	(n-2) x 0.26
Design temperature (°C)	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200	-196/+200
Standard Design pressure Q1-Q2/Q3-Q4 (bar)	10	10	10	10	10	30	10	30	30	30	30	30	30	30	30	25
High Design pressure Q1-Q2/Q3-Q4 (bar)	30	40	30	30	30	45	30	45	45	40	45	45	40	40	40	
Test pressure standard (bar)	15/45	15/60	15/45	15/45	15/45	45/67.5	15/45	45/67.5	45/67.5	45/60	45/67.5	45/67.5	45/60	45/60	45/60	37,5
Distribution									Q	Q	Q	Q	Q		Q	
Dual circuit										D			D		D	
Channel pattern	H	H,L,M	H	H	H	H	H,L,M	H,L,M	H	H	H,L,M	H,L,M	H	H	H	H
Max. number of plates	50	60	50	50	50	60	60	150	150	118	150	250	198	200	250	250
Height/Width (mm) 1)	186/72	207/77	193/83	193/83	208/79	228/90	314/72	311/111	325/95	390/195	527/111	617/192	490/250	490/250	739/322	798/363
Weight (kg), empty (n=number of plates)	0.6+0.044 x n	0.7+0.06 x n	0.4+0.06 x n	0.4+0.06 x n	0.7+0.06 x n	1+0.06 x n	1.1+0.09 x n	1.2+0.13 x n	1+0.09 x n	1.8+0.23 x n	1.8+0.23 x n	4.6+0.41 x n	6.5+0.38 x n	6.5+0.38 x n	13+0.8 x n	13.5+0.97 x n
Max. size of welded connection 2)	7/8"	7/8"	7/8"	7/8"	7/8"	1"	7/8"	1 3/8"	1 3/8"	1 5/8"	1 5/8"	2 1/8"	2 5/8"	3"	3 1/8"	4"
Max. size of thread connection 2)	3/4"	3/4"	3/4"	3/4"	3/4"	1"	3/4"	1 1/4"	1 1/4"	1 1/2"	1 1/4"	2"	2 1/2"	3"	3 1/8" clamp	4" clamp
Standard plate material 3)	AISI 304	AISI 304	AISI 304	AISI 304	AISI 316L	AISI 304	AISI 304	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L
Brazing material	Copper or Nickel	Copper or Nickel	Copper	Copper	Copper	Copper	Copper or Nickel	Copper or Nickel	Copper	Copper	Copper or Nickel	Copper or Nickel	Copper	Copper	Copper	Copper

1) Look for all dimesions and drawings in data sheet
2) Find various thread and welded connections in the table
3) SMO 254 or AISI 316L Steel plates on demand

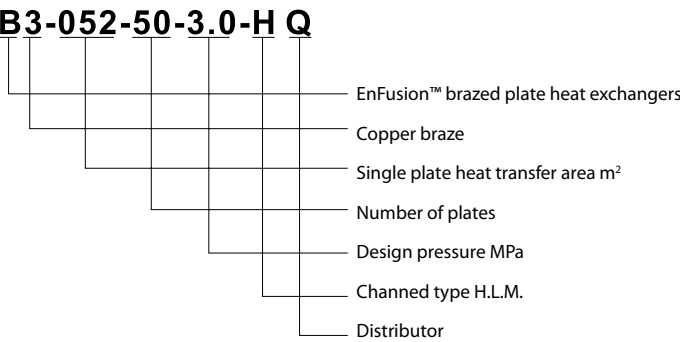
Heat Exchanger plates and channels

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

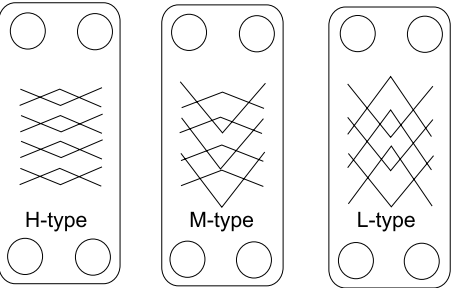
The H type plate has obtuse angles that result in higher heat transfer efficiency by increasing the turbulence of the fluid.
The L type plate has acute angles. This reduces the pressure drop and reduces the turbulence and lowers heat transfer efficiency.

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

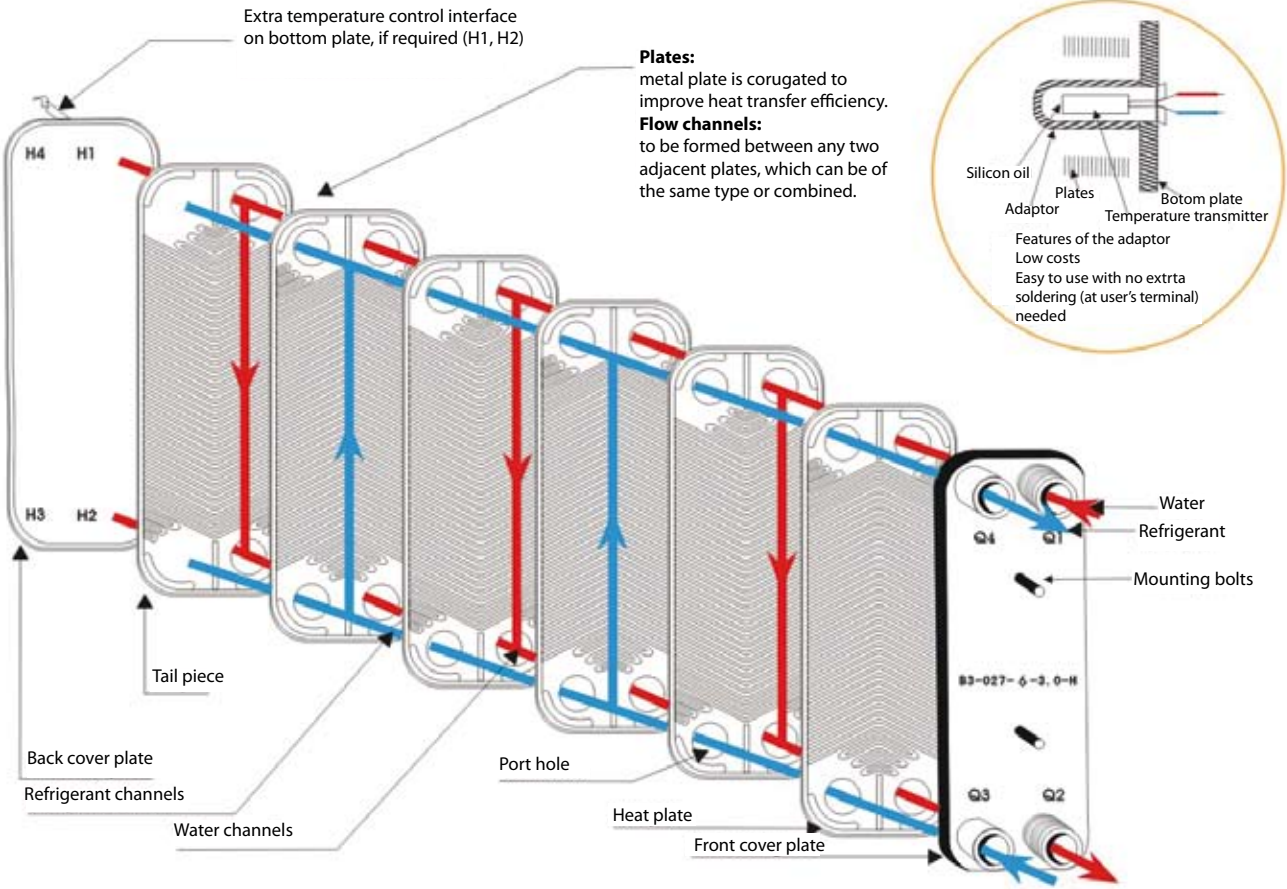
Expression of Type of PHE



Channel Type H-L-M



Structure of PHE



Connections data

Type	Factory code	Inside diameter		outside diameter mm	Length mm	Connection	Thread	Refrigeration	Water	B3 - 012 B3 - 014 B3 - 014B B3 - 014C B3 - 014D B3 - 018 B3 - 020	B3 - 030	B3 - 048	B3 - 027 B3 - 052	B3 - 095	B3 - 113	B3 - 136	B3 - 210	B3 - 260
		in	mm															
H 1/4	052	1/4	6,5	11	29	Welded		X			X	X	X					
H 3/8	001	3/8	9,8	14	29	Welded		X			X	X	X					
H 1/2	002	1/2	12,8	17	29	Welded		X			X	X	X					
H 5/8	003	5/8	16,2	20	29	Welded		X			X	X	X	X	X	X		
H 3/4A	058	3/4	19,2	24	29	Welded		X			X	X	X	X	X	X		
H 7/8	006	7/8	22,3	28	29	Welded		X			X	X	X	X	X	X		
H 1 1/8	059	1 1/8	28,7	33	29	Welded		X				X	X	X	X	X		
H 3/2A	056	x	32	37	29	Welded		X				X	X	X	X	X		
H 1 3/8A	012	1 3/8	35,3	40	29	Welded		X				X	X	X	X	X		
H 1 5/8	016	1 5/8	41,5	47	29	Welded		X				X		X	X	X		
H 1 5/8A	017	1 5/8	42,1	47	29	Welded		X				X		X	X	X		
H 2 1/8A	072	2 1/8	54,1	60	40	Welded		X					X	X	X			
H 3/8A	063	3/4	9,8	14	25	Welded			X	X								
H 1/2D	078	1/2	12,8	17	25	Welded			X	X								
H 5/8A	085	5/8	16,2	20	25	Welded			X	X								
H 3/4B	101	3/4	19,2	24	20	Welded			X	X								
H 1 5/8D	194	1 5/8	42,1	47	40	Welded											X	X
H 2 1/8C	195	2 1/8	54,1	60	40	Welded											X	X
H 2 1/8D	187	2 1/8	54,1	60	40	Welded											X	X
H 2 5/8B	190	2 5/8	67	73	52	Welded											X	X
H 2 3/4B	196	2 3/4	70	78	52	Welded											X	X
H 1 3/8E	193	1 3/8	35,3	40	40	Welded											X	X
H 1/4A	086	1/4	6,5	11	25	Welded		X		X								
N 1/2C	035	R 1/2	x	27	29		Internal		X		X	X	X	X	X	X	X	X
N 3/4C	043	R 3/4	x	30	29		Internal		X		X	X	X	X	X	X		
N 1B	109	R 1	x	40	29		Internal		X			X	X	X	X	X		
N 1/2	025	G 1/2	x	27	29		Internal		X		X	X	X	X	X	X	X	X
N 3/4	028	G 3/4	x	33	29		Internal		X		X	X	X	X	X	X		
N 1	029	G 1	x	40	29		Internal		X			X	X	X	X	X		
N 3/4A	041	NPT 3/4	x	30	29	NPT thread	Internal		X		X	X	X	X	X	X		
N 1C	124	NPT 1	x	40	29	NPT thread	Internal		X			X	X	X	X	X		
L 1/2D	084	x	15,5	R 1/2	17		External		X	X								
L 3/4I	093	x	20	R 3/4	15		External		X	X								
L 1/2C	073	x	15,5	G 1/2	17		External		X	X								
L 3/4F	074	x	20	G 3/4	15		External		X	X								
L 1/2E	090	x	13	NPT 1/2	20	NPT thread	External		X	X								
L 3/4H	089	x	16	NPT 3/4	20	NPT thread	External		X	X								
N 1/2F	184	G 1/2	x	27	25		Internal		X	X								
L 3/4B	030	x	16	R 3/4	29		External		X		X	X	X	X	X	X		
L 1A	031	x	23	R 1	29		External		X		X	X	X	X	X	X		
L 1 1/4C	033	x	30	R 1 1/4	29		External		X			X	X	X	X	X		
L 1 1/2A	034	x	36	R 1 1/2	29		External		X			X		X	X	X		
L 2	071	x	49	R 2	48		External		X					X	X	X		
L 3/4	019	x	16	G 3/4	29		External		X		X	X	X	X	X	X		
L 1	021	x	23	G 1	29		External		X		X	X	X	X	X	X		
L 1 1/4A	023	x	30	G 1 1/4	29		External		X			X	X	X	X	X		
L 1 1/2	024	x	36	G 1 1/2	29		External		X			X		X	X	X		
L 2A	079	x	49	G 2	48		External		X					X	X	X		
L 3/4C	037	x	16	NPT 3/4	29	NPT thread	External		X		X	X	X	X	X	X		
L 1 1/4F	137	x	30	NPT 1 1/4	29	NPT thread	External		X			X	X	X	X	X		
L 1B	038	x	23	NPT 1	29	NPT thread	External		X		X	X	X	X	X	X		
L 1 1/2B	039	x	36	NPT 1 1/2	29	NPT thread	External		X			X		X	X	X		
L 2B	099	x	49	NPT 2	48	NPT thread	External		X					X	X	X		
NNPT 1/4	108	NPT 1/4		20	29	NPT thread	Internal		X		X	X	X	X	X	X	X	X
L 3C	192	x	78	G 3	52		External		X							X	X	X
L 3D	199	x	78	NPT 3	52	NPT thread	External		X							X	X	X
L 3E	200	x	78	R 3	52		External		X							X	X	X
H 3 1/8D	189	3 1/8	78	89	52	Clamp	External		X								X	X
H 4	134	4	102	112	52	Clamp	External		X									X

NPT: National Pipe Thread

R: DIN standard, thread seal

G / BSP: DIN standard (ISO228/1), surface seal

Introduction

B3-012 EnFusion™ brazed plate heat exchanger PHE 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: 0.5 - 4 kW.





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
- 30 bar design pressure

Product Options

-  Adapter/Temperature Monitoring
-  Nickel Brazed

Material Specification

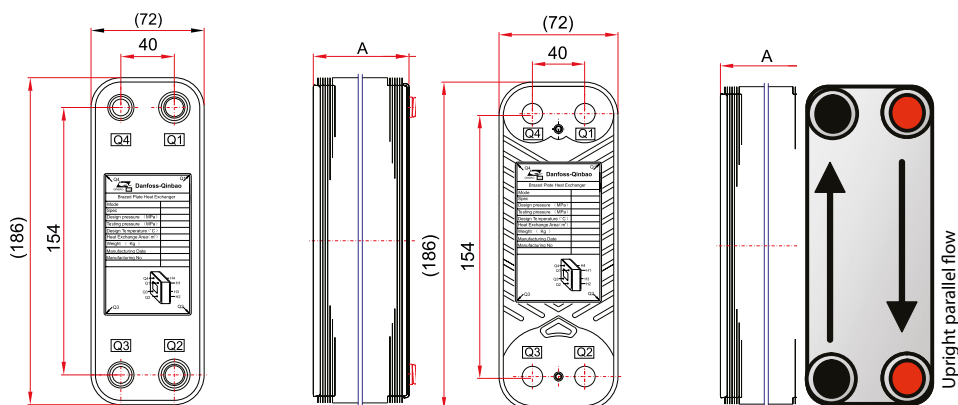
The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front / back cover plate

Corrugated front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m²)
n	7 + 2.3n	0.6 + 0.044n	0.018 x n/2 0.018 x (n-2)/2	(n - 2) 0.012

Technical Data

Design pressure	10 bar (A type)	Design temperature	-196 ~ + 200°C
	30 bar (B type)	Plate type	H
Testing pressure	15 bar (A type)	Heat load	~4 kW
	45 bar (B type)	Number of max plates	50

Introduction

B3-014 EnFusion™ brazed plate heat exchanger PHE 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: 0.5 - 5 kW.

Features

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

Approvals

- CE0035 certificate according (PED) 97/23/EC
- UL
- ISO 9000 1: 2000
- 30 bar design pressure
- 40 bar design pressure



Product Options

- A** Adapter/Temperature Monitoring
- HP** High Pressure
- Ni** Nickel Brazed

- BB** Back to Back
- AD** Air Drier

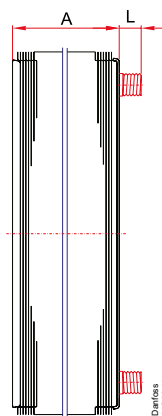
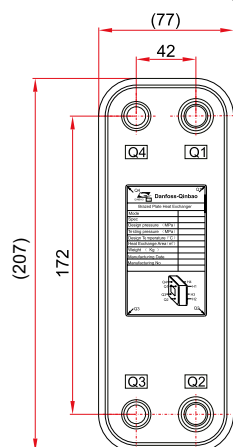
Material Specification

The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

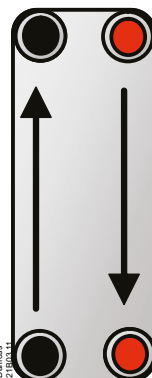
SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front / back cover plate



Corrugated front / back cover plate



Upright parallel flow

Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	7 + 2.3n	0.7 + 0.06n	0.02 x n/2 0.02 x (n-2)/2	(n - 2) 0.014

Technical Data

Design pressure	10 bar (A type)	Design temperature	-196 ~ + 200°C
	40 bar (B type)		
Testing pressure	15 bar (A type)	Plate type	H, L, M
	60 bar (B type)	Heat load	~5 kW
		Number of max plates	60

Introduction

B3-014B EnFusion™ brazed plate heat exchanger PHE 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: 0.5 - 5 kW.

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
- 30 bar design pressure
- 40 bar design pressure

Product Options

A Adapter/Temperature Monitoring

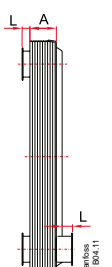
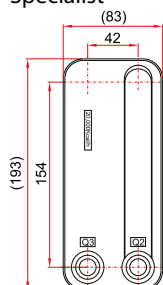
Material Specification

The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

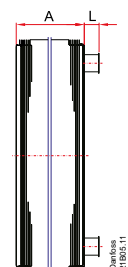
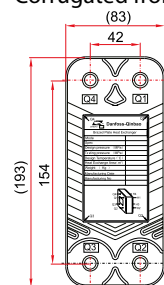
SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

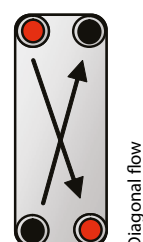
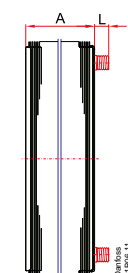
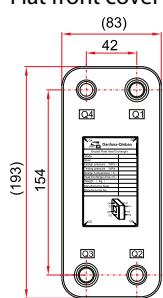
Specialist



Corrugated front cover plate



Flat front cover plate



Diagonal flow

Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m²)
n	7 + 2.3n	0.4 + 0.06n	0.022 x n/2 0.02 x (n-2)/2	(n - 2) 0.014

Technical Data

Design pressure	10 bar (A type)	Design temperature	-196 ~ + 200°C
	30 bar (B type)	Plate type	H
Testing pressure	15 bar (A type)	Heat load	~5 kW
	45 bar (B type)	Number of max plates	50



Introduction

B3-014C EnFusion™ brazed plate heat exchanger PHE 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: 0.5 - 5 kW.

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
- 30 bar design pressure
- 40 bar design pressure

Product Options

 Adapter/Temperature Monitoring

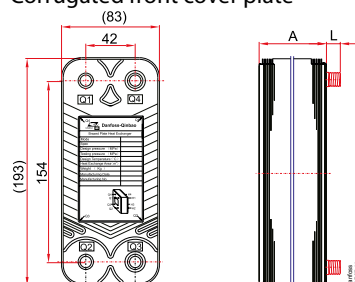
Material Specification

The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

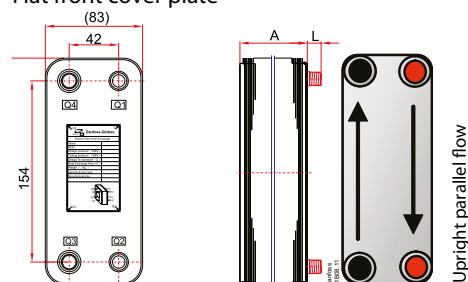
SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Corrugated front cover plate



Flat front cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m²)
n	7 + 2.3n	0.4 + 0.06n	0.022 x n/2 0.022 x (n-2)/2	(n - 2) 0.014

Technical Data

Design pressure	10 bar (A type)	Design temperature	-196 ~ + 200°C
	30 bar (B type)	Plate type	H
Testing pressure	15 bar (A type)	Heat load	~5 kW
	45 bar (B type)	Number of max plates	50

Introduction

B3-014D EnFusion™ brazed plate heat exchanger PHE 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: 0.5 - 5 kW

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
- 30 bar design pressure
- 40 bar design pressure

Product Options

 Adapter/Temperature Monitoring

Material Specification

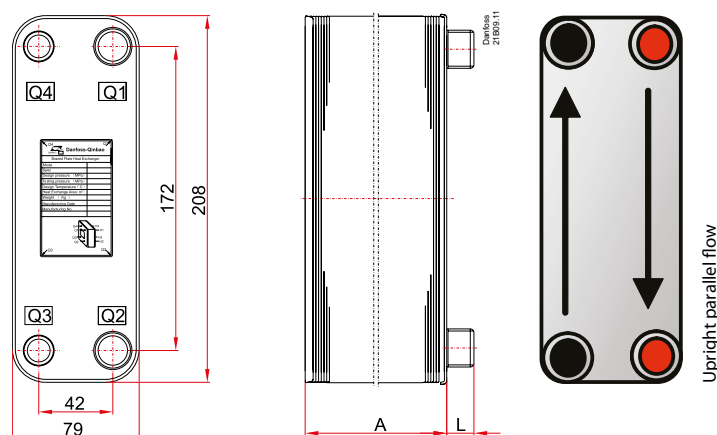
The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate

Corrugated front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	7 + 2.3n	0.7 + 0.06n	0.02 x n/2 0.02 x (n-2)/2	(n - 2) 0.014

Technical Data

Design pressure	10 bar (A type)	Design temperature	-196 ~ + 200°C
	30 bar (B type)	Plate type	H
Testing pressure	15 bar (A type)	Heat load	~5 kW
	45 bar (B type)	Number of max plates	50

Introduction

B3-018 EnFusion™ brazed plate heat exchanger PHE 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.



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

A Adapter/Temperature Monitoring

Material Specification

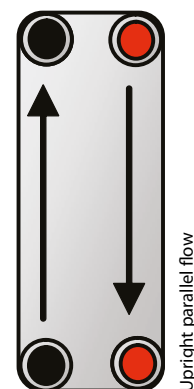
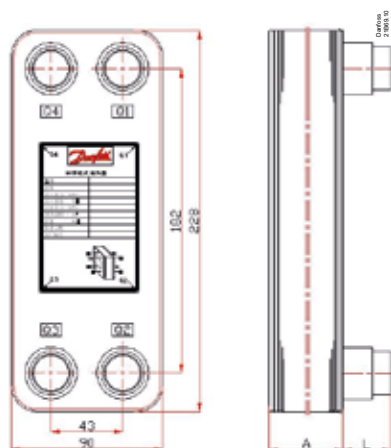
The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate

Corrugated front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	9 + 2.3n	1 + 0.06n	0.028 × n/2 0.028 × (n-2)/2	(n-2) × 0.018

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	45 bar (B type)	Plate type	H
Testing pressure	45 bar (A type)	Heat load	2 ~ 10 kW
	67.5 bar (B type)	Number of max plates	60

Introduction

B3-020 EnFusion™ brazed plate heat exchanger PHE 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: 2 - 10 kW

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
- 30 bar design pressure
- 40 bar design pressure

Product Options

 Adapter/Temperature Monitoring

 Back to Back

 Nickel Brazed

Material Specification

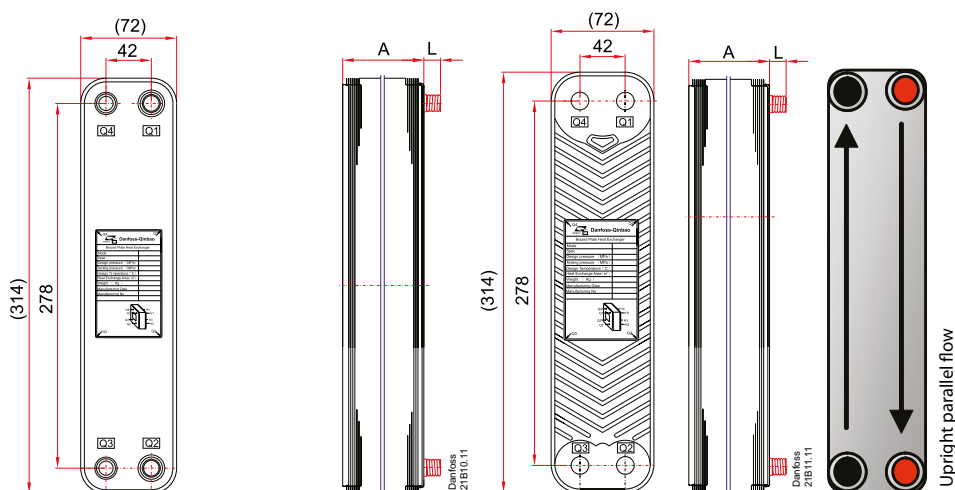
The standard plate material is stainless steel AISI 304. For other material (AISI 316L,

SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front / Back cover plate

Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	7 + 2.3n	1.1 + 0.09n	0.04 x n/2 0.04 x (n-2)/2	(n - 2) 0.022

Technical Data

Design pressure	10 bar (A type)	Design temperature	-196 ~ + 200°C
	30 bar (B type)	Plate type	H, L, M
Testing pressure	15 bar (A type)	Heat load	2-10 kW
	45 bar (B type)	Number of max plates	60

Introduction

B3-027 EnFusion™ brazed plate heat exchanger PHE 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: 5 - 15 kW.

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
- 30 bar design pressure



Product Options

- A** Adapter/Temperature Monitoring
- HP** High Pressure
- Ni** Nickel Brazed

- BB** Back to Back
- AD** Air Drier

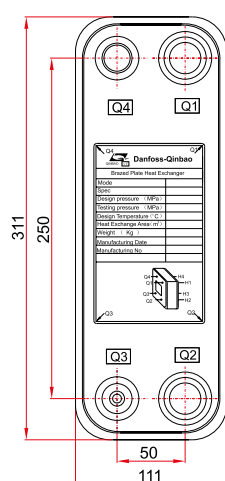
Material Specification

The standard plate material is stainless steel AISI 316.

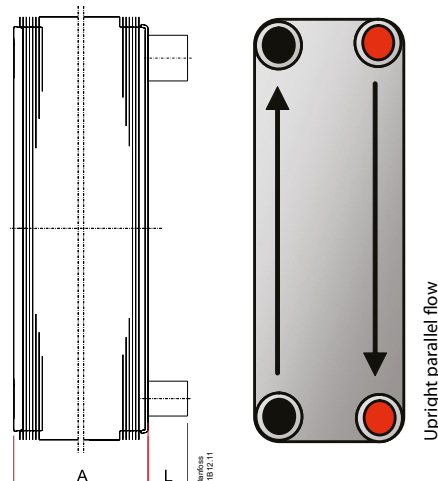
For other material (SMO 254, Titanium) please contact local Your sales organization.

Dimensional Data

Flat front cover plate



Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m²)
n	9 + 2.4n	1.2 + 0.13n	0.05 x n/2 0.05 x (n-2)/2	(n - 2) 0.026

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	45 bar (B type)		
Testing pressure	45 bar (A type)	Plate type	H, L, M
	67,5 bar (B type)	Heat load	5-15 kW
		Number of max plates	150

Introduction

B3-030 EnFusion™ brazed plate heat exchanger PHE 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: 3 - 30 kW.

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
- 30 bar design pressure



Product Options

Q Distributor

A Adapter/Temperature

HP High Pressure

BB Back to Back

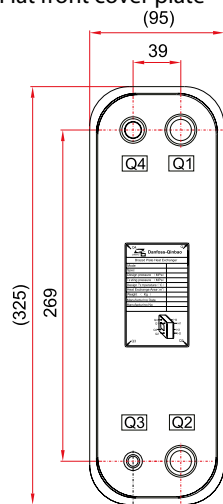
Material specification

The standard plate material is stainless steel AISI 316L.

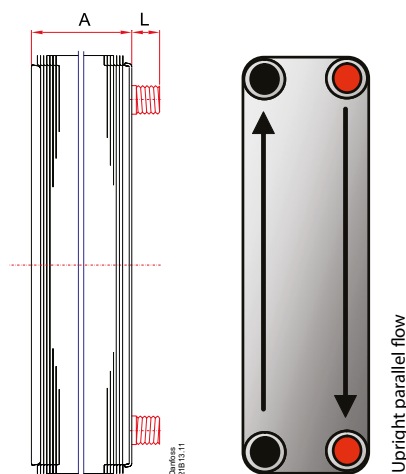
For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate



Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	9 + 1.5n	1 + 0.09n	0.028 x n/2 0.028 X (n-2)/2	(n - 2) 0.030

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	45 bar (B type)	Plate type	H
Testing pressure	45 bar (A type)	Heat load	3-30 kW
	67,5 bar (B type)	Number of max plates	150

Introduction

The complete range of EnFusion™ brazed plate heat exchangers PHE 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. PHE 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: 30 – 80 kW.




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
- 30 bar design pressure
- 45 bar design pressure

Product Options

-  Distributor
  High Pressure
-  Adapter/Temperature
  Dual Circuit

Material Specification

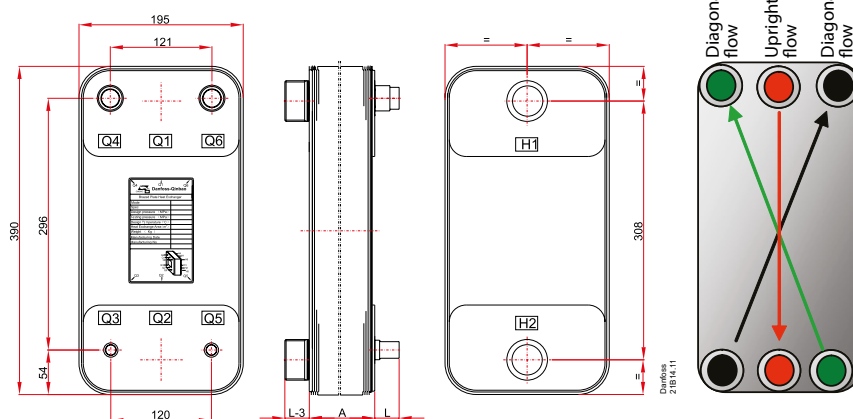
The standard plate material is stainless steel AISI 316L.

For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate

Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	10 + 2.0n	1.8 + 0.23n	$\frac{0.028 \times n/2}{0.028 \times (n-2)/2}$	(n - 2) 0.048

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	40 bar (B type)	Plate type	H
Testing pressure	45 bar (A type)	Heat load	30-80 kW
	60 bar (B type)	Number of max plates	118

Introduction

B3-052 EnFusion™ brazed plate heat exchanger PHE 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: 10 - 60 kW.

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
- 30 bar design pressure
- 50 bar design pressure



Product Options

- Q Distributor
- Ni Nickel Brazed
- A Adapter / Temperature
- BB Back to Back
- HP High Pressure

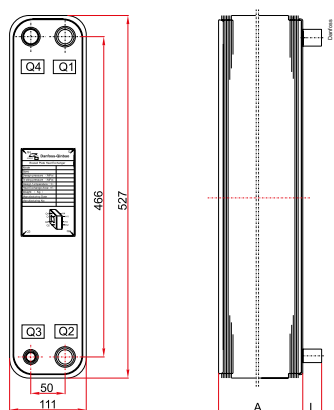
Material Specification

The standard plate material is stainless steel AISI 316.

For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate



Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4 side	Heat transfer area (m²)
n	9 + 2.4n	1.8 + 0.23n	0.094 x n/2 0.094 x (n-2)/2	(n - 2) 0.050

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	45 bar (B type)	Plate type	H, L, M
Testing pressure	45 bar (A type)	Heat load	10-60 kW
	67,5 bar (B type)	Number of max plates	150

Introduction

B3-095 EnFusion™ brazed plate heat exchanger PHE 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: 30 - 200 kW.

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
- 30 bar design pressure
- 45 bar design pressure



Product Options

Q Distributor

A Adapter / Temperature

HP High Pressure

Ni Nickel Brazed

BB Back to Back

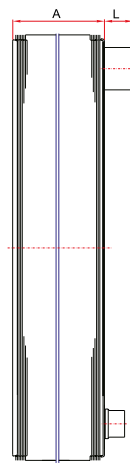
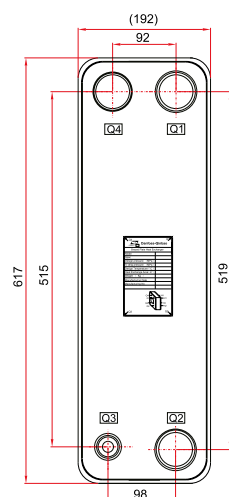
Material Specification

The standard plate material is stainless steel AISI 316.

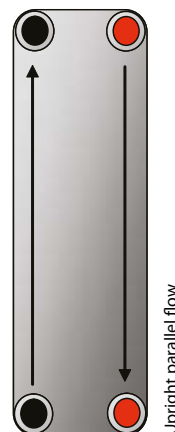
For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate



Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m²)
n	10 + 2.4n	4.6 + 0.41n	0.25 x n/2 0.25x (n-2)/2	(n - 2) 0.095

Technical Data

Design pressure	30 bar (A type)
	45 bar (B type)
Testing pressure	45 bar (A type)
	67,5 bar (B type)

Design temperature	-196 ~ + 200°C
Plate type	H, L, M
Heat load	30-200 kW
Number of max plates	250

Introduction

B3-113 EnFusion™ brazed plate heat exchanger PHE 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: 60 - 200 kW.

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
- 30 bar design pressure
- 45 bar design pressure



Product Options



Distributor



Adapter / Temperature



High Pressure



Dual Circuit

Material Specification

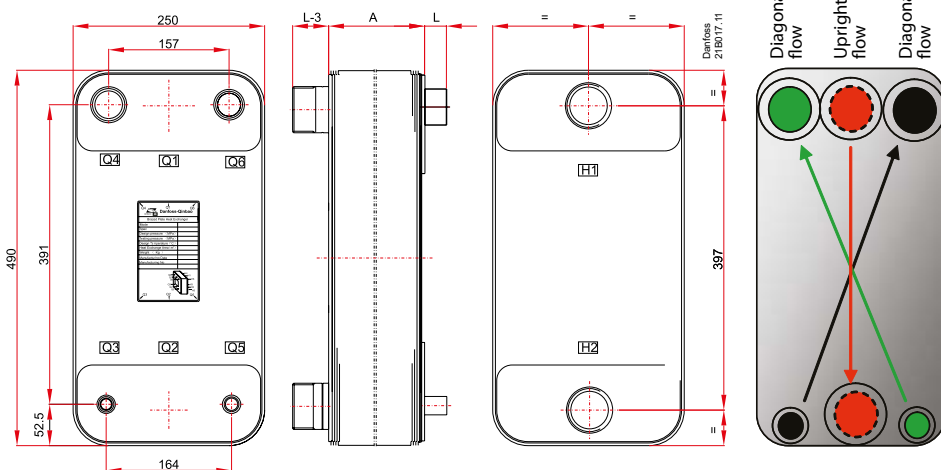
The standard plate material is stainless steel AISI 316.

For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate

Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	10 + 2.3n	6.5 + 0.38n	0.16 x n/2 0.16x (n-2)/4	(n - 2) 0.113

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	40 bar (B type)	Plate type	H
Testing pressure	45 bar (A type)	Heat load	60-200 kW
	60 bar (B type)	Number of max plates	200

Introduction

B3-136 EnFusion™ brazed plate heat exchanger PHE 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: 60 – 200 kW.



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

A Adapter / Temperature

BB Back to Back

HP High Pressure

AD Air drier

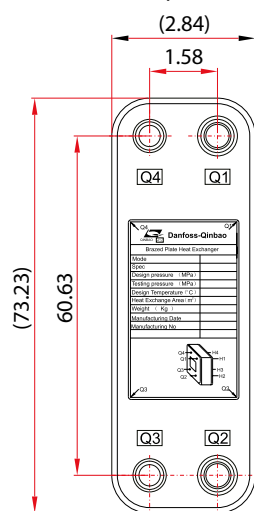
Material Specification

The standard plate material is stainless steel AISI 316.

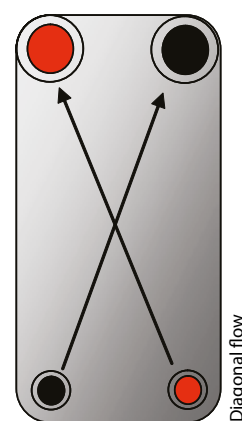
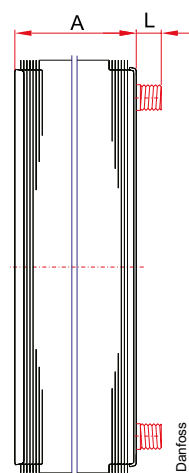
For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate



Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m²)
n	10 + 2.85n	6.5 + 0.38n	0.194 x n/2 0.194x (n-2)/2	(n - 2) 0.136

Technical Data

Design pressure	30 bar (A type)
	40 bar (B type)
Testing pressure	45 bar (A type)
	60 bar (B type)

Design temperature	-196 ~ + 200°C
Plate type	H
Heat load	60-200 kW
Number of max plates	200

Introduction

B3-210 EnFusion™ brazed plate heat exchanger PHE 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: 150 - 450 kW.

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

Q Distributor

A Adapter / Temperature

HP High Pressure

DC Dual Circuit

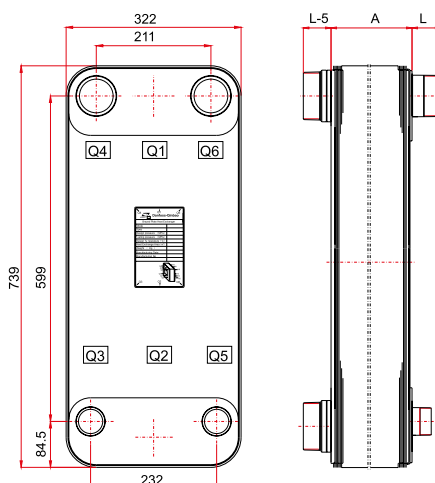
Material Specification

The standard plate material is stainless steel AISI 316.

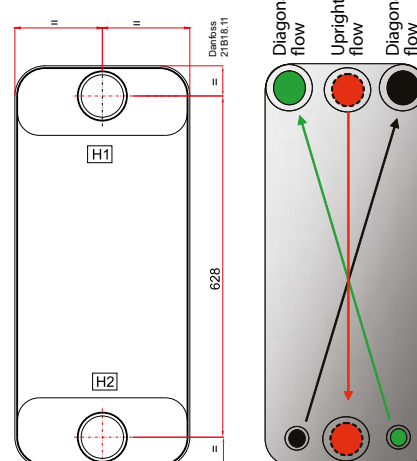
For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate



Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	13 + 2.8n	13 + 0.8n	0.4 x n/2 0.4x (n-2)/4	(n - 2) 0.210

Technical Data

Design pressure	30 bar (A type)	Design temperature	-196 ~ + 200°C
	40 bar (B type)	Plate type	H
Testing pressure	45 bar (A type)	Heat load	150-450 kW
	60 bar (B type)	Number of max plates	250

Introduction

B3-260 EnFusion™ brazed plate heat exchanger PHE 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: 150 - 500 kW

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

A Adapter / Temperature

Material Specification

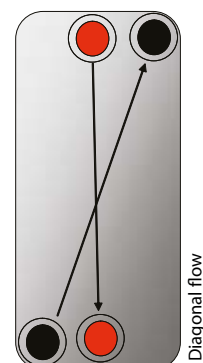
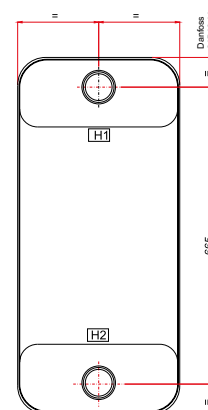
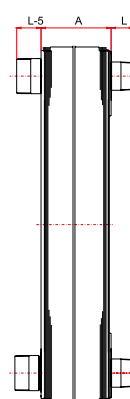
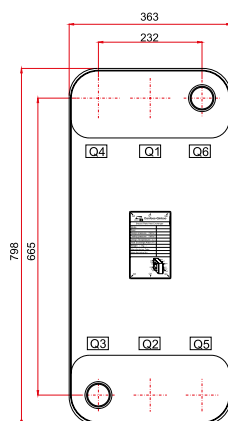
The standard plate material is stainless steel AISI 316.

For other material (SMO 254, Titanium) please contact your local sales organization.

Dimensional Data

Flat front cover plate

Flat front / back cover plate



Number of plates	A (mm)	Weight (kg)	Channel volume (L) Q1 Q2 side/ Q3 Q4side	Heat transfer area (m ²)
n	13 + 2.8n	13.5 + 0.97n	0.6 x n/2 0.6x (n-2)/2	(n - 2) 0.260

Technical Data

Design pressure	25 bar (A type)
Testing pressure	37.5 bar (A type)

Design temperature	-196 ~ + 200°C
Plate type	H
Heat load	150-500 kW
Number of max plates	250

Notes

Product Options



Distributor

Optimized PHE 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" PHE are design to withstand up to 45 bar 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 PHE 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. PHE 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*



*Electronic Controls &
Sensors*



Industrial Automation



Household Compressors



Commercial Compressors



Sub-Assemblies



Thermostats



*Brazen plate
heat exchanger*

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