



Alfa Laval M10-BW

Gasketed plate-and-frame heat exchanger

Applications

Heating and cooling of aggressive media. Duties in refrigeration installations.

Standard design

The plate heat exchanger consists of a pack of corrugated metal plates with portholes for the passage of the two fluids between which heat transfer will take place.

The plate pack is assembled between a fix frame plate and a movable pressure plate and compressed by tightening bolts. The semi-welded plates combine the flexibility and serviceability of the gasketed heat exchangers with the assurance against leakage of the welded heat exchangers. In the plate arrangement, every other channel is welded, and every other channel is gasketed. The number of plates is determined by the flow rate, physical properties of the fluids, pressure drop and temperature program. The plate corrugations promote fluid turbulence and support the plates against differential pressure.

The semi-welded plate heat exchanger is provided with gaskets specifically designed to resist aggressive media. The non-aggressive media flows in the gasketed channels. This construction means that it can easily be dismantled, for example for exchanging gaskets or for inspection and cleaning of the gasketed channels.

Corrosion-resistant plate materials, the absence of pressure retaining welds, double gasket seals, and a flexible yet vibration resistant design - to assure long life and trouble free operation.

The frame plate and the pressure plate are suspended from an upper carrying bar and located by a lower guiding bar, both of which are fixed to a support column. Connections are located in the frame plate or, if either or both fluids make more than a single pass within the unit, in the frame and pressure plates.

Typical capacities

Liquid flow rate

Up to 50 kg/s (800 gpm), depending on media, permitted pressure drop and temperature program.

Refrigeration duties

50-250 RT / 175-875 kW

Plate types

M10-BW

Frame types

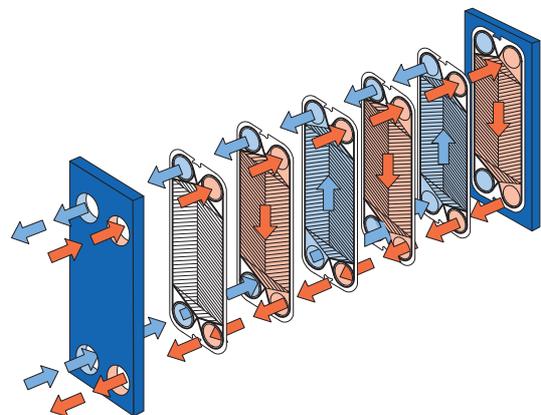
FG, FD, FT, REF and FX



M10-BW

Working principle

Channels are formed between the plates and the corner ports are arranged so that the two media flow through alternate channels. The heat is transferred through the plate between the channels, and complete counter-current flow is created for highest possible efficiency. The corrugation of the plates provides the passage between the plates, supports each plate against the adjacent one and enhances the turbulence, resulting in efficient heat transfer.



Flow principle of a plate heat exchanger

STANDARD MATERIALS

Frame plate

Mild steel, Epoxy painted

Nozzles

Metal lined: Stainless steel, Titanium, SMO, Alloy C276

Plates

Stainless steel: Alloy 304, Alloy 316, Titanium, Alloy 254 (SMO), Alloy C276

Gaskets

Field gaskets: Nitrile, EPDM, Chloroprene, Viton®, FEPMAL

Ring gaskets: Nitrile, EPDM, Chloroprene, Viton®, FEPMAL

Other grades and material available on request.

For refrigeration: Gasket design temperature range -45°C to 150°C

TECHNICAL DATA

Pressure vessel codes, PED, ASME, pvcALS™

Mechanical design pressure (g) / temperature

FG	pvcALS™	1.6 MPa / -50 to 180°C
FG	PED	1.6 MPa / -10 to 180°C
FG	ASME	150 psig / -54°F to 482°F
FD	pvcALS™	2.5 MPa / -50 to 180°C
FD	PED	2.5 MPa / -50 to 180°C
FD	ASME	300 psig / -54°F to 482°F
FDR	PED	2.5 MPa / -50 to 160°C
FT	PED	4.0 MPa / -50 to 180°C
FT	ASME	600 psig / -54°F to 482°F
REF	PED	2.5 MPa / -50 to 150°C
FX	PED	5.5 MPa / -50 to 150°C

Connections

Size: DN100 / NPS 4 / 100A

FG	pvcALS™	En1092-1 PN16, ASME B16.5 Class 150, JIS B2220 16K
FG	PED	DIN PN 16, ASME Cl. 150
FG	ASME	ASME Cl. 150
FD	pvcALS™	DIN PN25, ASME Cl. 150, JIS 20K
FD	PED	DIN PN25, ASME Cl. 150
FD	ASME	ASME Cl. 300
FT	PED	DIN PN40, ASME Cl. 300
FT	ASME	RLF
REF	PED	DIN PN25
FX	PED	DIN PN 16, PN25, PN63

Standard EN 1092-1 corresponds to GOST 12815-80 and GB/T 9115.

RLF in pressure plate: M10-FG, M10-FD, M10-FT/PED, M10-FX/PED

RLF = Rectangular loose flange

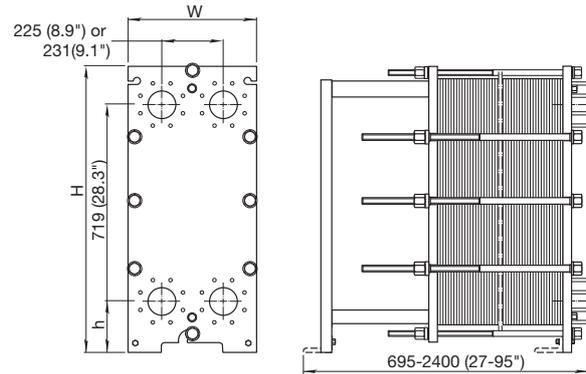
Maximum heat transfer surface

100m² (825 sq. ft)

Particulars required for quotation

- Flow rates or heat load
- Temperature program
- Physical properties of liquids in question (if not water)
- Desired working pressure
- Maximum permitted pressure drop
- Available steam pressure

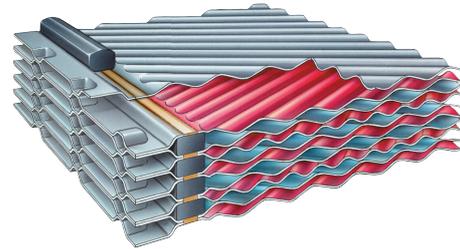
Dimensions



Measurements mm (inch)

Type	H	W	h
M10-FG	1084 (42.7")	470 (18.5")	215 (8.5")
M10-FD	981 (38.6")	470 (18.5")	131 (5.2")
M10-FD ASME	1084 (42.7")	470 (18.5")	215 (8.5")
M10-REF	1110 (43.7")	470 (18.5")	163 (6.4")
M10-FT	1084 (42.7")	470 (18.5")	215 (8.5")
M10-FX	1133 (44.6")	470 (18.5")	215 (8.5")

The number of tightening bolts may vary depending on pressure rating.



Cross section of a semi-welded plate heat exchanger

How to contact Alfa Laval

Up-to-date AlfaLaval contact details for all countries are always available on our website on www.alfalaval.com



MK15-BW

Semi-welded plate heat exchanger

Applications

Heating and cooling of aggressive media. Duties in refrigeration installations.

Standard design

The plate heat exchanger consists of a pack of corrugated metal plates with portholes for the passage of the two fluids between which heat transfer will take place.

The plate pack is assembled between a fix frame plate and a movable pressure plate and compressed by tightening bolts. The semi-welded plates combine the flexibility and serviceability of the gasketed heat exchangers with the assurance against leakage of the welded heat exchangers. In the plate arrangement, every other channel is welded, and every other channel is gasketed. The number of plates is determined by the flow rate, physical properties of the fluids, pressure drop and temperature program. The plate corrugations promote fluid turbulence and support the plates against differential pressure.

The semi-welded plate heat exchanger is provided with gaskets specifically designed to resist aggressive media. The non-aggressive media flows in the gasketed channels. This construction means that it can easily be dismantled, for example for exchanging gaskets or for inspection and cleaning of the gasketed channels.

Corrosion-resistant plate materials, the absence of pressure retaining welds, double gasket seals, and a flexible yet vibration resistant design - to assure long life and trouble free operation.

The frame plate and the pressure plate are suspended from an upper carrying bar and located by a lower guiding bar, both of which are fixed to a support column. Connections are located in the frame plate or, if either or both fluids make more than a single pass within the unit, in the frame and pressure plates.

Typical capacities

Liquid flow rate

Up to 80 kg/s (1300 gpm), depending on media, permitted pressure drop and temperature program.

Refrigeration

100-450 RT/350-1575 kW

Plate types

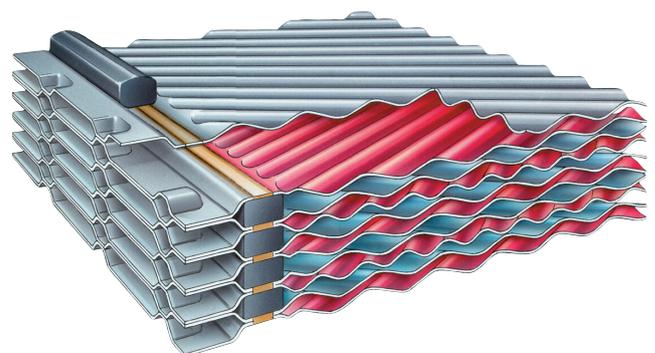
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Frame types

FG, FD and FT



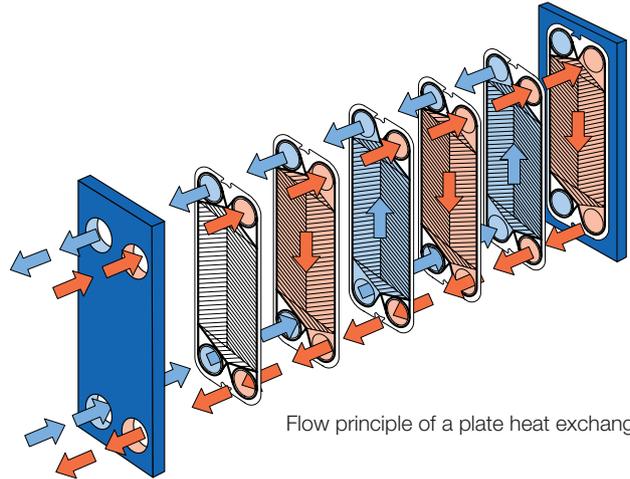
MK15-BWFG



Cross section of a semi-welded plate heat exchanger

Working principle

Channels are formed between the plates and the corner ports are arranged so that the two media flow through alternate channels. The heat is transferred through the plate between the channels, and complete counter-current flow is created for highest possible efficiency. The corrugation of the plates provides the passage between the plates, supports each plate against the adjacent one and enhances the turbulence, resulting in efficient heat transfer.



Flow principle of a plate heat exchanger

STANDARD MATERIALS

Frame plate

Mild steel, Epoxy painted

Nozzles

Carbon steel

Metal lined: Stainless steel, Alloy C-276 or Titanium

Plates

Stainless steel: Alloy 304, Alloy 316,

Titanium, Alloy 254 SMO, Alloy C-276

Gaskets

Field gaskets Nitrile, EPDM, Chloroprene

Ring gaskets Nitrile, Chloroprene, EPDM, Viton®G, FEPMAL

For refrigeration: Gasket design temperature range
-45°C to 150°C

TECHNICAL DATA

Pressure vessel codes, PED, ASME, pvcALS™

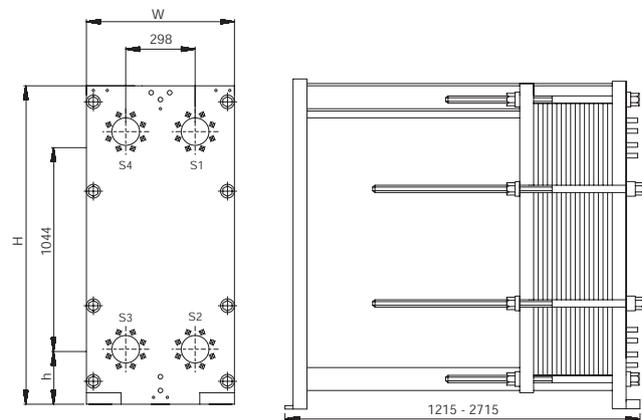
Mechanical design pressure (g) / temperature

FG	pvcALS™	1.6 MPa / -50 to 180°C
FG	PED	1.6 MPa / -50 to 180°C
FG	ASME	150 psig / -40 to 356°F
FD	pvcALS™	1.6 MPa / -50 to 180°C
FD	PED	2.5 MPa / -50 to 180°C
FD	ASME	300 psig / -40 to 356°F
FT	PED	4.0 MPa / -50 to 180°C
FT	ASME	600 psig / -54 to 356°F

CONNECTIONS

FG	pvcALS™	Size 150 mm	DIN PN16, ASME Cl. 150, JIS 16K
FG	PED	Size 150 mm	DIN PN16, DIN PN25, ASME Cl. 150
FG	ASME	Size 6"	ASME Cl. 150
FD	pvcALS™	Size 150 mm	DIN PN25, ASME Cl. 300, JIS 20K
FD	PED	Size 150 mm	DIN PN25, ASME Cl. 300
FD	ASME	Size 6"	ASME Cl. 300
FT	PED	Size 150 mm	DIN PN40, ASME Cl. 300
FT	ASME	Size 6 "	ASME Cl. 300

Dimensions



Measurements mm (inch)

Type	H	W	h
MK15-FG	1486 (58.5)	650 (25.6)	221 (8.7)
MK15-FD	1486 (58.5)	650 (25.6)	221 (8.7)
MK15-FT	1486 (58.5)	650 (25.6)	221 (8.7)

The number of tightening bolts may vary depending on pressure rating.

Maximum heat transfer surface

165 m² (1780 sq. ft)

Particulars required for quotation

- Flow rates or heat load
- Temperature program
- Physical properties of liquids in question (if not water)
- Desired working pressure
- Maximum permitted pressure drop
- Available steam pressure

How to contact Alfa Laval

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