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, AEF and FX
STANDARD MATERIALS

Frame plate
Mild steel, Epoxy painted

Nozzles
Metal inlet: 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®, FEPMLAL
Ring gaskets: Nitrile, EPDM, Chloroprene, Viton®, FEPMLAL

Other grades and material available on request.

For refrigeration: Gasket design temperature range -42°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 / -5°F to 482°F
FD pvcALS™ 2.5 MPa / -50 to 180°C
FD PED 2.5 MPa / -50 to 180°C
FD ASME 200 psig / -5°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 / -5°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
FG PED DIN PN 16, ASME Cl. 150
FG ASME ASME Cl. 150
FD pvcALS™ DIN PN25, ASME Cl. 150, JB 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 9116.
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)

<table>
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<th>Type</th>
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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
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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**
MK15-BW

**Frame types**
FG, FD and FT
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.

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, Chloropene
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

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<td>1.6 MPa / -50 to 180°C</td>
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CONNECTIONS

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<th>h (inch)</th>
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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