



Alfa Laval TK20

Gasketed plate-and-frame heat exchanger

Application

The Alfa Laval industrial semi welded line of plate heat exchangers is used for efficient heating and cooling of aggressive media, including heat recovery, condensation and evaporation in refrigeration installations.

Benefits

- Alfa Laval has global presence
- Alfa Laval has global service organization
- Part of a large portfolio of heat transfer products
- High serviceability - Possible to open the PHE for inspection and cleaning
- Compact design
- Flexible configuration - Heat transfer area can be modified
- Leakage-proof design of the welded channels with minimum gasket contact

Design

The semi-welded plate heat exchanger consists of a package of cassettes, each cassette consists of two welded corrugated metal plates with portholes for the passage of the two fluids between which heat transfer will take place. Every cassette is fitted with gaskets, which seal the channels and direct the fluids.

The number of plates is determined by the flow rates, physical properties of the fluids, pressure drops and temperature program. The plate corrugations promote fluid turbulence and support the plates against differential pressure.

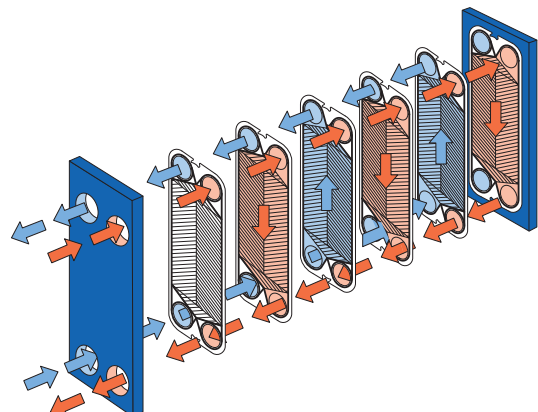
The materials of gaskets are selected for safe use depending on media type and temperature. The attachment of the gaskets is glue-free, which makes them easy to replace even with the plates still hanging in the frame.

The carrying bar and guiding bar are fixed to the stationary frame plate and the supporting column. The pressure plate and plate package is movable along the upper carrying bar and located by the lower guiding bar. Connections are located in the frame plate. Depending on the application, connections can also be located in the pressure plate.



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 plates between the channels. Complete counter-current or co-current flow, depending on the application, 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

Connections

Metal lined: Stainless steel, Titanium, and Alloy 254 (SMO)

Plates

Stainless steel, Titanium, and Alloy 254 (SMO)

Gaskets

Field gaskets: Nitrile, EPDM

Ring gaskets: Nitrile, EPDM, Chloroprene, FEP/MAL

For refrigeration: Gasket design temperature range
-45°C to +160°C (-50°F to +320°F)

Other grades and materials available upon request.

TECHNICAL DATA

Standard design pressure (g)

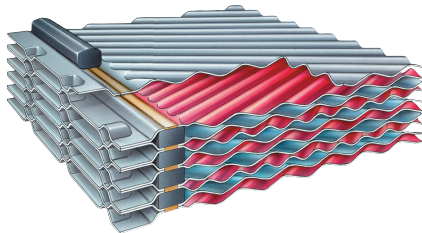
Frame type	Pressure vessel code	Design pressure
FG	pvcALS™	1.6 MPa at 50°C
FG	PED	1.6 MPa at 50°C
FD	pvcALS™	2.5 MPa at 150°C
FD	PED	2.5 MPa at 150°C
FD	ASME	300 psi at 302°F
FX	PED	6.3 MPa at 150°C
FX	ASME	900 psi at 302°F

Design temperature

Determined by gasket material.

Plate types

TK20-BW



Cross section of a semi-welded plate heat exchanger

Maximum standard heat transfer surface

260 m² (2790 sq.ft)

Extended non-standard design available on request.

Maximum standard liquid flow rates

0.2 m³/s

Connection size

DN200 / DN150 / NPS 8 / NPS 6 / 200A

Connection standard

FG pvcALS™	EN 1092-1 PN16 ¹⁾ , ASME B16.5 Class 150, JIS B2220 16K
FG PED	EN 1092-1 PN16 ¹⁾ , ASME B16.5 Class 150
FD pvcALS™	EN 1092-1 PN25 ²⁾ , ASME B16.5 Class 300 ³⁾ , JIS B2220 20K
FD PED	EN 1092-1 PN25 ²⁾ , ASME B16.5 Class 300 ³⁾
FD ASME	ASME B16.5 Class 300 ³⁾
FX PED	EN 1092-1 PN16 DN200 ⁴⁾ , EN 1092-1 PN25 DN200 ⁴⁾ , ASME B16.5 Class 150 NPS 8 ⁴⁾ , EN 1092-1 PN63 DN150 ⁵⁾ , ASME B16.5 Class 300 NPS 6 ⁵⁾
FX ASME	ASME B16.5 Class 150 NPS 8 ⁴⁾ , ASME B16.5 Class 300 NPS 6 ⁵⁾

Notes

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

1) EN 1092-1 PN10 alternative standard gasketed channel only.

2) EN 1092-1 PN16 alternative standard gasketed channel only.

3) ASME B16.5 Class 150 alternative standard gasketed channel only.

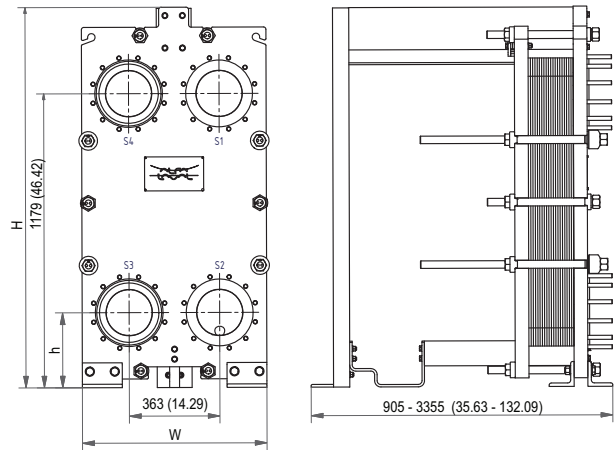
4) To be used for the gasketed channel only.

5) To be used for the welded channel only.

Particulars required for quotation

To receive a quotation for plate heat exchangers that meet your requirements, please provide Alfa Laval representatives with:

- Flow rates or heat load
- Temperature program
- Physical properties of liquids in question (if not water)
- Design pressure and design temperature
- Maximum permitted pressure drop



Measurements mm (inch)

Type	H	W	h
TK20-FG	1525 (60.04)	740(29.13)	301 (11.85)
TK20-FD	1525 (60.04)	785 (30.91)	301 (11.85)
TK20-FX	1545 (60.04)	790 (31.10)	301 (11.85)

The number of tightening bolts may vary depending on type.

How to contact Alfa Laval

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