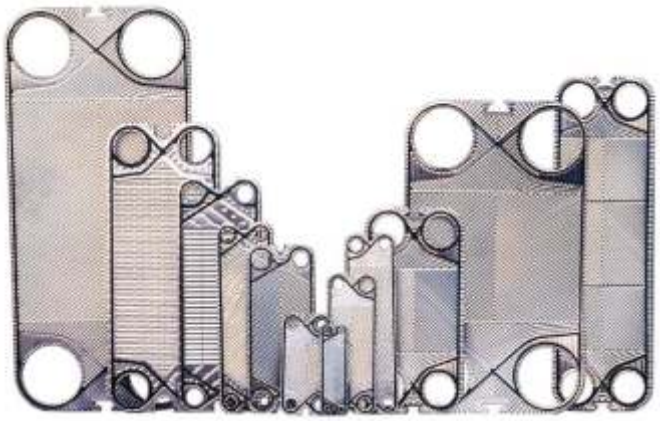
SEC Heat Exchangers

PLATE HEAT EXCHANGER

Installation Manual

Customer Name:
Serial number:
Purchase order number:
Project:



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NAME PLATE:

To assist us to reply to questions please quote your Serial Number:

PROCESS SIDE		SERVICE SIDE	
DATE BUILT		UNIT TYPE	
SERIAL NO.		SURFACE AREA	
DESIGN PRESS.		DESIGN TEMP.	
TEST PRESS.		EMPTY WEIGHT	
PLATE MAT'L.		GASKET MAT'L	

CHANNEL ARRANGEMENT X PASS NO. _____

ORIGINAL TIGHTENING DISTANCE

WORK COVER APPROVAL No.

SEC Heat Exchangers
2546 Iona Road, Belfast
PEI, Canada, C0A 1A0
Tel: 902.659.2424 - Fax: 902.659.2800
Email: info@secheatexchangers.com
http://www.secplateandframe.com/

1.0 PRINCIPLE OF THE PLATE HEAT EXCHANGER (PHE)

1.1 PRINCIPLE

The PHE is composed of corrugated thin alloy plates, which are hung between top and bottom guide bars.

The plates are compressed by bolts between fixed and movable frames, until metal to metal contact is reached and a channel is formed. The manner in which the gaskets are fitted enables alternative flow channels to be created and heat transfer to pass from one side of the plate to the other.

The alternative channels maximises the heat transfer surface in a compact manner. Therefore, it can produce the most effective performance from the compact size.

2.0 CONSTRUCTION OF THE PLATE HEAT EXCHANGER

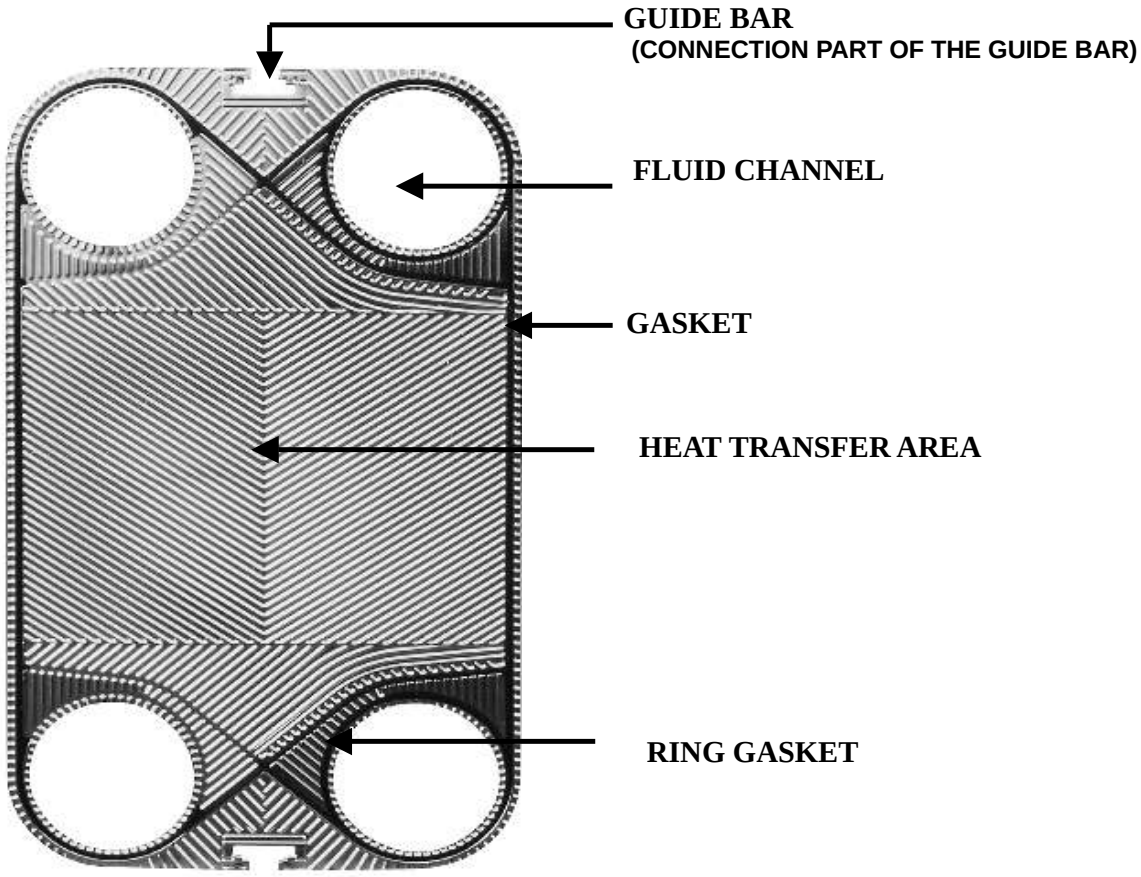


Fig. 1 PLATE
(MAIN FEATURES OF A HEAT TRANSFER PLATE)

2.1 PLATE CHARACTERISTICS

Plate thickness is normally in the range 0.6-1.0mm. Stainless steel, Titanium, Hastelloy, Copper-Nickel and Al-brass are available.
The plates are pressed to form corrugations, which increase the surface area and strength of the plates.
The plate has up to four connection holes for fluid transfer, with gaskets fitted to confine the liquids.
Gaskets are made from composed rubber and are chosen in accordance with the types of fluids to be used in the PHE. The corrugated shape on the plates maximises the heat transfer efficiency by creating high turbulence in the channels.
Centrally located cut outs on the top and bottom ends of each plate is designed to make the plate hang correctly either side to the top and bottom guide bars.

HERRINGBONE TYPE

3.0 TRANSPORTATION & INSTAL LATION OF THE P. H. E

The most desirable way to transport a PHE is either by the use of lifting lugs if supplied or connection below the top two tightening bolts.

Never lift on the connections or guide bars.

Note: On arrival of your unit check that the bolts do not require re-tightening, as they may have loosened during transport.

4.0 INSTALLATION AND MINIMUM CLEARANCE

The required minimum clearance on either side of a unit is 0.6m, to allow for removal of the plate pack.

Site requirements:

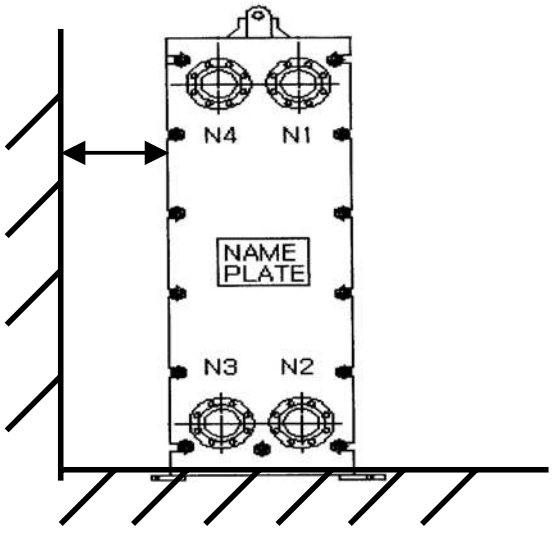
Notes:

The heat exchanger supplied has three contact points on the ground, with feet provided for bolting to the concrete base if one is provided.

The area should be level and clean of any foreign material. Failure to have a level site could result in the heat exchanger twisting and subsequently developing leakages.

It is optional to bolt the unit to the floor area and this item is site specific, depending on seismic loadings or general plant conditions.

TYPICAL P.H.E.



MINIMUM DISTANCE FROM OBSTRUCTION (600mm)

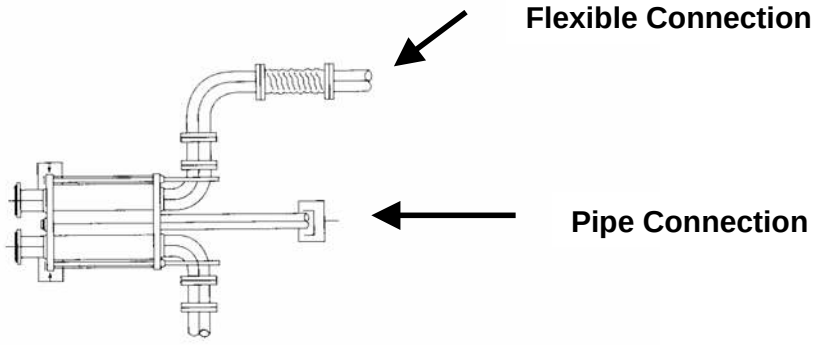
5.0 PIPING & FITTING ON MULTI PASS UNITS

Pipe work may be connected directly to the nozzles.

However an alternative is offered and this will make maintenance faster and cleaning easier.

Support the nozzle as shown below, do not place excessive weight on the pipe work at this point.

Insert a flexible pipe section to make it possible to enlarge the amount of plates if required.



Plan View

6.0 Pipe Loading

The plate heat exchanger offers a variety of port arrangements to suit customer requirements.

The alloy-clad studded port is offered as standard with elastomeric liners, and ANSI lap-joint loose flange connections offered as alternates.

The loose flange connection cannot withstand external loading, and all piping must be supported and preferably connected to the unit with flexible connections.

While it is always considered good engineering practice to support all piping, the clad and lined ports can take considerably more load as the frame takes the support rather than a nozzle.

In all port configurations, pumps should be mounted a minimum of six pipe diameters from nozzle flanges.

7.0 FLUSHING

Before first running a unit, the pipes should be flushed out and all foreign material removed e.g. (sand, welding slag etc).

Failure to do so may void the warranty and affect heat transfer rates.

8.0 GENERAL OPERATING INSTRUCTIONS

- Check the sealing of the plates.
- Check the outlet valve is opened.
- Open the inlet valve of the PHE.
- Run the pump.
- Open the pump outlet valve slowly, watching the PHE's inlet pressure meter, if fitted.
- Control the amount of liquid according to the temperature gradient.
- Start the cold side of the unit first and then the hot side.
- In the case of steam, pass the medium liquid first, then steam slowly.

9.0 Long Term Storage

When the PHE has not been in operation for an extensive period of time, make the following arrangements.

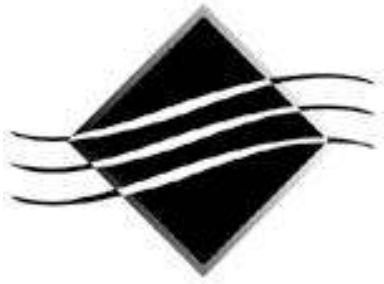
- Disassemble and clean the plates, and loosen the bolts (100 plates / 50Omm)

- If the PHE is not easily disassembled, clean the PHE with water or chemical solvent and loosen the bolts to release the liquid.

- Do not keep any unit in an unclean condition for an excessive period of time, as corrosion of the plate surface may occur.

10.0 Installation Log

UNIT NUMBER	INSTALLED BY	COMMENTS	DATE INSTALLED



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