Insulation Kit Installation cont.

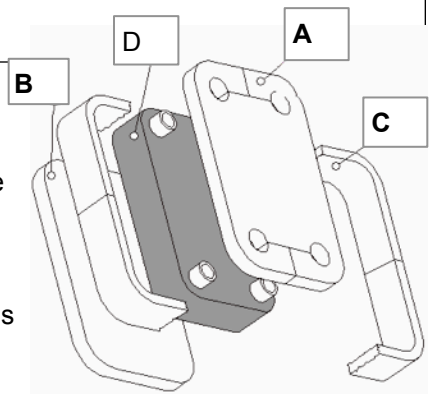


Fig.7

Remove the yellow edge film from the front panel, A, working around the heat exchanger, align the front panel with the side panel. Repeat the process with the back panel, B, by again removing the yellow edge film.

Apply the thin cover pieces over the seams located around the connections and at the place where the side panel ends meet.

Never use harsh chemicals to clean the insulation. Store insulation kits in a cool, dry place.

Cleaning & Maintenance -

Brazed plate heat exchangers are usually trouble free in operation and aside from cleaning when necessary, require no service.

Water quality must be maintained with proper water treatment. A strainer of 16-20 mesh should be installed on the water inlet and maintained. Fluids that are aggressive to the materials in the heat exchanger must be avoided.

To clean the heat exchanger, reverse flush with water or a mild organic acid solution. The flow rate for the flushing should be greater than the operating flow rate of the heat exchanger. When using a solution other than water, always use it according to the manufacturer's instructions and check that it is compatible with the materials in the heat exchanger. Flush the heat exchanger thoroughly with clean water after cleaning.

HTG brazed plate heat exchangers are manufactured with AISI 316L stainless steel and pure copper brazing.

If you have any questions about installation or application of brazed plate heat exchangers, contact the HTG Engineering Support Group at:

Heat Transfer Group, Inc.

Tel 1-631-651-2660 Fax 1-631-651-2665

HTG
Heat Transfer Group, Inc.

Brazed Plate Heat Exchanger Installation & Application Guide

Mounting Position –

The heat exchangers should be mounted so there is sufficient room around the heat exchanger to perform maintenance work.

It is recommended that the heat exchangers be mounted in the vertical position (fig. 1).

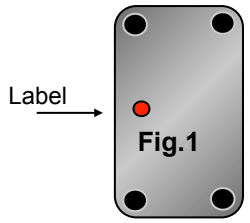
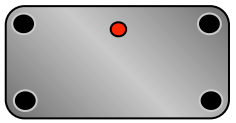


Fig.1

Where space and piping require another position, the following guidelines should be followed.



For liquid-to-liquid or **single phase applications**, the heat exchanger can be mounted in any position that does not create the possibility of trapping air or other gases in the heat exchanger (fig. 2).

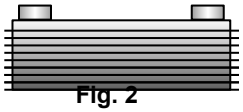


Fig. 2

If the heat exchanger must be mounted with the connections on the side, orient the heat exchanger so that the nozzles connected to the fluid that has the possibility of gas or air entrained is at the top.

Never mount the heat exchanger with the connections pointing down (fig. 3).

Fig.3

For all **two-phase applications** the heat exchanger should always be mounted vertically. If this is not possible, contact HTG, Inc for recommendation on mounting.

The connections are label Q1thru Q4 or H1 thru H4 and indicates the primary side for liquid-to-liquid applications. A blue label indicates the refrigerant side for refrigerant applications (fig 1).

Preferably the heat exchanger should be supported by a bracket or support. The unit should not be supported solely by the piping. Insure that severe vibrations or pulsations cannot be transmitted to the heat exchanger by installing vibration absorbers in the piping and using

vibration absorbing material between the heat exchanger and the equipment.

HTG has a full line of mounting brackets, as well as insulation kits, available for the brazed plate heat exchangers.

The heat exchangers may have some sharp edges so exercise caution when handling.

Piping Connections –

Connections to the heat exchanger are identified by a color label (fig 1). In most applications the highest efficiency will be realized by connecting the heat exchanger for counter-current flow. Certain special applications may require co-current (parallel) flow. See figure 4 for counter-current and co-current connection diagram.

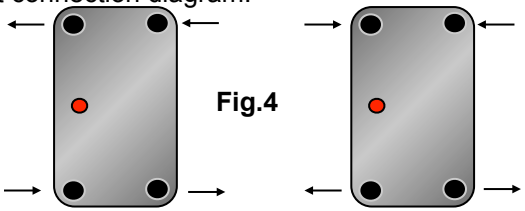


Fig.4

Counter-current Flow **Co-current (parallel) Flow**

HTG brazed plate heat exchangers are used extensively as refrigerant condensers and evaporators. Except in extremely rare cases, always connect for counter-current flow for refrigerant applications. See figure 5 for refrigerant connections.

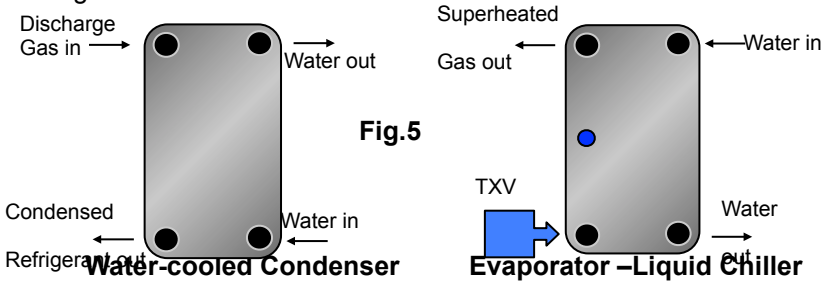


Fig.5

Water-cooled Condenser **Evaporator –Liquid Chiller**

On systems where the water quality is in question, the installation of a strainer is required to prevent large particles from becoming lodged in the heat exchanger. A 16 to 20 mesh strainer is recommended.

Blockage in the heat exchanger will lead to fouling or freezing of the heat exchanger.

Piping Connections cont.

The strainer must be located at the inlet to the heat exchanger. Strainers located at the cooling tower or pump, while worthwhile for **system operation, will not adequately protect the heat exchanger.**

On new or renovation systems, flushing the liquid piping to remove construction debris is recommended before connecting the piping to the heat exchanger.

Soldering and Welding connections -

When soldering piping to the heat exchanger, the temperature must not exceed the melting point of the brazing material used in the heat exchanger. To insure that no damage is done to the heat exchanger by overheating during brazing, it is required that a soldering alloy with a flow temperature below 1200º F (650º C) be used. A soldering alloy with 45-55% silver is recommended. The flux should be non corrosive to the materials in the heat exchanger. It is always best to consult your supplier of soldering and brazing materials for assistance.

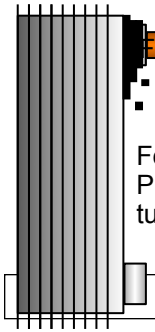


Fig. 6

Use a wet towel, or other heat sink, wrapped around the connection next to the plate pack, to protect the heat exchanger from overheating.

For welding, prepare the edge of the tube with a 30º angle. Place the piping into the connection and TIG or MIG weld the tube to the connection by filling the groove formed by the two edges. This method minimizes the heating zone.

Insulation Kit Installation -

Install the insulation kit after all soldering is complete and the unit is cool. The heat exchanger must be clean, dry and free from oil, grease and paint. “Dry fit” the kit pieces to assure proper size before installation.

Refer to Fig. 7. Install front panel, A, by removing the white backing film. DO NOT REMOVE THE YELLOW EDGE FILM. Press the panel in place firmly and smooth it down with even pressure on the heat exchanger, D. Install the rear panel, B, by removing the white backing film only. DO NOT REMOVE THE YELLOW EDGE FILM.

Install the side panel, C, by removing the white backing film. Starting at one end, wrap around the heat exchanger with a slight stretching motion. At the end, remove the yellow edge film and press the two ends firmly together.