FLUSSMANN

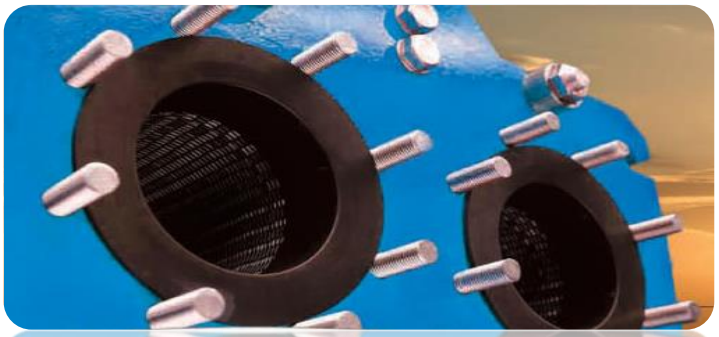
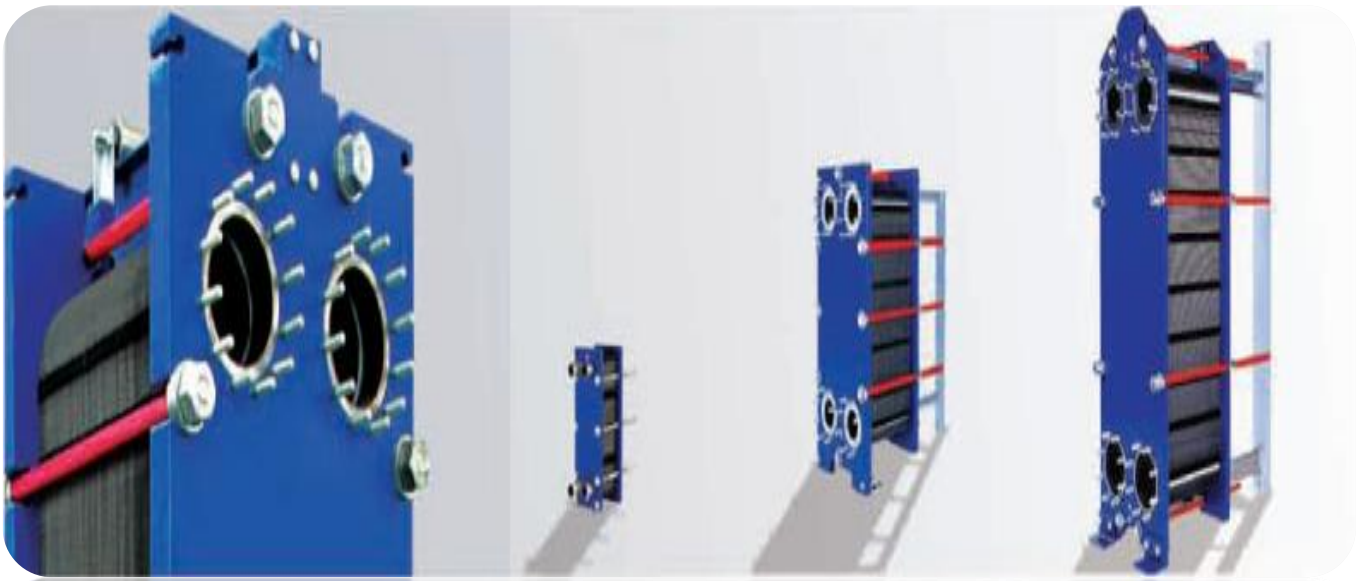
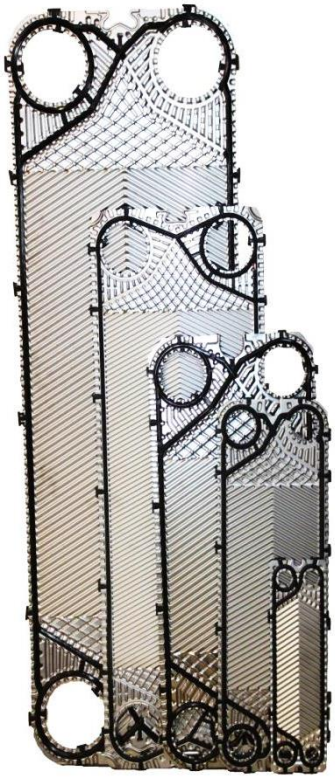


PLATE HEAT EXCHANGER



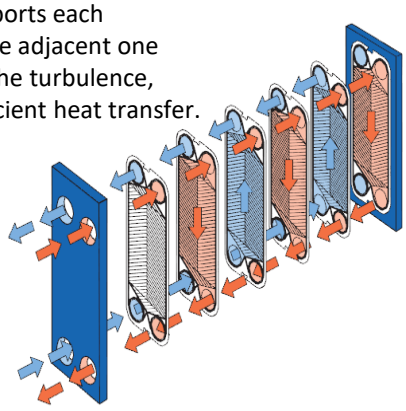
FLUSSMANN GASKETED HEAT EXCHANGERS

The Gasket plate heat exchanger also called plate and frame plate heat exchanger consists of a pack of corrugated metal plates. The corrugation of the plates provides the passage between the plates, the two fluids transfer the heat between the channels. The plate pack is assembled between a fix frame plate and a movable pressure plate and compressed by tightening bolts. The gasket between the plates seals the inter plate channel and directs the fluids into alternate channels. The number of plates is determined by the design: the temperature program, flow rate, pressure drop and physical properties of the fluids,. The plate corrugations promote fluid turbulence and the plate contact point support the plates against pressure. The fix frame plate and the movable frame plate are fixed to a support column. Connections are located in the frame plate or pressure plates, this depends



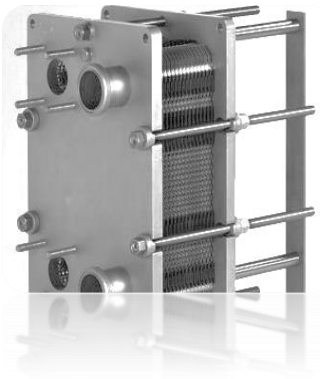
Working Principle

Channels are formed between the plates and the corner ports are arranged so that the two media fl ow through alternate channels. The heat is transferred through the plate between the channels, and complete counter-current fl ow is created for highest possible effi ciency. 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.



Hygienic Frames

Extendable frames to meet stringent hygienic requirements



Industrial Frames

Wide range of extendable frames for meeting various quality needs.

GASKETED PLATE HEAT EXCHANGER

Plate Pack

The plate pack is the heat transfer surface consisting of a series of formed metal plates compressed between the fix frame and movable frame.

• Corner ports allow passage of the hot and cold liquids between the plates
• Molded gaskets along the plate edge and around the ports prevent leakage and fluid intermixing
• Wide range of corrugation patterns and plate thicknesses for optimizing thermal length and efficiency
• Combining plates that have a variety of corrugation angles induces greater turbulence at lower flow rates and creates a high film coefficient
• Single and multiple-pass configurations selected based on process requirements. Multi-fluid configurations are also available
• In-phase corrugation patterns available for applications with fluids containing particulates
• Materials of construction are selected based on compatibility with fluids and temperature

Frame

A rigid structure that holds the plate pack in alignment and maintains gasket compression, providing a proper seal.
Frame Components
• Fix frame and movable frame
• Top and Bottom support column
• Tie Bars
• End Support

Gaskets

Molded gaskets in the through-port area of the plate provide a double seal between the fluid streams and prevent intermixing. Gaskets in the groove around the perimeter of the plate seal the fluid between the plates.

Available in a variety of material compounds depending on temperature and compatibility with fluids.

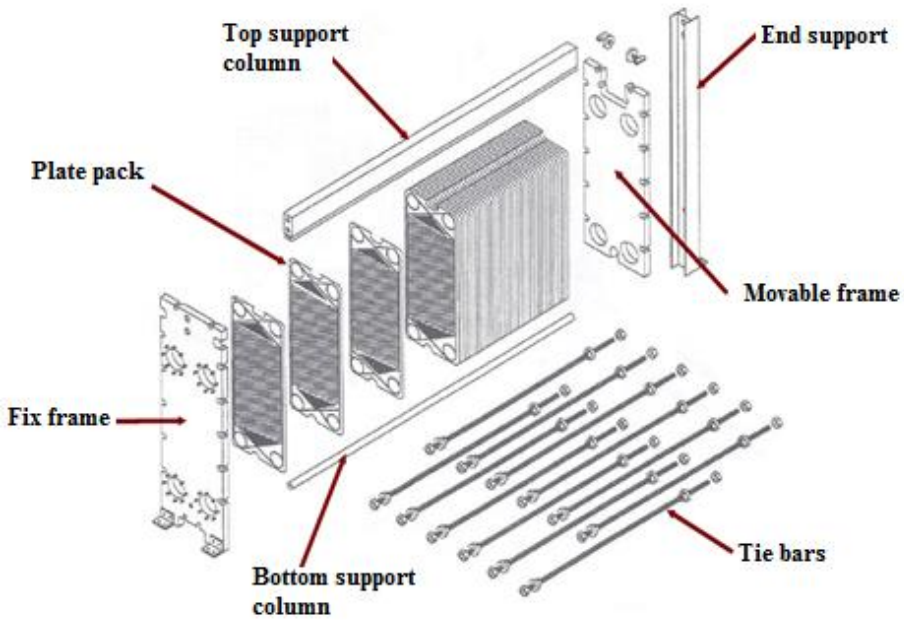
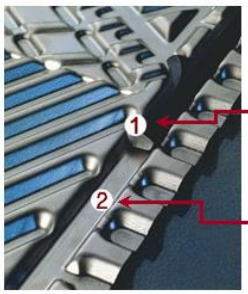


Plate Heat Exchanger Plates Features

• Equally distributing flow in the whole plate
• Improving its heat transfer efficiency
• Eliminating the fouling accumulation area
Two different type of plate:

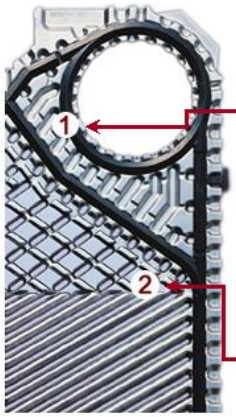
H type(30°) and **L** type (60°)

H Type **L Type**

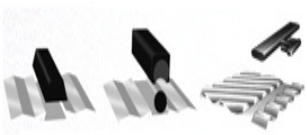


Gasket

Protection groove of gasket



The raw material of gaskets are imported and more durable



Rubber gasket adopts latch-locked design, with observation holes of leakage.

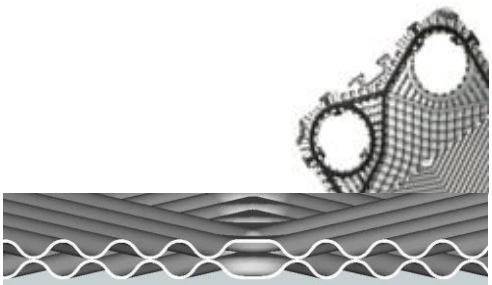
Features of Gasket Used in Plate Heat Exchanger:

- Standard gasket.
- Protection groove of gasket: Gasket groove prevent the pads from being squeezed out and prolong its service time.
- Rubber gasket adopts latch-locked design, with observation holes for leakage.
- The fixed and seal functions are separate, even if there are some problems in fixed functions, its seal function can still work.

Plate design types

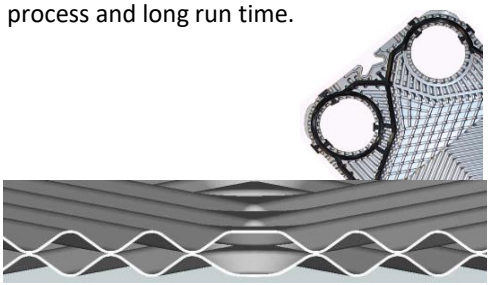
Narrow Flow

For processing low-viscosity media. Designed for high thermal efficiency with a very close temperature approch.



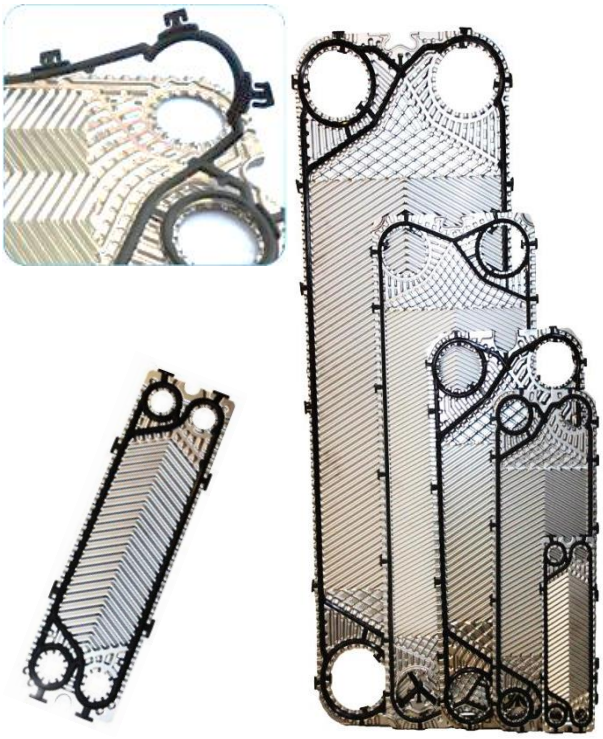
Wide Flow

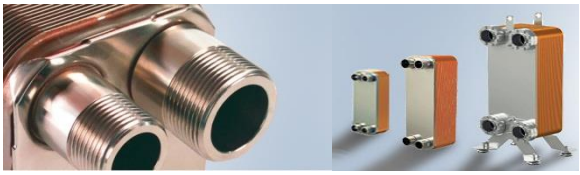
For medium or high viscosity media. Designed for continuous process and long run time.



Brazed Plate Heat Exchanger

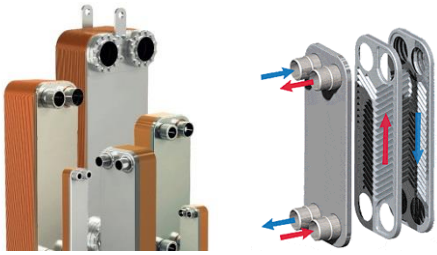
	Narrow Flow	Wide Flow
Description	Plate with narrow gap and many contact points to secure high thermal effi ciency	Plate with wide gap and educed number of contact points to ease the fl ow of viscous products and products containing small particles. Designed for continuous, durable fl ow and long run time
Material	Plates: AISI 316, AISI 304, Titanium and most alloys Gaskets: NBR per, EPDM, FKM, and others	Plates: AISI 316, AISI 304, Titanium and most alloys Gaskets: NBR per, EPDM, FKM
Temperature	-35°C to 180°C	-35°C to 180°C





Brazed Plate Heat Exchanger Design

The stainless steel plates are brazed together , then no need for gaskets and frames. The contact points to help hold the plates together, also can take high pressure. The brazing material function is sealing the stainless plates package. Heat Flow brazed heat exchangers are brazed at all contact points, to make sure best heat transfer efficiency and pressure resistance. The advance of Brazed Plate Heat Exchanger is compact size and light weight, also can take high pressure up to 4.5 Mpa. Heat Flow offers a flexible customer's specific requirements then to ensure the most cost-efficient solution for customers' heat transfer duties.



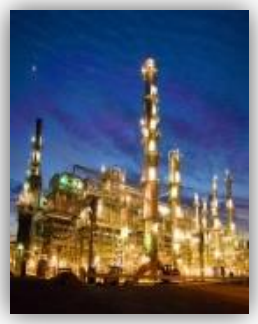
Brazed plate heat exchanger Material
The BPHE (**Brazed Plate Heat Exchanger)** main components are stainless corrugated plates and copper sheet, the stainless steel plates are brazed together by brazing material (Copper or Nickel) in Vacuum furnace. **Copper brazed** heat exchanger can be used for numerous of applications. However, for food or applications involving aggressive fluids, Nickel brazed units are recommended.

Typical Applications

Heat Flow provides advanced heat transfer solutions for cooling, heating, condensing and evaporation of process fluids and utility applications-design to solve heat transfer process Challenges in a vast array of industries…

HVAC

- Heating and Cooling
- Pressure Interceptor
- Hot Water producing
- Heat Recovery
- Swimming Pool Heating
- Sun Energy Systems
- Heat Pump systems



PETROCHEMICAL

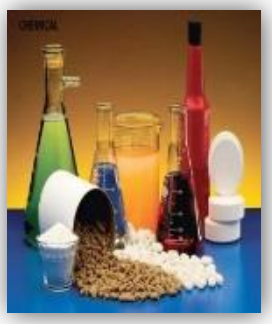
- Crude Oil Heating and Cooling
- Amine coolers
- Glycol dehydration
- Polyols process
- Polyester process
- Ethylene process

OIL & GAS

- Gas Dehydration
- Gas cooling and condensing
- LNG preheater or evaporators
- Sour water or gas cooling
- Acid condenser
- Closed loop cooling or heating

CHEMICAL

- Acid cooling
- Some chemicals cooling and heating
- Zinc, copper, nickel, chromium plating
- Mining applications
- Acrylic Fibers
- Formaldehyde cooling
- Solution cooler and heater



INDUSTRIAL PROCESS

- Process water cooling
- Hydraulic oil cooler
- Mold cooling
- Coke plants
- Iron and Steel production
- Aluminium process plant
- System cooling by Sea Water

ENERGY

- Turbine cooling
- Co-gereratin systems
- Generator cooling
- Compressor cooling
- Oil cooling
- Plant and office heating
- Geothermal heating

DAIRY, FOOD & BEVERAGE

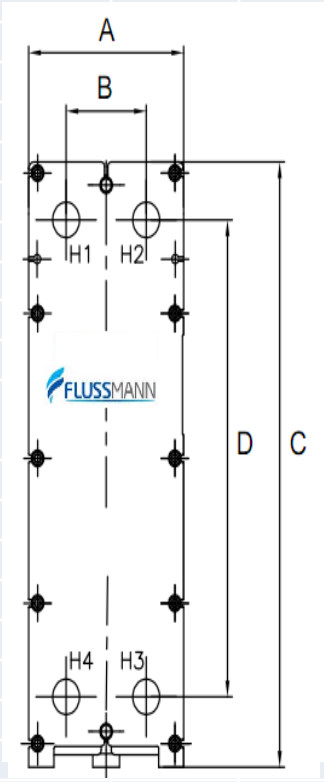
- Pasteurization processing
- Juice and soft drink processing
- Egg processing
- Drinks cooling and heating
- Food processing

MARINE

- Main engine jacket water cooling or heating
- Generator jacket water cooling
- Fresh water cooling
- Fuel oil heater
- Lubrication oil cooling

Heat Flow
Plate Heat Exchanger

Plate Heat Exchanger Portfolio



	A(mm)	B(mm)	C(mm)	D(mm)	Connection
HF02	130	53	220	280	3/4''
HF04	180	70	480	381	1 1/4''
HF06	211	89	600	488	1 1/4''
HF14	320	140	920	640	2''
HF17	334	150	1044	800	2 1/2''
HF35	435	238	1393	1070	DN80
HF22	470	225	1084	719	DN100
HF34	448	230	1340	969	DN100
HF55	435	238	1393	1070	DN100
HF50	465	230	1751	1365	DN100
HF39	582	286	1540	983	DN150
HF62	630	298	1800	1294	DN150
HF80	606	286	2388	1745	DN150
HF92	877	465	1937	1290	DN200
HF100	870	465	2058	1478	DN200
HF154	877	465	2921	2040	DN200
HF185	877	465	2113	2415	DN200
HF110	980	486	2323	1523	DN300
HF134	980	486	2670	1763	DN300
HF205	980	486	3390	2483	DN300
HF155	1269	632	2698	1654	DN400
HF195	1269	632	3004	1960	DN400
HF230	1269	632	3310	2266	DN400
HF270	1269	632	3616	2572	DN400
HF190	1446	720	3104	1886	DN500
HF280	1446	720	3748	2530	DN500

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