



Petroleum Refinery

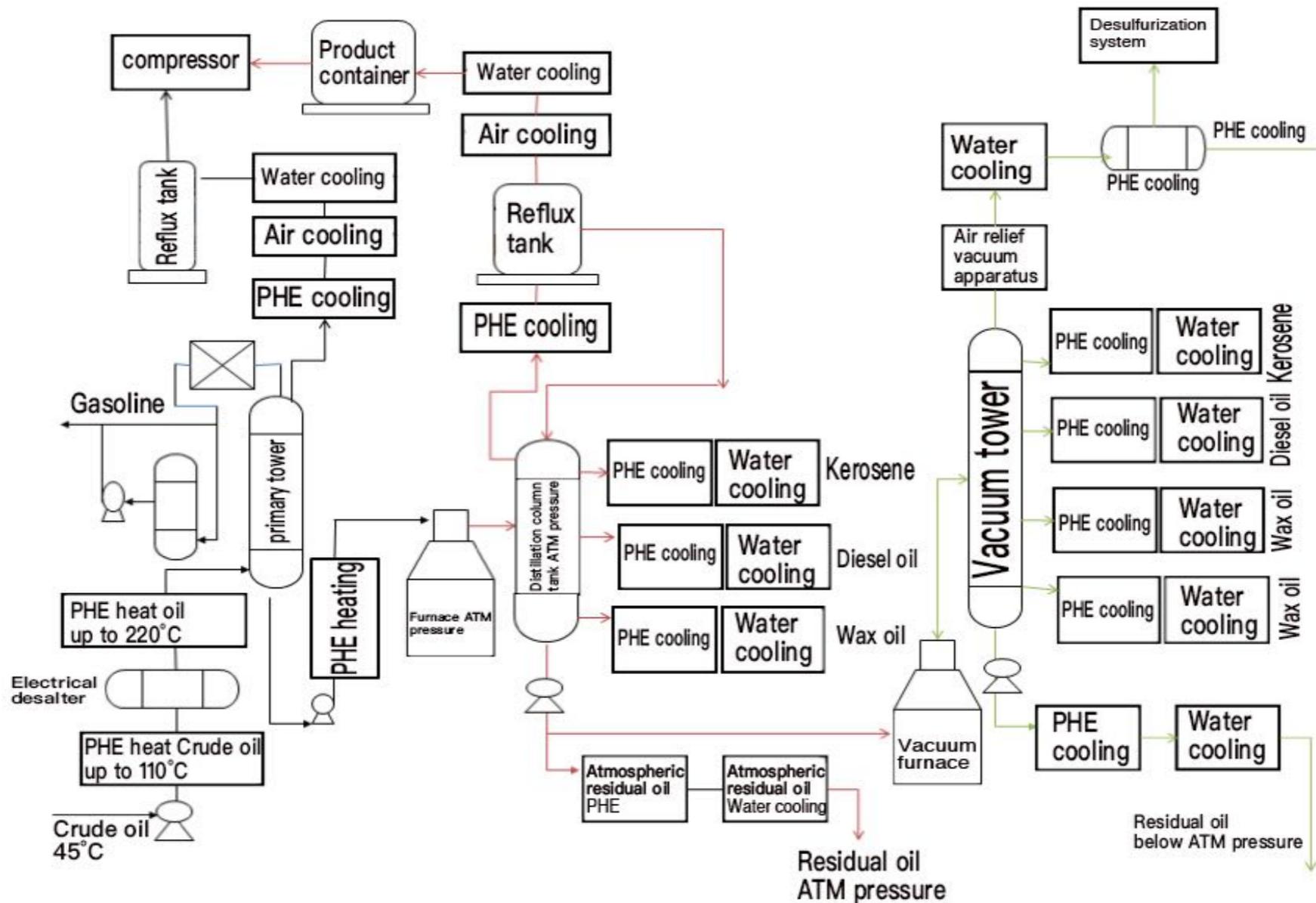
Plate heat exchanger application

Petroleum or crude oil refining is a massive production chain, which yield petroleum fuel, petroleum solvent, chemical raw material, lubricant, paraffin, petroleum asphalt, petroleum coke, etc.

And separating petroleum into the products relies on the smooth and safe operation of the daily operation in the large refrigeration system.



Refining Process



Oil tank has to breath to keep stable

The vapor pressure of a crude oil tank is affected by diurnal temperature and oil receiving distribution operation. So the refinery has to use breathing valve to let the tanks exhaust.

And to keep the temperature above solidifying point, It has to be kept cyclic heating, which increases gas escaping.

A 5000 square vault metal oil storage tank exhaust hundred tons of light hydrocarbon, which is the most valuable part of crude oil.

Most of the remaining are heavy non-volatile heavy hydrocarbon components, colloids, paraffin, etc.

As a result, the crude oil has a "quality guarantee period", and its transportation and storage really need a professional crew.

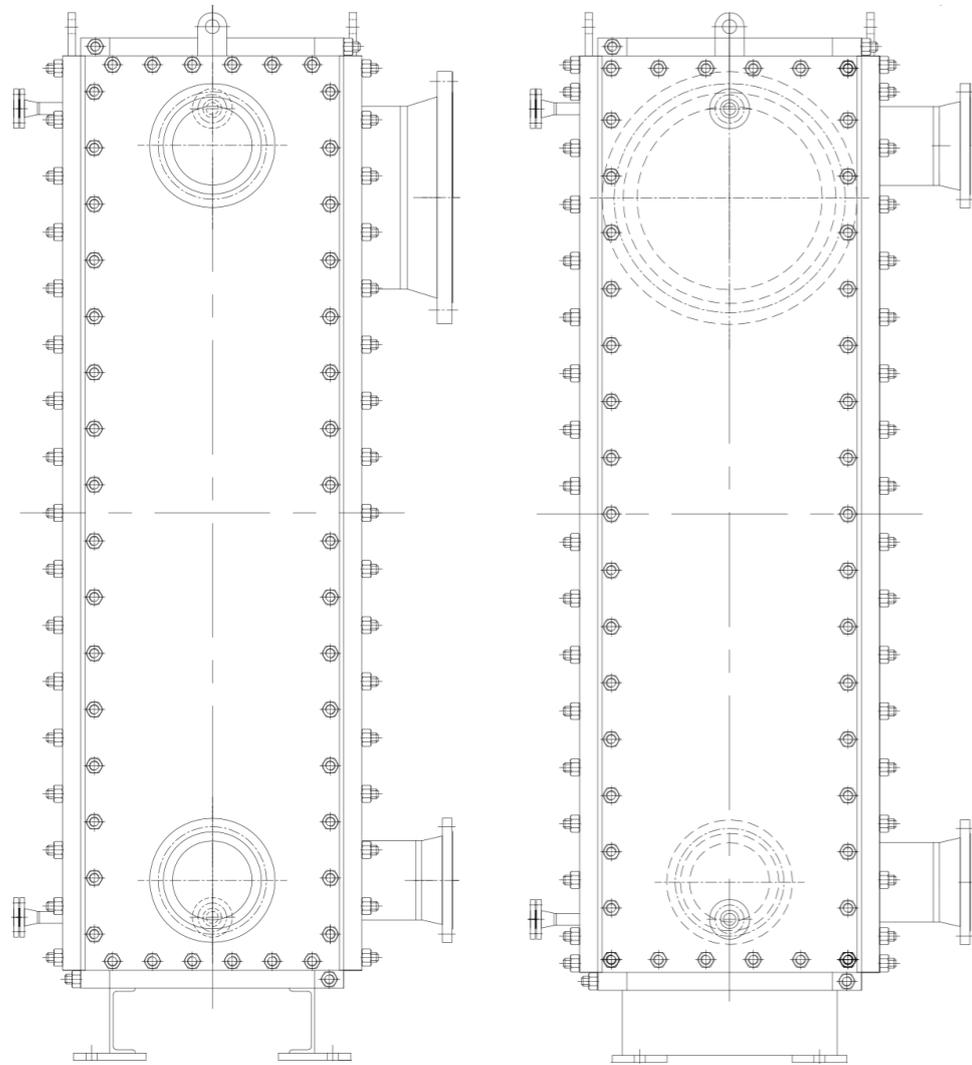
There are two directions to divide the crude oil into products

1. Divide crude oil into different straight-run distillate oil according to the boiling point requirements of different products, and then remove the non-ideal components in these distillate oil according to the quality standard requirements of products;
2. Through chemical reaction conversion, the required components are generated, and then a series of qualified petroleum products are obtained.

The different processes like atmospheric and vacuum distillation, catalytic cracking, coking, etc. are an organic whole, sometimes the huge energy cost and refining cost is more expensive than the crude oil.

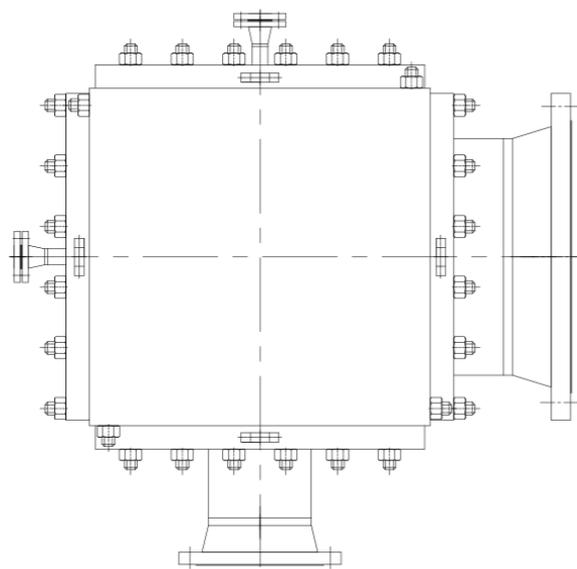


For a long time, people have always believed that thin corrugated plate and countercurrent plate heat exchanger provide more effective heat transfer than traditional tube-shell heat exchanger. However, their rubber gaskets between plates have limited service life and are at risk of failure in certain chemicals as well as in high temperature and high pressure operations. Therefore, these plate heat exchangers are mainly used in low-temperature and low-pressure auxiliary refineries, such as secondary cooling water circuits and condensation systems.



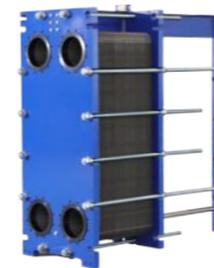
Fully Welded Plate Heat Exchanger has the characteristics of compact structure, high heat exchange efficiency, corrosion resistance, convenient disassembly, etc. which fills up the gap of traditional plate heat exchanger.

On the other hand, compared with the traditional shell and tube units, The total heat transfer coefficient of plate heat exchanger is 1~3 times larger than that of tubular heat exchanger, and the heat transfer efficiency of liquid-liquid heat transfer is 3~6 times higher than that of tubular heat exchanger, the heat transfer coefficient of the gas-liquid working condition is 2~3 times of that of the tube-shell type. Under the same heat exchange area, the circulation area of the plate heat exchanger is 5 times larger than that of the tube heat exchanger, and it has a small pressure drop, advantages such as compact structure (covering an area of 1/3, the total mass is 2~5 times smaller).



PHE Standard Range General Specifications

	Gasket plate heat exchanger	All-welded plate heat exchangers
Max connection diameter/DN	500	500
Max. volume flow m ³ /h	4000	4000
Max. Heat transfer surface/m ²	1520	500
Designed Pressure rate MPa	2.5	3.5
Temperature °C	-40-180	-40-350
Plate material	316 SS, Avesta 254 SMO, Titanium	
Frame material	Carbon Steel, 304 SS, 316 SS	Carbon Steel



The Gasket plate heat exchanger is expandable and easy servicing. It is used in low-temperature and low-pressure auxiliary refineries, such as secondary cooling water circuits and condensation systems.



The all-welded plate heat exchanger's inside structure is similar with traditional plate heat exchanger only without gasket, the plates are laser-welded alternately. And its frame is easy to dismantle for cleaning and maintenance.

Sometimes, the crude oil is still impure even after dehydration and desalting, HCL-H₂S-H₂O corrosion and high speed fluid erosion could gradually corroding the plate and causing leakage, we strongly recommend to use titanium plates for the heat exchanger units.





Our **service** is better than you expected

HFM offers rich experience in petroleum refinery businesses. We have multiple global warehouses and service teams around the world, the delivery time and freight are reduced to the largest extent, and spare parts can be delivered at the fastest speed. Manufacturing is merely one part of our business, knowing our customers requirements and acknowledge various kinds of working conditions is our daily life.

1, Inventory management

In order to ensuring delivery effectiveness, based on the acknowledge of PHE market and supply chain management, HFM has distributed the warehouses around the world.

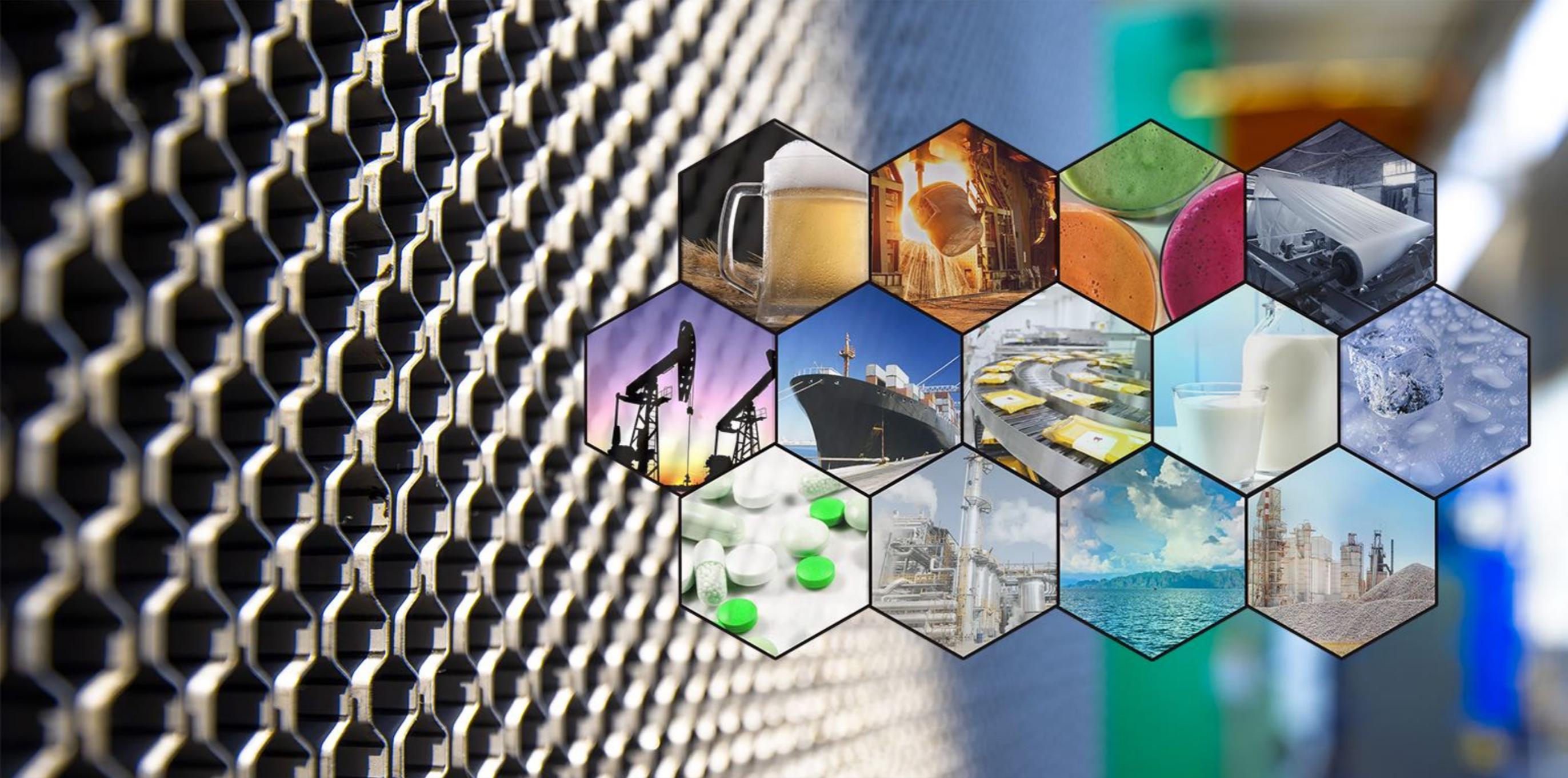
2, Spares replacement

HFM has the full range of plate heat exchanger spares, our service engineers could either travel to the scene or remote guid your team to replace.

3, Cleaning service

HFM can provide both CIP(cleaning in place) and disassembling cleaning services depending on your circumstances.





Professional design solution:

Our technical department dealt with various application year after year, the accumulative experience forged a special team with exploring spirit and critical spirit. The gasket plate heat exchanger is our core business, thousands of units have been in services for many years in different fields.

Service is our cornerstone:

We consider customer as our priority, understanding customers' real needs and rapid feedback are the basics.

We and customers are bound to each other for learning and developing, sharing knowledge keeps us growing, which makes accomplishing projects easier and faster.

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