

# Metalworking Industry

## Plate heat exchanger application

Companies in this traditional line of work are about to stride across a new divide between a competitive low-end market swamp and specialized field with superb skills freeway.

As one of the most foundational and enormous industry, more and more involved applications have strict demand on accuracy of dimensional control, the increasingly strict environmental regulations push us to reform.

Our customized cooling system could help you to build up an energy control network, which precisely control all units' temperature and saves energy consumption.

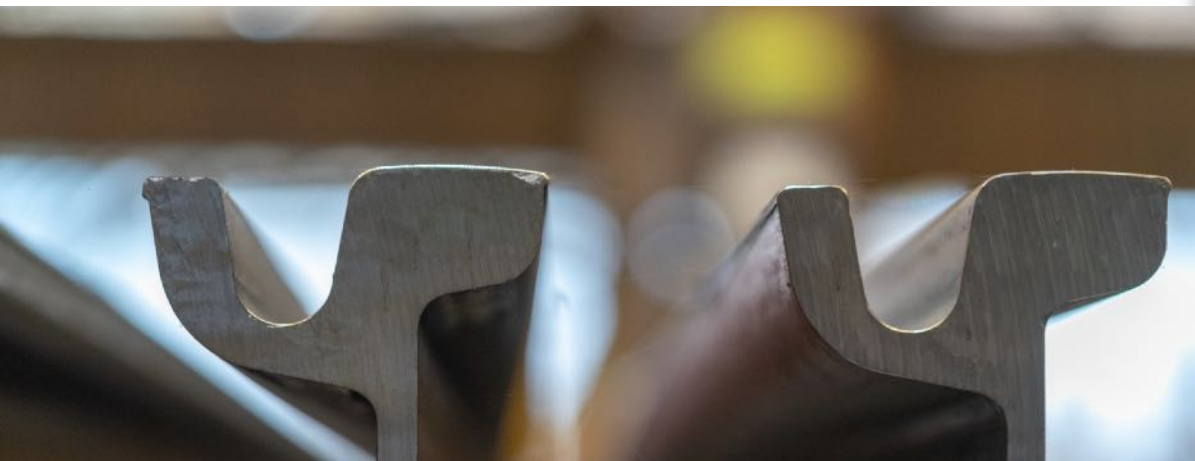
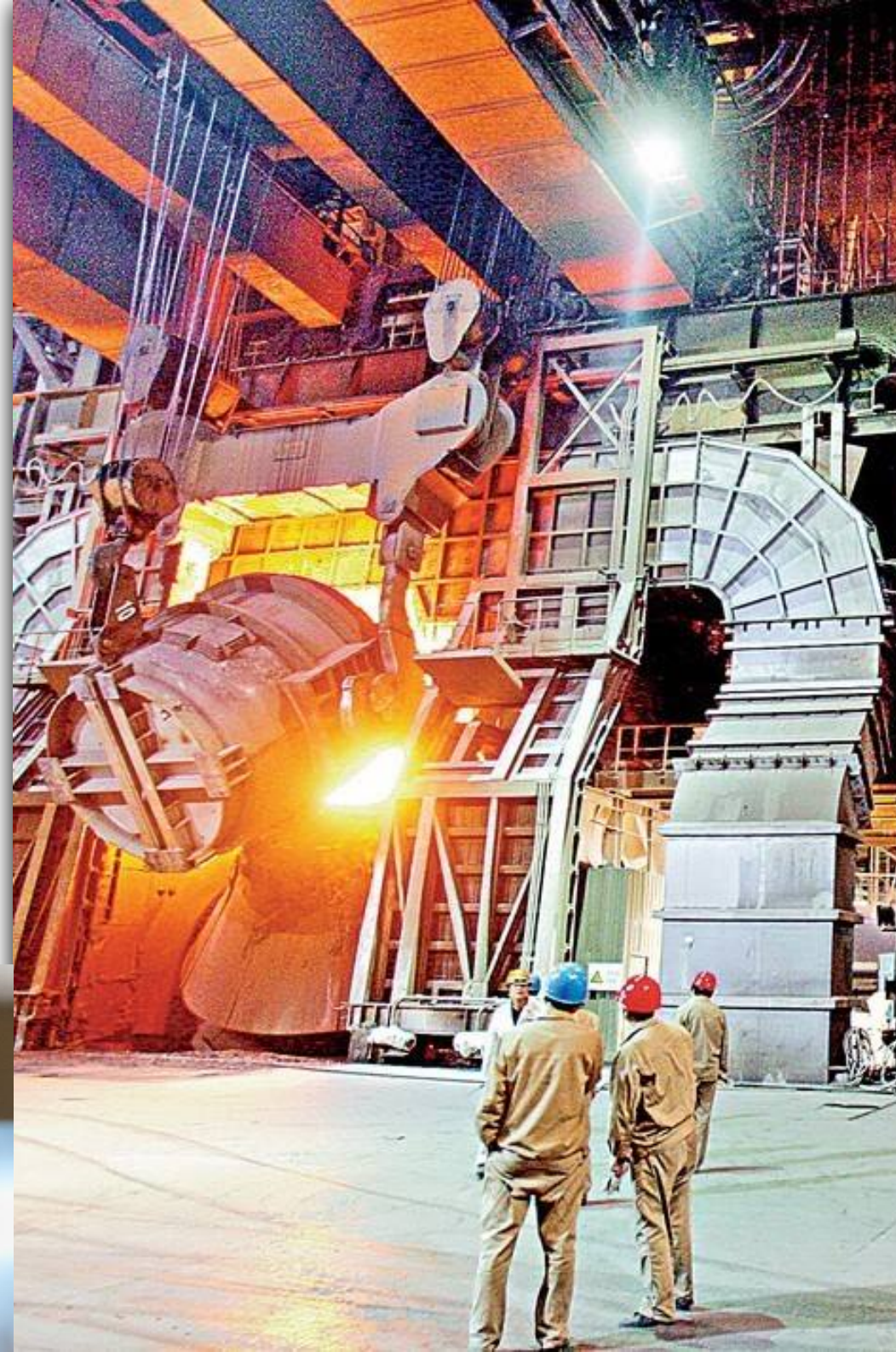
# FFM



Hofmann has been devoted in building cooling system for heavy industries for over 20 years.

Metallurgy is a diversified industry, and there are always energy cost during all the processes, and high temperature precision control is the key ensurance of products quality.

Such as coking section, the mixture of tar ammonia water and coal gas from the section enters the gasliquid separator at about  $80^{\circ}\text{C}$ , where coal gas and tar ammonia water are separated. The separated crude gas enters the horizontal tube primary cooler. The primary cooler is divided into upper and lower sections. In the upper section, the gas is cooled to  $45^{\circ}\text{C}$  with  $23^{\circ}\text{C}$  chemical production circulating water, and the chemical production circulating water is heated to  $40^{\circ}\text{C}$ . The coal gas enters the lower section of the primary cooler and exchanges heat with  $16^{\circ}\text{C}$  cooling water. The gas is cooled to  $22^{\circ}\text{C}$  and the cooling water is heated to  $23^{\circ}\text{C}$ . The cooled gas enters the gas blower for pressurization. After pressurization, the gas enters the electric tar catcher for capture. The coal gas after tar mist drops is sent to the desulfurization and sulfur recovery section.





Steel is refined by melting iron ore. The production is roughly divided into sintering process, DRI (Direct Reduced Iron), steelmaking and continuous casting process of producing billets, and rolling process of making various steel materials. In addition, there are coking, oxygen production, hydropower, etc.

For economic reason, these processes are always adjacent to each other, water is used for both manufacturing and cooling, that is why centralized water treatment is necessary.

Water treatment evaluation includes water quality analysis and onsite investigation. There is a chance to judge the operation effect of water treatment through water quality analysis of circulating water systems.

For example, the flocculation and sedimentation effect can be tested by analyzing the suspended solids in the turbid circulating water, the corrosion inhibition effect can be tested by analyzing the total iron in the circulating water, and the scale inhibition rate can be calculated Anti-scaling effect.

In addition, if conditions permit, installing an online fouling resistance tester and a circulating water pipeline bypass installation test coupon would be a wise choice.

On-site investigation is the most direct and effective way to test the result of water treatment. Doing a good job of on-site investigation requires timely communication with the owner's technicians. Some equipment operating parameters can reflect the effect of effluent water treatment, such as the end difference of the power plant condenser, exhaust temperature and water The processing effect is related, and so on. In addition, when the main production is shut down for maintenance, the heat exchange equipment can be opened to visually see the scale, corrosion, slime, etc., and can be photographed and archived if necessary.

Not only must there be a record of the on-site investigation, but also the recorded data and information must be sorted and summarized to provide a basis for the improvement of the water treatment plan.





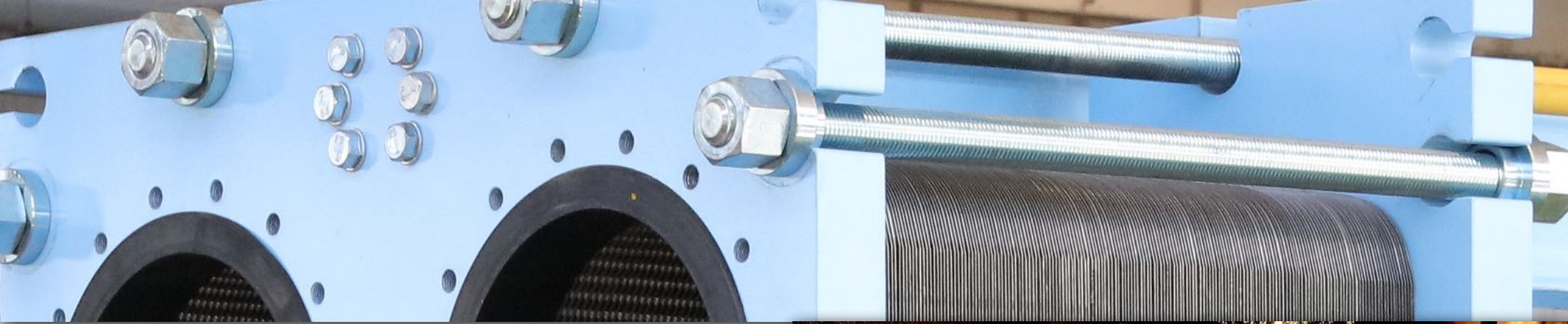


Plate heat exchanger is part of the closed circulating cooling water system, which mainly supplies cooling water for blast furnace blower station, air compressor station, hydraulic station, TRT power generation, etc.

The plate heat exchanger cools down the used soft water and drains out or recycle the wasted heat to nearby buildings.

The closed circulating water of the blast furnace is a typical indirect cooling water system. The water treatment is considered from the aspects of scale and corrosion inhibition, sterilization and algae killing, and the blockage of the plate heat exchanger is a problem that should be paid attention to.

The gap between the plates of the plate heat exchanger is only 1mm, and the flow channel is complicated and easy to block. If the plate is clogged, it will affect the heat exchange efficiency and have to be cleaned.

The plate cleaning is more troublesome. The reasons for the blockage are the blockage of debris and the blockage of fouling. To avoid clogging by sundries, a self-cleaning pipeline filter can be installed on the inlet header of the plate heat exchanger to intercept sediments and particles in the water. In addition to controlling various water indicators and adding water treatment chemicals, attention should be paid to the water distribution of several heat exchangers. The water inlet valve of each heat exchanger must be adjusted to make sure each unit has been distributed equal water flow volume. If the water inflow is uneven, the water flow rate of the heat exchanger with a small amount of water is too low, even if the water treatment work is done well, scaling may occur.



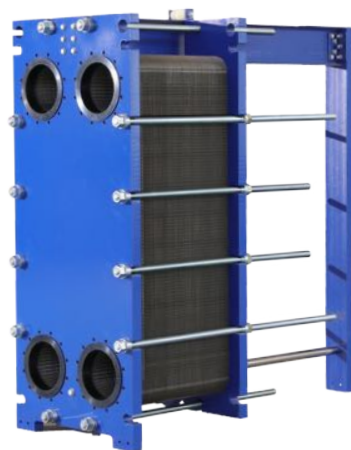


# Our products for metalworking industry

## We know better on cooling solution



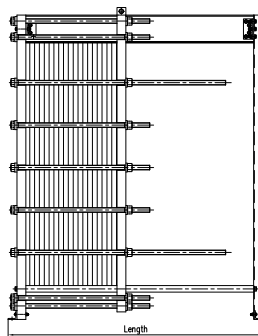
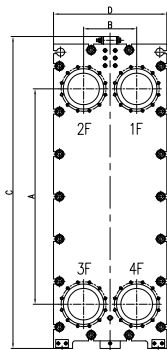
We recommend the following models for closed circulation cooling, the wider diameter connections allows larger capacity of volume flow.



We recommend the following models for oil cooling system, unlike closed circulation cooling system, it does not need too much volume of flow rate, the plates of these models have deeper corrugation, which allows high viscosity oil passing through.



Model	HG250A	HG350A	HG500A
A/mm	1406	1692	1900
B/mm	420	559	663
C/mm	2170	2617	3317
D/mm	895	1136	1415
Length(min.~ max.)	3216	4955	5798
Connection diameter/DN	250	350	500
Max. volume flow m³/h	970	1900	4000
Max. Heat transfer surface/m²	396	840	1520
Max. Quantity of plate	450	700	800



Model	HG50A	HG80A	HG80B	HG100A	HG100B	HG100C	HG125A	HG125B	HG150A
A/mm	691	868	868	707	1113	1519	1227	1227	1092
B/mm	118	212	212	262	262	262	257	257	314
C/mm	920	1178	1178	1100	1515	2013	1585	1585	1666
D/mm	290	425	425	540	540	540	535	535	640
Length(min.~ max.)	973	1645	1645	2275	3185	3185	2833	2833	2898
Connection diameter/DN	50	80	80	100	100	100	125	125	150
Max. volume flow m³/h	50	95	95	160	160	160	200	200	350
Max. Heat transfer surface/m²	16	46.8	39	85	198	296.1	188.6	147.2	158.4
Max. Quantity of plate	160	180	150	340	450	470	410	320	330





# Our **service** is better than you expected

HFM offers rich experience in Metalworking Industry. 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.

[www.hofmann-heatexchanger.com](http://www.hofmann-heatexchanger.com)



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