

# Thermal Power Station

## Plate heat exchanger application

Thermal power station helps nearly half of the world's power demand. Coal, nuclear, and natural gas based power plants generate electronic power by evaporating pure water to high temperature and high pressure steam, it rotate the impeller in a turbine, which activates a generator. In this process, plate heat exchanger is crucial in transferring the heat.



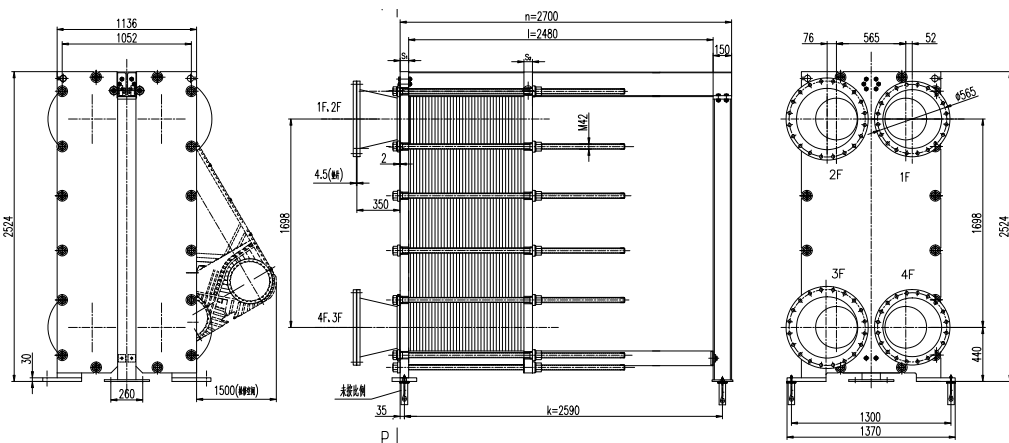
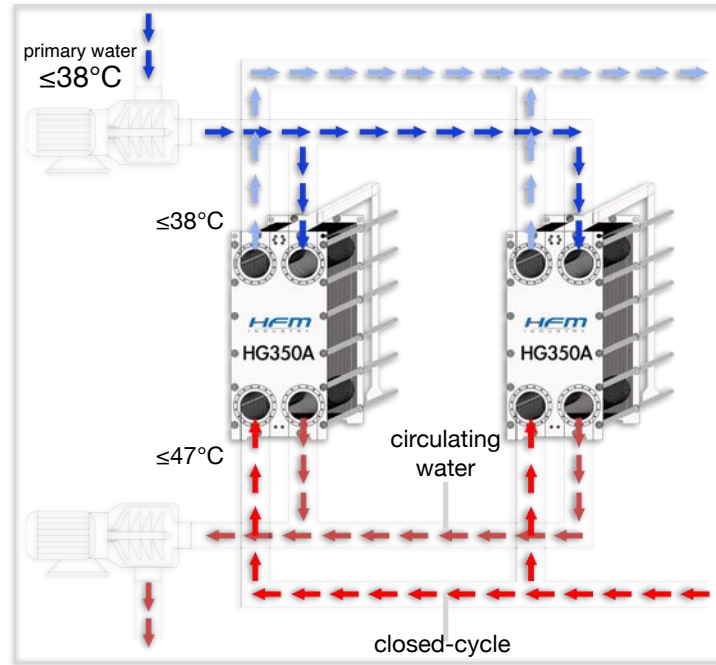




This is a thermal power plant located in Changchun, Jilin province. About 18km from the city center. The power plant currently has 2 × 350MW subcritical heating units. In this period, 2 × B80MW high-temperature and high-pressure back-pressure heating units will be expanded. Simultaneously, desulfurization and denitration facilities will be constructed, and conditions for further expansion of the units will be reserved.

This project serves as supporting infrastructure for cities in the northern cold regions( the lowest temperature could down to -36.5°C), expands large heating heat sources, develops combined heat and power, and avoids building new decentralized small boilers. It is expected that by the end of 2020, the three heat supply areas in Changchun will reach 2346 × 104m.

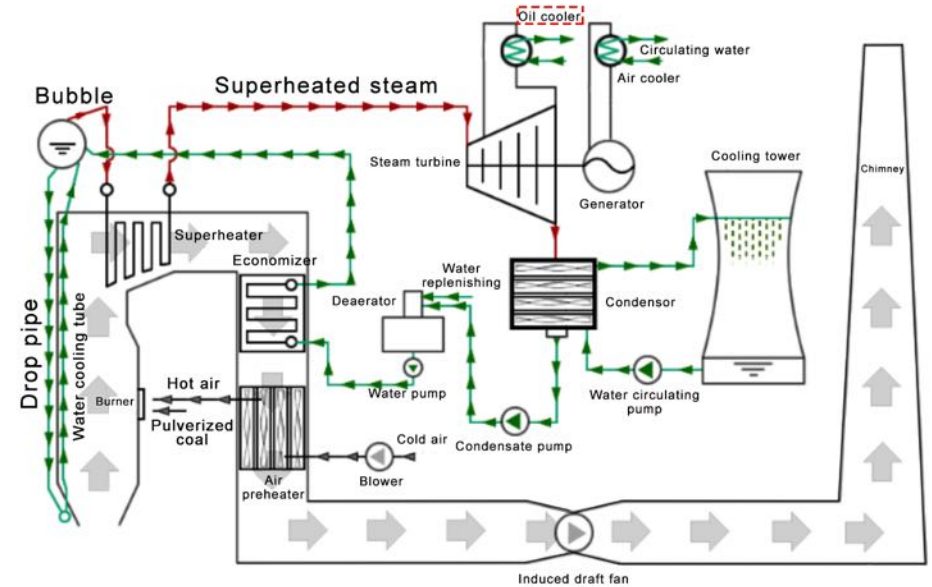
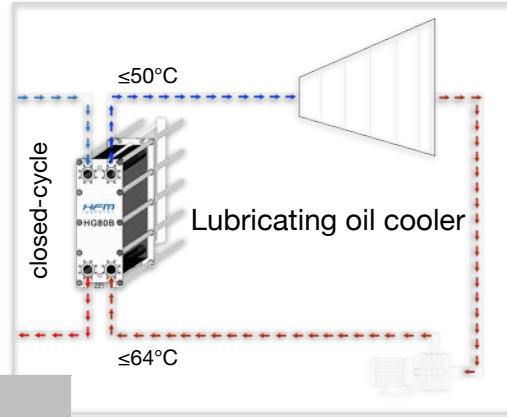
	Closed circulating water side/ Hot	Open water side / Cold
Actual volume flow m³/h	825	825
Design pressure MPa	1.0	1.0
Temperature inlet/ outlet °C	34/ 25	20/ 29
Pipe diameter DN	250	
Media	Desalted water	Water



A part of this project is closed circulation cooling water plate heat exchanger, it use a primary water source (circulating water) to cool the power plant's closed-cycle cooling water (demineralized water), which is used to cool and take away a large amount of heat generated by the operation of equipment in the power plant's production process; it can also be cooled continuously due to its own friction heat-generating equipment can also cool equipment that generates heat due to energy conversion, thereby ensuring the safe operation of the power plant.

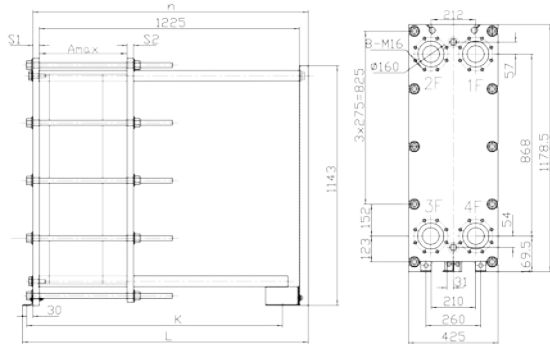


This is a lubricating oil cooler for turbine unit of 2 × 350MW self-provided combined heat and power project in Chifeng, Hohhot province, which is located in the mid-latitude and mid-temperate continental monsoon climate zone. The winter is long and cold, the spring is arid and windy, the summer is hot(the highest temperature could up to 40°C) and the rain is concentrated, the autumn is short, the temperature is falling fast, and the frost is coming early. Monsoon climate area, winter is long and cold(the lowest temperature could down to -30°C), and there is much wind and drought in spring. It is hot in summer, concentrated rain, short autumn, rapid temperature drop, early frost, and dry winter with little rain.



Lubricating oil cooler		
Media	Lubricating oil/ Hot	Desalted water / Cold
Actual volume flow m <sup>3</sup> /h	24	60
Design pressure MPa	1.0	1.0
Temperature inlet/ outlet °C	64/ 50	38/ 42
Pipe diameter DN	80	

When the turbine is on normal operation, the temperature of the bearing's lubricating oil will rise due to the heat generated by the friction of the bearing. If the temperature is too high, the bearing may soften, deform or burn out. In order for the bearings operating normally, the lubricating oil temperature must be maintained within a certain range. It is generally required that the temperature of the oil entering the bearing is between 35~45 degrees, and the temperature rise of the oil discharge of the bearing is generally between 10~15 degrees. Therefore, the oil should be cooled down before discharged from the bearing and recycled into the bearing lubrication. The oil cooler is used to cool the main engine oil. The higher temperature lubricating oil and the lower temperature cooling water exchange heat in the oil cooler, and the purpose of controlling the temperature of the lubricating oil is achieved by adjusting the cooling water flow.



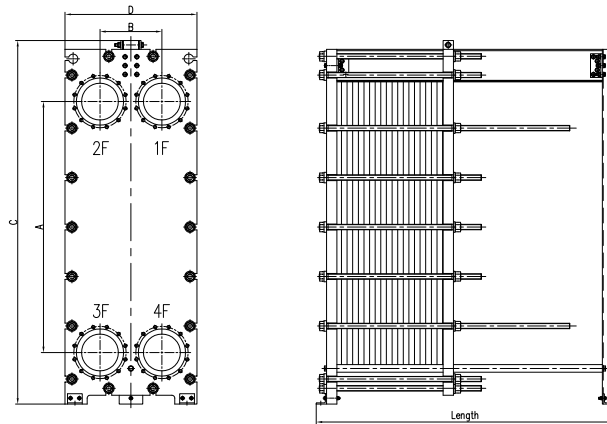
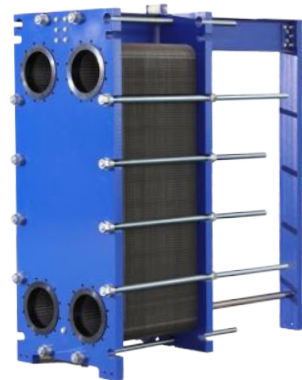
A turbine generator



# Our products for thermal power plants 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 in thermal power plants, 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	1406	1692	1900
B	420	559	663
C	2170	2617	3317
D	895	1136	1415
Length(min.~ max.)	3216	4955	5798
Connection diameter/DN	250	350	500
Max. volume flow m <sup>3</sup> /h	970	1900	4000
Max. Heat transfer surface/m <sup>2</sup>	396	840	1520
Max. Quantity of plate	450	700	800

Model	HG50A	HG80A	HG80B	HG100A	HG100B	HG100C	HG125A	HG125B	HG150A
A	691	868	868	707	1113	1519	1227	1227	1092
B	118	212	212	262	262	262	257	257	314
C	920	1178	1178	1100	1515	2013	1585	1585	1666
D	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 m <sup>3</sup> /h	50	95	95	160	160	160	200	200	350
Max. Heat transfer surface/m <sup>2</sup>	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



# Service

HFM group has worked with hundred of thermal power plants during these years, offering high quality of service is our basis policy for our customers. Our experienced engineers could either travel or remote to solve your problems. We also have contracts with our partners for service and after-sales around the world, which is fully under our supervision. 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

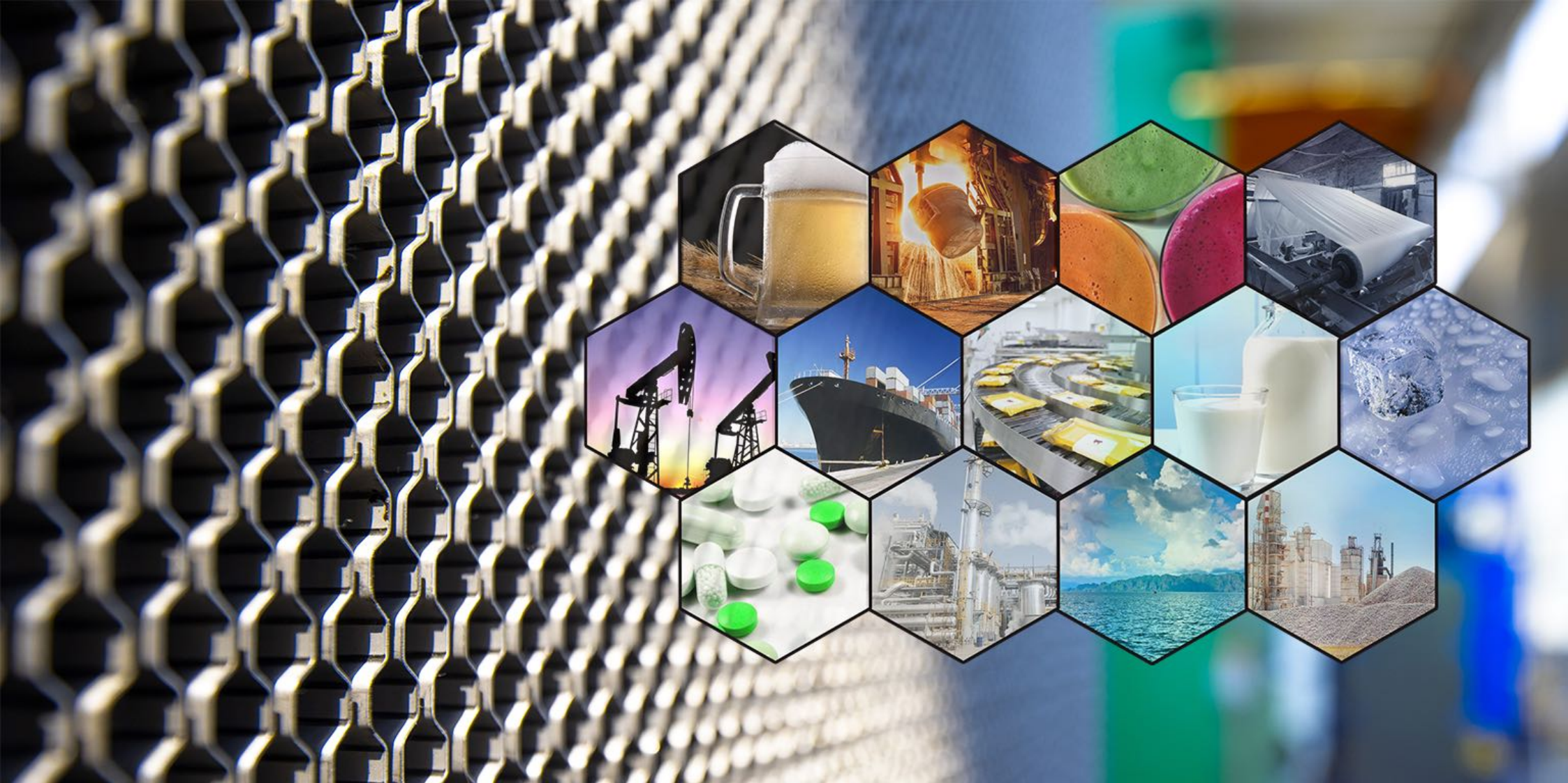
HFM has the full range of plate heat exchanger spares, our service engineers could either travel to the scene or remote guid your team to replace.

## 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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