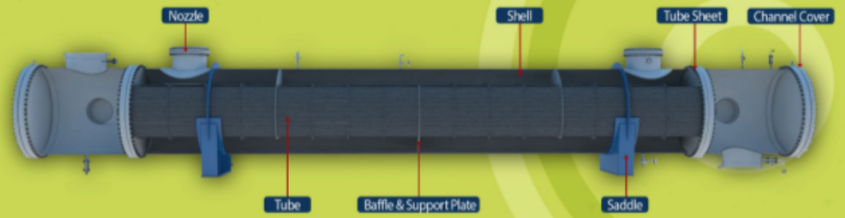
TYPICAL FEEDWATER HEATER INTERNAL ARRANGEMENTS

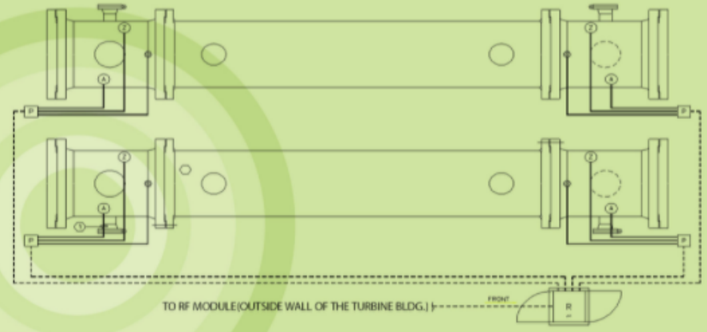


TYPICAL FEEDWATER HEATER INTERNAL ARRANGEMENTS

CATHODIC PROTECTION SYSTEM

When the current inflows into the metal from the outside, negative potential gradually lowers as the current inflows into cathode with high potential; and when it becomes close to positive potential, negative potential and positive potential eventually become identical.

Before metal structure of the closed cooling water heat exchanger starts corroding, sacrificial electrode, called 'ANODE' corrodes firstly to protect the closed cooling water heat exchanger. This system functions under the above principle.



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Closed Cooling Water Heat Exchanger

For Thermal Power Plant and Combined Cycle Power Plant

Major Experience : Shinboryeong Units #1, #2 , Dangjin Units #9, #10 and Chuncheon Combined Heat Power Plant.

Closed Cooling Water Heat Exchanger is a device installed at the component cooling water system to cool purified cooling water for various equipment by using sea water or service water during operating the thermal power plant and Combined Cycle Power Plant. Closed Cooling Water Heat Exchanger is to accomplish successful heat exchange to closed cooling water at the shell side when the sea water or service water at the tube side passes through a number of tubes installed at the shell.

It is composed of the tubes, the tube sheet and installed baffle to control the flow of fluid at the shell side. The fluid at the shell side is to travel from the inlet nozzle, go through baffle and exit through the outlet nozzle. During this process, heat exchanges as the fluid contacts the tube. The fluid at the tube side is to inflow through the channel and exit after passing through the tube.

CLOSED COOLING WATER TUBE SHEET TYPE

Fixed Tube Sheet Type, Shell & Tube Type is the simplest Heat Exchanger type. Production cost is inexpensive, but it is impossible to use corrosive fluid in the shell side.

Expansion Joint is required when temperature difference between the fluids at the shell side and tube side is greater than 100℃ or when the difference of the thermal expansion coefficients between shell and tube side is large.

Major Project Design Data (Shinboryeong Units #1, #2 : 1,000MW)

A) Design Pressure (Shell / Tube Side)
: 10.5 bar.g / 10.5 bar.g & F.V
B) Design Temperature (Shell / Tube Side)
: 60 ℃ / 60℃
C) Dimension (Shell ID / Tube Length)
: 1,974 mm / 13,700 mm
D) Material (Shell / Tube)
: A516 Gr.70 / B111-C70600