



CBRO- Air Preheater



Air Preheaters

The Air Preheater is a regenerative Heat Exchanger between the boiler flue gases and the air. Air Preheater absorbs the heat of the flue gases escaping from the boiler, and transfers the heat to the air going into the combustion chamber by means of the heating elements incorporated in the continuously rotating rotor.

As the rotor continuously rotates, the heating elements alternate through the hot gases and the air passages, thereby absorbing the heat from the passing hot gas stream, and then transferring it to the air stream, thus increasing the temperature of the incoming combustion air. The Air Preheater provides upto 20% of the total heat transfer in the boiler process.

Method of Heat Transfer:

Finned Tube heat exchanger, is simply a pressure vessel which cools a circulating fluid within finned tubes by forcing ambient air over the exterior of the tubes. Also, This is known as device for rejecting heat from a fluid directly to ambient air. The main advantage of an FTHE is that it does not require water, which means the plants requiring large cooling capacities are need not be located near a supply of cooling water.

Purpose of FinnedTube Heat Exchangers :

1. Finned Tube heat exchangers are generally used where a process system generates heat which must be removed, but for which there is no local use. Also This is One of the simplest ways is to use the ambient air.
2. They are usually used when the outlet temperature is more than about 20 deg. F above the maximum expected ambient air temperature. They can be used with closer approach temperatures, but often become expensive compared to a combination of a cooling tower and a water-cooled exchangers.
3. The most important thing is, They are a "green" solution as compared to cooling towers and shell and tube heat exchangers because they do not require an auxiliary water supply (water lost due to drift and evaporation, plus no water treatment chemicals are required).

With water, heat transmission coefficients in the order of 5,000 W/m² K can be achieved in the tubes. In contrast, heat transmission is much lower for air. A coefficient of 100 W/m² K may be expected when plain tubes are used. With a view to compensating for the significantly lower heat transmission coefficient for air, thermal engineers increase the outer surface of the tubes by providing them with fins.

Finned tube heat exchangers are available in the following materials:

- Steel
- Stainless steel
- Copper / Aluminum
- Aluminum
- Special materials
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Fin Type: Aluminum Extruded ,G' type, L' type, crimped , spiral, etc..

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