Air coolers are one of the devices used in most refinery and petrochemical units to reduce fluid temperature.

Air Cooler is a heat exchanger that can transfer the excess heat of fluid to the air to reduce its temperature to the required level. The air with the environment temperature hits the hot fluid tubes in air coolers. It causes the temperature of the tube wall to decrease, thus reducing the temperature of the fluid inside the tube.

One of the crucial issues in air coolers is the fan-bay area ratio. This ratio is called converge fan, and its value in air cooler exchangers should not be smaller than 0.4.

The fan is responsible for creating the airflow, which air is the cooling fluid in the air cooler.

The fans' dimensions in industrial air coolers range from 1 to 8 m and usually have 0 to 14 fins. For the air cooler efficiency to reach maximum efficiency, the fan must cover the entire surface of the bundled tube.

In addition, the fin's angle dramatically affects its performance, and some fans can adjust the fins.

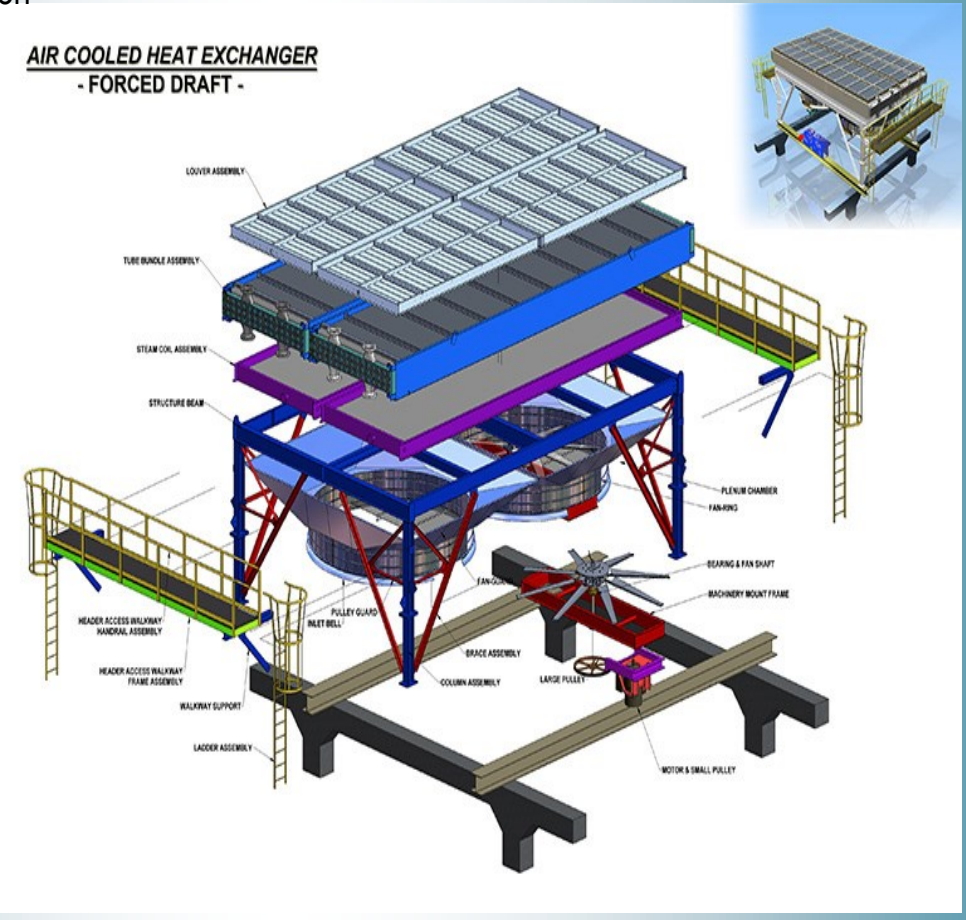
Forced draft air cooler exchanger

In this type of exchanger, the tubes are placed in the upper part of the fan. In this way, as a result of the heating of the input air, natural air suction takes place at the top of the tubes.

Therefore, the power consumption of the fan will be less. In addition, these types of exchangers are more compatible in cold regions. On the other hand, because the tubes are exposed to the sun, rain, and hail; as a result, they have more depreciation.

Among the disadvantages of this type of exchanger ,we can mention the lack of proper air distribution between the tubes and the possibility of hot air returning due to the low speed of the air exiting from the tubes.

- Low power consumption
- More adaptability in cold regions
- Lack of proper air distribution



Induced draft air cooler exchanger

The fan is placed on top of the tubes in this exchanger. The air is appropriately distributed in different parts around the tubes. The possibility of hot air returning to the ventilation part of the fan is less. The tubes are not exposed to rain and sunlight due to the effect of natural flow in the system. Among the disadvantages of this type of exchanger, it can be pointed out that more power is required because the fan is exposed to the hot air passing through the tubes. Another disadvantage of this exchanger type is less access to repair the fan parts.

The temperature of the output hot air of the tubes should be limited to about f200 because there is a possibility of damaging the fins, bearing, belt, and other fan parts in the hot air flow.

Proper distribution of air in different parts of the tube

More consumption power

The temperature of the output air must be controlled

Less access to fan repairs

IRUS Energy Co. has produced and manufactured the most standard equipment related to mini-refinery by using an experienced and expert workforce and the most advanced equipment. One of these products is an air cooler.