

Open cycle and closed cycle condensing system

A condenser is a device in which the steam is condensed by cooling it with water. The condensed steam is known as condensate. The following are the advantages of installing a condenser in a steam power plant.

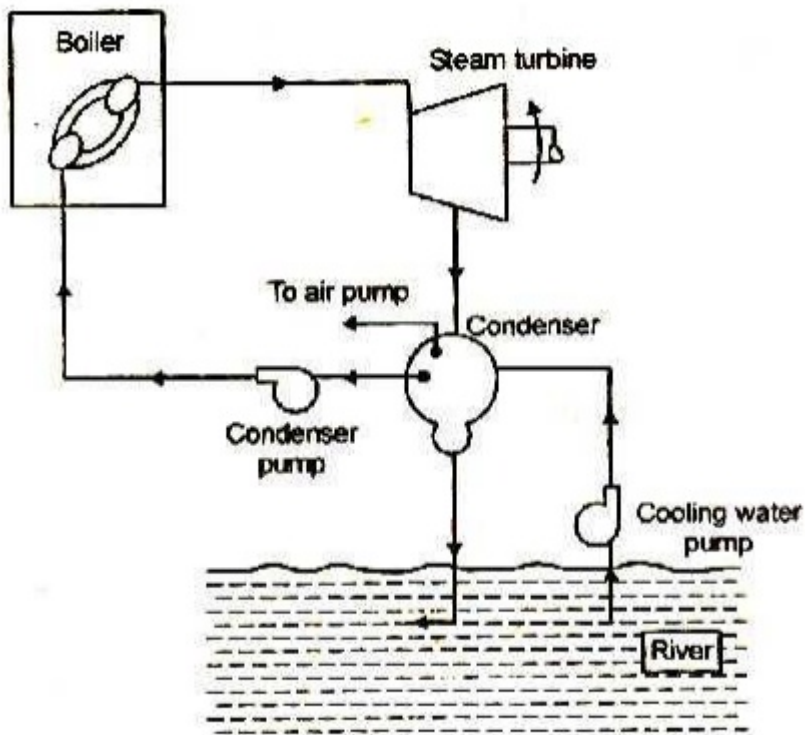
1. More work is done by the given amount of steam than could be obtained without a condenser. Thus, the efficiency of the power plant is increased.
2. Steam consumption is reduced for the given output.
3. The condensate is recovered for the boiler feed water.

The steam power plants using condenser are shown in figure shows that the cooling water used in condenser is not re-circulated again and again but discharged to the downstream side of the river. Whereas figure shows that the cooling water is re-circulated again and again by passing through the cooling tower.

The essential elements of a steam condensing plant is given below:

1. A closed vessel in which the steam is condensed.
2. A pump to deliver condensed steam to the hot well from the condenser.
3. A dry air-pump to remove air and other non-condensable gases.
4. A feed pump to deliver water to the boiler from hot well.
5. Another pump for circulating cooling water.

An arrangement for re-cooling the circulating water from the condenser such as cooling tower or spray pond.



(a) Open cycle condensing system

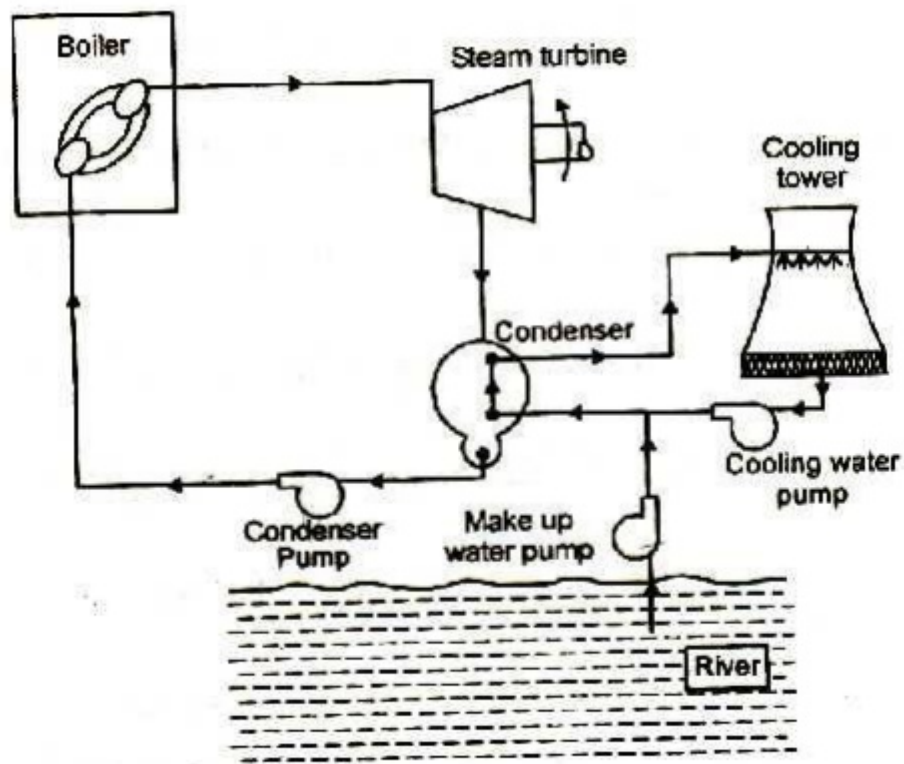


Figure: (b) Closed cycle condensing system