

> HEAT EXCHANGERS



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A Heat Exchanger is a piece of equipment used to cool a fluid that is hotter than desired, transferring this heat to another fluid that is cold and needs to be heated. The heat transfer takes place through a metal wall or a tube that separates both fluids.

Two or more process streams participate in a heat exchanger, some act as heat sources and the others act as heat receptors, which is transferred by direct contact through the metal walls of the tubes that make up the equipment. Equipment used to heat fluids generally employ steam as the heating source and equipment used to cool fluids usually employ water as the cooling fluid.

The applications of heat exchangers are very varied and receive different names:

- 1. Heat Exchanger:** It performs the double function of heating and cooling two fluids.
- 2. Condenser:** Condensates a vapor or mixture of vapors.
- 3. Cooler:** Cools a fluid by means of water.
- 4. Heater:** Applies sensible heat to a fluid.
- 5. Reboiler:** Connected to the base of a fractionating tower provides the Reboil heat needed for distillation. *(There are thermosiphons, forced circulation, boiler, etc.).*



IMPORTANCE OF HEAT EXCHANGERS:

Heat exchangers play an important role in chemical processing systems, air conditioning systems, heating and cooling systems. On the other hand, in our day to day we are also surrounded in our environment by household appliances, such as heaters, refrigerators, computers, boilers, air conditioners, in which the system that surrounds a heat exchanger operates. As you can see, heat exchange systems are necessary for our daily life. The fact that they have been used for many years shows that they are very useful.

At an industrial level, heat exchangers are usually used in most processes. One of the main uses of heat exchangers in industries is **refrigeration**, present in all types of sectors, such as oil, petrochemical, food, metallurgy, etc.

The importance of heat exchangers lies in the fact that they optimize the cooling process and make it more efficient. The exchanger does not have a single function, but can be used in different processes, in addition to saving resources and energy.

In general, a heat exchanger requires simple maintenance and any repair can be carried out easily, although failures usually do not occur. Also, should a repair be necessary, a large number of spare parts are often available.