A Look At The Different Types Of Heat Exchangers

The Heat Exchanger is a device built for efficient transferring of heat energy from one fluid to another across a solid surface. In a heat exchanger design both the convection and conduction principle of heat transfer is used. There is no radiative transfer of heat energy between the exchanger and the environment unless the exchanger is uninsulated or its external surfaces are very hot. The heat exchanger has wide use in engineering processes. The most common example of a heat exchanger is the radiator in a car. Here the hot fluid in the radiator is cooled by the air flow over the radiator surface.Some other examples of heat exchanger are preheaters, intercoolers, boilers, condensers, etc. that are used in the power plants. They are also used in refrigeration, air conditioning, chemical processing and power production.Different types of Heat Exchangers:There are different types of heat exchangers. They can be classified according to its construction into the following types i.e. shell and tube heat exchanger and plate and frame heat exchanger.– Shell and tube heat exchanger: This is a typical heat exchanger. The shell and tube heat exchanger is consisting of a series of finned tubes through which one of the fluids runs and the other fluid which is to be heated or cooled runs over the finned tubes.– Plate and frame heat K&K air duct cleaning exchanger: In a plate and frame heat exchanger, the fluids are separated by plates with a large surface area. Here the flow is directed through the baffles.The heat exchangers classified according to its uses are recuperative type, regenerative type and evaporative type.– Recuperative type: In recuperative type heat exchanger the heat from the fluids on either side of a dividing wall is exchanged.– Regenerative type: In regenerative type heat exchanger the hot and cold fluids are allowed to occupy the same space containing a matrix of material that works alternatively as a sink or source for heat flow.– Evaporative type: In evaporative type heat exchanger the fluid is evaporatively cooled in the same space as coolant such as a cooling tower.– The recuperative type of heat exchanger again can be designed according to one of the following types i.e. Parallel-flow, Counter-flow and Cross-flow.– Parallel-flow heat exchanger: In this type of heat exchanger both the fluids exchanges heat by flowing in the same direction through individual pipes.– Counter-flow heat exchanger: In this type of heat exchanger the fluids exchanges heat by flowing in the opposite direction through individual pipes.

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