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# CFD ANALYSIS OF PARALLEL AND COUNTER FLOW DOUBLE PIPE HEAT EXCHANGER

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**Abstract**

*Heat exchangers are devices used to transfer heat energy from one fluid to another. The temperatures of both fluids may change while flowing through the exchanger. The energy transferred between the streams results in a change in temperature of each fluid stream if neither fluid is undergoing a phase change. As a result of the gradual change in the temperature levels in an exchanger, the temperature difference across the heat transfer barrier vary over the length of the exchanger. There are also economic considerations which include as initial cost of the exchangers, necessary space, and required life of the unit and ease of maintenance*

*Double pipe heat exchangers are the simplest recuperates in which heat is transferred from the hot fluid to the cold fluid through a separating cylindrical wall. It consists of concentric pipes separated by mechanical closures. Inexpensive, rugged and easily maintained, they are primarily adapted to high temperature, high-pressure applications due to their relatively small diameters*

*In this thesis calculating pressure and temperature and velocity parameters in two different flow patterns (parallel, counter flow) and finally thesis conclude with which flow or Nano particle will have more hate transfer rate*

***Tools were used**:*
***Cad tool:** solid works*
***Cae tool**: Ansys workbench fluent*

**Author Keywords**

FLOW DOUBLE PIPE HEAT EXCHANGER, Necessary space, High-pressure applications

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