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# CFD Analysis of Twisted Tape Heat Exchanger with Twist Ratio of 3 in Metallic and Ceramic Nano Fluids

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## Abstract

The heat transfer enhancement is primary objective in the heat exchangers. The heat exchangers are employed for cooling, heating and evaporation purposes in the industries. Many of the heat exchangers designed as the heat transfer fluid flow inside the tube. So, in this research, the double tube heat exchanger is considered with unit length. The passive

method is one in which the flow resistance is to be introduced to enhance the heat transfer rate without affecting the pumping force. So, the tube inserts with twist ratio of 3 is considered. The water and water-copper oxide nano fluid and water-silicon dioxide nano fluid were considered for investigation. The flow properties such as pressure, temperature, velocity and turbulence kinetic energy were varied and discussed. The thermal performance, friction factor and enhancement factors are compared and discussed. The SiO<sub>2</sub>-water nano fluid has outperformed than the other fluids studied.

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