Effects of Twisted Tape V-Cut's with Different Tape Configuration on Heat Transfer in Heat Exchanger

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Abstract: The convective heat transmission of a water-based Ferro fluid was studied. In the presence and absence of an external magnetic field, water-based Ferro fluid was examined. It's Fe_3O_4-Water. 2019 R3 simulated and analysed the issue. Single-tube sim This tube contains Ferro. The tube's outer and inner diameters are 28 millimetres apart (di). 700 mm tube length was considered. We used ICEM CFD for Fluent 2019 R3 to construct the mesh's 158776 nodes and 145000 components. This design employs Fluent. The MHD module magnetically fielded the fluent add-on model. A conductor charged with external magnetic field. Local convective heat transfer was measured with and without magnetic fields. Reynolds numbers 250-800 were studied to improve heat transfer. B=500 G was used for a steady external magnetic field. Heat transfer must modify flow patterns. Magnets alter ferro fluid. Thermal and velocity boundary layers rupture under a steady magnetic field. This improves the device's heat transmission rate. Continuous magnetic fields cause flow recirculation. The thermal barrier layer's disintegration and higher flow mixing boost heat transfer rate.

Keywords: Continuous magnetic fields

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