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Heat Transfer Amplification through Special Tube Inserts and Metallic Nanofluids in Heat Exchanger

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Abstract

The heat transfer amplification is highly desired in aerospace and IC engine driven vehicles. Such amplification is achieved by active and passive methods. This research focuses the passive method of a specially designed tube insert. The objective of the study is to increase the heat transfer rate in the tube side of the heat exchanger with such special insert which creates the turbulence flow. Usually water is employed as heat transfer fluid. This investigation included the suspensions of metallic particles like alumina and copper oxides to

the plain water with neglected pumping loss. The alumina based nanofluid outperforms and supported well for all the considered flow cases.

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