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Design and Simulation of Heat Exchanger Fitted with Cu Porous Media and Ridges

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Abstract: Simulations using the k–epsilon model have been carried out to investigate the fluid flow and heat transfer characteristics in the Heat Exchanger with copper porous media. In designing heat exchanger, copper ridges are made on the surface in order to enhance the heat transfer. The parameters studied include the Reynolds number (Re<2000), pressure drop, temperature, thickness of the porous media used by maintaining the porosity e = 0.8. The comparison analysis is done between the computational work and existing heat exchanger with same boundary condition. Results show that newlydesigned heat exchanger enhance the heat transfer up to 15^0C.

Keywords : Heat Exchanger; Finite volume; Heat Transfer; Pressure Drop; Temperature; Simulation; k-epsilon model; copper ridges.

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