

Pengaruh variasi geometri sirip terhadap unjuk kerja kondensor tipe pembuluh dan kawat

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Abstract

Wire and Tube heat exchanger consists of coiled tube, and wire attached on the both sides of tube in perpendicular direction on the tube. The ability of this heat exchanger to dissipate heat is shown by the overall surface efficiency from arrays of fins or called as heat exchanger efficiency. The wires which have a function as a fin is the expansion of the outer surface of tube, so its will extent the surfaces of natural convection heat transfer from heat exchanger to the outside surroundings. The goals of this research is to analyse the wire and tube heat exchangers efficiency by increasing the number of wires that would be attached on one side and both side of the tubes. There are three different design of wire and tube heat exchangers and that's would be examined at three different level of mass flow rate (0.015 kg/s, 0.018kg/s and 0.021 kg/s). The fluid temperature entrance the system constant at 70°C. According to the theoretic, surfaces expansion of natural convection heat transfer will be increase the efficiency of heat exchangers. One of anyway how to extend the surface area of heat transfer is adds the wires. Increasing the number of wires expected influence the heat transfer rates, and it's directly related to the efficiency of heat exchangers.

Key words: heat exchanger efficiency, wire and tube heat exchanger, increasing the number of wires, free convection

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