

Experimental investigation on natural and radiation heat transfer in wire-on-tube heat exchangers

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Abstract

The heat transfer performances of an exchanger make a great contribution to the energy consumption and the life of a refrigeration or air - conditioning systems.

The M-Z interferometer and model experimental study are developed to analyse the radiation and free convection heat transfer characteristics of the wire-on-tube heat exchangers.

Based on the experiment, the radiation portion and free convection portion are determined through vacuum box tests. The geometrical and operating parameters of wire-on-tube are considered in these experiments. The system emissivity and natural convection heat transfer coefficients are proposed on the basis of detailed investigations on heat transfer process of wire-on-tube heat exchangers.

The research results have been used in wire-on-tube designing and produce process.