

Study on the Heat Transfer Performance of the Annular Fin under Condensing Conditions

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Abstract : A numerical investigation of the fin efficiency and temperature distribution of an annular fin under dehumidification has been presented in this paper. The non-homogeneous second order differential equation that describes the temperature distribution from the fin base to the fin tip has been solved using the central finite difference method. The effects of variations in parameters including relative humidity, air temperature, air face velocity on temperature distribution and fin efficiency are investigated and compared with those under fully dry fin conditions. Also, the effect of fin pitch on the dimensionless temperature has been studied.

Keywords : annular fin, dehumidification, fin efficiency, heat and mass transfer, wet fin

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