

A numerical study of the phenomena of heat transfer in plane air solar collectors

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Abstract

To understand the mechanisms of propagation of heat in different parts of the solar air plane, we present in this work a numerical study concerning the heat exchange between the different parts of a plane air solar collector with a smooth duct. This simulation allows us to provide almost exact information. It depends on the models used for the evaluation of the losses on the distribution of temperature in the principal components of the collector in the case of a steady regime. This work is carried out in order to develop a flexible method of energy analysis which can be exploited further in comparative studies of various structural and conceptual configurations of these converters of energy.

Keywords: solar energy, simulation, flat\plate collector, heat transfer, models.

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