عنوان مقاله:

Analysis of the Effects of Geometry on Irreversibility by Entropy Generation Method

محل انتشار:

بیستمین کنفرانس سالانه مهندسی مکانیک (سال: 1391)

تعداد صفحات اصل مقاله: 4

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خلاصه مقاله:

In this study a detailed review and analysis of the hydrodynamic characteristics of laminar fully developed, steady state, and incompressible flow for Newtonian fluids in insulated ducts of arbitrary crosssection is presented. New models are proposed, which simplify the prediction of the influence of geometry on entropy generation rate. In order to extend the subject, different geometries including circular and most noncircular duct geometries which are found in heat exchanger applications have been investigated. The distribution of volumetric local entropy generation rate resulted from exact velocity profile has been drawn for selected geometries. Results express that as the number of corners increases or in other words how much the cross section profile of a duct approaches to a circle, the irreversibility decreases.

کلمات کلیدی:

Entropy generation, Velocity profile, Duct, Arbitrary cross section, Laminar Internal flow