

عنوان مقاله:

Performance Improvement of Plain-Plate Heat Exchangers Using Winglet Type Vortex

محل انتشار:

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خلاصه مقاله:

Counter rotating longitudinal vortices produced by a winglet pair in a channel are known to enhance heat transfer. In the present work the flow structure and heat-transfer enhancement by a rectangular winglet pair has been studied. A rectangular winglet pair type vortex generator is placed in laminar channel flow. Computations are done by solving the steady, three-dimensional, incompressible Navier–Stokes and energy equation using finite volume method. It is observed that as compared to a channel without winglets, local heat transfer is enhanced several times but the average heat transfer is enhanced by 38% when a winglet pair is employed. Effects of angle of attack of the winglets and Reynolds number on the heat transfer augmentation and pressure drop and compactness are presented.

کلمات کلیدی:

Heat transfer, Vortex generator, Compactness, Fanning friction factor

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