عنوان مقاله:

The optimization of inlet and outlet port locations of a vented square cavity

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خلاصه مقاله:

In this study, mixed convection heat transfer and local and global entropy generation in aventilated square cavity have been investigated numerically. The natural convection effect isachieved by a constant heat flux imposed at the bottom wall and cooled by injecting a coldfollow. In order to investigate the effect of port location, four different placementconfigurations of the inlet and outlet ports are studied. In each case, external flow enters intothe cavity through an inlet port in the left side of the cavity and exits from the opposite side.The other boundaries are assumed adiabatic. The cavity is subjected to laminar flow of water.The investigation has been carried out for the Re=۱۰۰۰, and the Richardson number with therange of ۰.۰۰۰۱(Global Entropy Generation), Heat Transfer Irreversibility (HTI) and Fluid FrictionIrreversibility (FFI) are calculated and compared. Then, the optimum inlet/outlet configurationhas been selected based on the minimum GEG and the maximum heat transfer.

كلمات كليدى:

Vented square cavity, Entropy Generation, Heat transfer, Irreversibility, Fluid friction irreversibility

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