عنوان مقاله:

Effect of Fin Parameters in Cylindrical and Divergent Duct under Natural Convection

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خلاصه مقاله:

In this paper we propose a numerical study of the natural convective heat transfer flow in a three dimensional cylindrical and divergent annular duct. The inner cylinder subjected to a volumetric heat generation is fitted with longitudinal fins. The governing equations of mass, momentum and energy equation for both the fluid and the solid are solved by the finite volume method, using the commercially available CFD software Fluent. The effect of the inclination angle ϕ of the divergent and the fin parameters on the profiles and the contour fields of temperature and velocity as well as the average Nusselt number ratio were investigated for ϕ=۰°,۱۵°,۲۳° and ۴۵°and a number of fins, N=۱,۲,۳ and ۴. The Simulations were carried out in the range of Rayleigh numbers (Ra = ۱۰۰ to Ra=۶.۳x۱۰۴). The results reveal that .the increasing of the inclination angle of the divergent and the number of fins enhances the heat transfer

کلمات کلیدی:

Fin, Annular space, Divergent duct, Heat sink