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REVIEW OF MIXED CONVECTION HEAT TRANSFER IN INCLINED DUCTS

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Abstract

Heat Transfer from a solid surface to a fluid takes place by two modes of fluid motion. If the fluid motion is due to the density difference occurring in fluid under the influence of body forces, then it is called as *Natural Convection*. While, when the motion is caused by using external sources such as pump or centrifugal blowers, then it is termed as *Forced Convection*. When both natural and forced convection combine and participate in heat transfer, then it is termed as *Mixed Convection*. In mixed convection, buoyance forces are induced due to the change in density of fluid with temperature. Depending upon the orientations and heating conditions, the buoyant flow can cause various flow reversals which alter the flow characteristics and enhance or reduce the heat transfer. Various heat transfer mechanisms and geometries have been studied by some engineers and scientists purposely to augment heat transfer in heat exchangers and some other heat transfer equipments. The present paper is a review of the heat transfer augmentation techniques used in the recent past. This paper will be helpful for those who are working in the area of mixed convection, which is having prominent importance in energy technology.

Keywords: Free Convection, Forced Convection, Mixed Convection, Buoyancy.