

Numerical Model Validation Using Durbin Method

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Abstract : The computation of the effectiveness of turbulence enhancement surface features, such as ribs as means of promoting mixing and hence heat transfer, has attracted the continued attention of the engineering community. In this study, the simulation of a three-dimensional cooling passage is carried out employing a number of turbulence models including Durbin model. The cooling passage consists of a square section duct whose upper and lower surfaces feature staggered cuboid ribs. The main objective of this paper is to provide comparisons of the performance of the v2-f model against other established turbulence models as implemented in the commercial CFD code Ansys Fluent. The present study demonstrates that the v2-f model can successfully capture the isothermal air flow phenomena in flow over obstacles.

Keywords : CFD, cooling passage, Durbin model, turbulence model

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