

CFD Analysis of Diamond Shape Airfoils at Supersonic Speed

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Abstract: *The Aim of this paper is to perform aerodynamic analysis of double wedge / diamond shape airfoil of different wedge angles at supersonic speed at Mach 2. In this work, the flow over a "Diamond shaped Airfoil" in aspects of coefficient of Lift, coefficient of Drag, coefficient of pressure, and flow velocity at Mach 2 at various angle of attack was investigated. Using ANSYS Workbench, one of the top programmes for computational fluid simulation, and Ansys design workbench for modelling, we have analysed the flow parameters between three diamond-shaped airfoils with various geometry. In this paper it has concluded that the diamond shape airfoil with wedge angle 10° is experiencing lower drag compared to other two airfoils at supersonic speed.*

Keywords: Supersonic, compression, expansion, oblique shock, double wedge airfoil, Transonic, Wave drag, Shockwave, ANSYS FLUENT

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