

277. NUMERICAL SIMULATION AND COMPUTATIONAL STUDY OF THE MECHANICAL THRUST VECTORING ON THE PERFORMANCE OF SINGLE EXPANSION RAMP NOZZLE

T. kumarasan¹, C. Suresh²

Department Of Aeronautical engineering

Hindustan University

Chennai India

1kumarasan62@gmail.com, 2csuresh@hindustanuniv.ac.in

Whenever we need appreciable maneuvering, the ultimate choice is thrust thrust vectoring control system, because they provide good survivability and improved good performance in the case of gas turbine. Even through there are different ways to achieve greater jet deflection. In this paper study of single expansion ramp nozzle is analyzed with standard k-epsilon turbulence models using fluent software. After designing the model in gambit, it is exported mesh file to the fluent software for analysis different angle with supersonic inlet condition for purpose of thrust vectoring. Based on the initial condition and with the help of method of characteristics, nozzle configuration with two dimensional is drafted. The study begins with a simple upper flat ramp at different angles with small lower cowl at fixed angles. The results obtained with different angles of single expansion ramp nozzle and they explain variation of critical parameters like pressure, velocity, forces, and Mach no, for these different contours are analyzed and compared with various angles.

Key words: single expansion ramp nozzle, ramp angle, cowl angle, cowl length, ramp length, gambit, and fluent.

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