

ANALYZING DRAG REDUCTION USING AERODISK FOR A BLUNT MISSILE NOSE

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ABSTRACT

A blunt vehicle flying at supersonic speeds generates a bow shock wave ahead of its nose, which is responsible for the high drag called the wave drag. There have been a number of efforts devoted towards reducing this drag by modifying the flow field ahead of the vehicle's nose. The use of spikes at the blunt nose has been one of the most effective method. This analysis has been carried out to evaluate the feasibility of using the aerodisk as a drag reduction device for blunt cones of a missile flying at supersonic speeds and the resulting drag coefficient values is reported. A numerical analysis is performed using ANSYS Fluent 15 for measuring aerodynamic drag for the blunt nosed cone with and without aerodisk. Further drag is calculated with different L/D ratio (4-14 with an increment of 2) of the aerodisk at zero-degree angle of attack with nominal Mach number of 2.

KEYWORDS: *Aerodisk, Simplest and the Most Reliable Technique, Measuring Aerodynamic Drag*

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