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Investigation of Drag Coefficient for Rigid Ballute-like Shapes[1]
MARIA-ISABEL CARNASCIALI, ANTHONY MASTROMARINO, Univ of New Haven — One common method of decelerating an object during atmospheric entry, descent, and landing is the use of parachutes. Another deceleration technology is the ballute – a combination of balloon and parachute. A CFD study was conducted using commercially available software to investigate the flow-field and the coefficient of drag for various rigid ballute-like shapes at varying Reynolds numbers. The impact of size and placement of the burble-fence as well as number, size, and shape of inlets was considered. Recent experimental measurements conducted during NASA's Low-Density Supersonic Decelerator program revealed a much higher coefficient of drag (C_d) for ballutes than previously encountered. Using atmospheric drag to slow down and land reduces the need for heavy fuel and rocket engines and thus, high values of drag are desired.

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