TEST SECTION BLOCKAGE CORRECTIONS FOR SUBSONIC OPEN-CIRCUIT WIND TUNNEL

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ABSTRACT

By their very nature, even the most perfect wind tunnels cannot produce an unconstrained flow past a model. The problem of blockage in the test section has been of concern to experimentalists and theoreticians in the study of model shapes, wind tunnel design and experimental techniques over the years. This Blockage arises mainly due to the tunnel-wall interference. The foundation of research on tunnel-wall interference is attributed to Prandtl because his lifting-line theory, led to many experimental investigations with the object of verifying the theory. The interference due to the wall contributes to different types of blockages in the test section. Therefore, modifications are required so that the test results similar to those of the actual conditions.

This paper will touch upon different types of blockage effects and the corrective methods to be used.

KEYWORDS: Test-Section, Buoyancy, Boundary layer, Solid Blockage, Wake Blockage & Wall Correction

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