

Title: AERODYNAMIC DESIGN AND COMPUTATIONAL ANALYSIS OF YAW SPHERE FOR SUBSONIC WIND TUNNEL CALIBRATION

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Abstract

Flow analysis is considered to be the most crucial procedure in aerodynamics. Analysis of flow and its parameters over any object has to be done with considering aerodynamic loading acting over it. In the field of aerodynamics, wind tunnel test setup is used for flow analysis. The wind tunnel test section should always afford a laminar and uniform flow to provide exact results during flow parameter determination. But attaining cent percent laminar flow inside a wind tunnel test section is practically not possible. Hence there is a immense requirement of performing calibration before starting any research experiments in a wind tunnel. It is to be noted that wind tunnel calibration is done with ultimate care to avoid any error in the analysis. Generally a pitot-static probe is used to calibrate subsonic wind tunnel. But the pitot –static tube has many limitations like single point data sensing. Hence a new efficient and compact instrument has to be developed for the calibration of wind tunnels. In this paper, a yaw sphere is designed and analysed to perform the calibration of a subsonic wind tunnel.

Biography

Akhila Rupesh is pursuing PhD from Lovely Professional University and Master in Engineering in Thermal Engineering from Anna University with Fifth Rank. She has completed her Bachelor's in Engineering in Aeronautical Engineering from Anna University with First Rank and Gold Medal. She has published more than 24 papers in reputed journals and has been serving as an Advisory Board Member in 5 reputed journals. She is a Lifetime member of 'The Indian Science Congress Association' , 'International Association of Engineers' and 'Aeronautical Society of India'.

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