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An investigation of Leading Edge and Trailing Edge Corrugation for Low Reynolds Number Application

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Abstract : The flow over a smoothly profiled airfoil at a low Reynolds number is highly susceptible to separate even at a very low angle of attack. An investigation was made to study the effect of leading-edge and trailing-edge corrugation with the spanwise change in the ridges resulted due to the change in the chord length for an infinite wing. The wind tunnel results using NACA0018 wings revealed that leading and trailing edge corrugation did not have any benefit in terms of aerodynamic efficiency or delayed stall. The leading edge and trailing edge corrugation didn't change the lift curve slope, with the leading edge corrugation wing stalling first in the range of Reynolds number of 50,000 to 125,000.

Keywords : leading and trailing edge corrugations, low reynolds number, wind tunnel testing, NACA0018
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