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COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OFFX 63-137 AIRFOIL AT LOW REYNOLDS NUMBERS

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Abstract

In this study, the capability of the present day RANS based CFD solver in predicting the characteristics of the FX 63-137 airfoil at a low Reynolds number is carried out. The Reynolds number considered in the present work varies between 0.08 to 0.2 million. Computational simulations were carried out on both sharp trailing edge and blunt trailing edge FX 63-137 airfoils. The comparison between the two FX 63-137 airfoils brings out the effect of the trailing edge on the aerodynamic coefficients. Experimental tests were conducted on the FX 63-137 airfoil for these low Reynolds numbers at the MART facility of CSIR-NAL to validate the CFD simulations. Further, the present MART tunnel data is compared against the experimental data available in the literature. This comparison will show the differences in the experimental results between the tunnels and how the CFD simulations compare against them.

Keywords: Low Reynolds Number Airfoil Flow, LSB