Effect of KFm Airfoils Application on Aerodynamic Characteristics on the Example of NACA 0012

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Abstract

The paper presents of the application of Kline-Fogleman modified to determine aerodynamic characteristics and flow filed around the exemplary airfoil. This type of airfoil is currently used in models and small unmanned aircraft. Work on the use of this profile in larger aircraft is on-going, however, the increase in Reynolds number requires an active step change in the size of the stairs to improve the aerodynamic characteristics. The SST turbulence model was used in CFD calculations in COMSOL Multiphysics®. The results of lift and drag coefficients determination in COMSOL Multiphysics® are presented in the figure.
Conclusion:
- The use of the CFD Module allowed determination of aerodynamic characteristics
- Introduction of KF modifications caused an increase in Cl for (KFm1 and KFm3 below) and decrease (KFm2 and KFm3)
- Accurate qualitative results were obtained in terms of Cd and Cl determination.

Figures used in the abstract

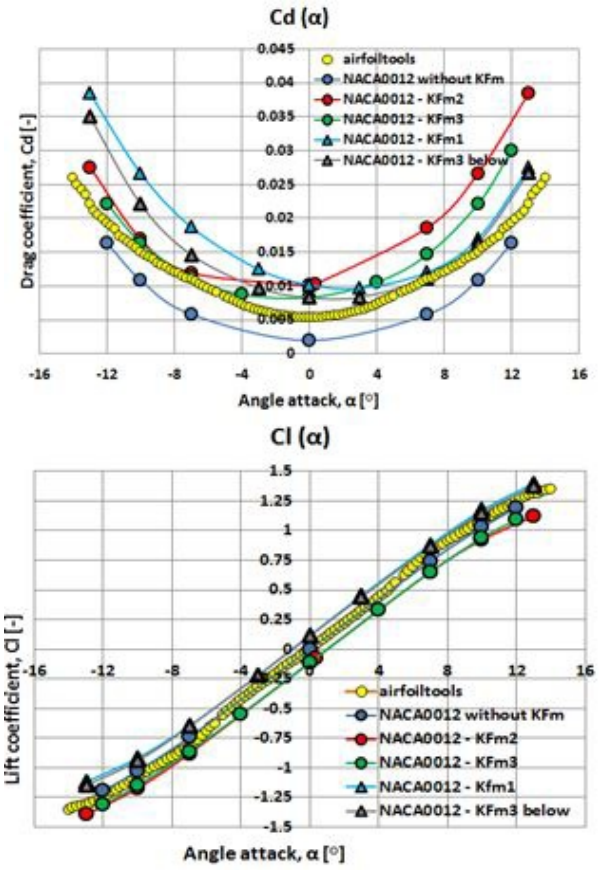

Figure 1