Abstract

This small-scale open-circuit wind tunnel designed in subsonic flow The performance of constructed of small-scale wind tunnel on NACA 0018 airfoil with velocity of 5ms and 10m/s with respect to Reynolds number 50 000 and 100 000 has been utilized. The angle of attack was set at 0 deg, 5 deg and maximum 10 deg. The aerodynamic efficiency (CL/CD) of small-scale wind tunnel and calibrated wind tunnel were compared with data from Airfoil Tools. The corrected and uncorrected data for both Reynolds number has been done to reduce the error between Airfoil Tools data. From the overall result, the corrected small-scale wind tunnel and calibrated wind tunnel for Reynolds number 50 000 and 100 000 shows difference less 26% and 28% respectively. The aerodynamic efficiency show less than 25% comparison between corrected small-scale wind tunnel and calibrated wind tunnel compared to Airfoil Tools for both Reynolds number. Both wind tunnels show a good agreement between Airfoil tools and sufficient to be used for educational purposed. © 2020 SERSC.