



Experimental Study on The Analysis of The Use of Forward and Rearward Wingtip Fences 90o Cant Angle on Wing Airfoil Eppler 562

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Abstract. This research is a detailed experimental study on aerodynamic characteristics for wing model airfoil Eppler 562 with and without wingtip. There are two types of wingtip fences at variations that will be used in this research that are rearward and forward wing tip fence set at cant angle 90o. The chord length of the airfoil is 72 mm and the span length is 300 mm. The Reynolds (Re) number used is 2.3×10^4 ($U_\infty = 10$ m/s) with angle of attack variations (α) = 0° to 19° . For this research, pressure distributions over the airfoil were measured using a pressure transducer. Moreover, measurements lift and drag forces of the airfoil were obtained by using a load-cell system. Oil flow visualization method was used to represent the surface flow patterns. The experimental results showed that as the angle of attack increased, the separation and the transition points moved towards the leading edge at all models. Furthermore, for airfoil with forward wingtip fence with cant angle 90o C_L/C_D is better than for airfoil with rearward wingtip fence with cant angle 90o and plain wing. Forward wingtip fence showed the best optimum performance of $\alpha = 10^\circ$ settings compared to the other models.

Keywords: Wingtip fence, Eppler 562, Oil flow visualization, C_L/C_D

