

**Aerodynamic Analysis NACA 4412 Airfoil Form Semi Inverse-Tapper Type
HAWT (*Horizontal Axis Wind Turbine*)**

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ABSTRACT

Wind turbine blades are using to drive generator, in the blades there are airfoils that can produce lift force. One that affects the airfoil performance is angle of attack (AOA). This research was conducted to analyze the aerodynamics of the NACA 4412 semi inverse-tapper airfoil. The material is using PVC with an airfoil size (length 20 cm, a base chord 13.26 cm and a tip chord 12 cm) at wind speed 3 m/s, 5 m/s, 7 m/s, 9 m/s and 12 m/s. The test was performed by experimental method by using wind tunnel and simulation with solidwork application, the results of two methods are compared for analysis. The results of research show that more fast the wind speed that strikes the airfoil, more greater the value of lift force and drag force, this is directly proportional to the value of lift coefficient and drag coefficient, the best angle of attack for airfoil type NACA 4412 semi inverse-tapper form angular position angle of attack 5 ° at wind speed 3 m/s.

Key words: angel of attack, NACA 4412, Cl/Cd.