

Vardar A, Eker B (2006). Mathematical Modelling of Wind Turbine Blades Through Volumetric View, *Wind & Structures-An International Journal*, Vol.9, No.6: 493-503

Abstract

The demand for energy in the world increases every day. Blade energy which is wind turbine is a significant resource which must be appreciated in this field. Especially, in places where wind potential is high, the usage of wind energy is a beneficial factor for every country's economy. In this study, first, 6 different miniature rotor were produced by using 6 different NACA profiles. Rotors were produced with three blades. The electrical performance and the speed of start of action values that are provided from each rotor form were established by measuring them in the wind tunnel. The calculation of area and volumetric values of each profile and wind surfaces were made with AutoCad technical drawing program. As a result, it was searched whether there is any relation between electrical performance values and speed of start of motion that rotors produced and volumetric values of rotors. The aim of this study is to find out whether rotor blade volume is one of factors that influences rotor performance. The general tendency observed here is that the increase in the volume of rotor blade leads to an increase in the speed of start of motion and to a decrease in the rotor performance.