

RANCANG BANGUN TURBIN ANGIN SAVONIUS TIPE

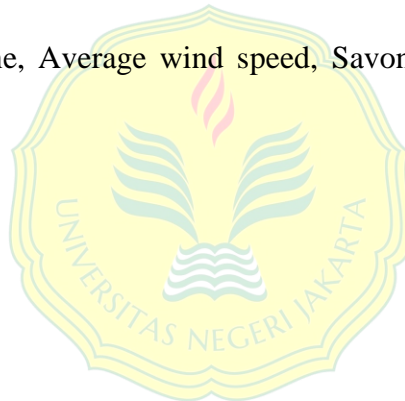
ABSTRACT

HORIZONTAL AXIS PADA KECEPATAN

NOVI DWI LESTARI. Design of the Savonius Wind Turbine Type Horizontal Axis at Low Wind Speeds. Mini Thesis, Physics, Faculty of Mathematics and Natural Sciences, Jakarta State University, July 2022.

Wind energy is an abundant and renewable energy that can be used to drive mechanical equipment and generate electricity. The mechanical equipment in question is a wind turbine. With an average wind speed of 2m/s to 6m/s, it shows that the wind speed in Indonesia is quite low. Based on this, this study aims to design a horizontal axis Savonius wind turbine at low wind speeds and can measure turbine output to obtain the output power and efficiency of the turbine. The method used in this research is the experimental method. The turbine design is made using 0.3mm clear PVC as the basic material for the turbine blades, the turbine blades consist of 3 helical U-type blades with dimensions of 93cm long, 16cm wide and 8cm radius. And using an aluminum profile of 20mm × 20mm as the basic material for the turbine frame, the turbine frame has dimensions of 100cm long, 30cm wide and 35cm high. Data collection was carried out 10 times for each variation of wind speed (1m/s to 10m/s). The results showed that the highest increase in output power occurred at a wind speed of 6m/s with a power of 0.46Watt, an increase of 0.13Watt from the previous wind speed variation. And produces an average shaft rotation of 132.28rpm, an average output power of 0.27Watt, and an average efficiency of 7.10% at wind speed variations of 2m/s to 6m/s.

Keywords: Wind turbine, Average wind speed, Savonius wind turbine, Output power, Efficiency.



*Mencerdaskan dan
Memartabatkan Bangsa*

Novi Dwi Lestari

1306618003