

Savonius Vertical Wind Ring Design Using Permanent Magnet Generator

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ABSTRACT

Technological developments, especially in the field of electric power which is growing very rapidly and increasing electricity demand along with the increasing population, but at this time greater energy needs are filled with fossil-fueled energy which is decreasing in number, from the energy crisis the emergence of the most frequent topics discussed is how to utilize alternative energy.

There are many alternative energy sources but there are also many obstacles to development so that they are looking for alternative energy that is cheap and effective. Wind power is considered cheap and easily accessible for motion power but the use of wind power is relatively low, wind turbines are known by two categories: horizontal axis wind turbines (HAWT) and vertical axis wind turbines (VAWT). The design of this new vertical wind turbine is focused on increasing efficiency and reducing the minimum wind speed that can rotate the turbine.

From the windmill test, it is known that the maximum voltage produced by a windmill is 13.8 volts and a current of 1.57 amperes with a 158 rpm windmill speed at a wind speed of 6.7 m / s at 12.00. From the use of electrical energy from the highest wind measurement results at 12.00 that is 1.57 amperes while the lowest one occurs at 17.00 which is 1.50 amperes.

Keywords: VAWT, Windmill