

Design and Fabrication of an Atmospheric Vortex Engine

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Abstract

Today the demand for power has been boosted in many ways and it is vital to have a better, more reliable and cleaner energy source. In the end, our goal is to meet energy demand demands. Research shows that the AVE is a successful source and has many benefits over this twin solar chimney. The atmospheric vortex engine (AVE). With these studies, the remaining heat source energy from the industry / thermal energy plants can be generated. The AVE model is intended and analyzed using computer modeling with computer fluid dynamics. In order to achieve optimum design and working circumstances, the parameters which affect the efficiency of AVE vary. The scaled AVE model is also constructed and the flow is practically passed on to study the vortex. It has been discovered to be strong enough to rotate a tiny turbine inside. Smoke and tiny particles have also been carried in order to see the flow. The study shows that AVE can produce a sustainable turbulence and produce energy in the CFD analysis. This document is also the basis for future investigations.

Keywords-AVE, vortex, turbulence, CFD analysis

INTRODUCTION

In this widespread and increasing globe, scientists from around the globe need clean energy beacons. Some of its energy sources, mostly from the sun or the air or water currents owing to Earth rotation, were recognized as renewability. There are both its own benefits and constraints for every technique. The uses of rare elements by solar panels are expensive and diverse methods, for example geothermal, tidal and others require complicated assemblies and are not reliable during one year. For power generation from the source, the notion of updraft and vortex is used. The heat of Sun creates density changes and updrafts are produced. The tornadoes can achieve power but in the true situation the power was not acquired[1]–[9]. A mixture of tornadoes principle and solar chimney is available in the atmospheric vortex motor. The free vortex is the vortex that circulates far from the center quicker than the fluid. The forced vortex is the fluid that rotates as a strong body to generate vortex. The characteristics of the vortex are the smallest fluid pressure in the center. The vortex also begins from the center and finishes only at the fluid border or forms loops closed. The temperature shift creates density changes so that the movement of lighter air to fill vacuum is termed as Updraft.

$$v_{\theta} = \omega r$$



Figure-1 an atmospheric vortex engine

RESULT AND CONCLUSION

AVE design has the capacity to produce vortex from this article. This technique can be used on a big scale. The findings of the computations can ensure that AVE can be feasible and is no longer conceptual in actual circumstances. AVE's benefit is environmentally friendly and no coal emissions are also present. Industrial and non-hazardous effluents can be used. The solar and wind turbine mix is therefore more effective than other energy-generating equipment. The height of the tower and the sound in the tower are some of the disadvantages of AVE. It can't be used now in regions with a densely populated population and needs a little extra start-up energy. AVE's working problems will in future be evaluated in many circumstances and used for many reasons.

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