

# DIMENSIONAL ANALYSIS OF CHANGES IN OSCILLATING PART FOR VORTEX POWER PLANT

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## ABSTRACT

Vortex power plant is a new technology than other energy conversion, how it works in contrast to the vibrations that are usually avoided in structural design. In this system, the vibration amplitude increased to produce a high. An important component in the conversion of electric power is oscillating parts. In this study, oscillating parts of the model by varying the ratio of cylinder diameter and length, and its configuration with the arrangement of two cylinders, all work on fluid flow models 0,6, 0,7 and 0,8 m/s. By using CFD software to determine the excitation velocity and the lift force generated and manual calculations to calculate the amplitude, so he found the largest amplitude for single-cylinder model in Model III ( $D/L = 12,57/120$ ) with a maximum amplitude of 513 mm at a speed of 0,8 m/s and a minimum amplitude of 107,4 mm at a speed of 0,6 m/s. For two-cylinder configuration obtained the maximum value on the competition of two cylinder models ( $D/L = 12,57/120$ ), vertical distance ( $v = 2.5 D$ ) with maximum amplitude of 617 mm on the flow velocity 0,8 m/s and a minimum amplitude of 81 mm at a speed flow of 0,6 m/s. Amplitude values will be useful in the design of linear generator.

*Keywords: Energy Conversion, oscillating part, amplitude.*