ANALYSIS OF EFFECT OSCILLATING PART
TRANSFORMATION IN VORTEX CONVERSION ENERGY
USING NUMERICAL MODEL

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ABSTRACT

Vortex energy conversion represents one the new environmental friendly power source that can be exploited as an effort to lessen greenhouse gas emission from the atmosphere. Nowadays, expertise and scientist tries to produce more vibration, so that the effect of existence of the vibration can exactly be taken, exploited and altered into an electric power. This final project purpose is to knowing the transformation effect of Oscillating Part in order to maximizing the VIV’s (Vortex Induced Vibration) amplitude in vortex conversion energy. Furthermore, this final project also analyzing the comparison among the transformation of oscillating part with VIVACE (Vortex Induced Vibration Aquatic Clean Energy) (Bernitsas et all, 2004). The dimension of Cylinder that was analyzed in this project has length 914.4 mm, and diameter 127 mm. The current speed that was used in every model was 0.4; 0.5; and 0.7 m/s. The amplitude value in this project was equal to 17-350 mm at speed of stream 0.4 - 0.7 m/s. The biggest amplitude value which was produced by “VIII” model with $d_1/d_2$ ratio = 1.25 and length 914 mm. In the other hand amplitude value that produced by ellipse model was smaller comparing with the amplitude that was produced by cylinder model which is equal to 32-375 mm at speed of stream 0.4 - 0.7 m/s.

Key word : vortex conversion energy, oscillating part, numerical model.