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DEPARTMENT OF MECHANICAL ENGINEERING

A PROJECT REPORT ON

“EXPERIMENTAL INVESTIGATION OF DRAG COEFFICIENT OF SEMI CIRCULAR HOLLOW CYLINDRICAL CUP FOR DIFFERENT ORIENTATION”

(APPROVED BY KSCST)

Submitted in partial fulfillment of the requirement for the award of the degree
of

**BACHELOR OF ENGINEERING
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ABSTRACT

The blades of the Savonius Wind turbine blades are of semi-cylindrical shape. Due to the impact of wind and asymmetry in the drag force on each of the rotor blades, savonius wind turbine rotates and delivers power. The rotors orient differently during rotation with respect to wind direction at different angular locations and hence the drag force experienced by each of the rotors varies with angular positions of the rotors. This leads to non uniform distribution of torque coefficient of the rotor. The distribution of the torque coefficient can be estimated using the drag coefficient data measured under static conditions. The available literature does not provide sufficient information on the variation of drag coefficient of the rotor at different angular positions under static conditions for different rotor configurations.

Hence, the objective of the present investigation is to experimentally study the influence of orientation and shape of the rotor on its drag coefficient. In the present study, an open jet of wind tunnel is used and the measurements are made for one Reynolds number.