EXPERIMENTAL STUDY ABOUT THE EFFECT OF DISTANCE BETWEEN CYLINDER TYPE I 53° AND ON CHARACTERISTICS OF A CIRCULAR CYLINDER FLOW IN A CIRCULAR CYLINDERS IN TANDEM COMPILATION

"Case Study For Longitudinal 1.733\leq P / D \leq 2.333"

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Abstract

Construction of a cylinder-shaped base has been widely used in the engineering application. So research on the characteristics of fluid flow across the surface of this cylinder is very interesting to study. Several previous studies performed that the resulting drag force on the flow of damage. Therefore made various changes from the basic form of a cylinder with a view to reduce the relate of the drag force a appear. One method that is done is by using another cylinder placed in front of the main cylinder, where by the main cylinder drag force is affected by the characteristics of flow in front of.

In this research, experimental test of two cylinders (circular cylinder and cylinder type I 53°), which are arranged in tandem in the wind tunnel. Tests conducted by distance ratio between both a diameter of the cylinder (P/D) are 1.733, 1.8, 1.867, 1.933, 2.0, 2.067, 2.133, 2.2, 2.267, 2.333, respectively and distribution coefficient of pressure (CP) is...
obtained by measuring the static pressure that of static pressure on surface contour of circular cylinder. While the velocity profile is measured using a pitot static tube placed behind the cylinder. It uses a Reynolds number of $Re = 5.3 \times 10^4$, and the variation distance is used between a diameter of type I 53° cylinder and circular cylinder (P/D) are 1.733, 1.8, 1.867, 1.933, 2.0, 2.067, 2.133; 2.2; 2.267; 2.333 respectively.

From the research that has been done, it was found that with increasing distance P/D reattachment will move forward, and the separation occurs earlier so as to produce a wide wake. With a wide wake so that the greater the drag force. Type I 53° of cylinder at a distance $1.733 \leq P/D \leq 2.333$, will appear bubble separation both on the upper side and lower side.

**Keywords:** cylinder type-I 53°, the main circular cylinder, a tandem arrangement, the pressure coefficient (CP), wide wake, Coefisien Drag ($C_{Dp}$)