Mathematical Model of C_d for Circular Cylinder Using Two Passive Controls at Re = 5000

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Abstract: This study focuses on two passive controls. Passive control is the addition of a small object to an object to reduce the drag force of the object. In this case, two passive controls are placed in front of and in the rear of the main object. The distance between the main object and the two passive controls varies and the Reynolds number used is 5000. The main object is a circular cylinder, and its passive control in front is a cylinder of type-I at the distance S / D = 0.6, 1.2 ; 1.8; 2.4; 3.0 and in the rear is an elliptical or circular cylinder at the distance T / D = 0,6; 0,9; 1,2; 1,5; 1,8 and 2,1. In this study, we want to find an effective distance of the main object to two passive controls so that the drag coefficient of the main object is minimal compared to that with non-passive control or with one passive control in front. In addition, a mathematical model of the drag coefficient of circular cylinders with two passive controls at Re = 5000 will be obtained.

Keywords: *passive control; drag coefficient; cylinder.*

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