

عنوان مقاله:

Cross Flow past Circular Cylinder with Waviness in Confining Walls near the Cylinder

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خلاصه مقاله:

Two dimensional flow past circular cylinder confined by walls with local waviness near the cylinder has been studied. The aim of the present study is to identify the ability of the waviness to control vortex shedding, for which two different waviness configurations such as in-phase configurations (IPC) and out-phase configurations (OPC) are considered. Further, the effect of location of the local waviness with respect to the cylinder has also been studied. Air is the working fluid and the flow is assumed to be laminar and incompressible at $Re=200$. The finite volume based CFD solver Ansys Fluent (Version 15.0) is used for the computations. Flow characteristics such as drag, lift and Strouhal number are computed. Interesting shedding characteristics and drag reduction are observed due to the presence of local waviness. However, the significant factor is the location of waviness in the confining walls that leads to complete suppression of shedding. Among various locations and configurations of waviness studied, waviness in downstream .with OPC^۳ suppresses the vortex shedding completely with reduced drag

کلمات کلیدی:

Flow past cylinder, Laminar flow, Wavy, wall confinement, Vortex shedding control

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