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عنوان مقاله:

Numerical comparative study between flow field characteristics of a double-inlet and single-inlet self-excited jet

محل انتشار:

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خلاصه مقاله:

Oscillatory flow can be observed in the presence of one and also two self-excited jets issuing into a cavity. Until now no investigation has been done on a double-inlet self-excited jet. In the present work, the characteristics of the oscillatory flow caused by a double-inlet jet in a rectangular cavity are studied and compared with those of a single-inlet jet. The numerical simulation was carried out by OpenFOAM code by using Reynolds averaged Navier-Stokes equations and shear stress transport turbulence model. Results indicate that employing the double-inlet self-excited jet is able to increase the oscillation frequency and decrease the value of oscillation amplitude in comparison with a single-inlet one. Indeed, the interactions between two flow jets in the double-inlet self-excited jet prevent from fully flapping motion. Also, the results showed that in the case of double-inlet jet the velocity magnitude are generally lower than the single-inlet self-excited jet at the same flow rate enters the cavity. The flow field of the single-inlet self-excited jet is symmetric around the central axis of cavity while asymmetry in flow behavior is more evident in the double-inlet case.

کلمات کلیدی:

Self-excited jet, Oscillatory flow, OpenFOAM.

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