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Wake modifications in confined flows due to the presence of a downstream cylinder in staggered arrangement (Article)

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Abstract

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In the present study, confined flows around two square cylinders in staggered arrangement were numerically investigated. Cross-flow and streamwise center-to-center spacings of one- and three-cylinder diameters, respectively, were considered. Simulations were carried out at Reynolds numbers Re = 50,100,150 and 180, where the resulting wakes are laminar and periodic. Results indicate that the presence of the downstream cylinder tends to reduce the Strouhal number, amplitude and the time-averaged lift coefficient of the upstream cylinder relative to the single cylinder cases. Furthermore, the time variations of upstream cylinder's lift coefficient behave similar to that of a single cylinder.

SciVal Topic Prominence

Topic: Reynolds number | Vortex shedding | rectangular cylinder

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Author keywords

Drag coefficient | Lift coefficient | Square cylinder | Strouhal number | Vortex shedding

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