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# Cavitating Flow through a Venturi Using Computational Fluid Dynamics

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**Abstract :** Hydrodynamic cavitation is a complex physical phenomenon that appears in hydraulic systems (pumps, turbines, valves, Venturi tubes, etc.) when the fluid pressure decreases below the saturated vapor pressure. The works carried out in this study aimed to get a better understanding of the cavitating flow phenomena. For this, we have numerically studied a cavitating bubbly flow through a Venturi nozzle. The cavitation model is selected and solved using a commercial computational fluid dynamics (CFD) code. The obtained results show the effect of the inlet pressure (10, 7, 5, and 2 bars) of the Venturi on pressure, the velocity of the fluid flow, and the vapor fraction. We found that the inlet pressure of the Venturi strongly affects the evolution of the pressure, velocity, and vapor fraction formation in the cavitating flow.

**Keywords :** cavitating flow, CFD, phase change, venturi
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