

Abstract

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Modelling the Effect of Incompressible Leakage Patterns on Rupture Area in Pipeline

This paper presents a three-dimensional analysis for rupture area in steel pipeline using a general-purpose CFD solver. A model is developed for studying leakage in steel pipes with different hole diameters and different fluid flow properties such as pressures and velocity. Solutions of the distribution of water flow velocity, pressure and turbulence are presented and discussed. The results is shown that there is a direct relation between the maximum velocity, total pressure turbulence intensity and leakage mass flow rate with rupture area in pipes. Finally, the simulation results is showed a good a agreement with experimental results