

Title: Computational evaluation of hydraulic system behaviour with entrapped air under rapid pressurization

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Abstract: The pressurization of hydraulic systems containing entrapped air is considered a critical condition for the infrastructure's security due to transient pressure variations often occurred. The objective of the present study is the computational evaluation of trends observed in variation of maximum surge pressure resulting from rapid pressurizations. The comparison of the results with those obtained in previous studies is also undertaken. A brief state of art in this domain is presented. This research work is applied to an experimental system having entrapped air in the top of a vertical pipe section. The evaluation is developed through the elastic model based on the method of characteristics, considering a moving liquid boundary, with the results being compared with those achieved with the rigid liquid column model.

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