RECENT ADVANCES IN CFD FOR MODELLING GAS FLOW IN PIPES

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ABSTRACT

The paper presents a comprehensive review of works that had been done on analysis of fluid transients, including a LINEBREAK model which was developed by the authors, for analysis of transient and unsteady flow following a break in high pressure natural gas pipelines. The LINEBREAK model was compared with experimental data. A summary of the available computer models for gas flow analysis, a discussion of the various approaches which have been used to develop the models, including the theoretical basis, manipulation of the basic equations of flow, calculation of thermodynamic and transport properties of the gas, calculation friction force, numerical methods of solution and computational requirements have been presented and discussed.