

## SUPPLEMENTAL LOADS IN MAIN GAS PIPELINES DUE TO MULTIPLE SUPPORTS

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### ABSTRACT

*In the present paper we consider a main gas pipeline subject to supplemental loads due to various jointing conditions. The main aim of the paper is to develop a numerical analysis of a multi supported main gas pipeline subject to static loads. This analysis was conducted on a pipeline on five supports and with ninety degree elbows on each end. Normal stresses, shear stresses and bending moments were taken into account for maximum stress determination.*

**KEY WORDS:** gas pipelines, strengths, efforts, displacements, loads, constraints.

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### REFERENCES

- [1] **Bia, C., Ilie, V., Soare, M.V.**, *Rezistența materialelor și teoria elasticității*, București, Editura Didactică și Pedagogică, 1983.
- [2] **Haisler W.A.**, *Bending and Extension of Thin Plates*, <http://www.aeweb.tamu.edu>
- [3] **Matthews, C.**, *Engineers guide to pressure equipment*, Professional Engineering Publishing, Limited, London 2001.
- [4] **Maty B.**, *Introducere în metoda elementelor finite*, Editura Tehnică, București, 1995.
- [5] **Posea, N., Anghel, A., Grigore, N.**, *Statica și dinamica sistemelor de conducte*, București, Editura Academiei Române, 1996.
- [6] **Radoiu B., Kumbetlian G., Peride N.**, *Using Cauchy's equations in cylindrical coordinate system for thin shell's stresses determination*, Acta Universitatis Pontica Euxinus, number 2, volume 3, 2004.
- [7] \*\*\* Norme tehnice pentru proiectarea și construcția conductelor de alimentare din amonte și de transport gaze naturale M.O. 960/29.11.2006