Mathematical model for pipe and weld strength in underwater pipelines design
Part 2: Specific forces inside the pipe material; Underwater pipelines cases

Mihaela Iordachescu*, Emil Constantin*,
Danut Iordachescu*, Viorica Constantin*, Valeriu Georgescu*,
*Dunărea de Jos University of Galaţi, România

ABSTRACT

The paper presents some underwater pipelines design particularities connected to Romanian experience for gas and oil pipelines design and assembling.

Ensuring for the assembling of the pipe an optimal floating under international quality rules for welded joints is essential for the strength of the pipe welds. The Robotics and Welding Department of Mechanical Faculty, Galati University developed a general mathematical model for pipe and weld strength computation in accordance with different floating underwater pipe assembling, contributing to the research in this field.

This mathematical model establishes the correlation between the launching technology and the pipe/weld strength. It can be applied for different water depths, types of pipeline leaning, pipe diameters, pipe lengths etc.

The pipeline weight, exterior hydrostatic pressure, interior pressure of the fluid, bending of the pipe during launching and exterior dynamic pressure of the water current are the main loads the pipe has to support.

References

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