ANALYTICAL STUDY OF MECHANICAL PROPERTIES OF ROD-LIKE CENTRALIZERS FOR CASING TUBES

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Purpose. The paper aims at studying the influence of the axial mobility of the centralizer's ends on the parameters of its rigidity and strength. These characteristics are necessary to assess the passability of the casing string and quality of well completions.

Methodology. Classical linear theory of shallow rods was used to model operating link of the centralizer. Physically the rod was taken for inextensible along the axis and elastic for bending.

Findings. The problem of the interaction of elastic rod casing centralizers with the wellbore wall is considered. The stress-strained state of the arcuate rod with six various fastening options in the conditions of point contact was studied. Analytical dependences between the contact force and the mutual convergence of the casing string and the borehole wall, as well as formula for the equivalent stress were determined. A way of fastening the rod along the axis of the pipe significantly affects these characteristics, in particular, presence or absence of reciprocal displacements of the ends of the rod in the axial direction. The engineering formulae of two-side estimations of rigidity and strength of real centralizers' designs were obtained.

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Keywords: casing centralizer, rod, contact interaction, stressed state, rigidity, strength

INFLUENCE OF OVERHEATING AND COOLING RATE ON THE STRUCTURE AND PHYSICOCHEMICAL PROPERTIES OF AL-CU ALLOYS

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Purpose. Study the was to investigate the structural properties of Al-Cu alloys depending on the heating temperature of the alloy above the liquidus, the cooling rate [1-3].