Temperature resistance of magnetoelastic characteristics of 13CrMo4-5 constructional steel

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In the paper the results of investigation on tensile stresses dependence of magnetoelastic characteristics of cores made of 13CrMo4-5 constructional steel are presented. In the investigation step-cooling treated samples were used. The step-cooling process is a type of heat treatment simulating effects of passing time and environmental conditions (temperature and stress) on the sample. In the paper the method of testing the influence of stresses on the magnetics characteristics is presented. Frame shaped samples ensured a closed magnetic path and homogeneous decomposition of stress. It was found that step-cooling process doesn't significantly influence the magnetoelastic characteristics and the structure of the samples. On the other hand, then tensile stresses significantly change of the magnetic characteristics of 13CrMo4-5 constructional steel. That confirms the possibility of using measurements based on the magnetoelastic effect in stress assessment for industrial NDT of steel constructions.

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