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Quantitative Study of Magnetic Memory Signal Characteristics Affected by the External Magnetic Field

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Abstract: In order to study the effects of magnetic memory signal affected by the external magnetic field, the magnetic domain model is used to quantify the distribution characteristics of the surface of the magnetic signals on the stress concentration areas in this paper. By using the method of finite element analysis, the magneto-mechanical model of X70 pipeline steel are established. The change rules of magnetic signals in the stress concentration areas under different external magnetic fields are calculated and analyzed, and the systematic research of the experiments are researched. Research results show that: under the geomagnetic field, there is a one to one linear corresponding relationship between the degree of the stress concentration and the magnetic memory signal. The magnetic memory signal on the different directions changes with the increase of stress, and the trends are different. The ferromagnetic metal components are unsaturated when the intensity of the external

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