

عنوان مقاله:

Three-Dimensional Finite Element and Experimental Simulation of magnetic flux leakage-type NDT for Detection of Pitting Corrosions

محل انتشار:

چهارمین کنفرانس بین‌المللی آزمون‌های غیرمخرب ایران (سال: 1395)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Turaj azizzadeh - PhD student, Iran university of science and technology

Mir saeed safizadeh - Associate professor, Iran university of science and technology

خلاصه مقاله:

Magnetic flux leakage (MFL) testing is the most commonly used and cost effective method of estimating the extent of damage caused by corrosion in gas and oil transmission pipelines. In this paper, based on the Maxwell Equations, three-dimensional simulation on pitting corrosion inspection in 10 mm thick carbon steel plate using MFL has been carried out. A FEM-based COMSOL software in magnetostatic mode has been used for three-dimensional simulation. The MFL signals of defects, which have the same length, same width, and different depths, have been studied. The MFL signals have also been obtained experimentally using an experimental set-up at the laboratory facilities on a 10 mm thick carbon steel plate containing pitting corrosions. Good agreements between FEM simulation and experimental results confirms the potential of the three-dimensional simulation for MFL inspection.

کلمات کلیدی:

Magnetic flux leakage, Pitting corrosion, Three-dimensional simulation, Pipeline inspection, COMSOL software

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/910550>

