EDDY CURRENT THERMOGRAPHY TESTING ON LACK OF FUSION (LOF) DEFECT OF CARBON STEEL WELDED SAMPLE

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ABSTRACT

EDDY CURRENT THERMOGRAPHY TESTING ON LACK OF FUSION DEFECT (LOF) OF CARBON STEEL WELDED SAMPLE

Eddy Current Thermography Testing technique is one of the advanced emerging non-destructive test techniques that provide fast and efficient method for defect detection and characterization over a relatively large area of surface or subsurface of the material being tested. This technology is based on the current excitation at the specific heating time by the action of electromagnetic induction on probe. The probe will produce magnetic flux directly towards the electrically magnetic material and will form the path of eddy current on the material. Eddy current path will be disrupted by the presence of defect. The quantitative information about the defect will be acquired by the infrared camera that is sensitive to transient signal of heat on the material under inspection. The quantification analyses of position and length of Lack of Fusion (LOF) defect can be made through a maximum temperature amplitude feature. The study is implemented by the acquisition of two-dimensional image from the thermoIMAGER TIM software of the infrared camera and stimulating line scan graph of temperature amplitude by using Matlab. In recent years, Eddy Current Thermography Testing technique has gained interest of many researchers as well as being part of industries demand. The studies demonstrate the effectiveness and reliability of the Eddy Current Thermography technique which can provide both qualitative as well as quantitative information for defect assessment compared to the other conservative non-destructive technique which will only provide qualitative information.