Bi-eddy current sensor based automated scanning system for thickness measurement of thick metallic plates

Authors Hocine Nebair, Ahmed Cheriet, Islam N El Ghoul, Bachir Helifa, Samir Bensaid, Ibn Khaldoun Lefkaier

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Description

Generally, the thickness of thick metallic plates is measured by exploitation of some physical phenomenon outside of eddy currents which are naturally limited for thin plates with respect to the skin effect. Indeed, it is the capacitive or ultrasound sensors which are the commonly used for thick plates. This paper proposes an alternative for thickness evaluation of thick metallic plates using eddy currents. The measurement system consists mainly of two eddy current sensors, an impedance analyzer LCR-meter and a personnel computer equipped with the Labview software. The plate we want to measure its thick thickness is placed between the two sensors. The proposed measurement procedure is based on lift-offs evaluation of a bi-eddy current sensor. The system has been verified and validated with success using several thick aluminum plates. The realized experimental setup can be used for online thickness …