

Time-dependent evaluation of inductive pulse heating measurements

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Thermo-inductive investigation can be well used for the detection of surface cracks in metallic materials. In this technique the work-piece is heated by induced eddy currents and an infrared camera is recording the temperature distribution of the surface. Irregularities and failures cause anomalies in the temperature distribution. Therefore, cracks become visible in the infrared images. In this paper the temperature distribution around a surface crack and its changes in the time are investigated after a short inductive pulse heating. Results of measurements and calculations are presented showing the advantages of this technique. Magnetic and also non-magnetic materials have been investigated and in both cases the failures become very well visible, independently from inhomogeneous surface properties or inhomogeneous heating.

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