Anna Runnemalm, J Appl Mech Eng 2016, 5:3(Suppl)
http://dx.doi.org/10.4172/2168-9873.C1.002

Automatic inspection of surface cracks in welded components

Anna Runnemalm
University West, Sweden

The automotive and aeronautic industries are today aiming for lighter structures in order to fulfill environmental requirements. With the goal to reduce weight the margin of safety might be reduced, then the quality control become more important and the interest of automatic inspection has therefore increased. It is obvious that general inspection and an automatic result of the quality of each and every product are competitive. An automatic inspection cell consists of a measuring device, a mechanized system for scanning, software for automatic analysis of the acquired data, and also a system for automatic reporting and feed-back of the results. Different non-destructive testing (NDT) systems have been evaluated as possible measuring techniques in an automatic inspection cell. For inspection of surface cracks in welds, infrared thermography has proven to be suitable. Since the method is non-contact and full field, several automation problems are obviated. Another advantage is that the methods do not need any pre-treatment of the surface. Results show that surface cracks less than 25 µm in width are detectable. Surface cracks both in the weld area and in the heat affected zone are detected. In addition, the output from the thermography system can be used for control of the scanning, weld joint tracking. This makes the automation cell more flexible and minimizes the need of different measuring sensors.

Biography

Anna Runnemalm has a PhD degree in Experimental Mechanics from Luleå University of Technology, Sweden, and experience from optical measuring techniques. She has a position as Assistant Professor in Experimental Mechanics at University West, Sweden, and is the coordinator of non-destructive testing activities at the Production Technology Centre in Trollhättan. Her research focuses on automatic inspection in general and specially on automatic nondestructive testing of welded joints. She is author and co-author of more than 20 paper published in international journals and conferences.

anna.runnemalm@hv.se

Notes: