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CONTENTS

INSTITUTE OF WELDING

The International Institute of Welding and The European Federation for Welding, Joining and Cutting member

Summaries of the articles

T. Pfeifer, L. Aucott, A. Żak - Testing of solidification cracking susceptibility of MAG welded overlays on S355JR steel using a Transvarestraint test

Application of the Transvarestraint test to assessment of solidification cracking susceptibility of overlay welds made by MAG method on S355JR steel has been presented. A specific test rig enabling to apply different strain of the test piece with high speed was designed. In the course of the research the weld pool temperature history was registered, cracking qualification was done and the examination of crack opening and HAZ using scanning electron microscopy and light microscopy was carried out. Solidification cracking temperature range of this material system was determined.

W. Jamrozik, M. Fidali – Application of image fusion to identification of welding imperfections

It has been presented the issues concerning the application of images fusion registered in visible and infrared radiation for diagnostics of MIG/MAG processes. The sequences of visible and infrared images visualizing the arc burning during performing the weld were examined. Recorded during experiments image sequences were subjected to fusion and next to analysis in order to obtain diagnostic signals. On the basis of selected features of diagnostic signals it was carried out the classification of the welding process state and its results were compared with those obtained for diagnostic signal features determined independently for visible and infrared images. The results show that the application of images fusion enables to identify effectively various welding imperfections forming in welding processes.

A. Sawicki - Damping factor function in AC electric arc models. Part 2: Damping factor function in universal electric arc models with moderate cooling

Nonlinear function of the heat processes damping factor in thermal column plasma have been introduced to modified mathematical models of the AC electric arc. This way, universal arc models with moderate cooling and constant geometric sizes, using static characteristics, have been created. Similar method has been used to hybrid arc models with variable column length connecting Berger and Kulakov models. It has been proposed the introduction of nonlinear damping factor function to modified Voronin model using static characteristics. Thereby the extended range of current for application of these models has been achieved.

R. Krawczyk, P. Wojtas, K. Poch - Comparative assessment of selected welding imperfections in VT, PT and MT methods

The issues connected with assessment of sensitivity in selected NDT methods are considered. In particular, the attention has been paid to the tests which make it possible to detect any imperfection of surface, i.e. visual testing, liquid-penetrant and magnetic-powder method. The aim of the studies was to reveal the analogy and differences between results obtained from series of tests (VT, PT and MT).

M. Stachurski – Non-destructive testing of helically welded pipes made of thermomechanically rolled materials used for sending of combustibles

In the first part of the paper it has been presented the short information on methods

of fabrication of helically welded pipes used for transporting of combustibles. In the second one it has been given the NDT methods used during inspection of the pipes in production plants. In the next parts it has been described the NDT methods for steel pipes focusing first of all on visual, ultrasonic and radiographic ones. The paper has been ended with the information about prospects of gas industry development in Poland and in the world.

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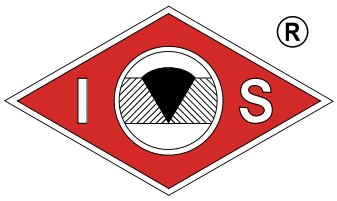
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