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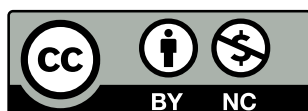
BIMONTHLY

Volume 57

CONTENTS

- M. St. WĘGŁOWSKI – Electrolytic etching in welding metallography..... 5
- J. HILKES, V. GROSS – Welding of CrMo steels for power generation and petrochemical applications - past, present & future 11
- A. KURC-LISIECKA – Forming of the texture, structure and mechanical properties of cold-rolled AISI 304 steel..... 23
- O. K. MAKOWIECKAJA – Technological innovations – a basis for the increase of competitiveness of welding industry in the USA..... 30
- A. SAWICKI – Damping Factor Function in AC Electrical Arc Models. Part 1: Heat Process Relaxation Phenomena, their Approximations and Measurement..... 37

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



Summaries of the articles

M. St. Węglowski – Electrolytic etching in welding metallography

It has been discussed the process of electrolytic etching of metals and possibilities of its application to welding technology. The attention has been drawn to such process parameters as: potential difference, current density, electrolyte temperature, electrolyte stirring and polishing time as well as to their influence on the metallographic specimens quality. The procedure of preparation of metallographic specimens to the electrolytic etching process has been described. It has been indicated also the necessity of application of appropriate equipment which will provide stability of etching process parameters. Selected results of electrolytic etching of welded joints and parent materials have been presented.

J. Hilkes, V. Gross – Welding of CrMo steels for power generation and petrochemical applications - past, present & future

The paper provides an overview of the development and applications of the classic CrMo, the new CrMoV steels all the way up to 12Cr1Mo. Also, the corresponding welding consumables for the power generation and the petrochemical industry have been discussed. Reference has been made to the various international material standards that are applicable and the specific properties and requirements as set by today's industries.

A. Kurc-Lisiecka – Forming of the texture, structure and mechanical properties of cold-rolled AISI 304 steel

It has been determined the influence of the plastic strain in the cold rolling process on forming of the texture, structure and me-

chanical properties of AISI 304 steel. The texture analysis was carried out basing oneself on pole figures and three-dimensional function of orientation pattern. Diffraction phase analysis and magnetic examination have shown the presence of α' martensite in the steel structure after deformation. The volume fraction of martensite grew larger together with the increase of the degree of deformation. The plastic strain induced $\gamma \rightarrow \alpha'$ martensitic transformation in the whole deformation range. It was observed the development of both austenite and martensite texture. On the basis of mechanical tests it has been found that together with the increase of the plastic strain amount in AISI 304 steel its mechanical properties and hardness grow while its plastic properties decrease.

O. K. Makowieckaja – Technological innovations – a basis for the increase of competitiveness of welding industry in the USA

It has been presented the tasks and issues in the field of materials joining. The model of development and implementation to production of technological innovations proposed by the Edison Welding Institute in the USA has been analysed.

A. Sawicki – Damping Factor Function in AC Electrical Arc Models. Part 1: Heat Process Relaxation Phenomena, their Approximations and Measurement

The article is dedicated to technical evaluation of knowledge about arc damping factor function. Special attention is paid to its specific value - the time constant, which decides about the functioning quality of electrotechnological devices and electrical

apparatus. Factors affecting heat process relaxation phenomena in electrical arc have been described. Approximation possibilities of energetic process damping factor func-

tions in electrical arc have been examined. Experimental methods of determining dynamic parameters of AC arc have been described.

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