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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

A. Sawicki, M. Haltof - Spectral Method for Determining Parameters in the Mayr and Cassie Models of Electric Arc

The paper describes the effect of various external factors on the static and dynamic voltage-current characteristics of electrical arcs as well as presents the spectral method for determining parameters of the Mayr and Cassie mathematical models. This method was also used for the coarse classification of arcs. The effect of column length disturbances on the uncertainty of arc model parameter determination was investigated using MATLAB-Simulink program.

O. K. Makowieckaja – Industrial Robots on the Market of Means of Production Automation

In the automation means segment of the automation market the most dynamic growth in demand is concerned with industrial robots, making up 4% of the global automation market and 17% of the global automation means market. The article presents results of economic and statistical analysis of the automation means market, and in particular of the industrial robots market, from the global, regional and industrial point of view.

K. Krastel, G. Chrobak – New Production Tools for Energy-efficient Joining Technology in Automotive Manufacturing

The LaserSeamStepper (laser welding gun), introduced by IPG, is a new laser welding tool which is comparable with a standard resistance spot welding gun. The components are initially pressed together and then welded by laser radiation. The integrated laser safety function greatly facilitates the use of the laser material processing and keeps down high investment costs. Manual guided laser welding and one-sided accessibility extends the range of applications and manufacturing processes. Overlap joints in the automotive industry (car body) as well as planking of space frame structures can be done very cost-effectively on a normal shop floor. A continuous improvement process has taken place since the beginning of car series production with the LSS, the result of close cooperation with different car manufacturers. This results in a highly reliable laser welding tool with an availability of 99.9 percent. Due to the high repeatability of the complete system (fiber laser and LSS module), a very high continuous production quality can be guaranteed without any rework at the manufactured part itself.

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- **International Welding Specialist (IWS)**
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