References


East European Welding Research News

By Rudolph O. Seitz

EAST GERMANY

ZIS Mitteilungen 11, No. 11 (Nov. 1969).

• Hirschfeld, G.: Study of the relation between welding and weld parameters in semiautomatic CO₂-shielded welding (1869-80).—An attempt has been made to find some simple relationships between the welding parameters and corresponding weld parameters for the purpose of obtaining basic information for the evaluation of experimental data by means of a computer.

• Schellhase, M.: Arc welding stability examined on the basis of a parameter diagram (1881-89).—All the conceivable parameters which affect the static and dynamic stability of the welding arc are arranged and related to each other in the form of block diagrams to show the ramifications of their effect on the arc.

• Heining, W. and Nitsche, R.: Theoretical studies toward improving the control action of resistance spot-welding machines (1890-1900).—The growing trend toward automation in spotwelding requires a thorough study of the factors affecting spotweld quality. It is desirable to find a single factor which reflects the process of forming a spotweld with sufficient accuracy so that it can be used to obtain welds of consistent quality. One of these factors examined by the author is the temperature variation in the welding spot.

• Schulze, W.: Problems in the magnetoinductive measuring of the weld gap (1902-07).—After describing the principle of an automatic guiding system for welding heads based on magnetic induction the author discusses various types of plate edges which have an adverse effect on the guiding accuracy.

• Einicke, H.: Arc welding power

U.S.S.R.


• Seleznev, A. G. et al.: Study of the structure of the transition layer in friction welding with the aid of radioactive isotopes (21-24).—The results of a study of the structure of the contact layer in the friction welding of dissimilar metals, using tagged atoms, are reported. In the friction welding of St 30 and PIL steels and also of St 30 and Armco iron no substantial migration of carbon atoms was observed. It is shown that there is no diffusion of carbon atoms at a depth beyond 5-10 microns.

• Krutikovskii, V. G. and Tregubov, G. G.: Dimensions of the weld deposit as a function of the welding variables in submerged arc overlap welding with strip electrodes (25-27).—An empirical relationship was established between the width of the weld deposit and the welding parameters (Continued on page 284-s)
East European Welding Research News

(Continued from page 253-s)

and compared with the theoretical relationship.

• Ilyushenko, V. M. et al.: Antifriction properties and wear resistance of leaded tin bronze overlays (28-31).—The wear resistance and the coefficient of friction of leaded tin bronze overlays were determined. An anti-friction alloy with optimum composition was selected for the fabrication of bimetallic heavy duty bearings.

• Volchenko, V. N.: The classification of welding processes (32-38).—Welding is defined as an irreversible thermodynamic process with local changes in the state of matter and of energy. The author bases his classification of the welding processes in the fundamental concept of energy.

• Kakhvskii, N. I. et al.: Welding of Cr-Ni-Mo single-phase austenitic steels (39-43).—The effect of manganese and nitrogen on the cracking resistance of fully austenitic welds has been studied. The nitrogen-containing Cr-Ni-Mn-Mo wire EP 690 and the ANV-17 electrodes were developed for welding the Okh 17N 16 M 3 T, 00 kH 17 N 16 M 3 B and 000 kH 16 N 15 M 3 steels. They give welded joints of uniform strength, uniform corrosion resistance and sufficiently high ductility and toughness of the weld metal.


- Zhukov, V. V.: Welding gold to Kovar with the laser beam (47-48).—It is shown that gold contacts and current-carrying elements made of Kovar can be successfully joined by welding with the laser beam and that the resulting joints are of high quality.

- Rudzit, R. B. and Kalais, A.: Effect of the dynamics of the compression mechanism on the heat concentration in the percussion welding of T-joints (49-52).—The percussion welding of T-joints between bars and plates by the use of a compression mechanism with different dynamic properties was investigated. It is shown that the heat concentration at the point of contact can be controlled by varying the free acceleration of the electrode.

- Cherednichok, V. et al.: Special features of rod-to-plate joints produced by flash welding (53-56).—The interdependence of the parameters which are characteristic of the upsetting process in making T-joints and the properties of the resulting welds were studied.