

The Paton WELDING JOURNAL

September 2013

No.9

Published since 2000

English translation of the monthly «Avtomacheskaya Svarka» (Automatic Welding) journal published in Russian since 1948

Editor-in-Chief B.E.Paton**EDITORIAL BOARD**

Yu.S. Borisov, A.Ya. Ishchenko,
 B.V. Khitrovskaya (*exec. secretary*),
 V.F. Khorunov, I.V. Krivtsun,
 S.I. Kuchuk-Yatsenko (*vice-chief editor*),
 V.I. Kyrian, Yu.N. Lankin,
 V.N. Lipodaev (*vice-chief editor*),
 L.M. Lobanov, A.A. Mazur,
 O.K. Nazarenko, I.K. Pokhodnya,
 V.D. Poznyakov, I.A. Ryabtsev,
 K.A. Yushchenko,
 A.T. Zelnichenko (*exec. director*)

INTERNATIONAL EDITORIAL COUNCIL

N.P. Alyoshin (Russia)
 Guan Qiao (China)
 V.I. Lysak (Russia)
 B.E. Paton (Ukraine)
 Ya. Pilarczyk (Poland)
 O.I. Steklov (Russia)
 G.A. Turichin (Russia)
 M. Zinigrad (Israel)
 A.S. Zubchenko (Russia)

Founders

E.O. Paton Electric Welding Institute
 of the NAS of Ukraine,
 International Association «Welding»

Publisher

International Association «Welding»

Translators:

A.A. Fomin, O.S. Kurochko,
 I.N. Kutianova
Editor
 N.G. Khomenko
 Electron galley
 D.I. Sereda, T.Yu. Snegiryova

Address

E.O. Paton Electric Welding Institute,
 International Association «Welding»
 11, Bozhenko Str., 03680, Kyiv, Ukraine
 Tel.: (38044) 200 60 16, 200 82 77
 Fax: (38044) 200 82 77, 200 81 45
 E-mail: journal@paton.kiev.ua
 www.patonpublishinghouse.com
 URL: www.rucont.ru

State Registration Certificate
 KV 4790 of 09.01.2001
 ISSN 0957-798X

Subscriptions

\$348, 12 issues per year,
 air postage and packaging included.
 Back issues available.

All rights reserved.

This publication and each of the articles
 contained herein are protected by copyright.
 Permission to reproduce material contained in
 this journal must be obtained in writing from
 the Publisher.

CONTENTS**SCIENTIFIC AND TECHNICAL**

Kuchuk-Yatsenko S.I., Shvets V.I., Didkovsky A.V., Antipin E.V. and *Kapitanchuk L.M.* Defects of joints of high-strength rails produced using flash-butt welding 2

Rybakov A.A., Filipchuk T.N., Kostin V.A. and Zhukov V.V. Influence of chemical composition of microalloyed steel and cooling rate of HAZ metal of pipe welded joints on its structure and impact toughness 9

Lobanov L.M., Pashchin N.A. and Mikhoduj O.L. Electrodynamic straightening of elements of sheet welded structures 18

Velikoivanenko E.A., Rozynka G.F., Milenin A.S. and Pivtorak N.I. Modelling of processes of nucleation and development of ductile fracture pores in welded structures 24

INDUSTRIAL

Yushchenko K.A., Yarovitsyn A.V., Yakovchuk D.B., Fomakin A.A. and Mazurak V.E. Some techniques for reducing filler powder losses in microplasma cladding 30

Nesterenkov V.M., Kravchuk L.A. and Arkhangelsky Yu.A. Mechanical properties of joints of heat-resistant 10Kh12M, 10Kh9MFBA grade steels, made by electron beam welding 37

Ryabtsev I.A., Babinec A.A., Gordan G.N., Ryabtsev I.I., Kajda T.V. and Eremeeva L.T. Structure of multilayer samples simulating surfaced tools for hot deforming of metals 41

Korotkov V.A. Effect of residual stresses on journal fixing in grinding mill body during surfacing 46

BRIEF INFORMATION

Borisov Yu.S., Vojnarovich S.G., Kisliitsa A.N., Kalyuzhny S.M. and *Kuzmich-Yanchuk E.M.* Manufacture of resistance electrical heater by microplasma cladding process 50

«The Paton Welding Journal» abstracted and indexed in Ukrainian refereed journal «Source», RJ VINITI «Welding» (Russia), INSPEC, «Welding Abstracts», ProQuest (UK), EBSCO Research Database, CSA Materials Research Database with METADEX (USA), Questel Orbit Inc. Weldasearch Select (France); presented in Russian Science Citation Index & «Google Scholar»; abstracted in «Welding Institute Bulletin» (Poland) & «Rivista Italiana della Saldatura» (Italy); covered in the review of the Japanese journals «Journal of Light Metal Welding», «Journal of the Japan Welding Society», «Quarterly Journal of the Japan Welding Society», «Journal of Japan Institute of Metals», «Welding Technology».