

The Paton WELDING JOURNAL

September 2014

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,
 B.V. Khitrovskaya (*exec. secretary*),
 V.F. Khorunov, V.V. Knysh, I.V. Krivtsun,
 S.I. Kuchuk-Yatsenko (*vice-chief editor*),
 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*)
(Editorial Board Includes PWI Scientists)

INTERNATIONAL EDITORIAL COUNCIL**N.P. Alyoshin**

N.E. Bauman MSTU, Moscow, Russia

V.G. Fortushny

Welding Society of Ukraine, Kiev, Ukraine

Guan Qiao

Beijing Aeronautical Institute, China

V.I. Lysak

Volgograd State Technical University, Russia

B.E. Paton

PWI, Kiev, Ukraine

Ya. Pilarczyk

Weiding Institute, Gliwice, Poland

U. Reisgen

Welding and Joining Institute, Aachen, Germany

O.I. Steklov

Welding Society, Moscow, Russia

G.A. Turichin

St.-Petersburg State Polytechn. Univ., Russia

M. Zinigrad

College of Judea & Samaria, Ariel, Israel

A.S. Zubchenko

OKB «Gidropress», Podolsk, Russia

FoundersE.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.A. Dmitrieva
Electron gallery

D.I. Sereda, T.Yu. Shegiryova

Address

E.O. Paton Electric Welding Institute,
 International Association «Welding»
 11, Bozhenko Str., 03680, Kyiv, Ukraine
 Tel.: (38044) 200 80 16, 200 82 77
 Fax: (38044) 200 82 77, 200 81 45
 E-mail: journal@paton.kiev.ua
 www.patonpublishinghouse.com

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

The 80 th Anniversary of the E.O. Paton Electric Welding Institute of the NAS of Ukraine	2
SCIENTIFIC AND TECHNICAL	
Paton B.E., Lobanov L.M., Lysak V.L., Knysh V.V., Pavlovsky V.I., Prilutsky V.P., Timoshenko A.N., Goncharov P.V. and Guan Qiao. Deformation-free welding of stringer panels of titanium alloy VT20	6
Krikent I.V., Krivtsun I.V. and Demchenko V.F. Simulation of electric arc with refractory cathode and evaporating anode	17
Larkin Yu.N., Ryabtsev I.A., Soloviov V.G., Chernyak Ya.P. and Zhdanov V.A. Effect of electric parameters of arc surfacing using flux-cored wire on process stability and base metal penetration	25
INDUSTRIAL	
Yushchenko K.A., Kozulin S.M., Lychko I.I. and Kozulin M.G. Joining of thick metal by multipass electroslag welding	30
Korotynsky A.E., Drachenko N.P. and Shapka V.A. Peculiarities of application of supercapacitors in devices for pulse welding technologies	34
Lebedev V.A., Maksimov S.Yu., Pichak V.G. and Zajnulin D.I. Automatic machine for wet underwater welding in confined spaces	39
Levchenko O.G., Kuleshov V.A. and Arlamov A.Yu. Sanitary-hygienic evaluation of noise in manual arc welding with covered electrodes	45
INFORMATION	
The 55 th Anniversary of the Experimental Design Technological Bureau of the E.O. Paton Electric Welding Institute	49
Paton Turbine Technologies — new name of a well-known company	51