

International Scientific-Technical and Production Journal

The Paton WELDING JOURNAL

**November
2010
11**

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

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

Publisher: International Association «Welding»

Editor-in-Chief B.E.Paton

Editorial board:

Yu.S.Borisov	V.F.Khorunov
A.Ya.Ishchenko	I.V.Krivtsun
B.V.Khitrovskaya	L.M.Lobanov
V.I.Kirian	A.A.Mazur
S.I.Kuchuk-Yatsenko	
Yu.N.Lankin	I.K.Pokhodnya
V.N.Lipodaev	V.D.Poznyakov
V.I.Makhnenko	K.A.Yushchenko
O.K.Nazarenko	A.T.Zelnichenko
I.A.Ryabtsev	

International editorial council:

N.P.Alyoshin	(Russia)
U.Diltey	(Germany)
Guan Qiao	(China)
D. von Hofe	(Germany)
V.I.Lysak	(Russia)
N.I.Nikiforov	(Russia)
B.E.Paton	(Ukraine)
Ya.Pilarczyk	(Poland)
G.A.Turichin	(Russia)
Zhang Yanmin	(China)
A.S.Zubchenko	(Russia)

Promotion group:
V.N.Lipodaev, V.I.Lokteva
A.T.Zelnichenko (exec. director)

Translators:
A.A.Fomin, O.S.Kurochko,
I.N.Kutianova, T.K.Vasilenko

Editor:
N.A.Dmitrieva
Electron gallery:
D.I.Sereda, T.Yu.Snegiryova

Address:

E.O. Paton Electric Welding Institute,
International Association «Welding»,
11, Bozhenko str., 03680, Kyiv, Ukraine
Tel.: (38044) 287 67 57, 200 82 77
Fax: (38044) 528 04 86, 200 82 77
E-mail: journal@paton.kiev.ua
http://www.nas.gov.ua/pwj

State Registration Certificate
KV 4790 of 09.01.2001

Subscriptions:

\$324, 12 issues per year,
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.

Copies of individual articles may be obtained from the Publisher.

CONTENTS

SCIENTIFIC AND TECHNICAL

<i>Yushchenko K.A., Ustinov A.I., Zadery B.A., Savchenko V.S., Melnichenko T.V., Kurenkova V.V., Zvyagintseva A.V. and Gakh I.S.</i> Effect of nanofoil of the Ni–NbC system on structure of electron beam welds in heat-resistant alloys	2
<i>Zhdanov S.L., Poznyakov V.D., Maksimenko A.A., Dovzhenko V.A., Vasilev V.G., Vysokolyan N.V. and Korobka V.A.</i> Structure and properties of arc-welded joints on steel 10G2FB	8
<i>Khorunov V.F., Maksymova S.V., Butenko Yu.V. and Maly A.B.</i> Strength of brazed joints on heat-resistant nickel alloy Inconel 718 produced by using palladium brazing filler metals	12
<i>Bondarev A.A. and Ternovoj E.G.</i> Features of weld formation and properties of aluminium and magnesium alloy joints under simulated space conditions	16
<i>Makhnenko O.V., Timoshenko A.N., Muzhichenko A.F. and Goncharov P.V.</i> Improvement of the technology for arc spot welding of overlap joints based on the results of mathematical modelling	21
<i>Stepanov G.V., Babutsky A.I., Mameev I.A., Chizhik A.V., Savitsky V.V., Tkachuk G.I. and Pashchin N.A.</i> Improvement of cyclic fatigue life of metallic materials and welded joints by treatment by pulsed electric current	27

INDUSTRIAL

<i>Lebedev V.A., Lendel I.V., Lendel V.I. and Pichak V.G.</i> Trends in improvement of auxiliary equipment for welding production	31
<i>Seyffarth P. and Gaede R.</i> Image processing for automated robotic welding	35
<i>Koleda V.N. and Ilyushenko V.M.</i> Optimisation of parameters of additional gas shielding in submerged arc welding and surfacing of copper and its alloys	38
<i>Kornienko A.N.</i> Half-century anniversary of the first exhibition of achievements of welding production	41

BRIEF INFORMATION

<i>Nazarenko O.K. and Shevchuk S.A.</i> Selection of current sensor position in high-voltage power sources of welding guns	45
Theses for a scientific degree	46

NEWS

News	48
International Conference «MEE-2010»	49
Technical Seminar «Aircraft Construction — Technologies and Equipment for Welding»	50