



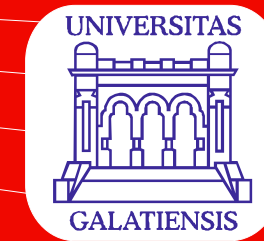
ISSN 1221 - 4566

<http://www.if.ugal.ro/TMB/>

THE ANNALS
OF "DUNAREA DE JOS"
UNIVERSITY OF GALATI

Fascicle V

TECHNOLOGIES
IN MACHINE BUILDING



THE ANNALS OF "DUNAREA DE JOS" UNIVERSITY OF GALATI

Fascicle V

TECHNOLOGIES IN MACHINE BUILDING

YEAR XXXV (XL) 2017

Editura: GALATI UNIVERSITY PRESS

MINISTERUL EDUCAȚIEI NAȚIONALE

ANALELE UNIVERSITĂȚII "DUNĂREA DE JOS"
DIN GALAȚI

Fascicula V

**TEHNOLOGII
ÎN CONSTRUCȚIA DE MAȘINI**

ANUL XXXV (XL) 2017

MINISTRY OF EDUCATION

THE ANNALS OF "DUNĂREA DE JOS" UNIVERSITY
OF GALAȚI

Fascicle V

**TECHNOLOGIES
IN MACHINE BUILDING**

YEAR XXXV (XL) 2017

ISSN 1221 - 4566

EDITOR-in-CHIEF

Prof. Viorel PAUNOIU, Dunarea de Jos University of Galati, Romania

Prof. Nicolae OANCEA, DHC, Dunarea de Jos University of Galati, Romania

EDITORIAL BOARD

(In alphabetical order)

Prof. Banu Mihaela, Dunarea de Jos University, Galati, Romania

Prof. Blaga Florin Sandu, University of Oradea

Prof. Bologna Octavian, Lucian Blaga University Sibiu, Romania

Prof. Calamaz Madalina, Art et Metiers Paris Tech, CER de Bordeaux-Talence, France

Prof. Coelho Gonçalves Antonio, DHC, Nova de Lisboa University, Portugal

Prof. Constantin George, University Politehnica Bucuresti, Romania

Prof. Croitoru Cristian, Gheorghe Asachi University Iasi, Romania

Prof. Davim J. Paulo, Aveiro University, Portugal

Prof. Doicin Cristian, University Politehnica Bucuresti, Romania

Prof. Draghici George, Politehnica University of Timisoara

Prof. Dobrescu Tiberiu, University Politehnica Bucuresti, Romania

Prof. Epureanu Alexandru, DHC, Dunarea de Jos University Galati, Romania

Prof. Fetecau Catalin, Dunarea de Jos University Galati, Romania

Prof. Franco Patricio, Cartagena University, Spain

Prof. Frumusanu Gabriel, Dunarea de Jos University, Galati, Romania

Prof. Gavrus Adinel, Rennes University, France

Prof. Hama Takayuki, Kyoto University, Japan

Prof. Fabrizio Quadrini, TorVergata University Rome, Italy

Prof. Javier Santos Martin Francisco, Valladolid University, Spain

Prof. Maier Catalina, Dunarea de Jos University Galati, Romania

Prof. Marinescu Ioan, DHC, University of Toledo, USA

Prof. Nedelcu Dumitru, Gheorghe Aschi University Iasi, Romania

Prof. Nitu Eduard, University of Pitesti, Romania

Prof. Piska Miroslav, Fakulta Strojního Inženýrství, Brno, Czech Republic

Prof. Radovanovic Miroslav, Nis University, Serbia

Prof. Rosca Liviu, Lucian Blaga University Sibiu, Romania

Prof. Rosochowski Andrzej, University of Strathclyde, United Kingdom

Prof. Santo Loredana, TorVergata University Rome, Italy

Prof. Severin Lucian, University of Suceava,

Prof. Sindila Gheorghe, University Politehnica Bucuresti, Romania

Prof. Slatineanu Laurentiu, Gheorghe Asachi University Iasi, Romania

Prof. Stan Felicia, Dunarea de Jos University, Galati, Romania

Prof. Tăbăcaru Valentin, Dunarea de Jos University, Galati, Romania

Prof. Topala Pavel, Balti University, Republic of Moldova

FASCICLE EDITOR

Assoc. Prof. PhD. Virgil TEODOR, Dunarea de Jos University of Galati, Romania

EDITING SECRETARY

Assist. Prof. PhD. Nicusor BAROIU, Dunarea de Jos University of Galati, Romania

DISCLAIMER NOTE

The content of the publication presented by the authors is only for information. The publisher is not responsible for any scientific statement in this publication.

COPYRIGHT

All the rights are reserved for this publication which is copyright according to Romanian law of copyright.

Excepting only any fair dealing for the purpose of private study, research, review, comment and criticism, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, electrical, electronic, optical, photocopying, recording or otherwise, without the prior expressly permission of the copyright owners.

Abstracting and indexing services that cite The Annals of “Dunărea de Jos” University of Galați, Fascicle V, Technologies in Machine Building, ISSN 1221- 4566 include: *Aluminum Industry Abstracts, Ceramic Abstracts/World Ceramics Abstracts, Materials Business File, Engineered Materials Abstracts, CSA Aerospace & High Technology Database, CSA Technology Research, METADEX®, CSA Composites Industry Abstracts, CSA Earthquake Engineering Abstracts, CSA Advanced Polymers Abstracts, CSA Engineering Research Database, CSA Mechanical & Transportation Engineering Abstracts, CSA / ASCE Civil Engineering Abstracts, ZDB- Deutsche Digitale Bibliothek, UBI TBI Hannover, Ulrich’s Periodicals*

The Annals of “Dunărea de Jos” University of Galați, Fascicle V, Technologies in Machine Building, ISSN 1221- 4566 is BDI indexed (B+) according to CNCSIS (National Council of Scientific Research) Romania.

TEHNOLOGII ÎN CONSTRUCȚIA DE MAȘINI

CUPRINS

1. M. NEAGU , <i>Convecția naturală în stratul limită al unui perete vertical cu temperatură și concentrație constantă încorporat într-un mediu poros dublu stratificat Darcy</i>	5
2. M. NEAGU , <i>Convecția naturală în stratul limită al unui perete vertical cu flux de masă și temperatură constant încorporat într-un mediu poros stratificat Darcy</i>	13
3. I. GAVRILESCU, D. BOAZU , <i>Simularea încovoierii pe trei role cu sistem piramidal, utilizând FEM</i>	21
4. D. BOAZU, I. GAVRILESCU , <i>Evaluarea numerică a forței de presare însudare la rece a unor bare de aluminiu, utilizând un model FEM 2D cu simetrie axială</i>	29
5. N. BAROIU, G.A. COSTIN , <i>Particularități în determinarea parametrilor funcționali ai unui sistem hidrostatic</i>	35
6. N. BAROIU, V.G. TEODOR, F. SUSAC, N. OANCEA , <i>Modelarea prin metode analitice a palelor rotorului unui compresor centrifugal</i>	41
7. V.G. TEODOR, N. BAROIU, F. SUSAC, N. OANCEA , <i>Modelarea analitică și grafică a generării cu o sculă preformată a unei suprafețe elicoidale necilindrice</i>	49
8. J. VERHAMME, H.D. MIKAKORILA, H. DEMOUVEAU, C. MAIER , <i>Studiul comportării mecanice a oțelului DC05, utilizând testul de tracțiune</i>	53
9. C. MAIER, J. VERHAMME, H. DEMOUVEAU, V. PAUNOIU, V. MARINESCU , <i>Cercetări numerice asupra efectului de revenire elastică la testele de încovoiere</i>	57
10. M. BORDEANU, G. FRUMUSANU, N. OANCEA , <i>Rugozitatea geometrică la prelucrarea cu viteză de avans variabilă a unei danturi evolventice</i>	61
11. V. RAȚĂ, E. GAVAN, V. PAUNOIU , <i>Pre-echiparea unei platforme de alimentare a navelor în etapa de montare a secțiunilor</i>	67
12. F. TEODOR, V. MARINESCU, C. MAIER, V. PAUNOIU , <i>Aplicații ale unei baze de date relaționale pentru simularea unui sistem de manufacturare reconfigurabil</i>	73

TECHNOLOGIES IN MACHINE BUILDING

CONTENTS

1. M. NEAGU , <i>Natural Convection in the Boundary Layer of a Constant Temperature and Concentration Vertical Wall Embedded in a Darcy Doubly Stratified Porous Medium</i>	5
2. M. NEAGU , <i>Natural Convection in the Boundary Layer of a Vertical Wall of Constant Mass Flux and Temperature Embedded in a Darcy Mass Stratified Porous Medium</i>	13
3. I. GAVRILESCU, D. BOAZU , <i>Simulation of Roll Bending with Three Rollers Pyramid System using FEM</i>	21
4. D. BOAZU, I. GAVRILESCU , <i>Numerical Evaluation of the Pressure Force in Butt Cold Welding for a Range of Aluminum Bars Diameters Using a 2D Axisymmetric FEM Model</i>	29
5. N. BAROIU, G.A. COSTIN , <i>Particularities in Determining the Functional Parameters of a Hydrostatic System</i>	35
6. N. BAROIU, V.G. TEODOR, F. SUSAC, N. OANCEA , <i>Rotor's Blades Modelling for a Centrifugal Compressor, Using Analytical Methods</i>	41
7. V.G. TEODOR, N. BAROIU, F. SUSAC, N. OANCEA , <i>Analytical and Graphical Modelling for Generation of a Non Cylindrical Helical Surface Using a Preformed Tool</i>	49
8. J. VERHAMME, H.D. MIKAKORILA, H. DEMOUVEAU, C. MAIER , <i>Study of Mechanical Behaviuor for DC05 Steel Using Tensile Test</i>	53
9. C. MAIER, J. VERHAMME, H. DEMOUVEAU, V. PAUNOIU, V. MARINESCU , <i>Numerical Investigation of Springback Effect in Draw-Bending Tests</i>	57
10. M. BORDEANU, G. FRUMUSANU, N. OANCEA , <i>The Geometric Roughness When Machining Involute Gear Tooth With Feed Motion of Variable Speed</i>	61
11. V. RAȚĂ, E. GAVAN, V. PAUNOIU , <i>Pre-Outfitting of a Platform Supply Vessel in Section Unit Assembly Stage</i>	67
12. F. TEODOR, V. MARINESCU, C. MAIER, V. PAUNOIU , <i>Applying Relational Database to Simulate the Reconfigurable Manufacturing System</i>	73