

Table of Contents

Preface

AWJ Cutting: The Technological Head Vibrations with Different Abrasive Mass Flow Rates

S. Fabian and Š. Salokyová 1

Abrasive Water Jet Cutting of the Steels Samples Cooled by Liquid Nitrogen

R. Uhlář, L.M. Hlaváč, L. Gembalova, P. Jonšta and O. Zuchnický 7

Experimental Research and Analysis of Selected Technological Parameters on the Roughness of Steel Area Surface HARDOX 500 with Thickness 40mm Cut by AWJ Technology

M. Servátka and S. Fabian 13

Operation of Water Jet System in a Sandstone Quarry and its Impact on Production

R. Gryc, L.M. Hlaváč, M. Mikoláš, V. Mádr, I. Wolf and F. Žoček 19

Selected Testing for Rapid Prototyping Technology Operation

L. Novakova-Marcincinova and J. Novak-Marcincin 25

Diagnostics of Product by Vision System

K. Židek and E. Rigasová 33

Operating Modes of Pneumatic Artificial Muscle Actuator

M. Tóthová, J. Piteľ and J. Boržíková 39

Vibration of Worm Gear Boxes

I. Vojtko, M. Kočíško, A. Šmeringaiová and P. Adamčík 45

Experimental Measurement and Examination of Independent and Combined Interaction of Vibrodiagnostic and Tribotechnical Methods

S. Fabian and P. Čačko 51

Tribotechnical Diagnosis in Aircraft Engine Practice

J. Mihalčová 57

The Upgrade Methods of the Pneumatic Actuator Operation Ability

M. Balara 63

Evaluation of Capability of Measuring Device on the Basis of Diagnostics

Ľ. Straka, I. Čorný and R. Krehel' 69

Abrasive Kind and Granularity Changes Affects to Water Jet Technology Head Vibration during Cutting HARDOX Material Thickness Alternation Process

L. Bicejova 75

Water Jet Technology Head Vibration Generation due to Selected Technology Parameters Fluctuation Effect during Alloy Cutting

L. Bicejova 81

Implementation of Intelligent Elements in Vibration Diagnostics of CNC Machines

J. Murčínko and Z. Murčínková 87

Microhardness of the Coatings Created by Anodic Oxidation of Aluminum

M. Gombár, A. Vagaská, J. Kmec and P. Michal 95

The Occurring of the Breakage of Parts Made of Creep-Resisting Chrome Steel and Prevention

J. Fabianova 101

The Operation Monitoring Condition of the Production Machinery and Facilities Using the Tools of Technical Diagnostics

S. Šoltésová and P. Baron 105

Utilization of Augmented Reality Elements for Visualization of Operational States of Manufacturing Devices

J. Novak-Marcincin, M. Janak, V. Fečová and L. Novakova-Marcincinova 111

Woodchip Combustion Process Quality and the Amount of Combustion Air

P. Skok, M. Rimár and J. Mižák 115

Diagnostics of Production Systems Operation Based on Thermal Processes Evaluation

R. Krehel', Ľ. Straka and T. Krenický 121

Conformal Cooling of the Injection Moulds

L. Běhálek and J. Dobránsky 127

Durability Analysis for Selected Cutting Tools in Machining Process of Steel 16MoV6-3 J. Duplák, M. Hatala and P. Michalik	133
Design of Methodology for Wood Chips Moisture Evaluation M. Rimár and Š. Kuna	141
Analysis of the Influence of Chemical Content and Microstructure on the Features of Creep-Resisting Steel as the Basis for the Diagnostics, Prediction and Elimination of Fault States of Manufacturing Systems J. Fabianova	147
Monitoring of Operating Conditions of Biomass Combustion Process J. Boržíková, J. Mižák and J. Pitel	153
Air Quality Improvement by Reduction of Gas Turbines Emissions J. Žarnovský, V. Petková, R. Drlička and J. Dobránsky	159
Assessment of Statistical Signification of Factors by Machining Inhomogeneous Materials – WPC J. Zajac, Z. Hutyrová and A. Tarasovičová	165
Verification of Machine Position in Production Plant with Use of Virtual Reality Technology J. Novak-Marcincin, V. Fečová, L. Novakova-Marcincinova, J. Torok and J. Barna	171
Visual Reconstruction and Optimization of Real Workplace on the Base of Spatial Digitisation J. Novak-Marcincin, J. Barna, J. Torok and M. Janak	175
Experimental Determination of the Aluminium Thin Sheets Diameter to a Sheet Thickness of 1.5 mm for Two-Cylinder Bending Machine M. Nováková	179
Assesment of Material Flow in Foundry Production by Applying Simulation Analysis P. Semanco and M. Fedák	185
Proposal for Possibilities of Increasing Production Productivity of Thermosets Compression Molding with Using Process Simulation Software T. Duranik, J. Ružbarský and F. Manlig	191