

Table of Contents

Preface	iv
Advances in Material Processing Technologies	
A Heuristic Approach for Decision-Making on Assembly Systems for Mass Customization R. Calvo, R. Domingo and E.M. Rubio Alvir	1
A New Method for Determining the Chip Geometry in Milling M. San Juan, F. Santos Martin, T. de la Fuente and S. Aranda	7
Analysis and Validation of Cutting Forces Prediction Models in Micromachining H. Perez, A.V. Idoipe, J. Perez and J. Labarga	13
Analysis of Stress and Strain in the Equal Channel Angular Drawing Process J. León and C.J. Luis-Pérez	19
Analysis of the Behaviour Effect of Face Cutting Edge Inserts on Surface Roughness when Milling Steels with MQL Lubrication X. Salueña Berna, J.A. Ortiz Marzo and J. Casals Terré	25
A Parametric Model for the Straightness Deviation in the Cutting Processes of Aluminum Alloys J.M. Sánchez, M.A. Sebastián, E. Rubio, M. Sánchez-Carrilero, L. Sevilla and M. Marcos Bárcena	31
Avoiding Instability on the Milling of Parts with Thin Features F.J. Campa, L.N. López de Lacalle, S. Herranz, A. Lamikiz and A. Rivero	37
Calculation of Reference Cutting Force as a Criterion of Rough Milling Using FEM Analysis H.U. Lee and D.W. Cho	43
Comparative Study of the Machinability of a Sintered Steel and a Nodular Graphite Iron Using a Constant Axial Force Drilling Test L. Costa Herrero, C. Sierra Alcolea and J. Vivancos Calvet	49
CVD Diamond Coatings for Machining D. Moulin, O. Raymond, P. Chevrier, P. Lipiński and T. Barre	55
Design of a Computer Vision System to Estimate Tool Wearing E. Alegre, J. Barreiro, H. Cáceres, L.K. Hernández, R.A. Fernández and M. Castejón	61
Design of Optimum Planetary Electro Discharge Machining Strategies J.A. Sánchez, L.N. López de Lacalle and A. Lamikiz	67
Dry Drilling of Fiber Metal Laminates CF/AA2024. A Preliminary Study M. Sánchez Carrilero, M. Álvarez, E. Ares, J.R. Astorga, M.J. Cano and M. Marcos Bárcena	73
Effect of Tool Electrode Material on the Spark Erosion of Micro Grooves S.H. Yeo, M. Murali and S. Balakrishnan	79
Experimental Methodology Destined to Establish the Frequency Response Function (FRF) between a Dynamic Force and the Signals Emitted by a Piezoelectric Dynamometer L. Castro, P. Viéville and P. Lipiński	85
Failure Prediction in Stretched Sheets of Aluminium 2024-T3 C. Vallellano, C. Guzman and J. Garcia Lomas	91
Feature Selection for Tool Condition Monitoring in Turning Processes D.R. Salgado, I. Cambero and F.J. Alonso	97
Fixture Design Process Automation for Coordinate Measuring Machines: A Knowledge-Based Approach J. Perez, R. Hunter, J.C. Hernandez and A.V. Idoipe	103
Growth Kinetics of Hardened Layers Produced during Nitriding in Ammonia Gas Environments S. Mridha	109
High Productivity Machining Centre Evaluation in Collaborative Engineering Environment H. Siller, C. Vila and C. Rodríguez	115
Improving NC Milling Skills through Practise of Simulated Work P. Gilles, J.M. Redonnet, P. Lagarrigue, R. Beceril, B. Fraysse and V. Boucharessas	121

Influence of the Machining Parameters on Workpiece Roundness Error during Turning Operations	127
P.J. Núñez López, J. Simao, E.M. Rubio Alvir and J.L. Rincón	
Investigation on the Predictive Model for Burr in Laser Cutting Titanium Alloy	133
W.T. Chien and W.C. Hung	
Manufacturing Processes Analysis by Virtual Reality	139
A. Sanz, E.M. Rubio Alvir, C. Martínez Murillo and M.A. Sebastián	
Manufacture of Electrodes for Electro-Discharge Machining (EDM) of Complex Surfaces in Moulds	145
P. Pereira Navaza, E. Ares, J.L. Diéguez and A. Pereira	
Modelling of Surface Roughness (Ra and Rq) in the EDM of Reaction-Bonded Silicon Carbide	151
I. Puertas and C.J. Luis-Pérez	
Multi-Parameter Modeling of Surface Texture in EDMachining Using the Design of Experiments Methodology	157
G. Petropoulos, N. Vaxevanidis, A. Iakovou and K. David	
New Ceramic Abrasive Tools for Rough and Finishing Grinding in One Pass	163
D. Herman, J. Plichta and K. Nadolny	
Optimisation of Sheet Metal Bending Sequences Using Genetic Algorithms	169
R. Jiménez Pacheco, R. Villagrassa, J.A. Albajez and J. Aguilar-Martín	
Punch and Counterpunch Design by the Die Expansion Method in Completely Closed Die Forging	175
A.O.A. Ibhadode	
Relative Importance of Main Influence Factors In Sink Erosion (EDM) Determination	181
J.L. Diéguez, L. Corbacho and E. Ares	
Study of Drawing Processes by Analytical and Finite Element Methods	187
A.M. Camacho, E.M. Rubio Alvir, C.G. Gaya and M.A. Sebastián	
Study of ECAE Process by Using FEM	193
R. Luri and C.J. Luis-Pérez	
Study of Stress and Geometry during the Manufacturing of Joint Bellows by FEM	199
M. Estrems, P. Franco and R. Fernández	
Study with Stainless Steel AISI 630 of Tool Wear in External Turning Operations	205
J.A. Ortiz Marzo, C. Rio, X. Salueña Berna, J. Casals Terré and A.I. Capilla	
Surface Roughness Characterisation Using Cutting Force Analysis, Regression and Neural Network Prediction Models	211
P.J. Núñez López, J. Simao, J.M.A. Reina and C. de la Cruz	
Surface Roughness Improvement Using Laser-Polishing Techniques	217
A. Lamikiz, J.A. Sánchez, L.N. López de Lacalle, D. del Pozo and J.M. Etayo	
The Combined Effect of Modifier and Grain Refiner AlTiBSr Master Alloy on Microstructure and Porosity of Aluminum Alloys	223
P. Moldovan, G. Popescu and M. Cuhutencu	
The Mathematical Modeling of the Compressive Stresses on the Cutting Tool in Machining of Inconel 718	229
U. Şeker and A. Kurt	
Thermal Analysis of Honing Process	235
H.A. González-Rojas, J. Vivancos Calvet and M. Coba Salcedo	