Contents

Keynotes
A Review of Burr Formation in Machining .......................... D. Dornfeld and S. Min 3
Burr Minimization Strategies in Machining Operations .......... D. Biermann and M. Heilmann 13
Burr Formation and Avoidance for Robust Circular Blade Sawing of Thin Walled Extruded Aluminum Profiles .......................... K. Martinsen and G. Ringen 21

Mechanics, Modeling and Simulation of Burr Formation
Burr and Cap Formation by Orbital Drilling of Aluminum ........... E. Brinksmeier and S. Fangmann 31
Cutting Force Model for Analysis of Burr Formation in Drilling Process ........ T. Matsumura and J. Leopold 47
Burr Formation in Microstructuring Processes ...................... B. Denkena, L. de Leon, and J. Kästner 55
Analytical Modeling and Experimental Investigation of Burr Formation in Grinding ................................................................. 63
Developing a Process Model for Abrasive Flow Machining .......... E. Uhlmann, V. Mihotovic, H. Szulczynski, and M. Kretzschmar 73
Modeling and Simulation of Burr Formation: State-of-the-Art and Future Trends ................................................................. 79

Burr and Chip Formation Mechanisms
Burr Formation in Drilling Intersecting Holes ............................ L. Leitz, V. Franke, and J.C. Aurich 99
Parameters with Influence on Burr Formation

Size Effects in Drilling Burr Formation ........................................... 117
R. Neugebauer, G. Schmidt, and M. Dix

Burr Formation and Surface Characteristics in Micro-End Milling
of Titanium Alloys ........................................................................... 129
G.M. Schueler, J. Engmann, T. Marx, R. Haberland, and J.C. Aurich

Influence of Minimum Quantity Lubrication on Burr Formation in Milling . . . . 139
U. Heisel, M. Schaal, and G. Wolf

Burr Formation and Removal at Profile Grinding of Riblet Structures ............ 147
B. Denkena, L. de Leon, and B. Wang

Burr Measurement

Burr Measurement System for Drilled Hole at Inclined Exit Surface ............ 157
H.P. Hoang and S.L. Ko

Burr Measurement: A Round Robin Test Comparing Different Methods .... 167
V. Franke, L. Leitz, and J.C. Aurich

Deburring Processes – Fundamentals

Deburring with CO₂ Snow Blasting .................................................. 181
E. Uhlmann, M. Kretzschmar, F. Elbing, and V. Mihotovic

A Study on Deburring Inconel 718 Using Water Jet Technology ................. 189
F. Boud, J. Folkes, N. Tantra, S. Kannan, and I.W. Wright

Ice Blasting – An Innovative Concept for the Problem-Oriented Deburring
of Workpieces .................................................................................. 197
B. Karpuschewski and M. Petzel

Deburring Processes – Applications

Study of Internal Deburring of Capillary Tubes with Multiple Laser-machined Slits ................................................................. 205
H. Yamaguchi and J. Kang

Robotic Deburring Based on On-line Burr Measurement .......................... 213
L. Liao, F. Xi, and S. Engin

Deburring Machine for Round Billets – Equipment for Efficient Removal
of Burrs from Billets ........................................................................ 221
M. Schnabl

Removal and Cleanability

Formulation of the Chip Cleanability Mechanics from Fluid Transport ....... 229
S. Garg, D. Dornfeld, and K. Berger

Burr Minimization and Removal by Micro Milling Strategies or Micro Peening Processes .......................................................... 237
A. Kienzler, M. Deuchert, and V. Schulze

Assessment of Deburring Costs in Industrial Case Studies ...................... 245
P.J. Arrazola

Author Index ..................................................................................... 253
Burrs - Analysis, Control and Removal
Proceedings of the CIRP International Conference on Burrs, 2nd-3rd April, 2009, University of Kaiserslautern, Germany
Aurich, J.C.; Dornfeld, D. (Eds.)
2010, XVIII, 254 p., Hardcover
ISBN: 978-3-642-00567-1