

Table of Contents

Preface

Manufacture of 3D Curved Profiles for Structure Components D. Becker, M. Schikorra and A.E. Tekkaya	1
Embedding of Alumina Reinforcing Elements in the Composite Extrusion Process D. Pietzka, M. Schikorra and A.E. Tekkaya	9
Documentation of the Corrosion of Composite-Extruded Aluminium Matrix Extrusions Using the Push-Out Test M. Merzkirch, K.A. Weidenmann, E. Kerscher and D. Löhé	17
Accuracy of a Flying Cutting Device C. Munzinger, J. Fleischer, G. Stengel and M. Schneider	23
Machining of Lightweight Frame Components D. Biermann, K. Weinert, A. Zabel, T. Engbert and J. Rautenberg	37
Influence of Process Parameters on Structure and Mechanical Properties of Joints Produced by Electromagnetic Forming and Friction Stir Welding P. Barreiro, V. Schulze and D. Löhé	47
Joining by Compression and Expansion of (None-) Reinforced Profiles M. Marré, A. Brosius and A.E. Tekkaya	57
Bifocal Hybrid Laser Beam Welding and Friction Stir Welding of Aluminium Extrusion Components M.F. Zaeh, P. Gebhard, S. Huber and M. Ruhstorfer	69
Optimization of the Die Topology in Extrusion Processes T. Kloppenborg, M. Schikorra, J.P. Rottberg and A.E. Tekkaya	81
Dynamics and Temperature Simulation in Multi-Axis Milling E. Ungemach, T. Surmann and A. Zabel	89
Experimental and Computational Analysis of Machining Processes for Light-Weight Aluminium Structures K. Weinert, D. Biermann, M. Kersting and S. Grünert	97
Approach for Modelling Process Effects during Friction Stir Welding of Composite Extruded Profiles M.F. Zaeh and A. Schober	105
Knowledge-Based Modeling of Manufacturing Aspects in Structural Optimization Problems M. Huber, Ö. Petersson and H. Baier	111
An Approach to Accuracy Improvements in the Flexible Machining of Curved Profiles G. Lanza, J. Fleischer and D. Ruch	123
Accuracy Improvement of a Machine Kinematics for the Product Flexible Machining of Curved Extrusion Profiles J. Fleischer and J.P. Schmidt-Ewig	135
Mechanical Modelling of Wire Reinforced Metal Matrix Extrusion Profiles M. Wedekind and H. Baier	145
A Modelling Approach for the Manufacturing Process Chain of Composite Lightweight Structures M.F. Zaeh and M. Langhorst	157
Prototype Manufacturing of Extruded Aluminum Aircraft Stringer Profiles with Continuous Reinforcement T. Kloppenborg, T. Hammers, M. Schikorra, E. Kerscher, A.E. Tekkaya and D. Löhé	167