Table of Contents

Preface

Chapter 1: Tools and Machines Design

Surface Side Using Fluid Simulation	_
J. Mao, H. Usuki, Č. Morigo and S. Yukinari	3
Fatigue Analysis of Monopile Foundation for Offshore Wind Turbine Y.S. Li, Y.M. Huang and C.K. Lin	11
Mechanical Design Using Open-Source Software (Eigenvalue Analysis by Parametric Study)	
T. Gonda, M. Yakabe, Y. Hayamizu, S. Morita, T. Kawabe and K. Nishinaka	19
Relationship between Flow Field of Cutting Edge and Chip Dispersal during CFRP Drilling R. Yamada, R. Kamiya, K. Nagata, L. Dewei, T. Inoue and M. Hagino	25
Chapter 2: Mechatronics	
Development of a Hydrostatic Bearing in High Vacuum Using an Ionic Liquid for a Semiconductor Fabrication Device	
T. Okabe and K. Somaya	33
Numerical Investigation of Bearing Characteristics of a Hydrostatic Thrust Bearing with a Flow-Control Restrictor Using a Bending Beam	4.1
K. Somaya and T. Okabe	41
Breakage Detection Based on the Breakage Mechanism of Small-Diameter Drills T. Xie, T. Otsubo, A. Koyama, T. Kato, R. Yamashita, V. Kaewnamchai and T. Yazawa	51
Measurement Path Calculation Method for High-Precision On-Machine Measurement L. Gao, T. Otsubo and T. Yazawa	59
Swing up Control of the Pendubot with Restricted Actuator Movement Angle Using Energy-Based Methods	
D. Kinoshita, K. Otsuka and I. Matsumoto	69
Swing up Control of the Pendubot with Elbow Joint Extended Using Energy-Based Methods D. Kinoshita, M. Uchida and I. Matsumoto	77
Verification and Learning of Feature Automatic Recognition with Time Prediction for EDM and WEDM	
J.Y. Fu, W.R. Jong, Y.H. Ting and Z.W. Zhou	87