

BOOK REVIEW

Micromanufacturing Processes

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Micromanufacturing Processes

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Micromanufacturing is an important technology for new products, especially where miniaturization and high performance are important. Applications of micromanufacturing are in advanced industry, for example, aerospace, automotive, optical, military, alternative energy, biomedical and microelectronics packaging, etc. Micromanufacturing processes can be applied to work metallic and non metallic materials such as polymers, ceramics, composites and special materials.

The present book, *Micromanufacturing processes*, explains research on important technologies with quality in 6 sections (18 chapters). The sections are: (1) Introduction, (2) Micromachining, (3) Nanofinishing, (4) Microjoining, (5) Microforming, and (6) Miscellaneous.

Section 1 has two chapters, the first an introduction and the second, on meso-, micro and nanomanufacturing. Section 2 micromachining

processes, which have been described in four chapters under two heads, traditional micromachining and advanced micromachining. Section 3 includes an overview of three nanofinishing processes, namely, magnetorheological finishing, abrasive finishing, and abrasive flow finishing. Subsequently, section 4 describes two microjoining processes, namely, Laser micro welding and electron beam microwelding. Section 5 has three chapters on microforming processes, namely, micro- and nanostructured surfaces developed by nano plastic forming and roller imprinting, microextrusion and microbending with Laser, respectively. Finally, section 6 has four chapters, on dimensional metrology for micro/mesoscale manufacturing, micromolding (a soft lithography technique), fabrication of microelectronic devices and integrated wafer surface evolution model for chemical mechanical planarization (CMP), respectively.

This book can be used for final undergraduate engineering course (for example, manufacturing, mechanical, industrial, etc) or as a subject on micromanufacturing at the postgraduate level. Also, this book can serve as a useful reference for academics, researchers, manufacturing, mechanical, industrial engineers and others professionals in related micromanufacturing.