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Sommario/riassunto

This specialist edition features key innovations in the science and engineering of new grinding processes, abrasives, tools, machines, and systems for a range of important industrial applications. Topics written by invited, internationally recognized authors review the advances and present results of research over a range of well-known grinding processes. A significant introductory review chapter explores innovations to achieve high productivity and very high precision in grinding. The reviewed applications range from grinding systems for very large lenses and reflectors, through to medium size grinding machine processes, and down to grinding very small components used in MEMS . Early research chapters explore the influence of grinding wheel topography on surface integrity and wheel wear. A novel chapter on abrasive processes also addresses the finishing of parts produced by additive manufacturing through mass finishing. Materials to be ground range from conventional engineering steels to aerospace materials, ceramics, and composites. The research findings highlight important new results for avoiding material sub-surface damage. The papers compiled in this book include references to many source publications which will be found invaluable for further research, such as new features introduced into control systems to improve process efficiency. The papers also reflect significant improvements and research findings relating to many aspects of grinding processes, including machines, materials, abrasives, wheel preparation, coolants,

lubricants, and fluid delivery. Finally, a definitive chapter summarizes the optimal settings for high precision and the achievement of centerless grinding stability.