

Micromachining With Nanostructured Cutting Tools

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Stress-reducing defects and subsequent microcracks are a central focus during micromachining processes. After establishing the central process of micromachining Micromachining with Nanostructured Cutting Tools explains the underlying theories that describe chip formation and applies elementary cutting theory to machining at the microscale. Divided into three parts, the second half of Micromachining with Nanostructured Cutting Tools develops on this introduction; explaining how frictional interactions between uncoated and micro tools coated with nanostructured coatings can be characterized by using the elementary micromachining theories that were initially developed for machining at the macroscale. Shaws methods for calculating temperatures at the interaction zone and Merchants methods for calculating mechanical interactions are well described and justified for machining steel in both the dry and wet states. Finally, the further development and use of micro tools coated with thin-film nanostructured diamonds are shown. Micromachining with Nanostructured Cutting Tools is a resource for engineers and scientists working in this new field of micro and nanotechnology. The explanations of how to characterize, apply and adapt traditional approaches of understanding the mechanics of practical machining to the machining of microproducts using nanostructured tools provides a reliable reference for researchers and practitioners alike. EAN/ISBN : 9781447145974 Publisher(s): Springer, Berlin, Springer, London Discussed keywords: Schneiden (Materialbearbeitung) Format: ePub/PDF Author(s): Jackson, Mark J.

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