



Polishing of Diamond Materials: Mechanisms, Modeling and Implementation (Hardback)

By Yiqing Chen, Liangchi Zhang

Springer London Ltd, United Kingdom, 2013. Hardback. Book Condition: New. 2012. 234 x 160 mm. Language: English . Brand New Book. Diamond has a unique combination of properties, such as the highest hardness and thermal conductivity among any known material, high electrical resistivity, a large optical band gap and a high transmission, good resistance to chemical erosion, low adhesion and friction, and extremely low thermal expansion coefficient. As such, diamond has been a desirable material in a wide range of applications in mechanical, chemical, optical, thermal and electrical engineering. In many of the cases, the surface of a diamond component or element must have a superior finish, often down to a surface roughness of nanometers. Nevertheless, due to its extreme hardness and chemical inertness, the polishing of diamond and its composites has been a sophisticated process. Polishing of Diamond Materials will provide a state-of-the-art analysis, both theoretically and experimentally, of the most commonly used polishing techniques for mono/poly-crystalline diamond and chemical vapour deposition (CVD) diamond films, including mechanical, chemo-mechanical, thermo-chemical, high energy beam, dynamic friction and other polishing techniques. The in-depth discussions will be on the polishing mechanisms, possible modelling, material removal rate and the quality control of these techniques....



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