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难加工材料缓进给磨削加工表面完整性的试验研究

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THE EXPERIMENTAL INVESTIGATION ON THE SURFACE INTEGRITY CREATED BY CREEP FEED GRINDING OF DIFFICULT-TO-MACHINE MATERIALS

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摘要

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摘要

利用X射线应力仪、显微硬度计、俄歇电子能谱仪、扫描电镜和金相显微镜系统地研究了难加工材料缓进给磨削的表面完整性,讨论了表面粗糙度、冷作硬化、残余应力及其分布、表面层元素的分布以及试件的疲劳性能。试验表明,缓进给磨削的表面完整性优于铣削和普通磨削。

关键词: 表面完整性 磨削 缓进给磨削

Abstract:

The surface integrity created by creep feed grindings (CFG) of difficult-to-machine materials was investigated systematically with X-ray instrument, microhardometer, Auger electronic spectroscope (AES), scanning electronic microscope (SEM) and metalloscope. The surface roughness, strain hardening, residual stress and its distribution, distribution of the chemical elements in surface layer and the fatigue properties of specimens are discussed. The experiments indicated that the surface integrity created by CFG is better than those by milling and conventional grinding, and gives promise of good application prospects for creep feed grinding.

Keywords: surface integrity grinding creep feed grinding

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