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# 直裂纹电磁热止裂与激光再制造的实验研究

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# THE EXPERIMENT RESEARCH ON ELECTROMAGNETIC HEATING CRACK AND LASER REMANUFACTURING OF TRANSVERSE CRACK

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摘要

利用ZL-2型超强脉冲放电装置对带有直裂纹的构件进行电磁热止裂，然后利用激光熔覆技术对止裂后的构件进行修复。对止裂前后裂尖处微观组织进行金相组织对比分析，对经过激光熔覆前后试件进行耐磨性能对比，发现熔覆后的试件耐磨性能得到显著提高，最后对修复前后的试件进行力学性能对比，结果表明：放电止裂与激光再制造的试件力学性能得到显著提高，实现了再制造的目的。

关键词： 超强脉冲放电 激光熔覆 再制造 微观组织 力学性能

Abstract:

A crack arresting experiment is conducted with a ZL-2 super pulse discharge generator for components with transverse cracks, and then the component is repaired with laser cladding technology. The microstructure around the crack tip is compared before and after discharging, then the wear resistance experiment is conducted on specimens before and after laser repairing. The results show that its wear resistance after laser repairing can be significantly improved. Finally, mechanical properties of specimens before and after repairing are compared, it shows that the mechanical properties of specimens after discharging and laser remanufacturing can be improved considerably. Thusly, the remanufacturing purpose is realized.

Key words: super pulse discharging laser cladding remanufacturing microstructure mechanical property

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