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喷丸强化对ZK60镁合金高周疲劳性能的影响

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摘要: 研究高强度变形镁合金ZK60经喷丸处理后的表面变形层微观组织结构的变化及其对高周疲劳性能的影响。结果表明: ZK60镁合金的最佳喷丸强度(N试片)为0.05 mm, 经喷丸强化后, ZK60镁合金表面变形层的微观组织和结构发生变化, 疲劳强度由140 MPa提高到180 MPa, 提高约29%, 疲劳寿命得到显著提高; ZK60镁合金也表现出明显的过喷效应。

关键字: ZK60镁合金; 喷丸; 疲劳性能

Influence of shot peening on high cycle fatigue properties of ZK60 magnesium alloy

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Abstract: The influence of shot peening on the microstructure of surface layer and high cycle fatigue properties of high-strength wrought ZK60 magnesium alloy was studied. The results show that shot peening effectively improve the fatigue properties. Both the surface microstructure and texture of ZK60 magnesium alloy change greatly after shot peening. The fatigue limit increases from 140 to 180 MPa after shot peening with the optimum Almen intensity of 0.05 mm, the improvement of 29% in fatigue limit is achieved, and the fatigue life is significantly increased. In addition, the magnesium alloy ZK60 shows an obvious overpeening effect.

Key words: ZK60 magnesium alloy; shot peening; fatigue properties

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