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Effect of shot-peening on the fretting wear and crack initiation behavior of Ti-6Al-4V dovetail joint specimens

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Abstract

Fretting fatigue initiation behavior in Ti-6Al-4V dovetail assemblies are investigated by the combining applications of experimental and theoretical methods. The evolution of fretting regime, fretting wear mechanism and fretting crack initiation behavior in as-received and shot-peened samples are developed and comparatively evaluated. The effect of shot-peening on crack initiation orientation is elucidated through an analytical approach using fracture mechanic concepts. The results highlight that shot-peening not only changes the fretting wear mechanism and crack initiation angle, but also reduces the crack number and prevents the crack propagation in Ti-6Al-4V dovetail joint specimens.

Keywords: *Shot-peening; Ti-6Al-4V; Dovetail joint; Fretting wear; Crack initiation*

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