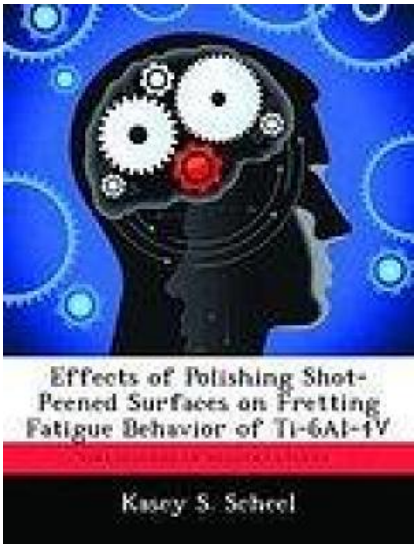

Effects of Polishing Shot-Peened Surfaces on Fretting Fatigue Behavior of Ti-6Al-4V

By Kasey S. Scheel

Bibliioscholar Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x5 mm. This item is printed on demand - Print on Demand Neuware - The research of this thesis was done to investigate the effects of polishing a shot-peened specimen of Ti-6Al-4V on the fretting fatigue life. The shot-peening process, though one of the most beneficial techniques in prolonging fretting fatigue life, creates a textured surface that may lead to problems on the micro level. This research was done in an attempt to further improve the peening process by examining the effects of another surface treatment to be used in conjunction, surface polishing. The rough peened surface may contain abrupt changes in surface geometry that act as stress risers, which are more highly prone to crack initiation. Specimens were hand polished after they were peened to remove approximately 25 microns of material from the surface to remove all stress risers while preserving the beneficial residual stresses created by peening. Experiments designed to simulate fretting fatigue similar to previous research were conducted until specimens fractured. Seven experiments were conducted using titanium allow Ti-6Al-4V, shot peened using 7A intensity. All tests were run at ambient air temperature. Fatigue parameters, such as stress range and...

Reviews

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