Fatigue Life of Titanium Alloy after Face Grinding

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Abstract

Aside from the particular role of titanium in aircraft industry, a number of titanium applications have developed in the automotive industry, biomedical engineering and chemical applications, where resistance to fatigue and corrosion is important. Because the surface condition of a material is a significant consideration in the fatigue failure, it is important to choose proper machining and grinding parameters during manufacturing. The objective of this study is to look at the parameters which influence the fatigue life when grinding with a diamond cup-wheel, with the emphasis on machining conditions such as wheel speed and depth of cut. The results show that depth of cut is significant and wheel speed and table speed is not influential at selected grinding conditions.

Keyword：Grinding, Titanium alloy