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[<<](#) [<<](#) [前一页](#) | [后一页](#) [>>](#) [>>](#)

凡士林油膜对疲劳裂纹扩展的影响

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THE EFFECTS OF PAINTING VASELINE FILMS IN CRACK TIP ZONE ON FATIGUE CRACK GROWTH

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摘要

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摘要

最近国外发展了用粘接修补裂纹的新方法并已获得一些成功的应用。本文通过试验研究,提出了一条维修裂纹的新途径。很可能由此发展出一种与现有维修方法不同,简单且有效地裂纹现场维修的新方法。 2.疲劳裂纹扩展对比试验 对比试验分两组在室温、空气中,MTS810电液伺服材料试验机上进行。第一组用由20mm工业16Mn钢板制成的中心裂纹试样(图1(a)),应力比0.05。

关键词: 裂纹扩展 凡士林袖膜 超载 停歇

Abstract:

The article described a discovery of fatigue crack growth alleviation effect by painting vaseline films in crack tip zone under different loading conditions. It has been shown that painting vaseline films in crack tip zone can significantly decrease crack growth rate, under both constant amplitude loading and with a single overloading. The mechanism of the phenomenon was then discussed. A local vacuum condition established at the newly asacked tip by the films which might isolate an aggressive environment was regarded as the main cause of the alleviating effect. It may be possible to develop a new procedure of repairing cracked structures according to this discovery.

Keywords: crack growth vaseline films effect overload underload

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