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# 航空结构钢激光辐照提高疲劳强度的研究

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# A STUDY ON IMPROVEMENT OF FATIGUE STRENGTH OF AERONAUTICAL STRUCTURE STEELS BY LASER TREATMENT

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摘要 对激光辐照的温度场进行了分析与计算。以此为依据,针对典型的航空结构钢３０ＣｒＭｎＳｉＡ和３０ＣｒＭｎＳｉＮｉ２Ａ的典型试件,采用了优化的参数和方式进行激光辐照,并进行了疲劳试验。结果表明：两种材料的疲劳寿命均有明显提高。从而证明,激光辐照强化是。一项提高航空结构钢疲劳性能的有效表面强化工艺。

关键词： 激光束 疲劳强度 结构材料

Abstract: The temperature field caused bv laser treatment is analvzed and calculated. On this ba- sis, optimized parameters and patterns are selected to treat typical test samples made of 30CrMnSiA and 30CrMnSiNi2A, and fatigue tests have been done. The results show that the fa- tigue life of the test samples made of either materials is prolonged after treatment. It is concluded that laser treatment is an efficient process to improve fatigue life of aeronautical structure steel.

Keywords: laser beams fatigue strength construction materials

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