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焊接接头力学性能不均匀性的研究

范引鹤, 阮米庆

南京航空航天大学 202 教研室, 南京, 210016

STUDY OF THE NONUNIFORMITY OF MECHANICAL PROPERTIES IN WELDED JOINTS

Fan Yinhe, Ruan Miqing

Faculty 202, Nanjing University of Aeronautics and Astronautics, Nanjing, 210016

摘要

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摘要 研究 1Cr18Ni9Ti 材料氩弧对接焊接头的力学性能不均匀性, 用金相分析和微形剪切试验得到焊接接头上不同组织区的力学性能分布特性。结果表明, 在熔合区组织不均匀性与力学性能不均匀性最为严重, 是焊接接头最薄弱的环节。焊接接头的疲劳试验表明, 初始裂纹一般发生在熔合区, 同时焊接接头力学性能不均匀性会导致焊接接头疲劳寿命降低 40%~60%。

关键词: 焊接接头力学性能不均匀性 金相分析 微形剪切试验

Abstract: The nonuniformity of mechanical properties and micro structure in 1Cr18Ni9Ti butt joints of argon arc welding is investigated by means of their distribution in the weld zone measured by the metallographic study and microshear test. The results show that the most nonuniformity of mechanical properties and micro structure is located in the bond of the welded joint, and the bond is the weakest zone of the welded joint. The fatigue test of the welded joint also shows that fatigue cracks occur generally in the bond first, and that the nonuniformity of the welded joint makes fatigue life decrease about 40~60 percent.

Keywords: welded joint mechanical properties nonuniformity metallographic study micro sheartest

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