

1972年创刊

全国优秀科技期刊 全国中文核心期刊

Rejiagong Gongyi

ISSN1001-3814

CN61-1133/TG

CODEN: REHOEL



热加工工艺

HOT WORKING TECHNOLOGY

<http://www.rjggy.net> 邮发代号: 52-94

7
2021
第 50 卷
(总 第 557 期)

中国船舶重工集团公司第十二研究所
金属材料标准物质研制团队



团结

创新

奉献 求是

ISSN 1001-3814



中国船舶重工集团公司第十二研究所
中国造船工程学会船舶材料学术委员会 合办

综述

- SiC 颗粒增强铝基复合材料焊接研究现状 朱超, 马琳, 周长壮, 等 (1)
增材制造模型切片及路径规划的研究现状 邢逸凡, 徐祥炎, 王少伟, 等 (7)
铝合金剧烈塑性变形组织演变的研究进展 郑勇, 魏连峰, 田大容, 等 (12)

试验与研究

- 焊接对 X65 钢腐蚀疲劳裂纹扩展影响的试验研究 谭玉娜, 余建星, 王昭宇, 等 (18)
热成形工艺参数对 SA508-3 钢组织演变的影响 武建国, 安红萍, 刘俐利, 等 (23)
DP600 和 HC180Y 异种钢点焊接头组织和性能研究 孙建, 黄贞益, 张济宇, 等 (27)
BFe10-1-1 白铜 FSW 接头组织和力学性能研究 张忠科, 郑江辉, 赵长忠, 等 (31)
AZ31B 镁合金轧板等温 / 差温剪切旋压成形的组织性能对比研究
..... 秦林新, 蔡飞飞, 王锋华, 等 (37)
Mn 元素添加对 Mg-Sn 合金组织和力学性能的影响 韦琪, 王金辉, 马家轩, 等 (42)
微钛处理钢中的夹杂物特征及其对奥氏体晶粒尺寸和相变组织的影响
..... 杨浩, 邵伟, 曲锦波 (48)
高铬合金明弧堆焊工艺参数对堆焊层显微组织及硬度的影响 张晓华, 谭小波, 洪敏, 等 (52)
转速对 Al/Mg 异种合金超声-静止轴肩辅助搅拌摩擦焊接头的影响
..... 史学海, 王留芳, 李登常, 等 (57)

铸造技术

- Ti、Zr 对铸态 Al-Cu 合金组织和性能影响 刘登邦 (61)
喷嘴本体的熔模铸造工艺及模拟计算 杨小建, 张怀章, 杨国超, 等 (66)
低压铸造 ZAlCu5MnCdVA 合金件密度研究 郭贵中 (69)
Ti₂AlNb 合金铸锭的显微组织及化学成分分析研究 徐广胜, 宋丽平, 武川, 等 (72)
某型柴油机机脚铸造工艺设计和调试 王永红, 郭敏, 赵悦光, 等 (76)
基于神经网络的建筑装饰用铝青铜铸造性能优化研究 喻会, 肖凌 (81)

锻压技术

- 基于磁流变弹性体的柔性拉深模及可行性研究 刘旭辉, 张远方, 付泽民, 等 (85)
基于 Dynaform 的 AZ91D 镁合金盘体冲锻工艺优化 宋杰 (89)
液态模锻 AZ31 镁合金汽车轮毂的性能分析 傅松桥, 常建娥 (92)
控冷工艺对 72A 帘线钢组织性能的影响 刘毅, 张洪起, 孙先焦, 等 (97)
基于 QForm 的 TC17 钛合金叶轮模锻成形有限元仿真 魏良庆, 程允丽, 宋玉 (100)
新能源汽车电池托盘用镁合金的挤压工艺优化 王双林, 赵智忠 (103)
工艺参数对齿轮坯锻造质量的影响 陈光伟, 于泽琦 (108)
挤压温度对大规格镁合金散热器性能的影响 王晓杰, 任永峰 (111)

焊接技术

- 铝 / 铜异种材料搅拌摩擦铆接工艺 胡云瑞, 刘景麟, 王留芳, 等 (115)
基于遗传算法及神经网络的 6005A-T6 铝合金 FSW 工艺参数优化
..... 池浩瀚, 李世海, 刘雪松 (118)
循环载荷下 T 型接头焊接残余应力的释放研究 魏崇一, 姜文光 (121)
基于灰度变换的水下焊接图像对比度增强 张志伟, 叶建雄, 程群, 等 (127)
不等厚 DC56D+Z/HC180BD+Z 钢激光拼焊焊接接头性能分析 董伊康, 罗扬, 孙江欢, 等 (132)
基于 MATLAB 电弧增材焊道模型的建立与验证 杨华, 吕彦明, 周文军, 等 (135)
基于 BP 神经网络 PID 自适应整定的电阻焊智能控制 路向琨, 高忠林, 陈学妍, 等 (141)
飞机蒙皮 2A12 铝合金搅拌摩擦焊的数值模拟研究 丁清苗, 秦永祥, 崔艳雨 (144)
钛合金厚板电子束焊接残余应力模拟研究 葛可可, 张博文, 徐强, 等 (151)
铝合金搅拌摩擦焊温度场数值模拟及参数影响分析 周文静, 杜柏松, 卢小明 (156)

失效分析

- 增压器涡壳裂纹分析 许晓峰, 廖宏, 邵庆丰 (161)

Review

Research Status of Welding of SiC Particle-reinforced Aluminum Matrix Composites	(1)
Research Status of Model Slicing and Path Planning of Additive Manufacturing	(7)
Research Progress on Microstructure Evolution of Severe Plastic Deformation of Zirconium Alloys	(12)

Experiment & Research

Experimental Study of Effect of Welding on Corrosion Fatigue Crack Propagation of X65 Steel	(18)
Effect of Hot Forming Process Parameters on Microstructure Evolution of SA508-3 Steel	(23)
Study on Microstructure and Mechanical Properties of DP600 Steel and HC180Y Steel Spot Welded Joints	(27)
Study on Microstructure and Mechanical Properties of FSW joint of BFe10-1-1 Copper	(31)
Comparative Study on Microstructure and Properties of AZ31B Magnesium Alloy Rolled Plate by Isothermal/Differential Temperature Shear Spinning	(37)
Effect of Mn Element Addition on Microstructure and Mechanical Properties of Mg-Sn Alloy	(42)
Inclusion Characteristics and Its Effect on Austenite Grain Size and Transformed Microstructure in Ti-treated Steel	(48)
Effect of Process Parameters on Microstructure and Hardness of Surfacing Layer Cladded by High Chromium Alloy Open Arc Surfacing	(52)
Influence of Rotational Velocity on Al/Mg Ultrasonic-stationary Shoulder Assisted Friction Stir Welding Joint	(57)

Casting Technology

Effects of Ti, Zr on Microstructure and Mechanical Properties of As-cast Al-Cu Alloy	(61)
Process and Simulation Calculation of Nozzle Body Investment Casting	(66)
Study on Density of Low Pressure Casting ZAlCu5MnCdVA Alloy Castings	(69)
Analysis and Research on Microstructure and Chemical Composition of Ti ₂ AlNb Alloy Cast Ingot	(72)
Design and Experiment of A Diesel Engine Foot Casting Process	(76)
Study on Casting Performance Optimization of Aluminum Bronze for Building Decoration Based on Neural Network	(81)

Forging Technology

Flexible Drawing Die Based on Magnetorheological Elastomer and Its Feasibility Study	(85)
Optimization of Stamping and Forging Process for AZ91D Mg Alloy Disc Based on Dynaform	(89)
Performance Analysis of Liquid Die Forging AZ31 Magnesium Alloy Automobile Hub	(92)
Effect of Controlled Cooling Process on Microstructure and Properties of 72A Cord Steel	(97)
Finite Element Simulation of Die Forging Forming of TC17 Titanium Alloy Impeller Based on QForm	(100)
Extrusion Process Optimization of Magnesium Alloy for New Energy Automobile Battery Pallets	(103)
Effect of Technological Parameters on Forging Quality of Gear Blank	(108)
Effect of Extrusion Temperature on Performance of Large Size Magnesium Alloy Radiator	(111)

Welding Technology

Friction Stir Riveting Process of Al/Cu Dissimilar Materials	(115)
FSW Process Parameters Optimization of 6005A-T6 Al Alloy Based on Genetic Algorithm and Neural Network	(118)
Study of T-joint Welding Residual Stress Relaxation under Cyclic Loading	(121)
Contrast Enhancement of Underwater Welding Image Based on Gray Scale Transformation	(127)
Performance Analysis of Laser Tailor Welded Joints of DC56D+Z/HC180BD+Z Steel with Dissimilar Thicknesses	(132)
Establishment and Verification of Weld Bead Model for Wire and Arc Additive Manufacture Based on MATLAB	(135)
Intelligent Control of Electric Resistance Welding Based on BP Neural Network and PID Self-adaptive Tuning	(141)
Numerical Simulation Study on Friction Stir Welding of Aircraft Skin 2A12 Aluminum Alloy	(144)
Numerical Simulation of Residual Stress for Electron Beam Welding of Thick Titanium Alloy	(151)
Numerical Simulation of Temperature Field and Parameter Influence Analysis of Friction Stir Welding of Aluminum Alloy	(156)

Failure Analysis

Crack Analysis of Supercharger Turbine Casing	(161)
---	-------