



## 新一代的焊接先锋

上海索德集焊接界之大成，厚积薄发，倾力打造焊接产品的上乘之作。索德产品涵盖当今中国市场的主流机型，其中包括大功率IGBT逆变数字化软开关控制的工业级焊机及轻便节能的小型逆变民用焊机共16大系列数十款产品。所有产品获得国家CCC强制认证，并通过德国TUV-GS、美国CSA-ETL、欧盟CE-EMC等国际认证，产品符合IEC60974-1国际标准和欧盟ROHS & WEEE标准。

随着焊接技术的不断进步，索德科技将始终保持与领先科技的同步发展。

### 焊接世界有了新的力量



更多详情敬请登陆

[www.leader-welding.com](http://www.leader-welding.com)

### 上海索德焊接设备有限公司

中国·上海市松江区民强路165号

销售服务热线: 400-883-9977

800-857-6699



万方数据

## 目次

### 焊接设备

- 1 人工神经网络在 CO<sub>2</sub> 气体保护焊实时监测中的应用 ..... 肖兵等
- 5 集装箱波纹板折线焊缝跟踪的研究 ..... 张根元等
- 11 基于 Fluent 的 TIG 电弧数值模拟 ..... 郭朝博等
- 15 基于软开关技术的高频链并联逆变器设计 ..... 李先祥等
- 20 焊接数据的网络监控 ..... 苏宛东
- 24 焊机输入电量测量方法的探讨 ..... 尹海等
- 28 电源变换器中电流模式和电压模式相互转化 ..... 刘松
- 32 气动伺服焊枪的离线测试 ..... 董敏
- 35 晶闸管整流弧焊机引弧及其数字控制设计 ..... 周玉荣等
- 40 基于模糊推理的 V 形焊缝图像阈值的自动选取 ..... 余卓群
- 43 输入/输出并联直流变换器在逆变焊机中的应用 ..... 李林

### 焊接工艺

- 46 大型储罐横焊技术的发展与应用 ..... 刘泽民等
- 50 铝合金搅拌摩擦焊的研究现状与展望 ..... 宋东福等
- 55 铜及铜合金焊接研究现状和手工自蔓延焊接铜问题探讨 ..... 曲利峰等
- 60 双丝埋弧焊接工艺参数对焊缝成形的影响 ..... 杨秀芝等
- 65 铜铝异质金属火焰钎焊试验研究 ..... 闫飞等
- 70 双丝埋弧焊接接头性能研究 ..... 张德远等
- 75 Monel-400 合金环焊温度场和残余应力的数值模拟 ..... 刘轶瞳等
- 79 钢轨气压焊的回火研究 ..... 喻红梅等
- 83 铝母线 MIG 焊焊接工艺 ..... 唐燕玲等
- 85 数控机床主轴修复 ..... 匡少宝
- 87 车体铝合金腐蚀失效分析 ..... 赵军静等

### 焊接材料

- 91 钢轨自保护药芯焊丝自动窄间隙电弧焊工艺及装备研究 ..... 宋宏国等
- 95 药芯焊丝焊接工艺对焊缝力学性能的影响 ..... 韩海峰等

中文核心期刊	四川省优秀期刊
中国科技论文统计源期刊(中国科技核心期刊)	四川省期刊质量考评技术类质量一级期刊
《中文核心期刊(遴选)数据库》收录期刊	“万方数据资源系统数字化期刊群”入网期刊
英国《科学文摘》(INSPEC)来源期刊	《中国学术期刊(光盘版)》入编期刊
俄罗斯《文摘杂志》收录期刊	《中文科技期刊数据库》入编期刊
美国《剑桥科学文摘》(CSA)收录期刊	《中国期刊全文数据库(CJFD)》全文收录期刊
美国《乌利希期刊指南》收录期刊	《中国学术期刊综合评价数据库(CAJCED)》统计源期刊
波兰《哥白尼索引》(IC)收录期刊	《中国科学引文数据库》来源期刊
《中国科学引文数据库》来源期刊	《CAJ-CD 规范》执行优秀期刊
《机械制造文摘——焊接分册》收录期刊	台湾《华艺数位 CEPS》收录期刊
《中国期刊网》入网期刊	.....

# Electric Welding Machine

## Contents

### Welding Equipment

Application of ANN on real-time monitor in CO <sub>2</sub> welding XIAO Bing <i>et al</i> .....	1
Study on fold-line seam tracking for corrugated plate of container ZHANG Gen-yuan <i>et al</i> .....	5
Numerical simulation of TIG welding arc based on fluent GUO Chao-bo <i>et al</i> .....	11
High-frequency link parallel inverter based on soft-switch technology LI Xian-xiang <i>et al</i> .....	15
Research on inspect system of welding data SU Xian-dong .....	20
Research on measuring method for input power of welding machine YIN Hai <i>et al</i> .....	24
Conversion of current mode and voltage mode for switching power supply converter LIU Song .....	28
Offline test of the servo-pneumatic welding gun DONG Min .....	32
Research on arc ignition and digital control of SCR rectifier ZHOU Yu-rong <i>et al</i> .....	35
Automatic selection for the threshold of arc-v-shape weld based on fuzzy reasoning YU Zhuo-hua .....	40
Study on input-paralleled/output-paralleled DC-DC converters for welding inverter LI Lin .....	43

### Welding Technology

Development and technology of horizontal welding for oil tank LIU Ze-ming <i>et al</i> .....	46
Prospects and research status of friction stir welding on aluminium alloy SONG Dong-fu <i>et al</i> .....	50
Investigation of copper and copper alloy's welding and discussion on manual SHS welding of copper and copper alloy QU Li-feng <i>et al</i> .....	55
Study on parameters of twin-wire submerged arc welding process to impact the weld shape and quality YANG Xiu-zhi <i>et al</i> .....	60
Experimental study on the dissimilar metals of copper and aluminium by means of torch brazing YAN Fei <i>et al</i> .....	65
Research on joint property of twin wire submerged arc welding ZHANG De-yuan <i>et al</i> .....	70
Numerical simulation of monel400 alloy welding temperature field and residual stress field LIU Yi-xuan <i>et al</i> .....	75
Study on flashback of rail gas pressure welding YU Hong-mei <i>et al</i> .....	79
Research on welding procedure of MIG for aluminium bus TANG Yan-ling <i>et al</i> .....	83
Spindle welding repair of CNC machine tool KUANG Shao-bao .....	85
Corrosion failure analysis of carbody aluminium alloy ZHAO Jun-jing <i>et al</i> .....	87

### Welding Material

Technology and equipment development of self-shielded flux cored narrow gap arc rail welding SONG Hong-tu <i>et al</i> .....	91
Study on influence of welding process on FCW properties HAN Hai-feng <i>et al</i> .....	95

万方数据

Monthly Number 3 2011 Vol.41  
(Total Number 286 Since 1971)

### Sponsor

Chengdu Electric Welding Machine Research Institute  
of MMBI

### Editor & Publisher

Electric Welding Machine Magazine Agency

### Proprietor

YIN Xian-hua

### Chief Censor

WANG Fu-sheng

### Chief Editor

PENG Ya-ping

### Publication Scope

Publishing at Home and Abroad

### Domestic Unified Periodical Code

CN 51-1278/TM

### International Standard Periodical Code

ISSN 1001-2303

### International Issue Code

M6662

### National Serial Code

62-81

### Price

RMB10

### Advertisement License No.

5101034000073

### General Circulation

Chengdu Post Office, Sichuan

### Overseas General Circulation

China International Books Trade Company  
(Box 339, Beijing)

### Address

No.29, Dongyidian Erhuan Road  
Chengdu China

### Zip Code

610051

### Chief Editor Office

PENG Ya-ping +86-28-83267608

### Editorial Department

ZENG Run-ping +86-28-83289008

### Advertisement Department

FAN Hong-rong +86-28-83282678

### Network Department

LIU Jian-bing +86-28-83278528

### Distribution Department

HUANG Xiu-yan +86-28-83267908

### Fax

+86-28-83262878

### Website

<http://www.toweld.com>

### E-mail

[bj@toweld.com](mailto:bj@toweld.com) [edlhjz@mail.sc.cninfo.net](mailto:edlhjz@mail.sc.cninfo.net)