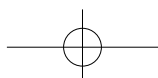


齐鲁工业大学机械与汽车工程学院山东省 机械设计研究院两院融合交流座谈会在临沂召开





现代制造技术与装备

月刊

目次

(2020年第10期 第56卷 总第287期)

主管 山东省机械工业协会
主办 山东省机械设计研究院

理事会

理事长: 刘卫东

副理事长: 林江海

理事:

陈声环 曾庆良 邓德乐 齐晓光 李保民
李胜军 李政军 毛志猛 孟庆堂 尚书旗
孙龙平 孙清洲 孙少军 宋家禄 汤世贤
王新建 魏修亭 徐龙泉 薛兴振 许宪志
许允和 于元波 张万谋 张承瑞 张跃成
张志刚 张世君 昞向博 姜小兴 薛峰
孙振华 郭信学 沙克清 马昭喜 马祖文

杂志社

社长: 林江海

副社长: 唐炳武 周靖 夏玉海 姚立新

主编: 吴小临

副主编: 徐民兴

编辑: 刘凌 张秀明 许彦红 郭鹏

英译: 李莹 王建文

编委: 边秀房 丁明 樊炳辉 黄传真
李木森 李军 李玉奎 刘川
刘永飞 石长河 孙宏飞 孙宁
王善坡 徐刚 周以齐 赵玉刚
曹明通

出版: 《现代制造技术与装备》杂志社

编辑: 《现代制造技术与装备》编辑部

发行: 《现代制造技术与装备》广告发行部

刊号: ISSN 1673-5587
CN 37-1442/TH

广告代理权: 现代制造技术与装备编辑部

广告发布登记证: 3700004000145

印刷: 济南景升印业有限公司

本刊声明

凡向本刊投稿, 即视为稿件从发表之日起, 作者将作品的专有版权、网络传播权、汇编权、改编权、音像录制权、翻译权授予本刊, 同时许可本刊转授第三方使用。

· 设计与研究 ·

钢管深孔磨杆的研究和分析.....	王耀 石淼军 白书舟 张小建 (1)
基于惯性释放的航空发动机中介机匣有限元分析.....	张智轩 覃文源 况成玉 (5)
基于提氢吸附塔疲劳分析方法的研究.....	黄振 刘庆荣 隋鹏 厉晓英 (8)
铜铝电极冷挤压模具设计.....	王修涛 刘国强 李强 (13)
基于PLC的自动控制实训装置制作设计与应用分析.....	郭如梁 雷声勇 刘晋宏 (14)
一种蒸汽式灯杆爬升清洗机设计.....	李凡 康子辉 朱红波 (17)
装备保障移动智能终端设计.....	阳恒 蒋怡 凌海风 (19)
基于有限元法的塔架结构数值模拟分析.....	郑鸿生 欧开良 (23)
数字驱动的全景式监控体系在离散生产中的构建与应用.....	陈晓波 张锋 何鱼鑫 (27)
再生制造工程在机床中的应用研究.....	李瑞斌 (29)
装备制造企业对于网络化协同制造的需求分析.....	刘天全 (31)
基于单片机的智能交通信号灯控制系统设计及仿真.....	崔瑾娟 (34)
机器视觉技术在三坐标测量机中的应用探讨.....	韩宁 (36)
多功能制冷工作服的设计与应用	
.....林卉 曾晴 江媛 甘裕丰 黄辉 罗坚义 陈东宝 邓鸿贵 甄锐辉 (38)	
金鱼藻对水中重金属的富集性能研究.....	任亚琦 李佳琪 刘开心 李雨谦 (41)
悬挂式螺旋轨道输送设备驱动研究.....	许宁萍 王健 张梓洪 (43)
基于虚拟可视化技术的工程机械群可视化调度系统研究	
.....赵华琛 王海涛 王涛 李斌 (45)	
基于阿贝原则的数控机床光栅尺安装位优化设计.....	顾清坡 (48)
典型零件加工质量的分析及质量控制研究.....	姚伟德 (50)
现代煤矿井下刮板输送机智能化监控系统设计.....	郭晓霞 (52)
动车组专用数显缺陷测量尺的研制.....	凌越 (54)
矿山设备智能在线润滑系统的应用研究.....	甄康华 赵伟光 吴晨 (56)
大功率高压直流无刷伺服电机在飞机高升力系统中的应用研究.....	关莉 廉晓祥 (58)
大型地坪磨抛机开发的关键技术研究	
.....江秀梅 郑旭钦 叶景涛 洪文聪 曹汝忠 (60)	
立创EDA结合Altium Designer快速完成PCB设计思路	
.....黄丽冰 黄志明 莫金莲 牙举辉 (65)	
电动舵机系统用谐波减速器啮合刚度研究.....	王义达 张宇峰 丰大强 (66)
基于FANUC Oi数控系统以太网DNC加工技术的应用研究.....	苗刚刚 (68)
一种基于吊钩状态反馈的桥式起重机消摆装置设计.....	王徽 (71)
旋流排螺装置中水螺运动数值模拟.....	薛娇 马玉露 (75)
关于辅助式上床轮椅的设计.....	王彪 王伟 林博 张志波 陈士鹏 (78)
一种结构新颖的“S环形”无碳小车结构设计.....	刘其南 林权 林立 林鑫 (81)
化工自动化仪表检修与维护措施研究.....	罗向东 (85)
大型全液压地坪磨抛机的设计与研制	
.....叶根翼 叶根龙 吴文朴 张健 徐化新 (87)	
一种滚珠丝杠钢珠扭矩测试系统的设计与实现.....	郑勇 许乙峰 丁太平 (90)
天煌THMDZP-2型机械装配实训平台的改进设计.....	刘恒培 (93)
排爆机器人轨迹跟踪模型预测控制算法研究.....	颜廷阔 (95)
在线测量与误差补偿宏程序的研究.....	张伟雄 黎满军 梁泳彬 (97)
带式输送机的压带机构.....	金晓龙 龙亚会 (99)
抗震支吊架在消防管道中的应用研究.....	张焯 (101)
基于工程认证的模具制造工艺形成性评价与持续改进	
.....王鑫 吴梦陵 郝洪艳 (103)	
基于曲梁理论的起重机非标准吊钩分析.....	曾祥有 (105)
· 工艺与装备 ·	
大型高强度中空保温玻璃的制备工艺研究.....	陈春雨 韩玉勇 (107)
华中数控铣床对刀方法探讨.....	阳涛 (109)
轧钢机组两种常见设备故障的判断与处理.....	钱宇慧 (112)
球墨铸铁热处理方法分析.....	王静平 (114)



中速柴油机曲轴加工技术分析及优化研究.....	关倪娜 (116)
基于二维码技术的工器具管理系统分析.....	郭仁贵 (118)
热轧铝板带轧辊热凸度分析.....	任 健 任冰冰 孙光明 (120)
高速公路中特长隧道轴流风机的安装以及控制探讨.....	王永和 (121)
漆膜涂层厚度检测方法及其发展趋势.....	莫英桂 苏翼雄 康慧雯 邓 韵 (123)
汽车悬架参数对平顺性的影响.....	郑金铎 (127)
广州地铁电力蓄电池工程车牵引蓄电池运用情况及维护建议.....	张三多 李剑华 (129)
冶金设备液压系统常见故障原因分析与维修技术.....	王正建 (132)
棒材用打包机的工艺改进及故障分析.....	吴文进 (134)
基于机匣零件的数控车铣复合加工工艺分析.....	李唐峰 (136)
机组风机叶片机械加工的质量控制分析.....	景奉国 (137)
粗轧过程中摩擦系数对强迫宽展的影响.....	李启尧 胡玉坤 (139)
二氧化碳气体保护焊双面成型焊接技术应用分析.....	孙 炎 陆 琪 (142)
机械零件检测技术关键点分析.....	张志航 (144)
汽车轻量化材料及制造工艺研究现状.....	明君剑 (146)
电梯轿厢上行超速保护装置的检验与失效分析.....	范龔君 冯双昌 常晓清 (148)
T 型加筋壁板自动化制造技术研究.....	何煜文 刘 琦 闫恩玮 刘向阳 (150)
3D 打印车刀刀具刀具路径优化方法.....	芦莹莹 (152)
JIT 生产方式在现代汽车装配制造中的应用.....	史晓薇 (154)
浅谈数控加工技术在机械加工中的运用.....	邓 涌 郑丽华 (157)
汽车发动机冷却系统故障问题及处理技术分析.....	庄月芹 (158)
浅谈激光加工技术的现状及发展.....	何广川 (160)
磨料流加工工件表面粗糙度研究.....	张方东 (162)
新时期金属材料热处理节能新技术.....	刘致祥 洪 敏 (164)
一种机械手工控机维护存在的问题及维修方法.....	夏传江 (166)
一种电梯平衡系数检测方法.....	丁建新 葛 阳 (168)
某气缸盖喷油器套孔的加工工艺设计与研究.....	姜爱国 (170)
发电机定子铁心冲片涂漆工艺质量控制措施研究.....	王 雷 (172)
某特种汽车转向灯起火问题分析.....	孟祥踪 刘 恒 (174)
· 自动化与控制 ·	
电力系统自动化控制技术应用研究.....	陈贤哲 (176)
借助机电一体化数控技术提升机械加工成效的路径.....	万春红 (178)
智能控制技术在工程机械控制中的运用研究.....	雷少梁 (180)
300MW 机组 DCS 系统升级改造实例分析.....	乔辛夷 沈 靖 (182)
自动化 V 点模拟装置在汽车关键可视区中的应用分析.....	黄 森 朱亚琛 (183)
轨道交通信息化对接生产网综合监控系统应用及探索.....	吕康江 刘长运 (186)
基于机器视觉的轮廓识别与数据测量.....	李 焯 郭晓军 (190)
· 行业交流 ·	
浅析混凝土建筑 3D 打印技术及其线宽控制方法.....	韩立芳 杨 燕 连春明 王 进 (193)
《数控编程与操作》课程思政改革研究与实践.....	梅阳寒 刘志伟 李笑勉 张良超 (197)
基于优课联盟平台的《机械设计》混合教学模式设计.....	李 俏 覃美烘 黄永程 王鹏程 黎志勇 (201)
基于“余量法”的工时定额模型的研究及应用.....	郑风波 李瑞鹏 张海生 (204)
煤矿机电设备维修技术管理的现状及对策.....	赵建强 (206)
运用工业互联网推动传统制造业转型升级.....	纪流河 杨文林 (208)
基于混合式教学模式应用型创新人才的培养	
——以数控加工技术与编程教学为例.....	李 郁 王向南 彭 唯 (210)
高职院校专业课程思政的探索与实践	
——以《生产线自动化技术实训》课程为例.....	张 颖 于晓云 郭海林 (212)
新工科背景下工业机器人应用技术教学改革探索.....	周爱美 (214)
我国工业机器人发展现状与前景.....	付秋林 鲁庆东 蒋世应 (217)
军工产品生产子物流系统协同控制与任务分配技术研究.....	梁晓慧 吴 刚 (219)



Modern Manufacturing Technology And Equipment

Contents

• Design and research •

Research and Analysis of Steel Tube Deep Hole Grinding Rod	(1)
Finite Element Analysis of Aero Engine Intermediate Casing Based on Inertia Relief	(5)
Research on Fatigue Analysis Method of Hydrogen Extraction Adsorption Tower	(8)
Design of Cold Extrusion Die for Copper and Aluminum electrode	(13)
Design and Application Analysis of Automatic Control Training Device Based on PLC	(14)
Design of a Steam Type of Light Pole Climbing and Cleaning Machine	(17)
Equipment Support Mobile Intelligent Terminal Design	(19)
Numerical Simulation Analysis of Tower Structure Based on Finite Element Method	(23)
Construction and Application of Digital Driven Panoramic Monitoring System in Discrete Manufacturing	(27)
Application of Remanufacturing Engineering in Machine Tools	(29)
Demand Analysis of Networked Collaborative Manufacturing in Equipment Manufacturing Enterprises	(31)
Design and Simulation of Intelligent Traffic Light Control System Based on MCU	(34)
Application of Machine Vision Technology in CMM	(36)
The Design and Application of Multifunctional Refrigeration Work Clothes	(38)
Enrichment of Heavy Metals in Water by Ceratophyllum demersum	(41)
Research on Driving of Suspended Spiral Track Conveying Equipment	(43)
Research on Visual Scheduling System of Construction Machinery Group Based on Virtual Visualization Technology	(45)
Optimization Design of Grating Ruler Installation Position of CNC Machine Tools Based on Abbe Principle	(48)
Analysis of Machining Quality of Typical Parts and Research on Quality Control	(50)
Design of Intelligent Monitoring System for Scraper Conveyor in Modern Coal Mine	(52)
Development of Special Digital Defect Measuring Ruler for EMU	(54)
Research and Application of Intelligent Online Lubrication System for Mining Equipment	(56)
Application of High Power High Voltage DC Brushless Servo Motor in High Lift System of Aircraft	(58)
Research on Key Technology of Large Scale Floor Grinding and Polishing Machine Development	(60)
Hitachi EDA combined with Altium Designer to Quickly Complete PCB Design Ideas	(65)
Research on Meshing Stiffness of Harmonic Reducer for Electric Steering Gear System	(66)
Application Research of Ethernet DNC Processing Technology Based on FANUC Oi CNC System	(68)
A Design of Pendulous Device of Bridge Crane based on Hook State Feedback	(71)
Numerical Simulation of Water Flow and Oncomelania Motion in an Oncomelania Funnel	(75)
Design of Assisted Bed Wheelchair	(78)
A Novel Structural Design of S-Ring Carbon-Free Carriage	(81)
Study on Maintenance and Repair of Chemical Automation Instrument	(85)
Design and Development of Large Hydraulic Floor Grinding and Polishing Machine	(87)
Design and Implementation of a Torque Measuring System for Ball Screw Ball Bearing	(90)
Improved Design of Tianhuang Thmdzp-2 Mechanical Assembly Training Platform	(93)
Research on Trajectory Tracking Model Predictive Control Algorithm of EOD Robot	(95)
On Line Measurement and Error Compensation Macro Program	(97)
Belt Pressing Mechanism of Belt Conveyor	(99)
Application of Seismic Support and Hanger in Fire Pipeline	(101)
Formative Evaluation and Continuous Improvement of Mold Manufacturing Process Based on Engineering Certification	(103)
Analysis of Crane Non Standard Hook Based on Curved Beam Theory	(105)

• Technology and Equipment •

Study on the Preparation Technology of Large High Strength Insulating Glass	(107)
---	-------



Bimonthly

No.10,2020

Total Issue No.287

Published on October 2020

Sponsor: Shandong Machinery Design
And Research Institute
Shandong Mechanical Engi-
neering Societ

Publisher: The Periodical Office Of
Modern Manufacturing Technology
And Equipment

Editor: The Editorial Office Of
Modern Manufacturing Technology
And Equipment

Distributor: The advertising Office Of
Modern Manufacturing Technology
And Equipment

International Code: ISSN1673-5587

Domestic Code: CN37-1442/TH

Advertising Agent: Editorial Department of
Modern Manufacturing Technology and Equipment

**The Periodical Office Of
Modern Manufacturing Technology
And Equipment**

Add: 129 JiLuo Road, Jinan

Post Code: 250031

Tel: (0531)85955168
(0531)87116637

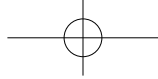
Http: //www.sdji.cbpt.cnki.net

E-mail:sdjx168@163.com

mmte@163.com

zzjsyzb@163.com

zzjsyzb@126.com



Discussion on Tool Setting Method of Huazhong CNC Milling Machine	(109)
Judgment and Treatment of Two Common Equipment Faults in Rolling Mill	(112)
Analysis on Heat Treatment of Ductile Iron	(114)
Analysis and Optimization of Crankshaft Machining Technology for Medium Speed Diesel Engine	(116)
Analysis of Tool Management System Based on Two Dimensional Code Technology	(118)
Analysis of Work Roll Thermal Crown in Hot Rolling of Aluminum Alloys	(120)
Discussion on Installation and Control of Axial Fan in Super Long Tunnel of Expressway	(121)
Testing Methods and Development Trend of Film Coating Thickness	(123)
Influence of Vehicle Suspension Parameters to Ride Comfort	(127)
Application of Traction Battery in Guangzhou Metro Electric Battery Engineering Vehicle Maintenance Advice	(129)
Cause Analysis and Maintenance Technology of Hydraulic System of Metallurgical Equipment	(132)
Process Improvement and Fault Analysis of Bar Packing Machine	(134)
Analysis of NC Turn Milling Compound Machining Technology Based on Gearbox Parts	(136)
Quality Control Analysis on Machining of Fan Blade	(137)
Effect of Friction Coefficient on Forced Spreading in Rough Rolling	(139)
Analysis on the Application of Carbon Dioxide Gas Shielded Welding Technology	(142)
Analysis on Key Points of Mechanical Parts Inspection Technology	(144)
Research Status of Automobile Lightweight Materials and Manufacturing Technology	(146)
Inspection and Failure Analysis of Elevator Car Ascending Overspeed Protection Device	(148)
Research on Automatic Manufacturing Technology of T-Shaped Stiffened Panel	(150)
Tool Path Optimization Method of 3D Printing Tool Teaching Aids	(152)
Application of JIT Production Mode in Modern Automobile Assembly Manufacturing	(154)
Talking about the Application of NC Processing Technology in Mechanical Processing	(157)
Analysis on the Failure of Automobile Engine Cooling System and its Treatment Technology	(158)
The Present Situation and Development of Laser Processing Technology	(160)
Research on Surface Roughness of Abrasive Flow Machining Workpiece	(162)
New Energy Saving Technology of Heat Treatment of Metal Materials in the New Era	(164)
Problems and Maintenance Methods of IPC of manipulator	(166)
A Detection Method of Elevator Balance Coefficient	(168)
Research on Machining Process Design of Injector Hole in Cylinder Head	(170)
Research on Quality Control Measures of Stator Core Punching and Painting Process of Generator	(172)
Analysis of the Fire Problem of a Special Car Steering Lamp	(174)
• Automation and Control •	
Research on Application of Power System Automation Control Technology	(176)
The Pay to Improve the Machining Effect by Means of Mechatronics Numerical Control Technology	(178)
Application of Intelligent Control Technology in Construction Machinery Control	(180)
Case Analysis of Upgrading of DCS System of 300MW Unit	(182)
Application Analysis of Automatic V Point Simulator in Key Visual Area of Automobile	(183)
Application and Exploration of Integrated Monitoring System for Rail Transit Information Docking Production Network	(186)
Contour Recognition and Data Measurement based on Machine Vision	(190)
• Industry exchange •	
The Analysis of Concrete Building 3D Printing Technology and Its Line Width Control Method	(193)
Research and Practice on Ideological and political of NC Programming and Operation	(197)
Design of the Mixed Teaching Mode of “Mechanical Design” Based on the university open online courses (UOOC) Platform	(201)
The Research and Application of the NC Fine Process Cutting Tool Lifetime Computational Model	(204)
Present Situation and Countermeasures of Technical Management of Mechanical and Electrical Equipment Maintenance in Coal Mine	(206)
Transformation and Upgrading of Traditional Manufacturing Industry under the Background of Industrial Internet	(208)
Cultivation of Applied Innovative Talents Based on Hybrid Teaching Mode	(210)
—Take NC Machining Technology and Programming Teaching as an Example	(210)
Exploration and Practice of Professional Course-based Ideological and Political Education in Higher Vocational	(212)
—Take Production Line Automation Technology Training Course as an Example	(212)
Teaching Reform of Industrial Robot Application Technology under the Background of New Engineering	(214)
Development Status and Prospect of Industrial Robot in China	(217)
Research on Collaborative Control and Task Allocation Technology of Military Product Production Sub-Logistics System	(219)

