

目次

CONTENTS

《制造技术与机床》2023年第11期(总第737期) No.11.2023 Total Issue No.737

独家策划 / Exclusive Planning

1 | 中国机床 自强之路——之三:北京工研精机股份有限公司|本刊记者 / 谭弘颖

4 | 国内外动态 / Information at Home and Abroad

工业机器人 / Industrial Robot

9 | 基于承载能力和传动效率优化的机器人 RV 减速器摆线轮齿廓修形影响研究/王春光 罗志江 张俊峰

Research on influence of cycloidal gear profile modification of robot RV reducer based on load carrying capacity and transmission efficiency optimization/WANG Chunguang, LUO Zhijiang, ZHANG Junfeng

18 | 基于深度强化学习算法的机器人浮动打磨执行装置研究/张一然 杨龙 袁博 李长耿

Research on robot floating polishing actuator based on deep reinforcement learning algorithm/ZHANG Yiran, YANG Long, YUAN Bo, LI Changgeng

重大应用需求 / Major Application Requirement

23 | 内置 V 型永磁同步电机性能优化设计与研究/陈德海 李志远 赖正贵 陈志文 李明

Performance optimization design and research of built-in V-type permanent magnet synchronous motor/CHEN Dehai, LI Zhiyuan, LAI Zhenggui, CHEN Zhiwen, LI Ming

29 | 航天异形紧固件加工多工位机床的控制系统设计/李雪晓 李阔 毕星瑞

Control design of multi-station machine tool for aerospace special-shaped fastener processing/LI Xuexiao, LI Kuo, BI Xingrui

34 | 直线电机运动系统输入到状态稳定性分析/徐永明 曹向东 李旭 刘海波

Input-to-state stability analysis of linear motor motion systems/XU Yongming, CAO Xiangdong, LI Xu, LIU Haibo

特种加工 / Non-traditional Machining

39 | H13 钢表面激光淬火仿真分析及实验研究/明智 姚芳萍 李金华

Simulation analysis and experimental research on laser quenching of H13 steel surface/MING Zhi, YAO Fangping, LI Jinhua

47 | 超声辅助铣削镍基高温合金铣削力建模及实验研究/肖强 冯真鹏 刘锁强

Modeling and experimental study on ultrasonic milling force of Nickel-based superalloy/XIAO Qiang, FENG Zhenpeng, LIU Suoqiang

53 | 304 不锈钢激光空化微造型实验研究/林思浩 王冠

Experimental study on laser cavitation micromodeling of 304 stainless steel/LIN Sihao, WANG Guan

数控技术 / CNC Technology

- 59** | 面向对象的数控机床 XY 工作台动态定位误差分析与建模/杨洪涛 薛庆涛
李莉 刘士萍
Analysis and modeling of dynamic positioning error of XY table of object - oriented CNC machine tool/YANG Hongtao, XUE Qingtao, LI Li, LIU Shiping
- 67** | 一种数控小线段拟合与速度规划的优化方法/缪睿 张永林
An optimization method for numerical control small line fitting and speed planning/MIAO Rui, ZHANG Yonglin

设计与研究 / Design and Research

- 75** | 论域非原点对称的等效变论域模糊 PID 控制/樊康生 杨光永 吴大飞
徐天奇
Equivalent variable domain fuzzy PID control with non-origin symmetry in the theoretical domain/FAN Kangsheng, YANG Guangyong, WU Dafei, XU Tianqi
- 82** | 基于可信标识的工业设备全生命周期运维系统研究/常赛科 孙文磊
刘志远 路程 巴胤竣 张克战
Research on the full lifecycle maintenance system of industrial equipment based on trusted identification/CHANG Saiko, SUN Wenlei, LIU Zhiyuan, LU Cheng, BA Yinjun, ZHANG Kezhan
- 90** | 感应淬火机床能量监控系统 PLC 程序设计/雷钧 陈志楚 罗敏
The PLC program design of energy monitoring system for induction quenching machine/LEI Jun, CHEN Zhichu, LUO Min
- 95** | 轴承钢球光球机料盘结构优化/袁浩 吴燕斌 付天昊 孙永杰 孟渝东
Structure optimization of workpiece tray of bearing steel ball polishing machine/YUAN Hao, WU Yanbin, FU Tianhao, SUN Yongjie, MENG Yudong
- 101** | 基于装夹布局的环形薄壁零件柔性夹具研究/韩军 沈伟东 赵震尧
董冰洋 邵帅 庞楠楠
Research on flexible fixture of annular thin-walled parts based on clamping layout/HAN Jun, SHEN Weidong, ZHAO Zhenyao, DONG Bingyang, SHAO Shuai, PANG Nannan
- 107** | 融合正逆程特征的 GRU 神经网络关节迟滞特性建模研究/党选举 张一晨
Forward and reverse trajectory features fused GRU neural network for hysteresis characteristics modeling of joint/DANG Xuanju, ZHANG Yichen
- 116** | 数控机床加工一致性评价方法研究/李丹丹 王军见 赵钦志 边亚超
崔英杰 胡裕
Research on evaluation methods of cnc machine tool machining consistency/LI Dandan, WANG Junjian, ZHAO Qinzhi, BIAN Yachao, CUI Yingjie, HU Yu
- 123** | 高速铣削 20CrMnTi 淬硬钢切削力的试验研究/赵浩男 金成哲 张文瑞
Experimental study on cutting force in high speed milling of 20CrMnTi hardened steel/ZHAO Haonan, JIN Chengzhe, ZHANG Wenrui

工艺与制造 / Technology and Manufacture

- 129** | 车齿工艺主切削力预测与工艺参数优化/阳国万 温子进 陈永鹏
Prediction of main cutting force and optimization of process parameter in gear skiving/YANG Guowan, WEN Zijin, CHEN Yongpeng
- 137** | 平面磨削淬硬 GCr15 轴承钢变质层形成规律实验研究/郭吉恩
Research on the formation rule of surface grinding affected layer of hardened GCr15 steel/GUO Jien

- 141** | 蜗杆砂轮磨削齿面纹理主动调控方法研究/田晓青 武众磊 唐建平
游通飞 韩江 夏铤
Research on the active control method of worm wheel grinding tooth surface texture/
TIAN Xiaoqing, WU Zhonglei, TANG Jianping, YOU Tongfei, HAN Jiang, XIA Lian
- 148** | 工艺参数对 SLM 成形 NiTi 合金致密度与裂纹缺陷的影响/徐晨 李志永
张威 郑府 柴明霞
Effect of process parameters on the densities and cracking defects of SLM formed NiTi
alloys/XU Chen, LI Zhiyong, ZHANG Wei, ZHENG Fu, CHAI Mingxia

检测与质量 / Test and Quality

- 154** | 基于 CCD 的立式五轴机床滑枕多目标优化/王松明 廖映华 李磊
廖鑫宇 李坤
Multi-objective optimization of vertical five-axis machine tool ram based on CCD/
WANG Songming, LIAO Yinghua, LI Lei, LIAO Xinyu, LI Kun
- 161** | 立加机床主轴轴线几何精度优化/李磊 胥云 王松明 张加虎 陈婷
Geometric accuracy optimization of the main axis of vertical machining center/LI Lei,
XU Yun, WANG Songming, ZHANG Jiahu, CHEN Ting
- 166** | 内斜齿轮磨削加工误差在线监测与补偿/浮文华 王会良 蒋闯
Internal helical gear grinding error on-line monitoring and compensation/FU Wenhua,
WANG Huiliang, JIANG Chuang

功能部件 / Function Units

- 172** | 不同支撑方式的滚珠丝杠进给系统静/动刚度分析/冯裕海 苏芳 赵聪
王晨升
Analysis of static and dynamic stiffness characteristics of two type of ball screw feed systems
with different support modes/FENG Yuhai, SU Fang, ZHAO Cong, WANG Chensheng
- 180** | 精密磨床电主轴静压滑动轴承的设计和 optimization 研究/韩少燕 曹阳 贾谦
韩海燕 李晓
Design and optimization of hydrostatic plain bearing for precision grinding machine
motorized spindle/HAN Shaoyan, CAO Yang, JIA Qian, HAN Haiyan, LI Xiao
- 186** | 试验台支承对滑动轴承动特性系数识别精度的影响研究/徐帆 唐杰 陈润霖
杜辰 崔亚辉 刘凯
The influence of test bench support on the recognition accuracy of dynamic characteristic
coefficient of sliding bearings/XU Fan, TANG Jie, CHEN Runlin, DU Chen, CUI Yahui, LIU Kai