



中文核心期刊·科技核心期刊
主办单位：中国机械工程学会、北京机床研究所有限公司



制造技术与机床[®] 8

ZHIZAO JISHU YU JICHUANG
MANUFACTURING TECHNOLOGY & MACHINE TOOL

邹家华 2018

本期主题：制造+互联网



创变新未来 极速精准 高效平稳

台达高性能运动控制型交流伺服系统 ASDA-A3 系列，具备实时追随、定位精准、控制自如、节能等优异性能，可满足客户高精、高效、平稳的速度控制要求和应用体验，有效提升设备价值与效率，助力客户实现产业升级，提高综合竞争力。

- 3.1 kHz 速度响应频宽，大幅缩短位置到达整定时间，优化设备产能
- 24 位高分辨率绝对式编码器，单圈分辨率 16,777,216 脉冲，定位更精准
- 低速加工应用更平稳，提升加工表面光洁度
- 强健的增益自动调整功能，提高设备组装测试效率
- 内建全新进阶运动控制功能，单轴动作灵活编辑，专机方案易于开发
- 多轴共直流母线，回生能量可再利用，有效降低电能消耗
- 外形设计精巧，面宽最高缩小 20%，节省安装空间与成本

ISSN 1005-2402



共创智能绿生活

中达电通股份有限公司
www.deltatech.com.cn

客服热线 400-820-9595
◆索取免费资料，请将249号填入读者服务卡。

万方数据

目录

CONTENTS

《制造技术与机床》2018年第8期(总第674期) NO.8.2018.Total Issue No.674

独家策划 / Exclusive Planning

01/身体力行, 新型服务模式之融资租赁/本刊记者 梁玉 谭弘颖

Live it out, the new service model: finance lease/Reporters LIANG Yu TAN Hongying

03/ 国内外动态 / Information at Home and Abroad

专题专访 / Special Topics & Interview

07/匠心独具 创新不止/本刊记者 陈钢

——“机床行业工业设计研讨会暨第八届机床产品创新与设计高峰论坛”在京召开

Keep ingenuity and continuous innovation/Reporter CHEN Gang

——Industrial Design of Machine Tool Industry Seminar & The 8th Summit of Innovation and Design of Machine of Machine Tool Prodacwas is held in Beijing

09/聚焦产业技术创新 共议高档数控机床/本刊记者 陈钢

——第一届高档数控机床创新高峰论坛在京召开

Focus on industrial technology innovation, discuss High-grade CNC machine tool/Reporter CHEN Gang

——The 1st High-grade CNC Machine Tool Innovation Summit Forum was held in Beijing

12/展示刀具应用水平 展现刀具应用技术/本刊记者 李静

——第二届全国刀具应用技术大赛决赛颁奖典礼在京举行

Show the level and technologies of cutting tool application/Reporter LI Jing

——The final awards ceremony of the 2nd National Cutting Tool Application Technology Competition was held in Beijing

13/再聚众心 共论智能/本刊记者 谭弘颖

——新一代智能机床和智能数控系统技术研讨会在京顺利召开

Put all your thoughts together, and focus on intelligence/Reporter TAN Hongying

——A new generation of technical symposium on intelligent machine tools and intelligent numerical control system was successfully held in Beijing

16/发展高端制造业 面向产业新生态/本刊记者 汪艺

——第六届中国汽车先进技术与制造高峰论坛在京召开

Developing high-end manufacturing, facing the new ecology of industry/Reporter WANG Yi

——The 6th China Automotive Advanced Technology Manufacturing Summit Forum was held in Beijing

18/专注科技创新 做好进口替代——访科德数控股份有限公司总经理陈虎/本刊记者 李静

Focus on scientific and technological innovation, achieve import substitution/Reporter LI Jing

—— Interview with Mr CHEN Hu, the General Manager of Kede Numerical Control Co., Ltd.

20/数字化 网络化 智能化——访山崎马扎克(中国)有限公司总裁助理明昌坤/本刊记者 汪艺

Digitalization, cyberization, intelligence/Reporter WANG Yi——Interview with Mr. MING Changkun, the Assistant to

President/General Manager of Yamazaki Mazak Machine Tool(Dalian) Co., Ltd.

22/自强志在心 坚持践于行——访南京工艺装备制造有限公司市场部部长何宇/本刊记者 谭弘颖

Self-determination in the heart, and persist in practice/Reporter TAN Hongying

——Interview with MR.HE Yu, the Minister of the Marketing Department of Nanjing Technical Equipment Manufacture Co., Ltd.

24/面面俱到 助力智造——访上银科技(中国)有限公司总经理彭彦祺女士/本刊记者 谭弘颖

Well done in all aspects, and assist in intelligent manufacturing/Reporter TAN Hongying

——Interview with Mrs.PENG Yanqi, the General Manager of HIWIN(China)

26/智能创新持续升级 产业链工艺全面覆盖——埃马克亮相CIMES 2018/本刊记者 陈钢

Intelligent innovation continuous upgrade continuously, industrial chain process coverage comprehensively/Reporter CHEN Gang

——EMAG debut CIMES 2018

27/车间现场在线检测的不二之选——全新EquatorTM 500比对仪/本刊记者 李佳

Best choice of on-line inspection in workshop site/Reporter LI Jia——The type of EquatorTM 500.

28/推陈出新 合作共赢——记山特维克可乐满技术开放日在廊坊技术中心举办/本刊记者 刘艳

Innovate and cooperate, win-win cooperation/Reporter Liu Yan

——Sandvik Coromant Technology Open Day was held at Langfang Technology Center

增强出版:

扫描二维码即可观看论文解读视

频, 让论文“动”起来!

注: 目录页及正文页中, 增强出版论文标题

前均有“”标识, 二维码位于论文

正文标题前。

投稿时请注明“增强出版”

投稿网址: www.mtmt.com.cn (MT机床网)

主题: 制造 + 互联网 / Manufacturing Plus Internet

- 29/“互联网+制造”的发展现状与展望/姚锡凡 陶韬 葛动元
State-of-the-art survey and prospect of "Internet plus Manufacturing" / YAO Xifan, TAO Tao, GE Dongyuan
- 34/大规模定制生产下的全面信息质量管理概述/任蒙蒙 樊树海 凌宁
Summary on total information quality management under the mass customization/REN Mengmeng, FAN Shuhai, LING Ning
- 38/基于MES的离散型制造业的高级计划排产的应用研究/吴雁 王彦瑞 张杰人 王犁 王开发
Application research of APS based on discrete manufacturing industry of MES/WU Yan, WANG Yanrui, ZHANG Jieren, WANG Li, WANG Kaifa
- 42/基于DNC系统的数控机床仿真集成方法研究/刘欢 刘世华 喻当生 吕先文
Research on simulation integration of NC machine tool based on DNC system/LIU Huan, LIU Shihua, YU Dangsheng, LV Xianwen
- 46/基于C#.NET的数控机床实时数据采集系统设计与编程/张爱红
Design and programming of real-time data acquisition system for CNC machines based on C#.NET/ZHANG Aihong
- 49/基于精益生产的雷达装备MES管控模型研究/张大伟 王涛 李俊涛
Research on MES management and control model of radar equipment based on lean production/ZHANG Dawei, WANG Tao, LI Juntao

综述/Special Reports

- 54/薄板成形电磁压边技术研究进展/李昊 王强 何芳
Development on electromagnetic blank holding technology in sheet metal forming/LI Hao, WANG Qiang, HE Fang
- 59/基于大型构件装配的六自由度并联机构设计技术研究/敬兴久 吉方 梅斌 夏欢
Research on the design technology of six degrees of freedom parallel mechanism based on large component assembly/
JING Xingjiu, JI Fang, MEI Bin, XIA Huan

设计与研究/Design and Research

- 64/基于作用线增量法摆杆活齿传动误差分析/宜亚丽 郭辉 卫锐 金贺荣
Transmission error analysis of swing-rod movable teeth drive based on functionary line increment means/YI Yali, GUO Hui, WEI Rui, JIN Herong
- 71/一种嵌入式半空心铝型材分流模结构/邓汝荣 黄雪梅 黄翠婷 何泳诗
An inlay type porthole extrusion die for the semi hollow Al-profiles/DENG Rurong, HUANG Xuemei, HUANG Cuiting, HE Yongshi
- 74/两轮式随动支撑装置控制系统设计/常宏杰 王金业 米文霞 杨光 岳彦芳
Design of control system for two wheeled follower support device/CHANG Hongjie, WANG Jinye, MI Wenxia, YANG Guang, YUE Yanfang
- 78/基于CEEMDAN奇异值熵和SVM的转子故障诊断/岳晓峰 刘复秋宣 周小龙 马国元
Fault diagnosis of rotor based on CEEMDAN singular value entropy and SVM/YUE Xiaofeng, LIUFU Qiuxuan, ZHOU Xiaolong, MA Guoyuan
- 84/基于直齿轮动态传递误差和应力强度因子响应的实验研究/吴峥强
Experiments on the relationship between the dynamic transmission error and the dynamic stress factor of spur gear pairs/
WU Zhengqiang
- 89/变速箱输入轴内孔同轴度检具设计/乔茂
Design of measuring coaxiality of inner-hole of transmission case/QIAO Mao
- 92/基于排列熵和变量预测模型的旋转机械故障诊断/裴红蕾
Rotating machinery fault diagnosis based on permutation entropy and variable predictive model/PEI Honglei
- 96/基于Matlab的串并联机床空间误差建模及补偿/刘守法 王鹏飞 王建锋
Volumetric error modeling & its compensation of series-parallel machine tool based on Matlab software/ LIU Shoufa, WANG Pengfei, WANG Jianfeng
- 102/超精密液体静压转台装配技术/胡秋 袁南南 徐冲
Manufacture and assembly technique of ultra-precision hydrostatic rotary table/HU Qiu, YUAN Nannan, XU Chong
- 106/大型管板钻铣一体化装备的开发/李敏 雷艇 刘春华 赵梦婷 陈惠平
Development of large tube plate drilling-milling equipment/LI Min, LEI Ting, LIU Chunhua, ZHAO Mengting, CHEN Huiping
- 109/基于PLC的压敏电阻磨片生产线的设计与实施/张敏 林锦坤
Design and implementation of varistor grinding production line based on PLC/ZHANG Min, LIN Jinkun

增强出版:

扫描二维码即可观看论文解视频, 让论文“动”起来!

注: 目录页及正文页中, 增强出版论文标题前均有“”标识, 二维码位于论文正文标题前。

投稿时请注明“增强出版”
投稿网址: www.mtmt.com.cn (MT机床网)

工艺与检测 /Technology and Test

- 113/数控加工原位检测系统中检测规划关键技术研究/沈通 吴志军 张建富 杨建新 曾龙
Key techniques of inspection planning in on-machine measurement system for NC processing/SHEN Tong, WU Zhijun, ZHANG Jianfu, YANG Jianxin, ZENG Long
- 118/数控机床空间误差测试及补偿技术研究/曹文智 孙名佳 于福来
Study on the measurement and compensation of CNC machine tool volumetric errors/CAO Wenzhi, SUN Mingjia, YU Fulai
- 121/Equator比对仪在航天产品检测中的应用研究/任冶 刘大亮 王群 杨建新 杨洋 杜晶
Research on the application of Equator comparator in detection of aerospace products/REN Ye, LIU Daliang, WANG Qun, YANG Jianxin, YANG Yang, DU Jing
- 125/叶轮的数控加工及尺寸精度的检测/翁剑成 刘坤鸿 傅永建 张鹏 林朝雄
Numerical control machining and dimensional precision detection of the impeller/WENG Jiancheng, LIU Kunhong, FU Yongjian, ZHANG Peng, LIN Chaoxiong
- 129/钛合金切削过程刀具振动特性研究/颜世晶 徐碧聪 辛奇 李金泉
Research on tool vibration characteristics of titanium alloy during the cutting process/YAN Shijing, XU Bicong, XIN Qi, LI Jinquan
- 133/GCr15轴承钢的ELID超精密磨削工艺参数的优化研究/关佳亮 胡志远 张好
Study on optimization of ELID ultra precision grinding process parameters of GCr15 bearing steel/GUAN Jialiang, HU Zhiyuan, ZHANG Yu
- 138/粗加工切削参数对钛合金多工步加工过程的影响/侯冠明 李安海 赵军 臧健
Effect of roughing cutting parameters on multi-step machining of titanium alloy/HOU Guanming, LI Anhai, ZHAO Jun, ZANG Jian
- 144/基于机器视觉的电解电容器外观检测系统设计/陈星
Design of the appearance detection system of electrolytic capacitor based on machine vision/CHEN Xing
- 149/基于电涡流传感器的压力机下死点精度检测方法研究/陈成
Research on the method for measuring the dead bottom center precision in mechanical press based on the eddy current sensor/CHEN Cheng
- 152/高效铣削钛合金涂层硬质合金刀具优选及磨损试验研究/韩变枝 刘公雨 陈明 明伟伟 安庆龙
Experimental study on wear and optimization of coated carbide tools for high-efficiency cutting titanium alloys/HAN Bianzhi, LIU Gongyu, CHEN Ming, MING Weiwei, AN Qinglong

改装与维修 /Refitting and Maintenance

- 158/水平下调式三辊卷板机控制系统改造/赵涛 张正国 侯亭波 王国荣
Three roller plate coiling machine of level adjust below control system upgrade/ZHAO Tao, ZHANG Zhengguo, HOU Tingbo, WANG Guorong
- 163/基于细长管两端螺纹加工的车床改造技术及应用/潘兴明 张勇 路胜杰 史宏江 路一平 王志国
Lathe transformation technology and application based on thread processing at both ends of slender pipe/PAN Xingming, ZHANG Yong, LU Shengjie, SHI Hongjiang, LU Yiping, WANG Zhiguo
- 167/数控落地镗铣床主轴箱平衡系统研究/赖兵 王建明
Research on balance system of spindle box for CNC floor boring-milling machine/LAI Bing, WANG Jianming

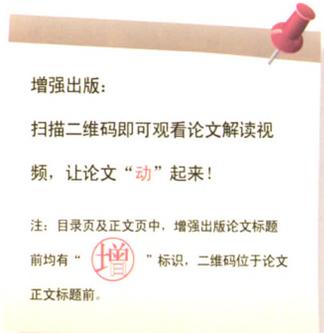
功能部件 /Function Units

- 169/气体静压轴系公差设计/姚博 赵则祥 张国庆 程旭鹏 尚孟姣
Tolerance design of aerostatic bearing system/YAO Bo, ZHAO Zexiang, ZHANG Guoqing, CHENG Xupeng, SHANG Mengjiao
- 174/数控深孔切槽镗刀的设计/谭德宁 马海丽 王兴维 李洋
The design on grooving boring tool of CNC deep hole/TAN Dening, MA Haili, WANG Xingwei, LI Yang
- 177/普通重型卧式车床刀架进给传动系统改进设计/曹健 张辉 赵海院
Improved design of feed transmission system for common heavy horizontal lathe tool holder/CAO Jian, ZHANG Hui, ZHAO Haiyuan

汽车制造技术 /Auto Manufacturing Technology

- 179/桁架式全自动加工制造技术研究/盖少磊 宋文平 于志勇
Truss type automatic processing manufacturing technology research/GAI Shaolei, SONG Wenping, YU Zhiyong
- 182/曲轴感应淬火残余应力模拟与实验研究/李新凯
Simulation and experimental study on residual stress of induction hardening of crankshaft /LI Xinkai

知识窗.....48、53、77、83、91、101、148、157、176、181



增强出版:
扫描二维码即可观看论文解读视频, 让论文“动”起来!
注: 目录页及正文页中, 增强出版论文标题前均有“增”标识, 二维码位于论文正文标题前。

投稿时请注明“增强出版”
投稿邮箱: www.mtmt.com.cn (MT机床网)



中文核心期刊·科技核心期刊
主办单位：中国机械工程学会、北京机床研究所有限公司

ISSN 1005-2402
CODEN ZYJIE8

制造技术与机床[®] 8

邹家华

2018

ZHIZAO JISHU YU JICHUANG

MANUFACTURING TECHNOLOGY & MACHINE TOOL

MW NEWAY
纽威数控装备

创新之路·无止境

7大种类，200多种型号

数控卧式车床
数控立式车床
立式加工中心
卧式加工中心
龙门加工中心
数控铣镗床
专用机床及加工自动线



MW NEWAY



扫一扫关注微信公众号

纽威数控装备（苏州）有限公司

地址：苏州市高新区浔阳江路69号
电话：400-850-5118
E-mail: cncsale@neway.com.cn
www.newaycnc.com

NEWAY CNC (USA), INC.

9757 Stafford Centre Drive
Strafford, Texas 77477 USA
Tel: +1 281-969-5800

◆索取免费资料，请将318号填入读者服务卡。

NEWAY CNC EQUIPMENT SDN BHD

47, Jalan Mutiara Emas 5/16,
Taman Mount Austin,
81100 Johor Bahru, Johor, Malaysia
Tel: +607 352 1355

NEWAY INTERNATIONAL GROUP Head Office

10749 Cash Road Stafford, Texas 77477
Tel: +1 281-969-5500
Fax: +1 281-267-7199

国内刊号: CN11-3398/TH 广告登记证号: 京密工商广字第0003号 邮发代号: 2-636 国外代号: M397

万方数据