

RITMAN
瑞马智能



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瑞马智能

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Xuzhou RITMAN Intelligent Technology Co., LTD

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COMPANY INTRODUCTION

公司介绍



瑞马的每一个荣耀时刻，都是一个科技革新的里程碑，以创新的思维不断践行，发挥不屈不朽的精神，感恩行业中的每一次认同和肯定！

Every glorious moment of RITMAN is a milestone of scientific and technological innovation, which is constantly practiced with innovative thinking, exerting its immortal spirit, and thanking every recognition and affirmation in the industry.

About Us 关于我们

- ▶ 瑞马智能以“热镀锌生产绿色化、信息化、智能化、无忧化”为使命，引领行业前沿，以坚实的技术研发团队为基础，锚定新技术与产业转型升级需求的深度融合。致力于热镀锌全产线的智能制造，主要产品包括批量热镀锌产线（吊镀、吹镀、离心镀）、连续热镀锌产线（连续镀锌产线、锌铝镁生产线、铝锌硅产线等）、酸洗磷化生产线及相关设备的研发、制造和实践。
- ▶ RITMAN takes "green, information-based, intelligent, and worry free hot-dip galvanizing production" as its mission, leading the forefront of the industry. Based on a solid technology research and development team, it anchors the deepening integration of new technologies and industrial transformation and upgrading needs. Committed to intelligent manufacturing of hot-dip galvanizing production lines, our main products include batch hot-dip galvanizing production lines (hanging plating, blowing plating, centrifugal plating), continuous hot-dip galvanizing production lines (continuous galvanizing production lines, zinc aluminum magnesium production lines, aluminum zinc silicon production lines, etc.), acid pickling and phosphating production lines, and related equipment research and development, manufacturing, and practice.

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高新技术产品
High-tech products

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专利证书
Patent Certificates

Qualifications 荣誉资质

- ▶ 瑞马智能依据500强企业的先进管理经验，制定了《技术机密管理制度》、《知识产权考核评价制度》、《专利信息使用制度》。公司从立项开始，即通过两化指标、加强内部创新驱动及第三方评审等方式，实现闭环管理并成立两级知识产权管理机构，为技术立企保驾护航。
- ▶ 先后被评为：国家高新技术企业、热浸镀锌智能化工程研究中心、江苏省研究生工作站、外经贸先进企业、SIEMENS数字化工厂集团和过程工业和驱动集团合作伙伴。
- ▶ RITMAN, referring to advanced management experience from top 500 enterprises, has constituted Technology Confidentiality Management System, Intellectual Property Assessment and Evaluation System and Patent Information Use System. RITMAN will implement closed-loop management through the index of industrialization and informatization and by strengthening internal innovation drive and third-party evaluation once the project initiates; and meanwhile, we've established the two levels of IP management mechanism, so that the technical foundation of the enterprise is secured.
- ▶ The enterprise has been rated as: National Hi-tech Enterprise, Engineering Research Center for Intelligent Hot-Dip Galvanizing, Post-graduate Workstation of Jiangsu Province, Advanced Enterprise in Foreign Economic and Trade, Cooperation Partner of SIEMENS Digital Factory and SIEMENS Process Industry and Drives Group.



Corporate Culture 企业文化



企业愿景 VISION

成为热浸镀锌行业绿色化、智能化、无忧化生产的引领者。

To play a leading role of eco-friendly, intelligent and trouble free production in the hot-dip galvanizing industry



价值观 VALUE

认真
Earnest

开放
Open

勇气
Courage

责任
Responsibility



企业使命 MISSION

持续创新，让锌资源更好的服务于人类。

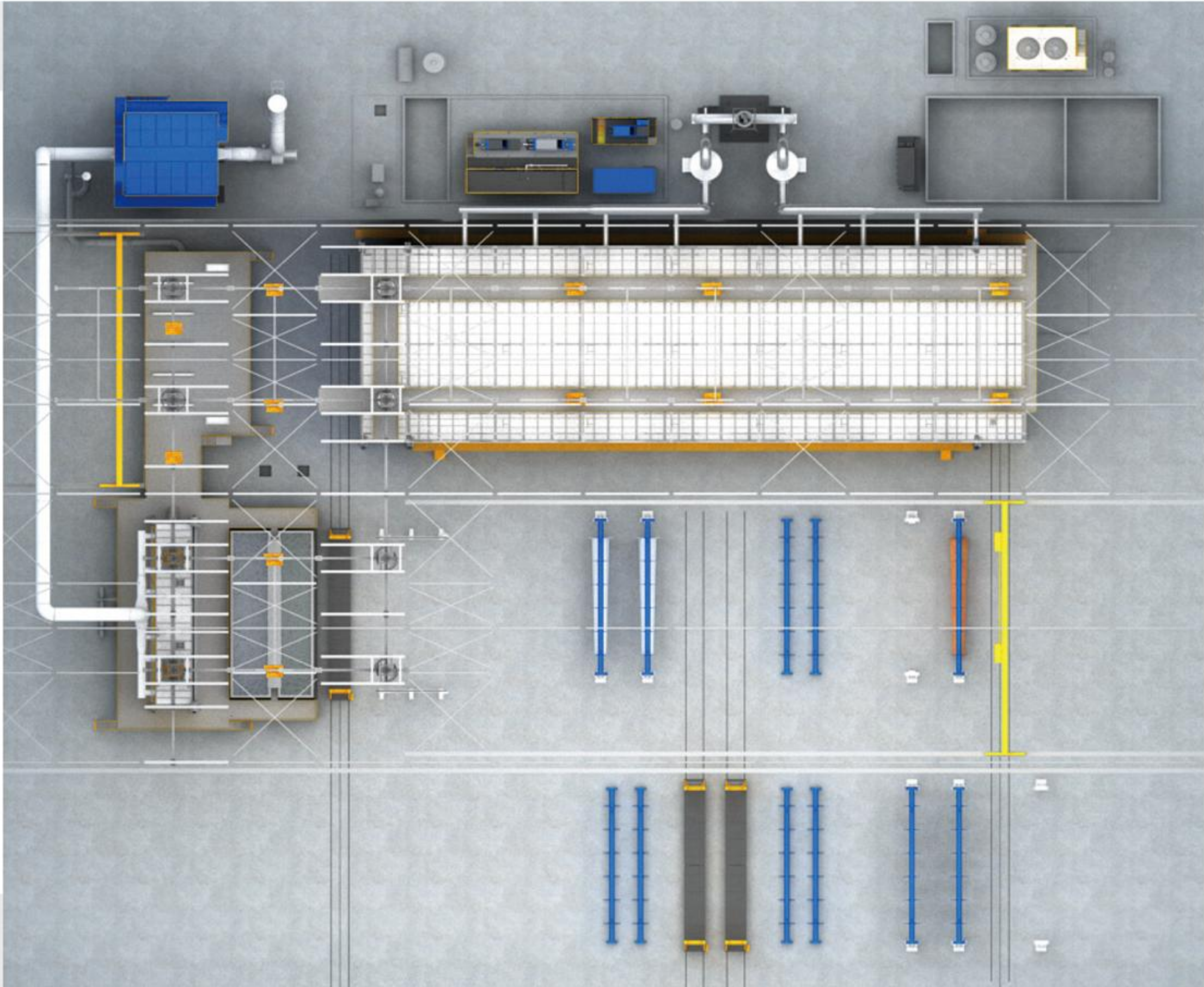
To keep innovating and make zinc resource better service to mankind

Hot-dip galvanizing production lines—General HDG line
批量热镀锌生产线——吊镀生产线



特点 Characteristics

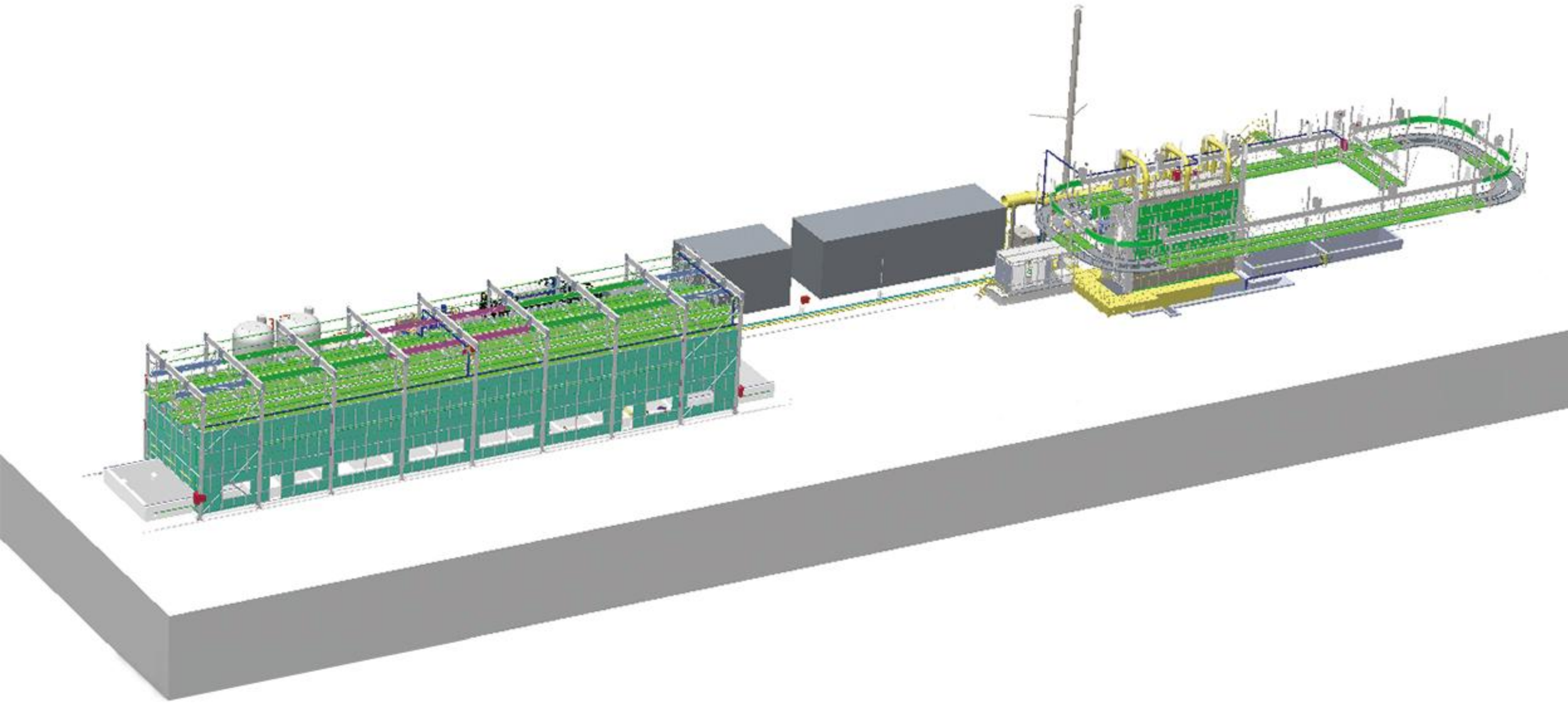
- 1、端进侧出/侧进端出式布局工艺
End in side out/side in end out layout technology
- 2、先进的物流运输定位系统
Advanced logistics transportation positioning system
- 3、集成模块化的环保设备
Having modular environmental protection equipment integrated
- 4、自动检测和控制技术
Automatic detection and control technology
- 5、集合数字化、信息化及智能化管理系统应用
Integrating digitalization, informatization, and intelligent management system applications
- 6、基于安全生产的全新设计
New design based on safe production



理念 Concepts

- 1、首创端进侧出式的热镀锌工艺布局，解决了传统直线型生产线效率低下，以及端进端出式布局的产品易出色差缺陷的难题
The innovative arrangement of end-in & side-out for the HDG process solves the problems of low productivity on traditional linear HDG line as well as usual color shading defect occurred in end-in & end-out arrangement
- 2、减量化的工艺设计及完整的环境保护方案
Process decrement design, and complete environment protection plan
- 3、基于热浸镀锌工业大数据基础上研发的智能产线管控系统
The intelligent production line management system researched and developed based on the big data of HDG industry

Hot-dip galvanizing production lines—General HDG line 批量热镀锌生产线——吊镀生产线



特点 Characteristics

- ▶ 1、前处理自动化，镀锌区连续生产，生产节拍高；
Pre processing automation, continuous production in the galvanizing area, high production pace;
- ▶ 2、产线自动化、信息化程度高，利于生产成本控制、产能跟踪、设备养护等生产管理需要；
The high degree of production automation and informatization is conducive to production management needs, such as production cost control, capacity tracking and equipment maintenance, etc.;
- ▶ 3、采用一体化、自动化环保设备，高效、低耗生产的同时，实现车间无烟无酸雾的同时，固废产生量较传统线降低 50% 以上。
By applying the integrated and automated EP equipment, the high efficiency and low consumption production are achieved, while leaving no smoke and no acid mist in the workshop; and the amount of solid waste generated is reduced by more than 50% compared with the traditional line.

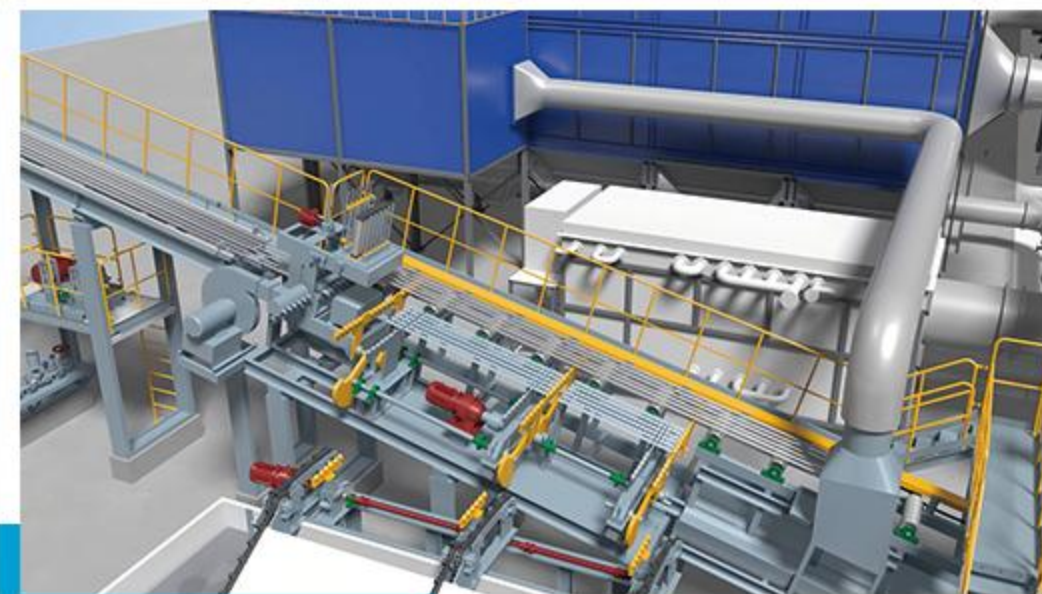
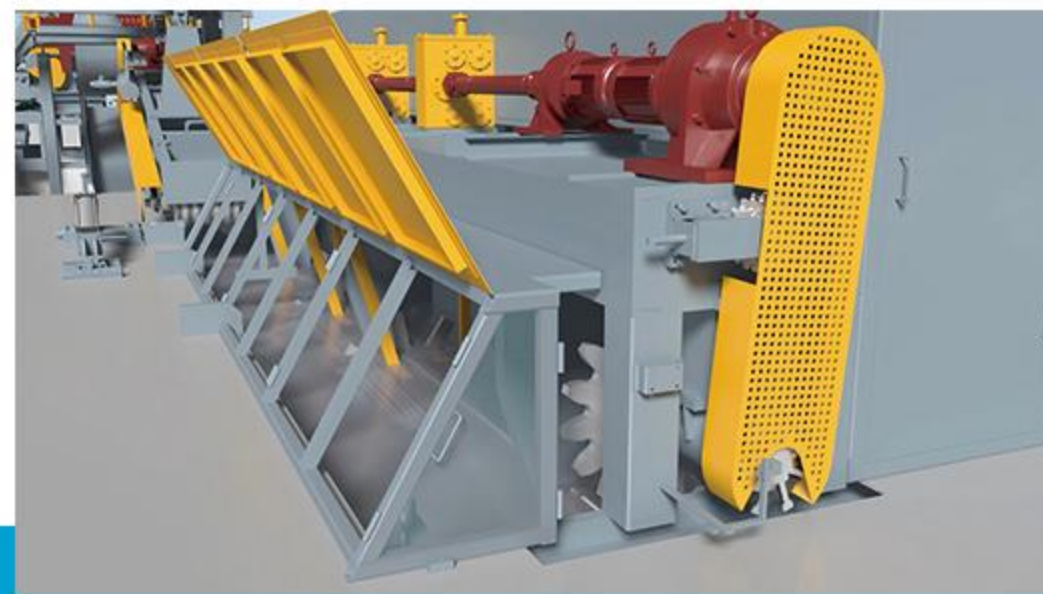


Hot-dip galvanizing production lines—Blow plating line
批量热镀锌生产线——吹镀生产线

Blow plating line
吹镀产线特点：

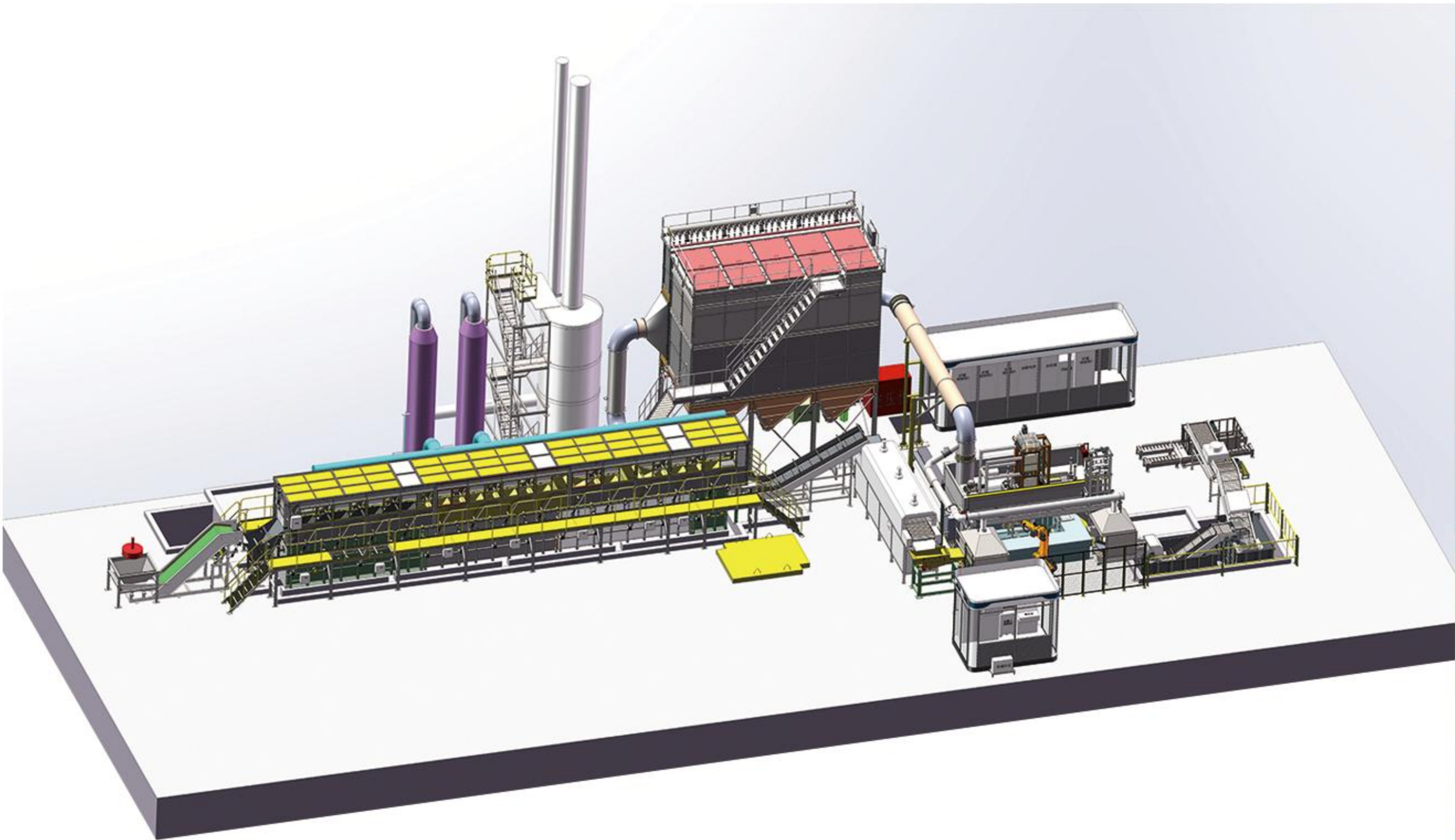


- ▶ 1. 以生产工艺为基础，生产线布局更合理。
Based on the production process, the layout of production line is more reasonable.
- ▶ 2. 实现全系统自动化、信息化，利于生产成本控制和产品质量提升。
Realize automation and informatization of the whole system, which is conducive to control production cost and improve product quality.



- ▶ 3. 合理的生产线设备选型，节能降耗更突出。
Reasonable selection of production line equipment makes energy saving and consumption reduction more prominent.
- ▶ 4. 优化设计的镀锌机组设备，操作更简单、噪声底、稳定性高、易维护性更强。
Optimized design of galvanized unit equipment, more simple operation, little noise, high stability, easy maintenance.
- ▶ 5. 全自动吹镀线实现封闭间全自动酸洗，在保证酸洗效率的同时，实现自动更换酸洗吊带，避免酸槽内带入助剂液成分，达到清洁用酸的目的。
Two pre-treatment processes are designed for different contamination surfaces on the parts to be galvanized; the process technology of ultrasonic degreasing and shot blasting is used.

Hot-dip galvanizing production lines—Centrifugal HDG line
批量热镀锌生产线——离心镀生产线



离心镀热镀锌生产线：
Fully Automated and Informationized HDG Production Line for the Bolts and Nuts

- 特点一：产线镀锌区域采用全机器人作业，高效、稳定、保证质量的同时，剔除了高温作业环境的不安全因素。
A robot is used in the area for galvanizing operation; with efficient and stable operation and guaranteed quality, it also eliminates the unsafe factors in the high-temperature operating environment.
- 特点二：在线离心技术，直接在锌锅上完成锌篮抓取、离心、多余的锌直接落入锌锅，减少氧化率，快速实现二次回用。
A robot is used in the area for galvanizing operation; with efficient and stable operation and guaranteed quality, it also eliminates the unsafe factors in the high-temperature operating environment.

- 特点三：可移动镀锌平台+锌烟罩的集成设计，便于捞渣、清理和维护的同时，更好的吸收锌烟，维护现场环境，实现低耗的目标。
The integrated design of a movable galvanizing platform and zinc hood facilitates slag removal, cleaning, and maintenance while better absorbing zinc smoke, maintaining the on-site environment, and achieving the goal of low consumption.
- 特点四：产线通过信息化、数字化技术的加入，实现在线完成产品信息、位置信息、锌耗、设备运行参数等数据收集工作，确保数据真实的同时，实现无人、少人的生产模式，进一步降低了生产成本。
Through the integration of information and digital technology, the production line realizes the online collection of product information, location information, zinc consumption, equipment operating parameters and other data, ensuring the authenticity of the data while achieving unmanned and few person production mode, further reducing production costs.

Reconstruction of Traditional HDG Line 传统线改造



行业现状 Industry Status

- 1、环保不达标
Non compliance to EP standard
- 2、安全无保障
Unguaranteed safety
- 3、成本不可控
Uncontrolled cost

特点 Characteristics

- 1、封闭间采取大跨度硬横梁结构, 不改变原厂房结构
The pretreatment enclosure adopts long span and rigid beam structure, without changing the original structure of the workshop
- 2、进出封闭间采用两道门结构设计, 不破坏原有厂房地面
Two sliding doors structure design at the entrance and exit of the pretreatment enclosure, without damaging the existing workshop floor
- 3、锌烟收集采用侧吸加弧形罩方式, 收集效率高、消耗功率低
Side suction and cambered hood are adopted, which features high collection efficiency and low power consumption



Reconstruction

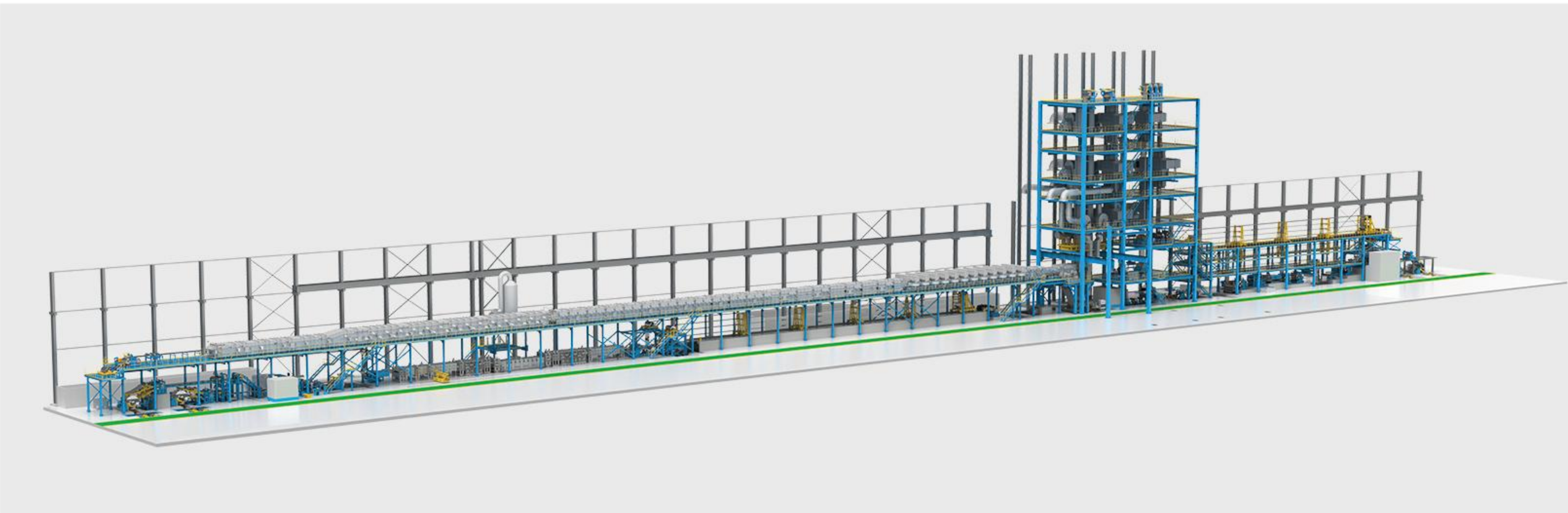
优势 Features

- 1、模块化设计及制造, 不改变原厂房结构, 施工周期短
Modular design and fabrication to shorten construction period without changing the original structure of the workshop
- 2、自主研发的热镀锌管理系统, 大幅提升热镀锌车间管理水平
The independently developed HDG management system to greatly improve the management level at the workshop
- 3、自动化控制技术的应用, 确保工艺的稳定及物流转运的高效运行
The application of automatic control technology to ensure process stability and high efficient operation of material flow

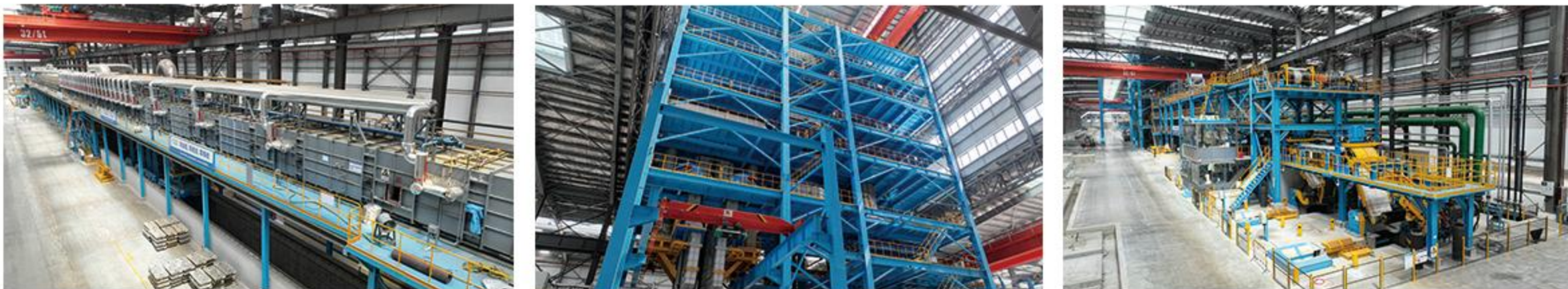
Continuous HDG production lines 连续热镀锌生产线

连续镀锌机组有：镀锌、镀锌铝镁、镀铝锌硅、镀铝、酸洗+镀锌联合机组，另有彩涂、脱脂和平整拉矫机组等。

Continuous galvanizing units include galvanizing, galvanizing aluminum magnesium, aluminum zinc silicon, aluminum plating, pickling+galvanizing combined units, as well as color coating, degreasing, and leveling and straightening units.



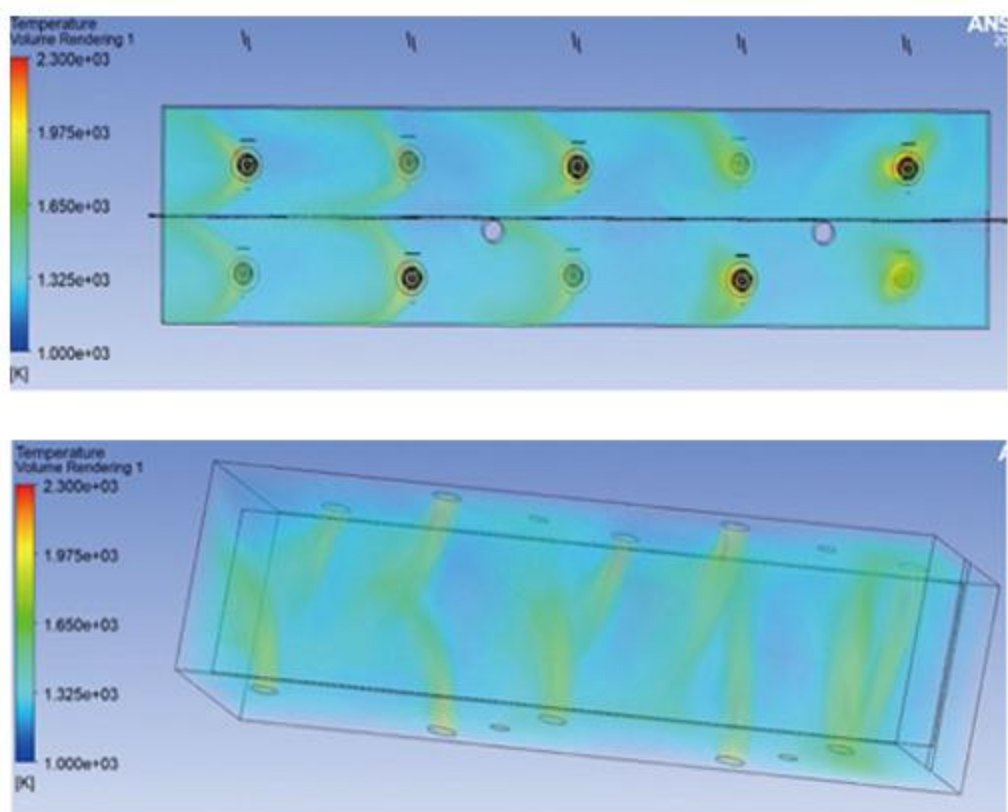
Advantages of the continuous HDG production lines 连续热镀锌生产线优势



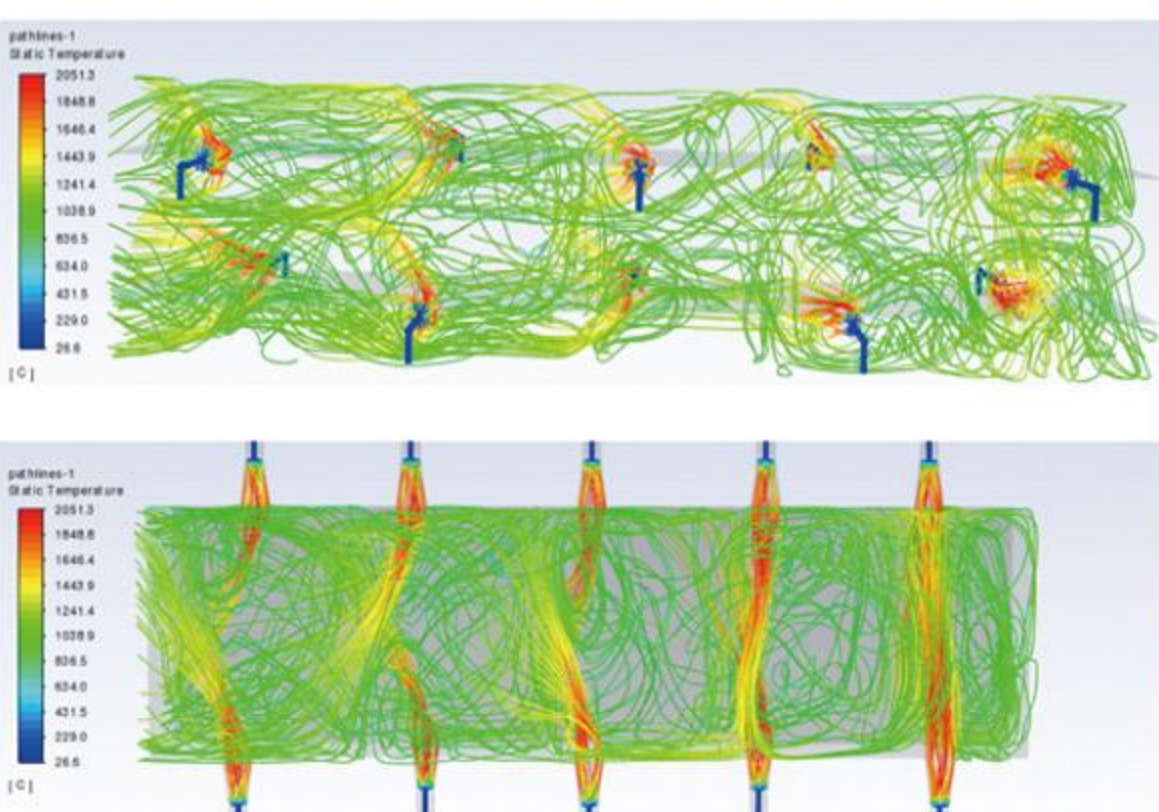
- 三维建模技术：全产线设计采用三维技术，一体化设计、工厂化预制、现场模块化组装的方式，大幅提升现场安装效率的同时也保证了工程安装品质，节省人力物力。
3D modeling technology: The entire production line design adopts 3D simulation technology, integrated design, factory prefabrication, and on-site modular assembly, greatly improving on-site installation efficiency while ensuring engineering installation quality and saving manpower and material resources.
- 仿真技术应用于退火炉：可以根据退火工艺曲线，自动完成对炉温和热负荷的最优化设定，达到最低的能源消耗，保证产品质量一致性的要求和成本控制。
Simulation technology applied to annealing furnaces: It can automatically optimize the furnace temperature and heat load based on the annealing process curve, achieve the lowest energy consumption, ensure product quality consistency requirements and cost control.
- 仿真技术应用于快冷流场：换热后的热风直接通过无遮挡的管间距排出，没有热风的堆积，换热得到大幅提升。
Thermodynamics biomimetic technology is applied to fast cooling flow fields: the hot air after heat exchange is directly discharged through unobstructed pipe spacing, without the accumulation of hot air, resulting in a significant improvement in heat transfer.

Biomimetic technology applied to annealing furnaces 仿真技术应用于退火炉

明火段温度场分析 Analysis of temperature field in open flame section



明火段线迹分析 Line trace analysis of open flame section



通过比较经验值调整流体动态计算参数，对炉区进行流场及热力学仿真分析，进一步验算设计选型及布局的合理性，将热工的效率发挥至最佳。

By comparing empirical values and adjusting fluid dynamic calculation parameters, flow field and thermodynamic simulation analysis of the furnace area is carried out to further verify the rationality of design selection and layout, and to maximize thermal efficiency.

Pretreatment Management System

前处理管理系统



- ▶ 前处理管理系统由各类工艺槽、微负压封闭间、集中式泵站、喷淋洗涤塔等构成。工艺槽采用钢结构+特殊涂层处理结构,或者混凝土+花岗岩结构,集中式泵站将根据系统需求对工艺槽进行自动调控。
- ▶ The pre-processing management system consists of various process tanks, micro-negative pressure enclosed rooms, centralized pump stations, spray washing towers, etc. The process tank adopts a steel structure + special coating treatment structure, or a concrete + granite structure. The centralized pump station will automatically regulate the process tank according to system requirements.

优势 Advantage

- ▶ 全新结构设计及新型材料密封,使用寿命长,维护成本低
New structure design and sealed with new materials, featuring long service life and low maintenance cost
- ▶ 微负压 -10-0 pa 设计,保证酸雾不外漏,且运行成本低
Negative micro-pressure between -10 to 0 Pa to avoid the acid mist from escaping and with low operation cost
- ▶ 实现实时变频,节省电费65%
Realize real-time frequency conversion and save 65% on electricity bills

LCMG Galvanizing Fume Collection and Treatment System 锌烟收集及处理系统



LCMG 镀锌烟处理系统 LCMG galvanizing fume treatment system	VS	传统型镀锌烟系统 Traditional galvanizing fume system
<p>✓ 针对镀锌烟粉尘 Specific To Galvanizing Fume And Dust</p> <p>强吸湿性、超细颗粒度 (<1um) 等特点 Has the features of strong absorption to moisture and ultra fine granularity (<1um) 针对性的选用最适宜镀锌烟除尘滤袋材质 Select the bag filter material optimal for galvanizing fume dust removal</p>		<p>✗ 只针对粉尘 Only Specific To Dust</p> <p>没有专门针对镀锌烟特点, 进行特殊设计, 无法达到除尘效果 No special design aiming at the dust characteristics of galvanizing fume, the dust removal effect cannot be achieved</p>
<p>✓ 特殊设计 Specific Design</p> <p>专用于高粘超细镀锌烟粉尘清灰装置, 清灰彻底, 避免产生“糊袋”现象 Exclusively used in high viscosity and ultra-fine galvanizing fume dust removal equipment, With thorough dust removal to avoid paste bag</p>		<p>✗ 容易产生“糊袋”问题、不易清理 Paste Bag Can Be Easily Produced, being Hard To Be Cleaned</p> <p>非专门针对镀锌烟、锌灰的特点设计, 且“糊袋”后不易清理 The design is not specific to the dust characteristics of galvanizing fume and zinc ash, and the paste bag is hard to be cleaned</p>
<p>✓ 先进的自动化检测控制系统 Advanced automatic detection and control system</p> <p>保证除尘系统可靠稳定运行 Ensure reliable and stable operation of dust removal system</p>		<p>✗ 系统运行不稳定 Unstable operation of the system</p> <p>检测系统欠缺或者功能不全 Lack of detection system or incompetent functions</p>

Integrated Furnace for Hot-Dip Galvanizing 一体化热浸镀锌炉

特点 Features

真正结合热镀锌生产进行能源自动化、智能化管理;

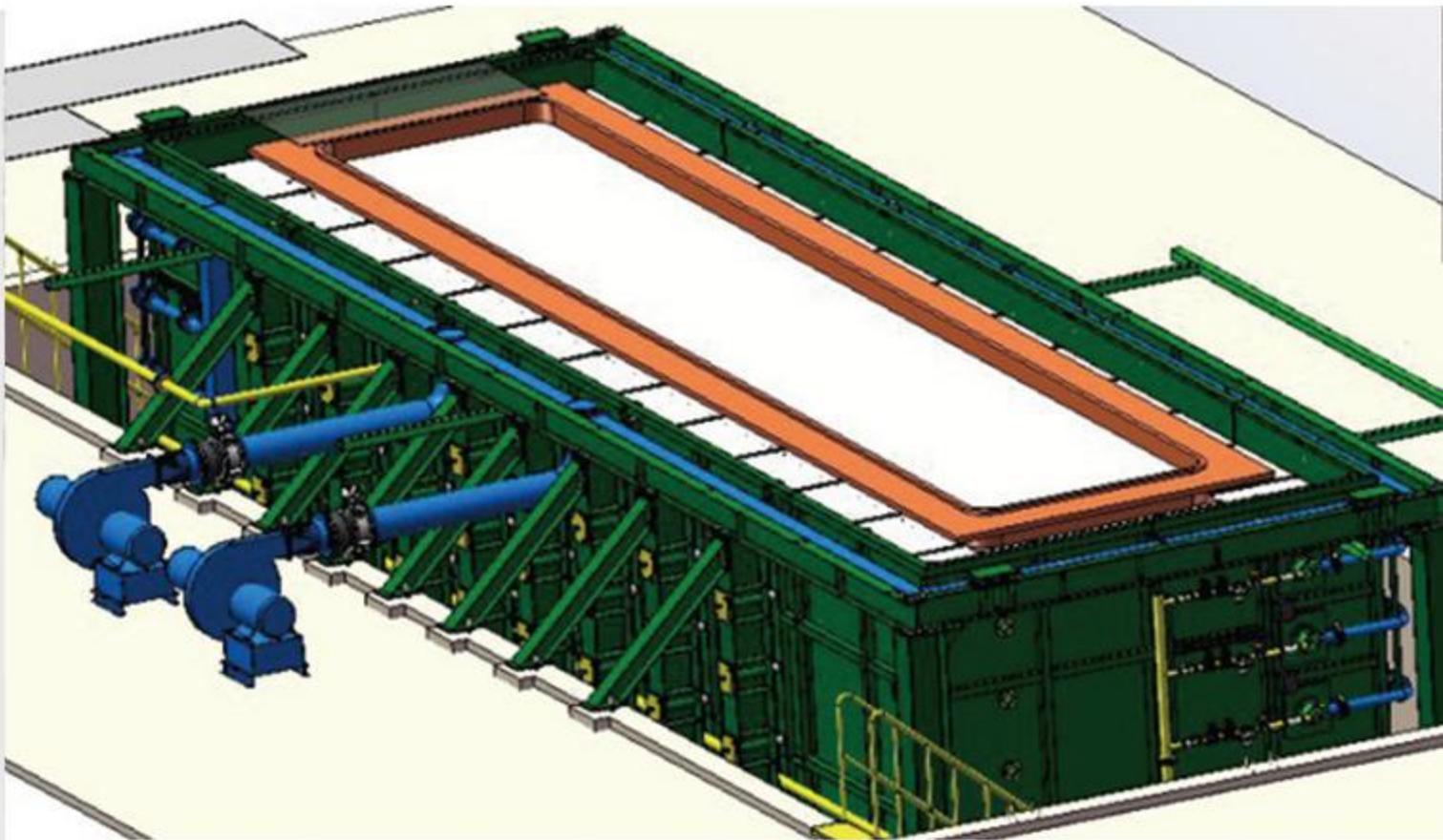
Having HDG production combined with automatic and intelligent management for energy.

高度自动化控制、节能降耗;

High automation control for energy saving and consumption reducing;

模块化设计、工厂预制, 施工效率高; 优化设计、便于维护保养。

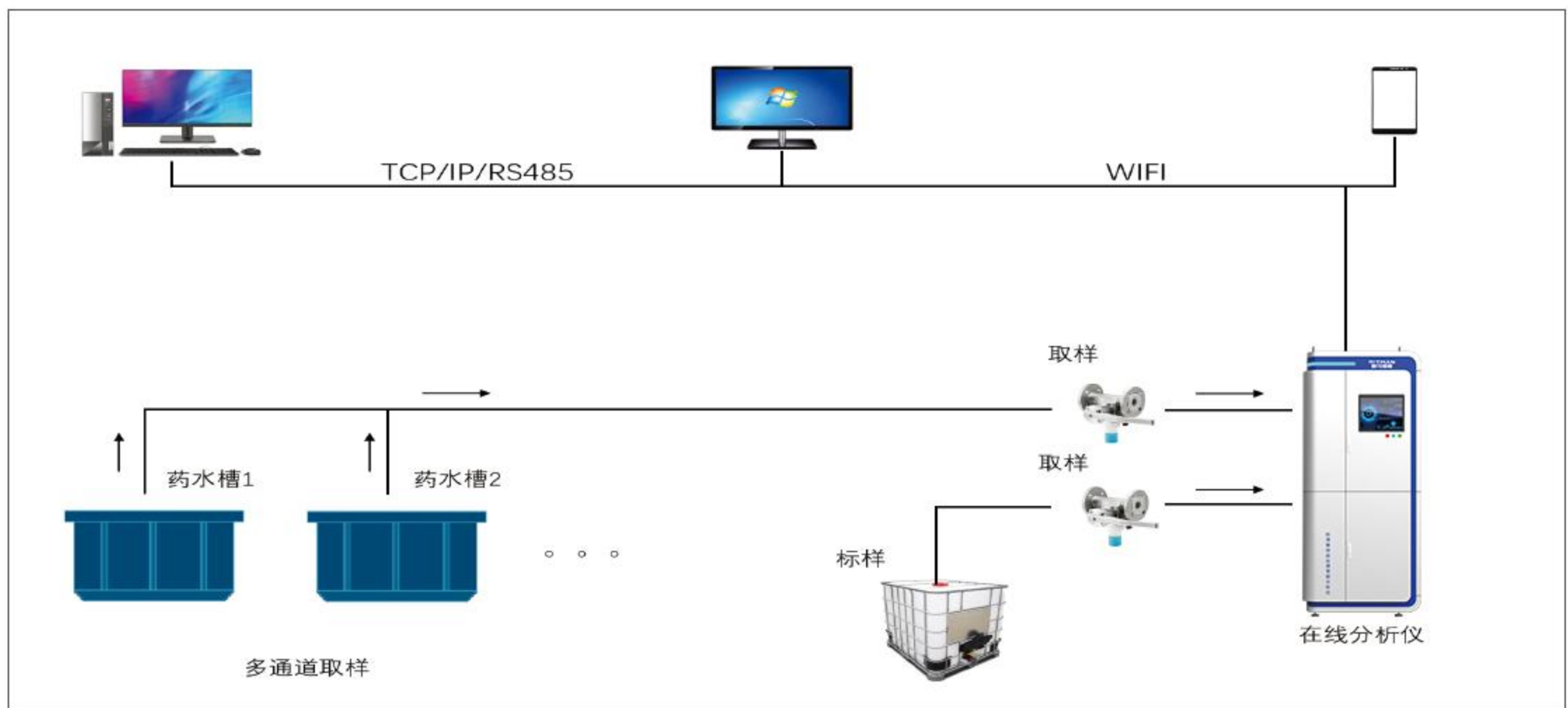
Modular design, factory fabrication, and high construction efficiency; optimized design and easy maintenance.



Pre processing intelligent analyzer 前处理智能分析仪

瑞马智能RMTest系列在线分析仪是专门针对热镀锌酸洗前处理工艺槽槽液的酸度、氯化亚铁、氯化锌和氯化铵浓度开发的一款智能检测设备,可进行在线自动取样和检测分析,可分析单一参数或多种参数,针对不同的应用,只需在界面设置和修改即可。

The RITMAN Intelligent RMTe ST Series Online Analyzer is an intelligent detection device specifically developed for the acidity, ferrous chloride, zinc chloride, and ammonium chloride concentrations of the pre-treatment process tank solution for hot-dip galvanizing pickling. It can perform online automatic sampling and detection analysis, and can analyze single or multiple parameters. For different applications, it only needs to be set and modified on the interface.



特点 Features

- ▶ 独特的定量取样方法, 保障取样的准确性
Unique quantitative sampling method ensures the accuracy of sampling
- ▶ 具备取样自动清洗功能, 确保样液代表性
Equipped with automatic cleaning function for sampling, ensuring the representativeness of the sample solution
- ▶ 检测过程精确计量, 保证分析结果的准确性
Accurate measurement during the detection process ensures the accuracy of the analysis results
- ▶ 可选配多通道和多参数取样分析功能
Optional multi-channel and multi parameter sampling analysis functions

Acid pickling and phosphating production line 酸洗磷化线

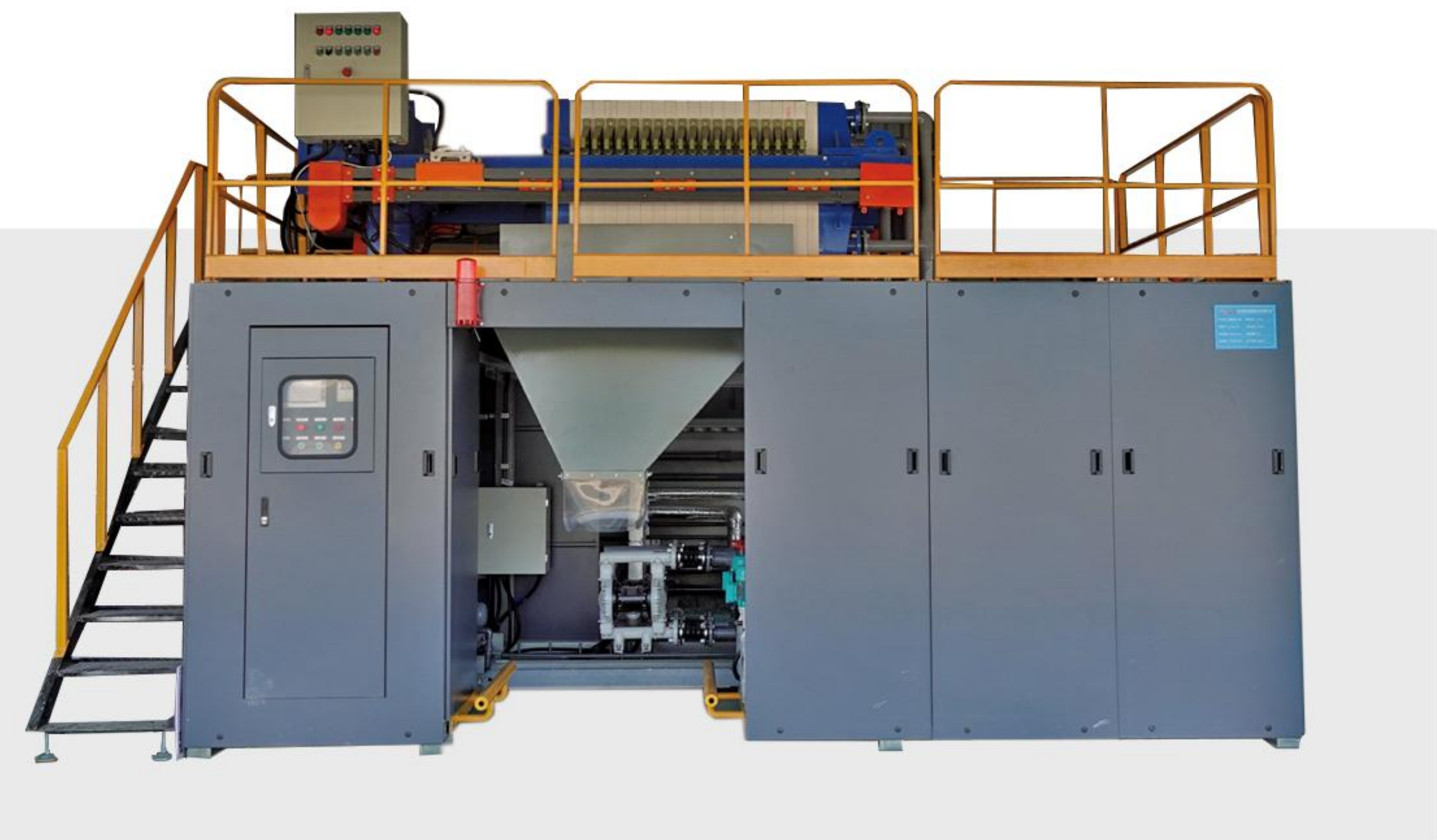


特点 Features

- ▶ 封闭式作业空间, 采用微负压设计, 绿色环保
Closed workspace with micro negative pressure design, green and environmentally friendly
- ▶ 自动化生产, 生产效率高, 产能更大
Automated production, high production efficiency, and larger production capacity
- ▶ 物流精确定位、联动交叉控制, 安全无忧
Accurate logistics positioning, linkage and cross control, safe and worry free
- ▶ 多种工艺配方, 满足产品不同工艺需求
Multiple process formulas to meet different process requirements of products



Integrated Treatment Equipment for Flux Regeneration 助镀剂再生处理一体化设备



优势 Advantage

- ▶ 无需人员值守, 实现自动化运行, 仅卸泥时需要人员辅助
Unattended and fully automatic operation, and labor only needed when mud discharging
- ▶ 正常运行后, 可保持助镀剂溶液中 Fe^{2+} 浓度在1g/L以下
The Fe^{2+} content within flux solution can be maintained below 1g/L when in normal operation
- ▶ 泥饼含水率低, 可直接装袋, 固废减量化
Low moisture content in mud cake, direct bagging, and solid waste decrement
- ▶ 设备集成化、模块化、一体化、占地面积小、美观且易于维护
Integrated, modularized and compact equipment with less land occupation and easy maintenance

Integrated and Automated Treatment Equipment for Rinsing Water 漂洗水自动化处理一体化设备



- ▶ 设计理念: 环保、再生利用、一体化、资源化、自动化
Design concept: environment protection, recycling, Integration, resource recovery and automation

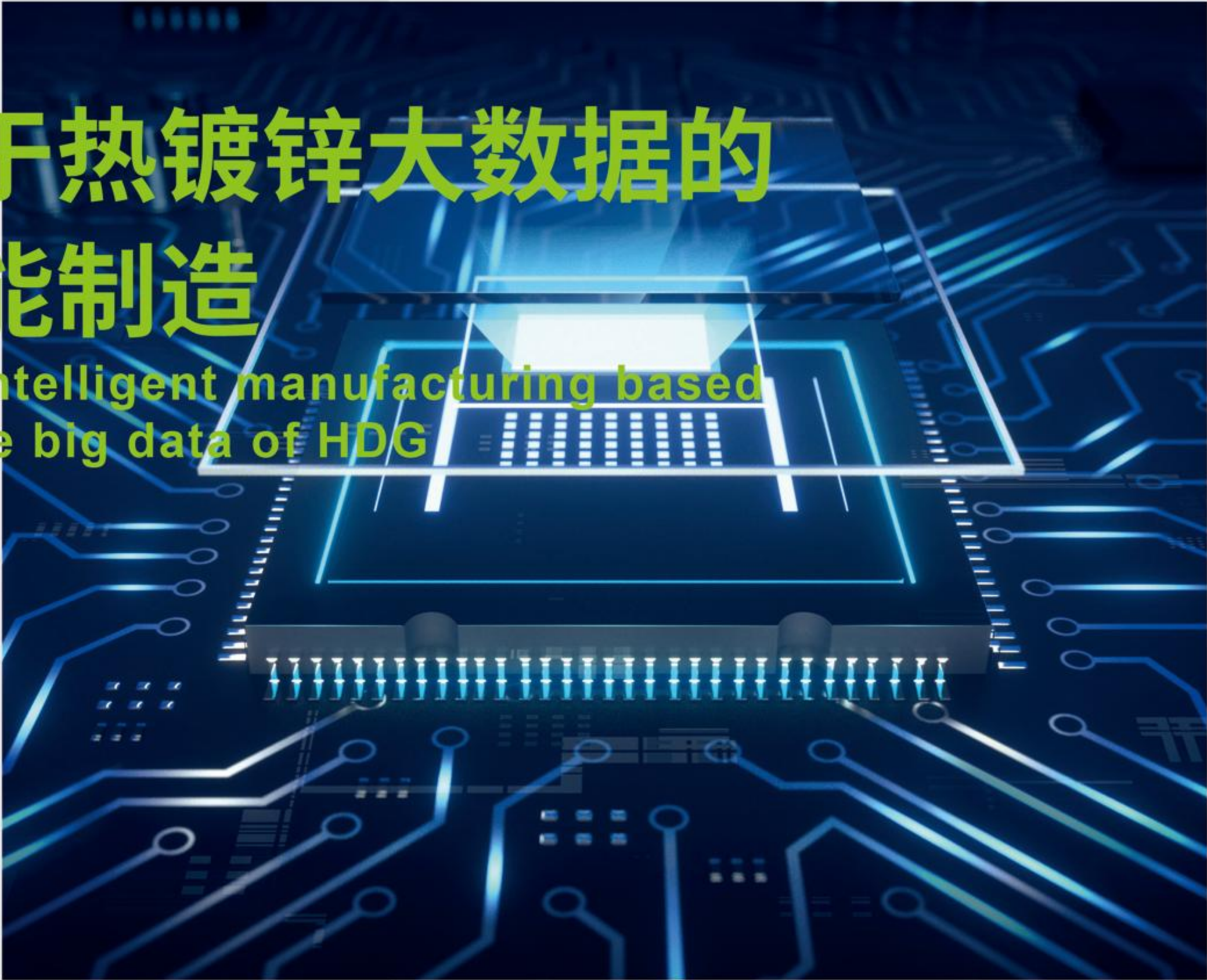


优势 Advantage

- ▶ 高效催化氧化除铁功能, 实现连续运转, 自动曝气, 防止沉淀堆积
High-efficiency function of catalysis and oxidation ferrous removal, and continuous operation; automatic aeration to avoid sediment accumulation
- ▶ 日均水处理效率较普通工艺高50%以上
Water treatment efficiency per day is 50% more than the usual process
- ▶ 除含铁污泥外, 无废水排放
No waste water discharged, apart from ferrous sludge
- ▶ 泥饼含水率低, 可直接装袋, 固废减量化
Low moisture content in mud cake, direct bagging, and solid waste decrement
- ▶ 设备集成化、模块化、一体化、占地面积小、美观且易于维护
Integrated, modularized and compact equipment with less land occupation and easy maintenance
- ▶ 整机全自动运行, 仅卸泥时需要辅助
Fully automatic operation, and labor only needed when mud discharging

Core Technology
核心技术

基于热镀锌大数据的
智能制造
The intelligent manufacturing based
on the big data of HDG



- ▶ 瑞马智能紧随国际工业智能技术革命浪潮，依托沉浸于行业多年的热镀锌大数据，通过对数据分析、数据建模，围绕第一代“智能管理系统”，第二代“基于算法的工业学习系统”，第三代“完全靠算法支撑的自主柔性系统”，着眼于节能降耗、安全环保，持续研发投入，创新从未止步！
- ▶ RITMAN, relying on the industrial big data of the industry accumulated for years, follows closely with the wave of the technological revolution. By data analyzing and modeling as well as the first generation of “intelligent management system”, the second generation of “algorithm-based industrial learning system” and the third generation of “fully algorithm-supported flexible and autonomous system”, RITMAN has been focusing on energy-saving and cost-reducing, safety and environmental protection and will keep R&D investment and has never ceased its steps on innovation!

Core Competency
核心竞争力



环保数字化热浸锌生产线指标对比统计表
Statistical Table for Contrast of Production Line Indicators

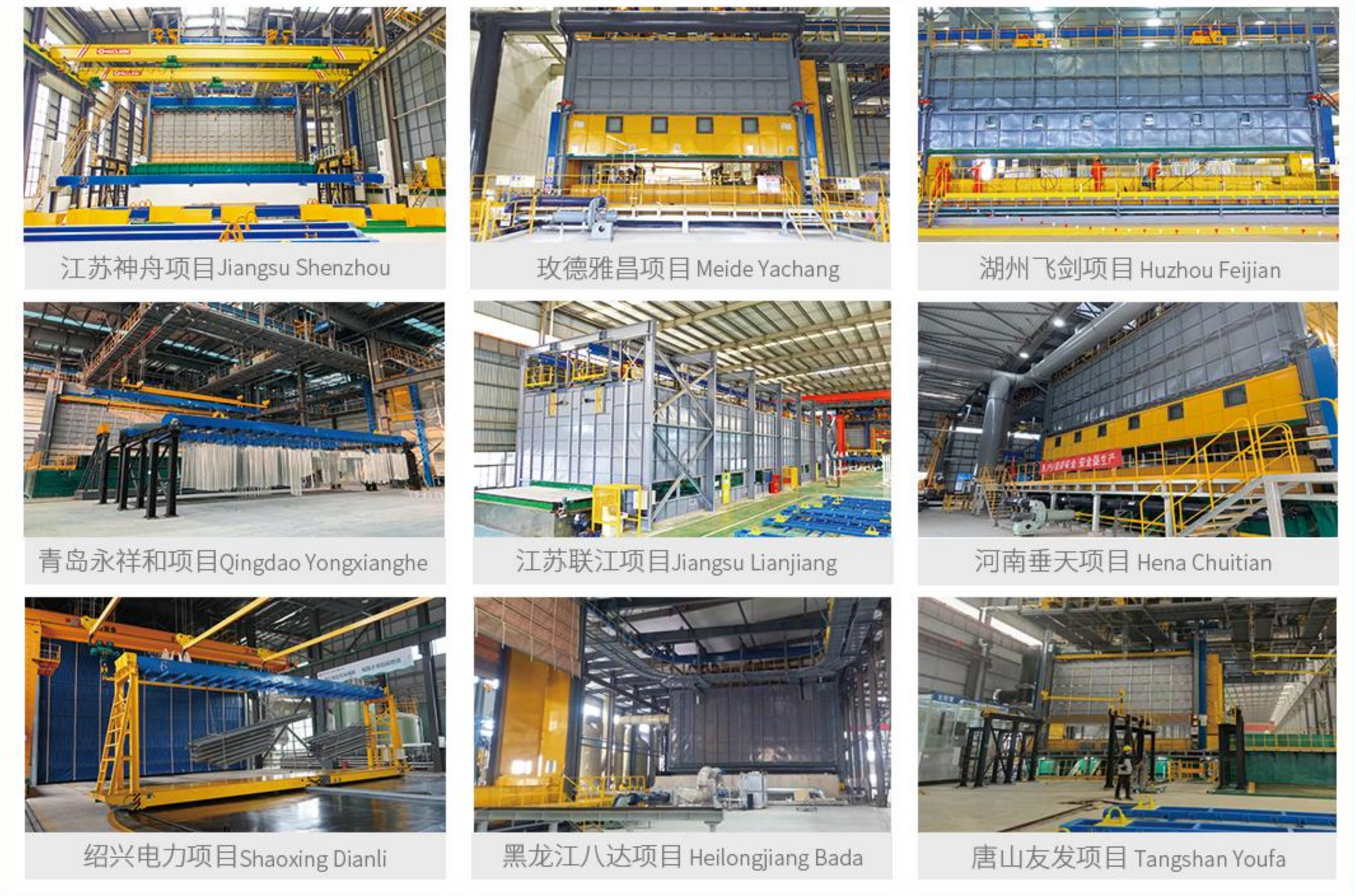
	传统线	环保线	
产能	Capacity		+20%
锌耗	Zinc Consumption		-4.5%
电耗	Power Consumption		-33.3%
气耗	Gas Consumption		-10%
酸耗	Acid Consumption		-11.1%
氯化锌	Hydrogen Chloride		-100%
废酸	Waste Acid		-13.6%
固废	Solid Waste		-57.2%
废水	Waste Water		-55.6%

Projects 项目案例

传统线改造 Reconstruction of Traditional HDG Line



新线建设 Construction of New HDG Line

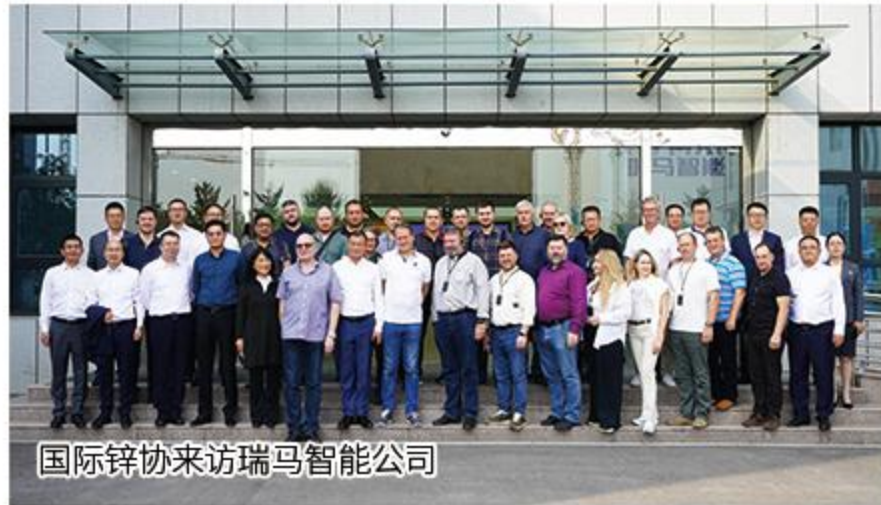
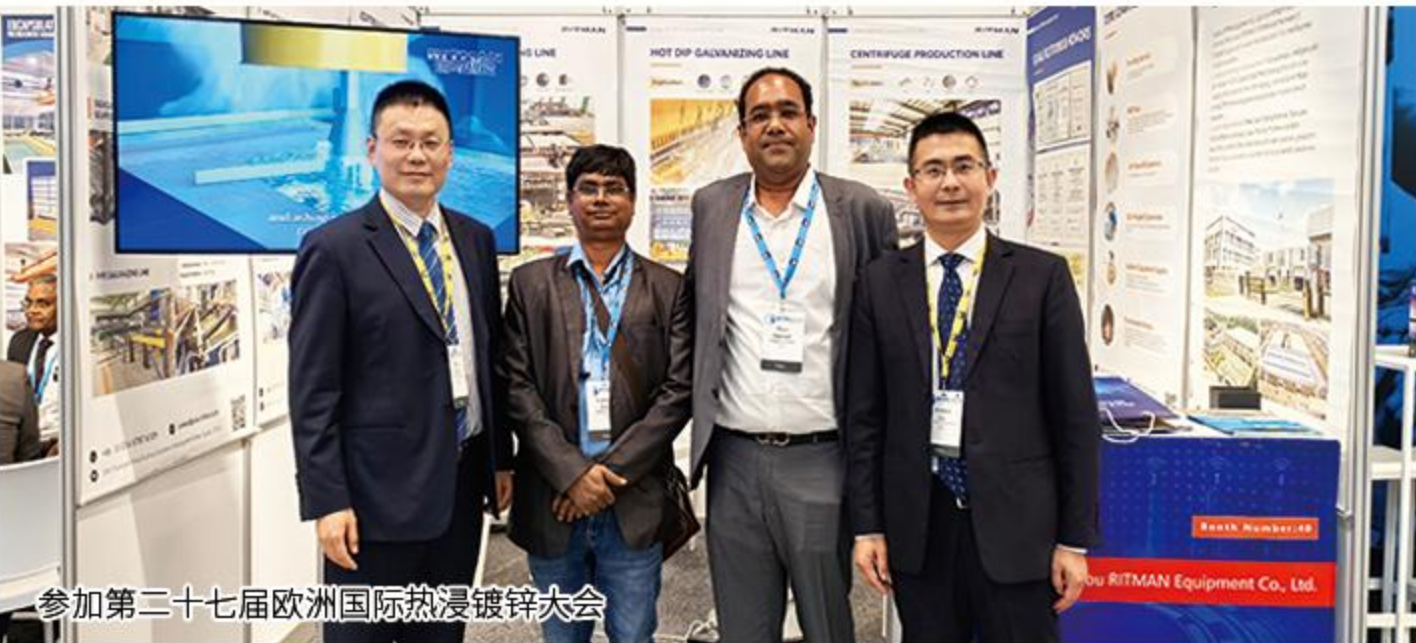


Partial Partner Directory 部分合作伙伴名录



Events 国际交流

- ▶ 瑞马智能深度参与国际交流,持续支持国际锌协组织,连续五届成为其大会共同主办方;多次出访欧美、东南亚等地区,深入学习、交流热镀锌生产技术。
- ▶ RITMAN has a deep involvement in international exchanges. With our support to IZA as always, we, as a co-sponsor, have consecutively participated in three conferences organized by IZA. We have paid many visits to Europe and America and Southeast Asia for exchanging the production technology of hot-dip galvanizing.



Internationalization Strategy 国际化战略



- ▶ 国内: 以徐州总部为研发中心、生产中心,以济南为国际运营中心,规划建设10个办事处以及100个服务网点,营销及服务网络覆盖全国、辐射世界各地。
- ▶ 国际: 根据公司国际化战略规划,瑞马智能未来的全球营收占比,亚洲35%、南美20%、欧洲15%、北美10%、澳大利亚10%、非洲10%。

Domestic: With Xuzhou headquarters as the research and development center and production center, and Jinan as the international operation center, we plan to build 10 offices and 100 service outlets, with a marketing and service network covering the whole country and radiating to all parts of the world.

International: According to the company's national strategic plan, the future global revenue share of Rima Intelligence is 35% in Asia, 20% in South America, 15% in Europe, 10% in North America, 10% in Australia, and 10% in Africa.