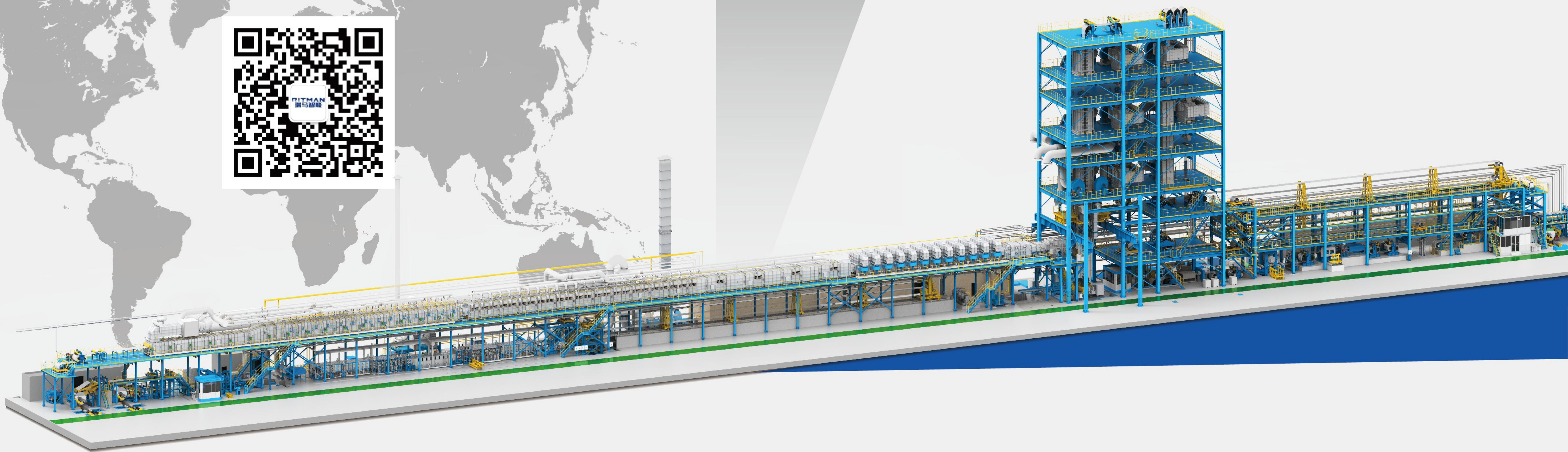


认真·开放·勇气·责任
Earnest Openness Courage Responsibility



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徐州瑞马智能技术股份有限公司
Xuzhou RITMAN Intelligent Technology Co.,LTD



CONTENTS

目录

01-02

CORPORATE PROFILE
公司简介



01-02

CORPORATE CULTURE
企业文化



03-04

HONOR AND QUALIFICATION
荣誉资质



05-08

CONTINUOUS HOT DIP GALVANIZING
主营产品

09-18

OUR ADVANTAGES
我们的优势



19-20

CONTINUOUS STRIP PROCESSING UNIT
连续带钢处理机组



21-22

PROCESS FEATURES
工艺特点



23-24

INTERNATIONAL EVENTS/STRATEGY
国际交流/战略

CORPORATE PROFILE

公司简介

CORPORATE CULTURE

企业文化



企业愿景

OUR 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 hot dip galvanizing industry

核心价值观

CORE VALUE

认真、开放、勇气、责任

Earnest、Openness、Courage、Responsibility

企业使命

OUR MISSION

持续创新，让锌资源更好的服务于人类

To keep innovation and make zinc resources better service to mankind

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，以热镀锌生产全新价值创造为设计理念，专注于新型环保数字化热镀锌生产线及相关设备研发、制造和实践。数据赋能，技术驱动，公司基于热浸镀锌工业大数据，利用定制数字化产品和工业物联技术，致力于热镀锌全产线的智能制造。

Xuzhou RITMAN Intelligent Technology Co., LTD, taking environmental, informationized, intelligentized, and trouble-free HDG production as our mission and new value creation for HDG production as the design concept, is devoted itself to R&D, manufacturing, and practices of a new type of environmental digitalized HDG production line and relevant equipment. Empowered by data and driven by technology, our company, based on big data for the HDG industry and by applying industrial IoT technology and customized digital products, focuses on the intelligent manufacturing of the entire HDG production line.

HONOR AND QUALIFICATION

荣誉资质



MAIN PRODUCT

主营产品

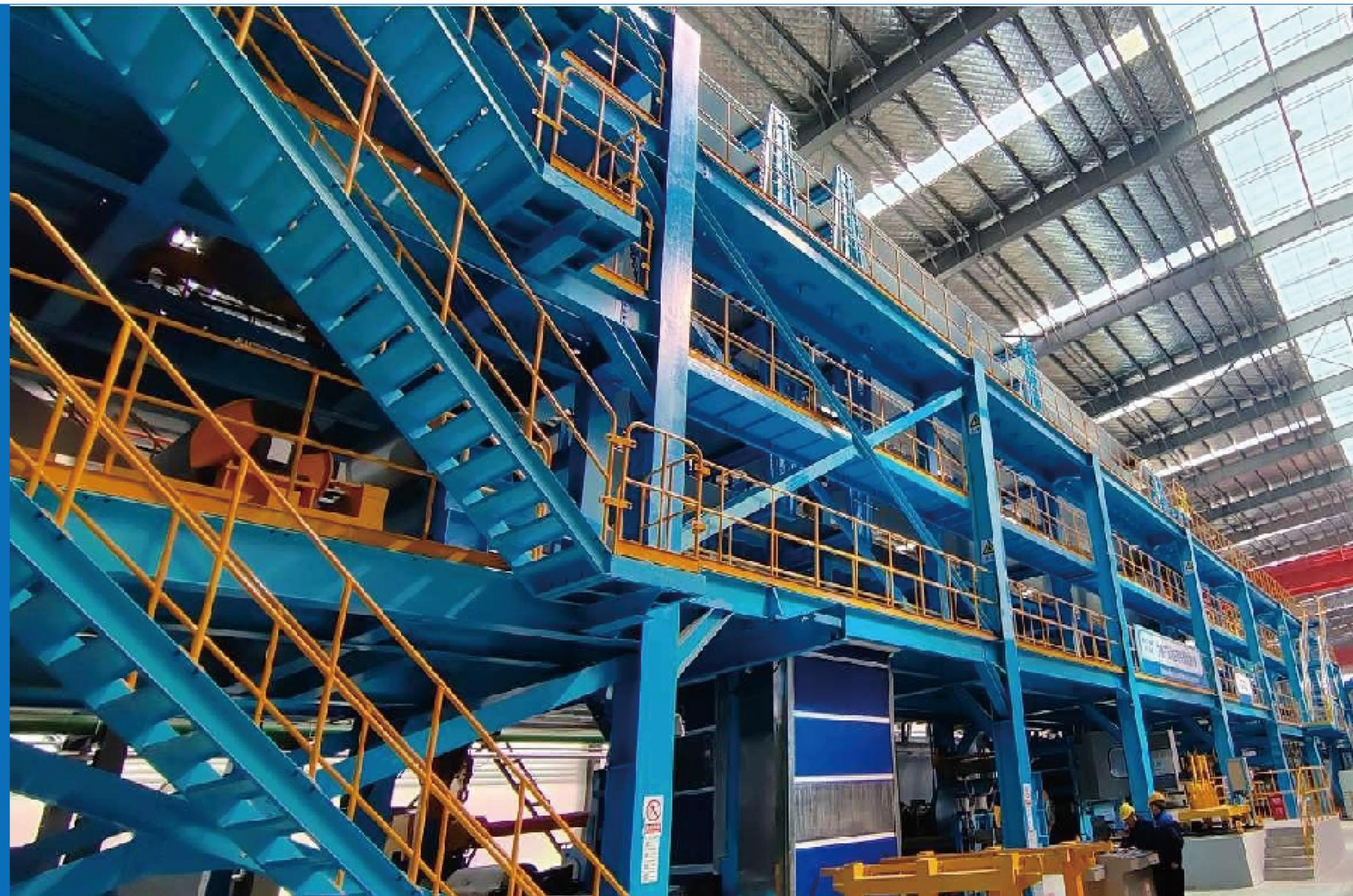
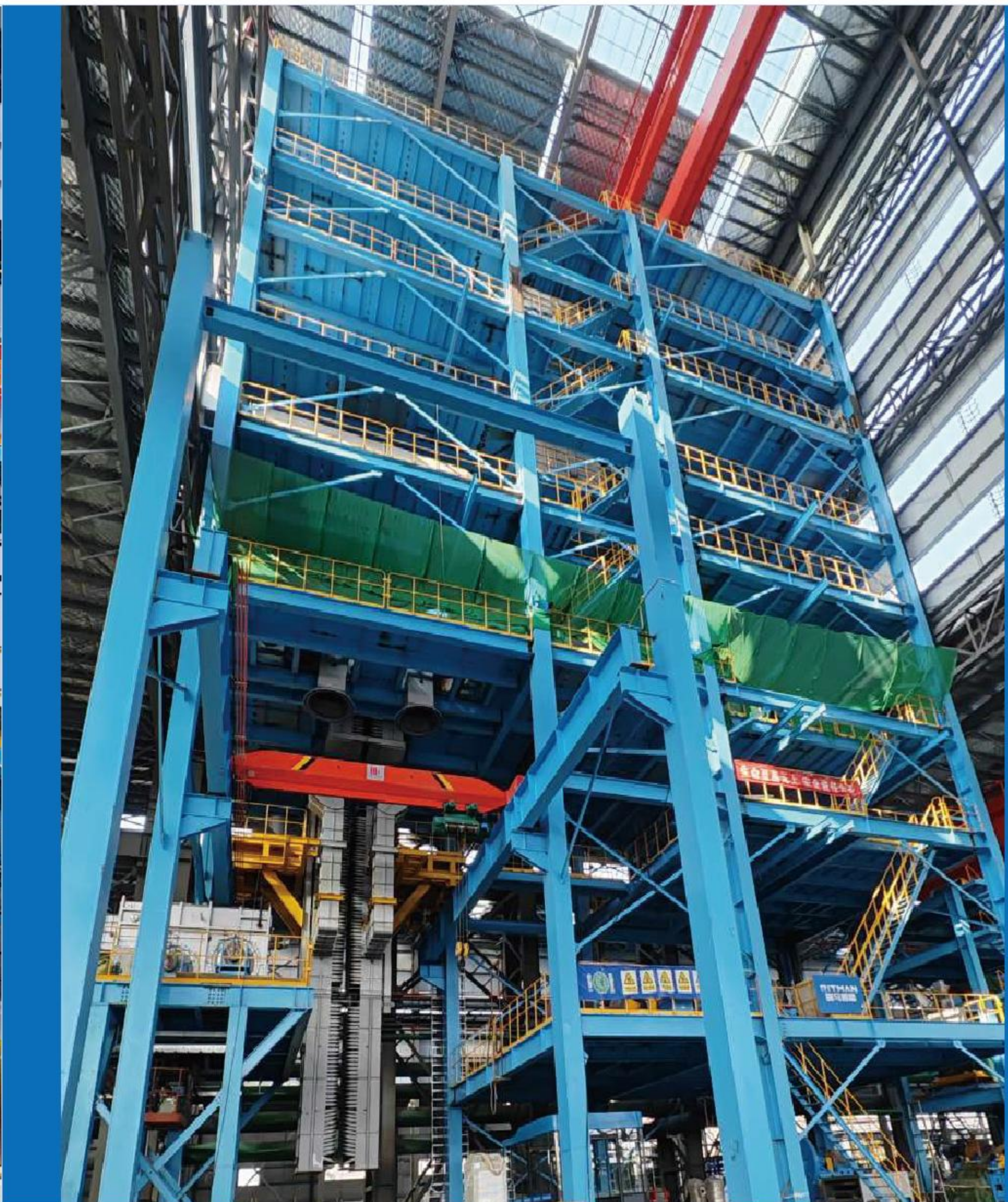
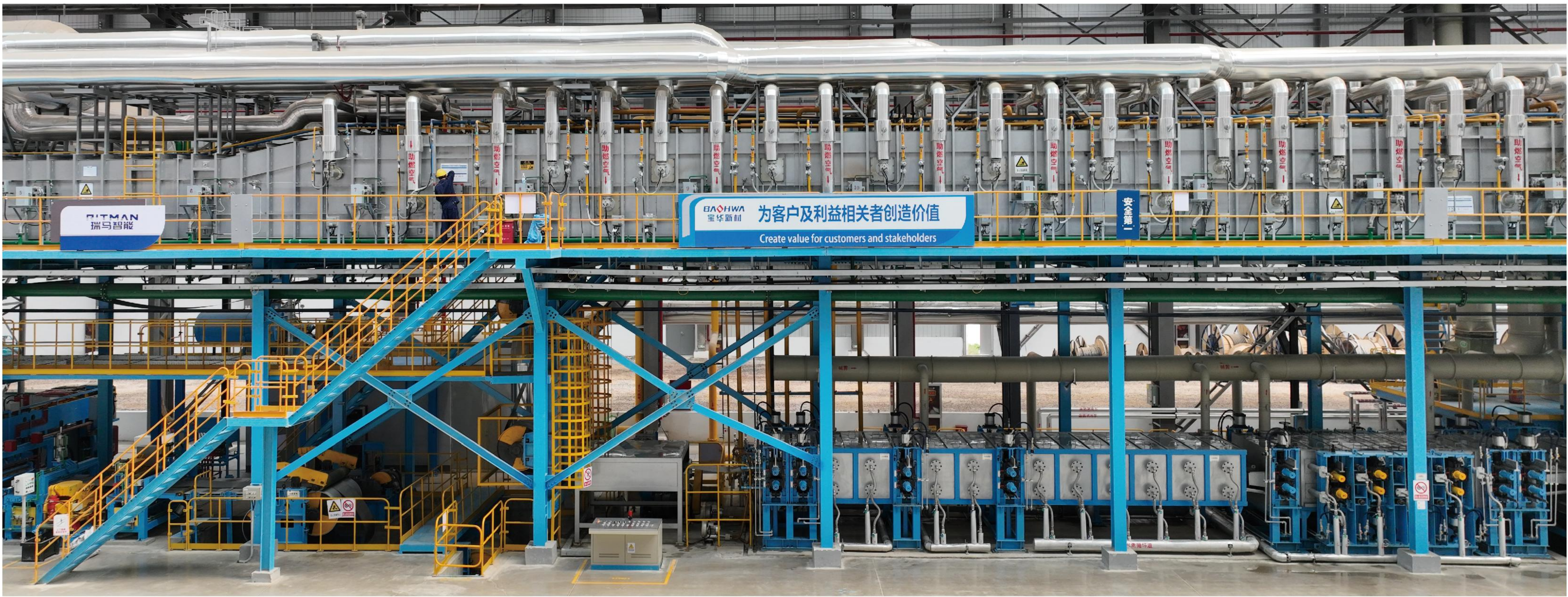
连续热镀锌生产线
CONTINUOUS GALVANIZING LINE

连续热镀铝锌硅生产线
CONTINUOUS GALVALUME LINE

连续热镀锌铝镁生产线
CONTINUOUS ZAM LINE

连续彩涂生产线
CONTINUOUS COLOR COATING LINE

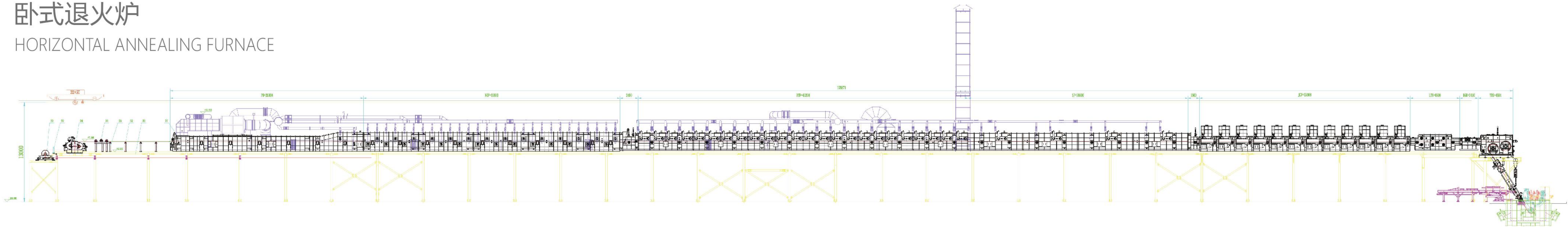
连续退火生产线
CONTINUOUS ANNEALING LINE



MAIN PRODUCT

主营产品

卧式退火炉 HORIZONTAL ANNEALING FURNACE

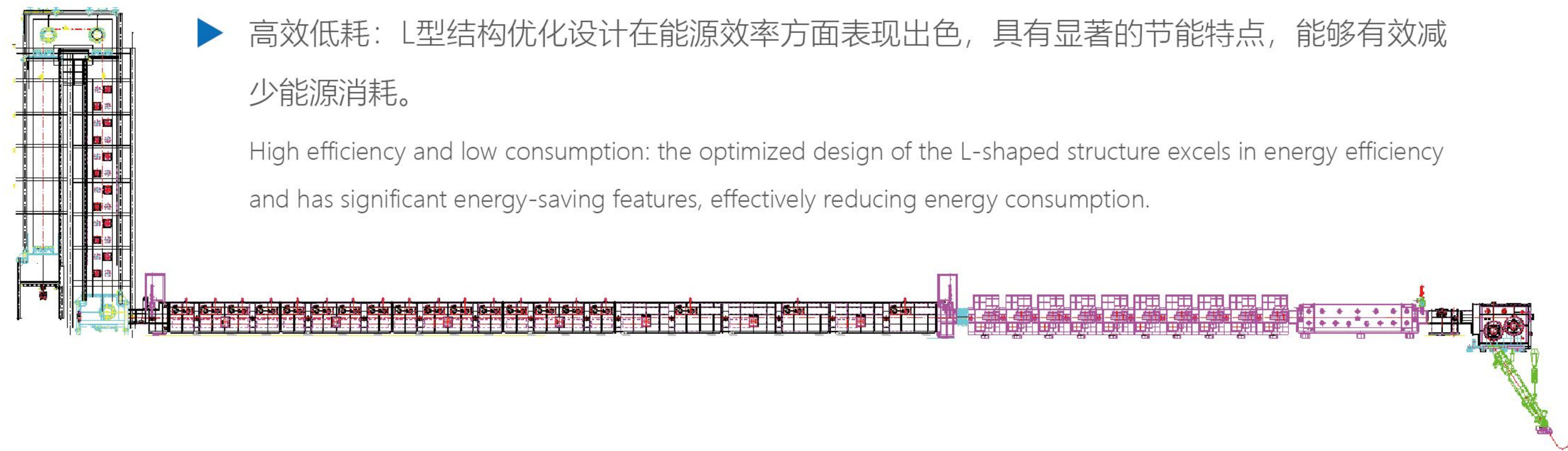


- 高效节能：能够在短时间内将材料加热到所需温度，提高生产效率。经过优化设计，能够大大降低能源消耗，降低生产成本。
High efficiency and energy saving: it is able to heat the material to the required temperature in a short period of time, which improves the production efficiency. With optimized design, it can greatly reduce energy consumption and production costs.

- 温度均匀：可以确保钢材或铝材加热到所需温度，减少了加热过程中的偏差，使制品更加稳定优质。
Uniform temperature: It can ensure that the steel or aluminium is heated to the required temperature, which reduces the deviation in the heating process and makes the products more stable and high quality.

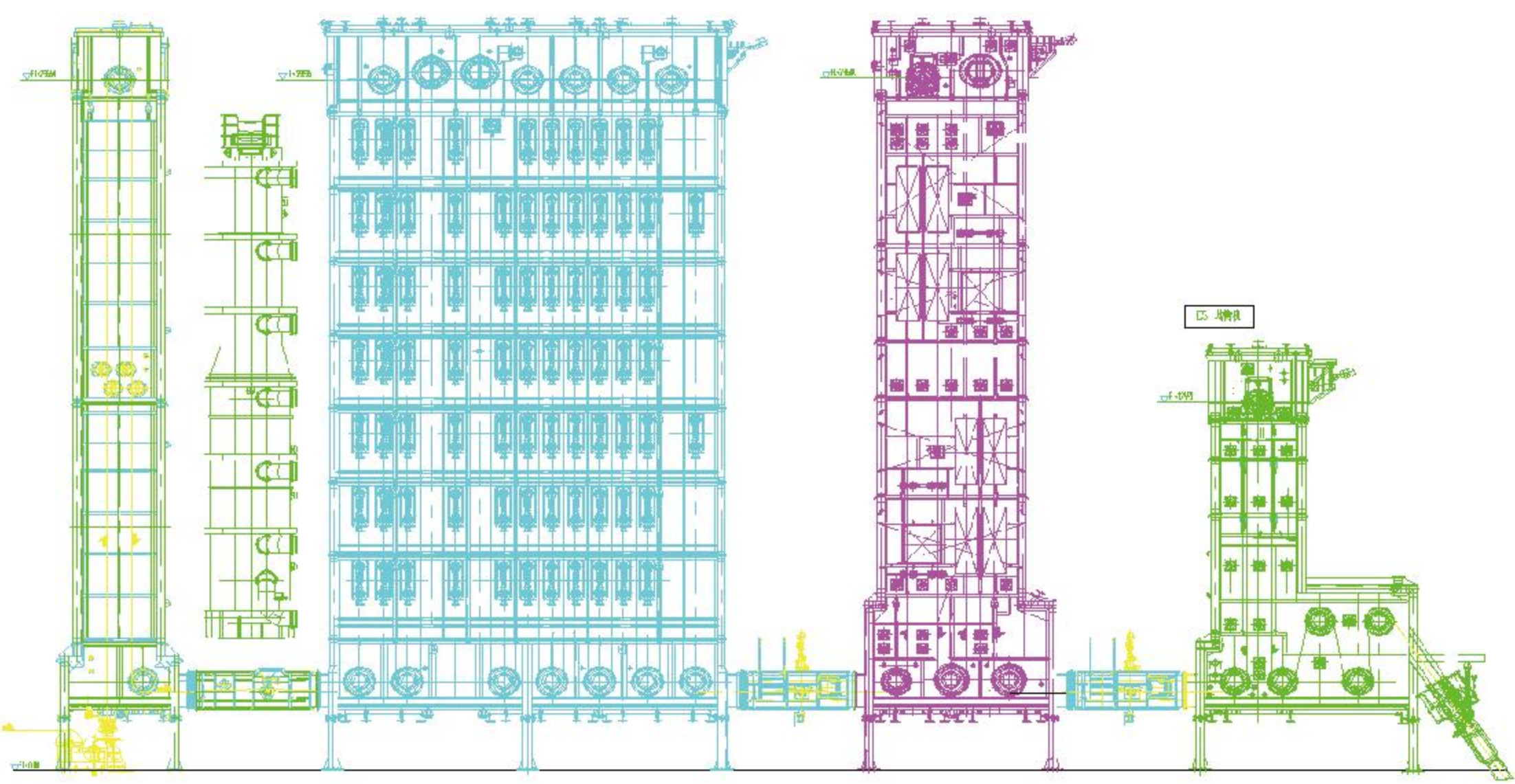
L型退火炉 L-SHAPED ANNEALING FURNACE

- 产品质量高：优化了加热和冷却过程，使产品能够达到更高的质量标准，满足多种工业应用的需求。
High product quality: optimized heating and cooling processes enable higher quality standards to be achieved for a wide range of industrial applications.
- 环保安全：减少了废气排放，提高能源利用效率，符合现代工业的环保要求。
Environmental protection and safety: It reduces the emission of waste gas, improves the efficiency of energy utilization and meets the environmental protection requirements of modern industry.



- 高效低耗：L型结构优化设计在能源效率方面表现出色，具有显著的节能特点，能够有效减少能源消耗。
High efficiency and low consumption: the optimized design of the L-shaped structure excels in energy efficiency and has significant energy-saving features, effectively reducing energy consumption.

立式退火炉 VERTICAL ANNEALING FURNACE



- 自动化程度高：保证工作运行的稳定性和安全性；结构设计和材料选择确保了设备的耐用性。
High degree of automation: ensure the stability and safety of work operation; structural design and material selection ensure the durability of the equipment.
- 操作便捷：操作简单方便，维护成本低，适合大规模生产和长时间运行需求。
Convenient operation: easy and convenient operation, low maintenance cost, suitable for large-scale production and long-time operation requirements.

OUR ADVANTAGES

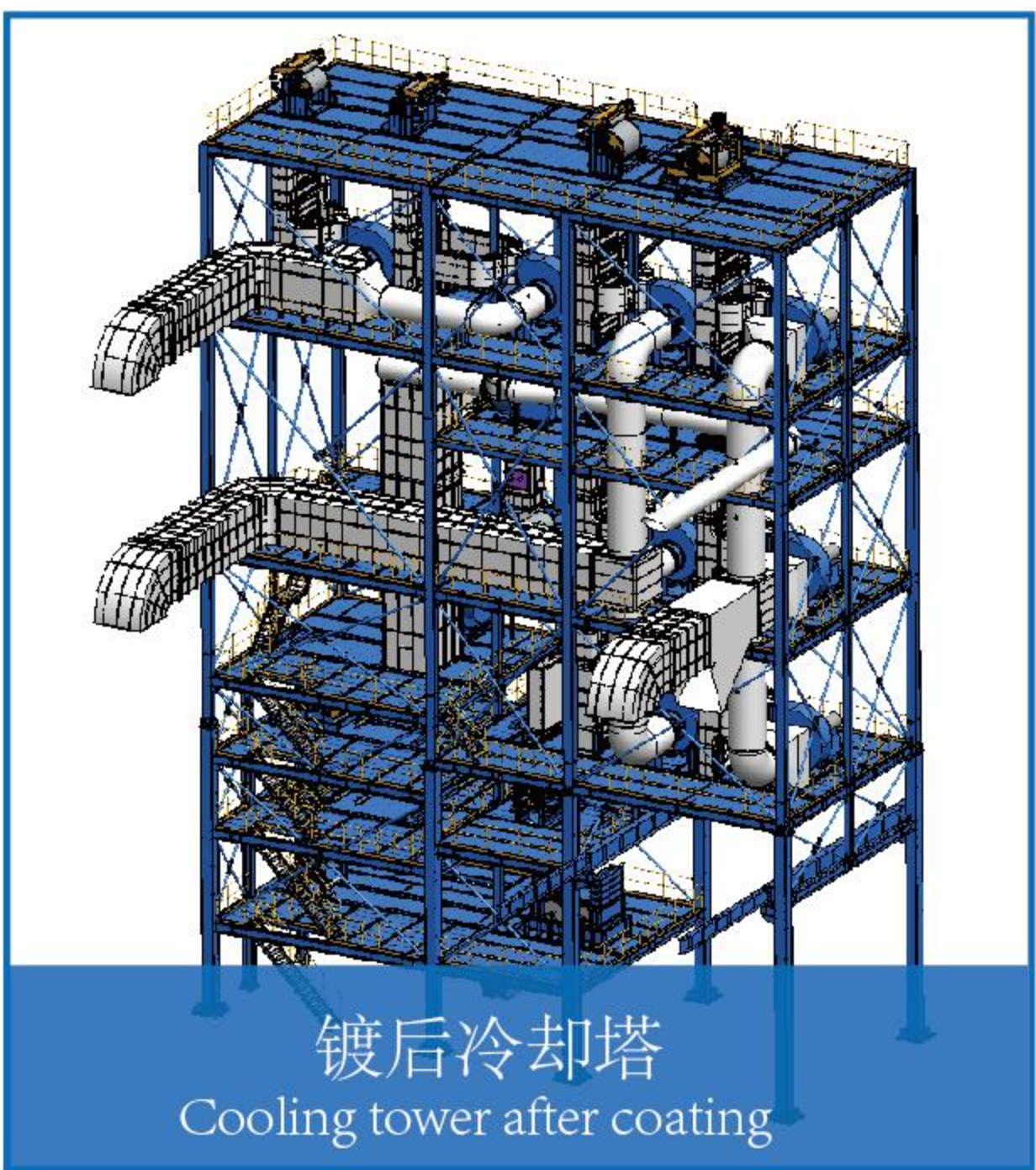
我们的优势

将三维建模技术与工业美学设计的技术应用于整线及各分体设备的设计，使得设计参数精准、设计效率更高。为后期的标准化设计、工厂化预制和现场模块化组装提供技术支撑。

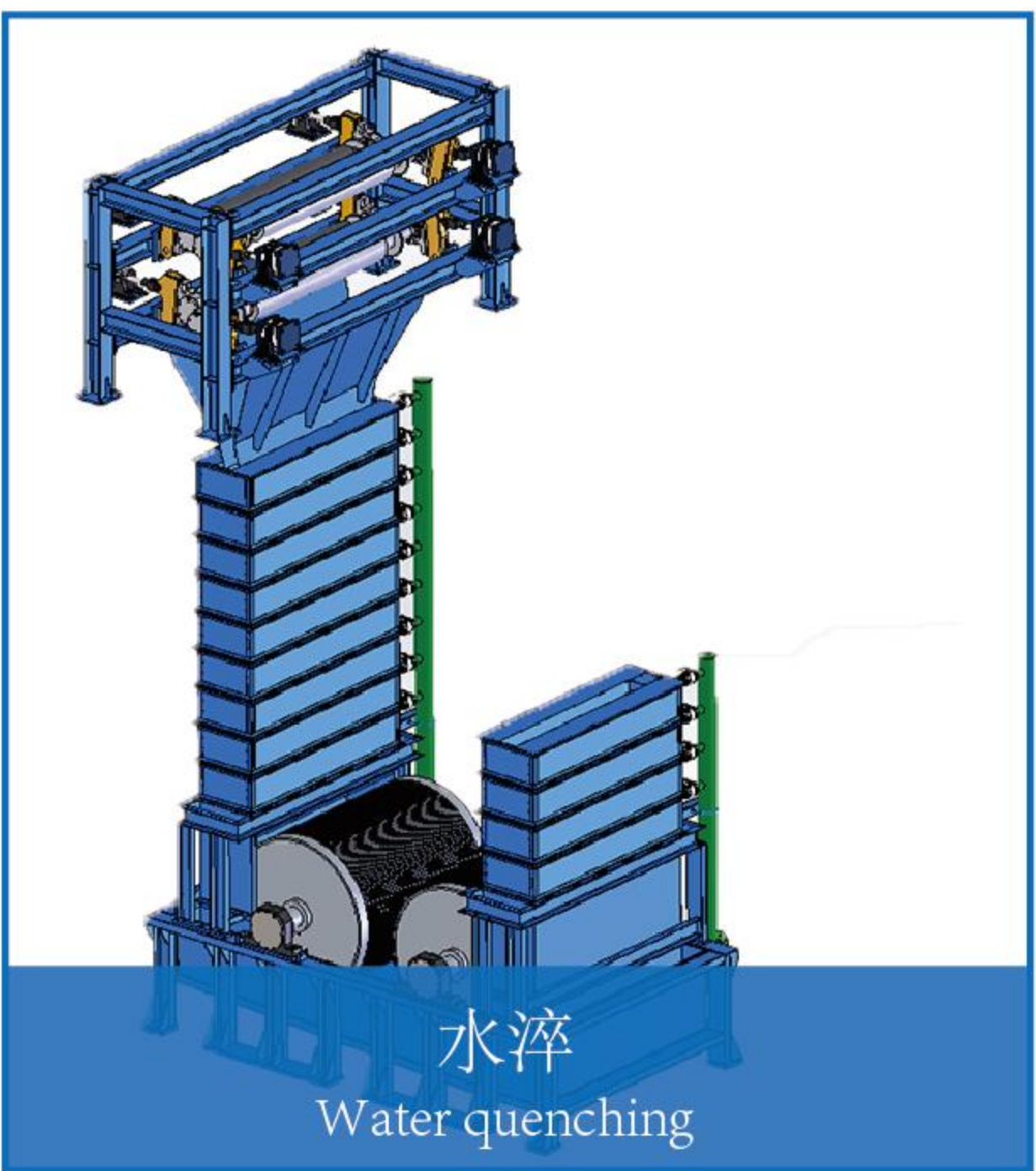
Applying the technology of 3D modelling and industrial aesthetics design to the design of the whole line and each sub-assembly equipment makes the design parameters accurate and the design efficiency higher. It provides technical support for later standardized design, factory prefabrication and on-site modular assembly.

三维建模技术应用

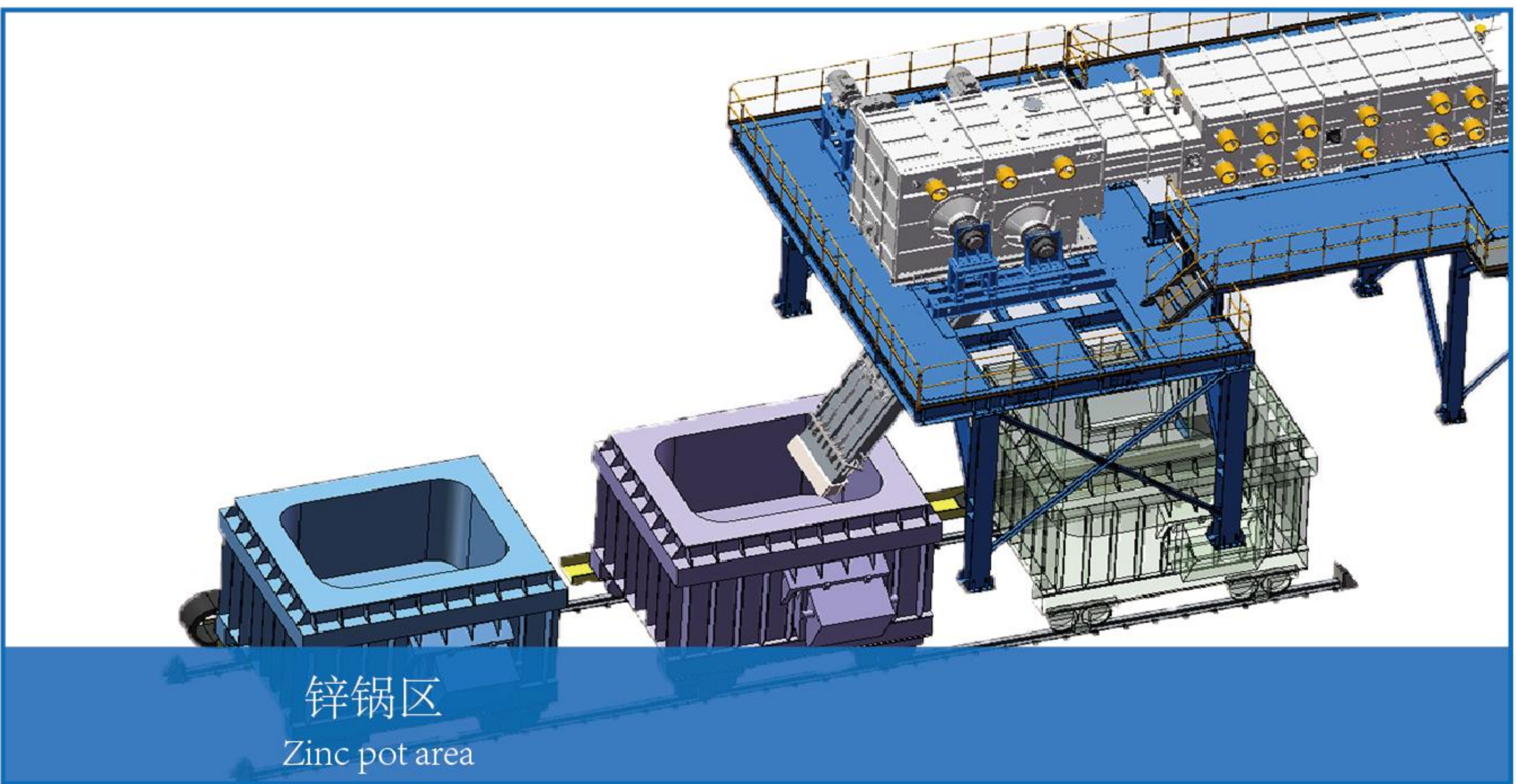
Application of 3D modeling technology



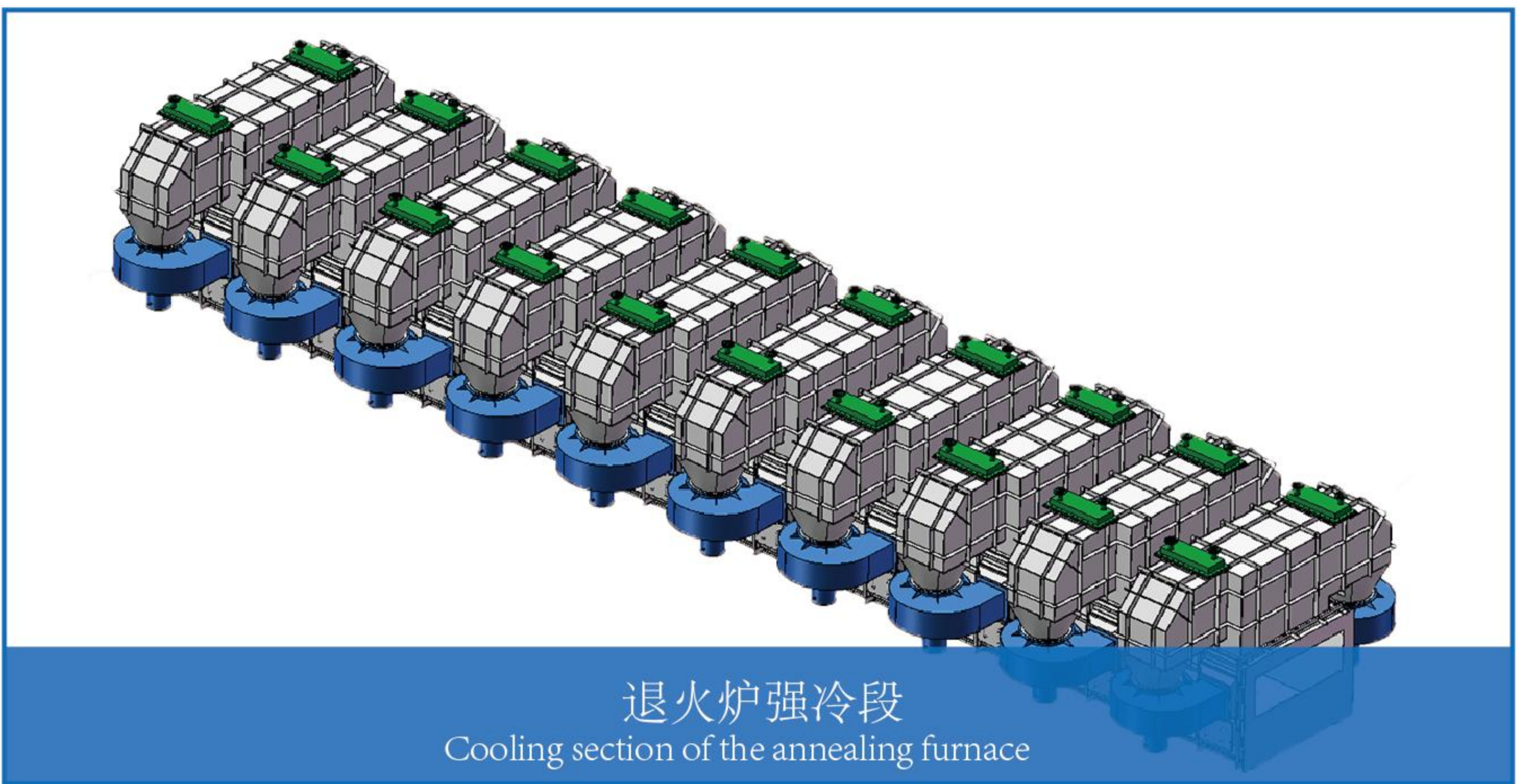
镀后冷却塔
Cooling tower after coating



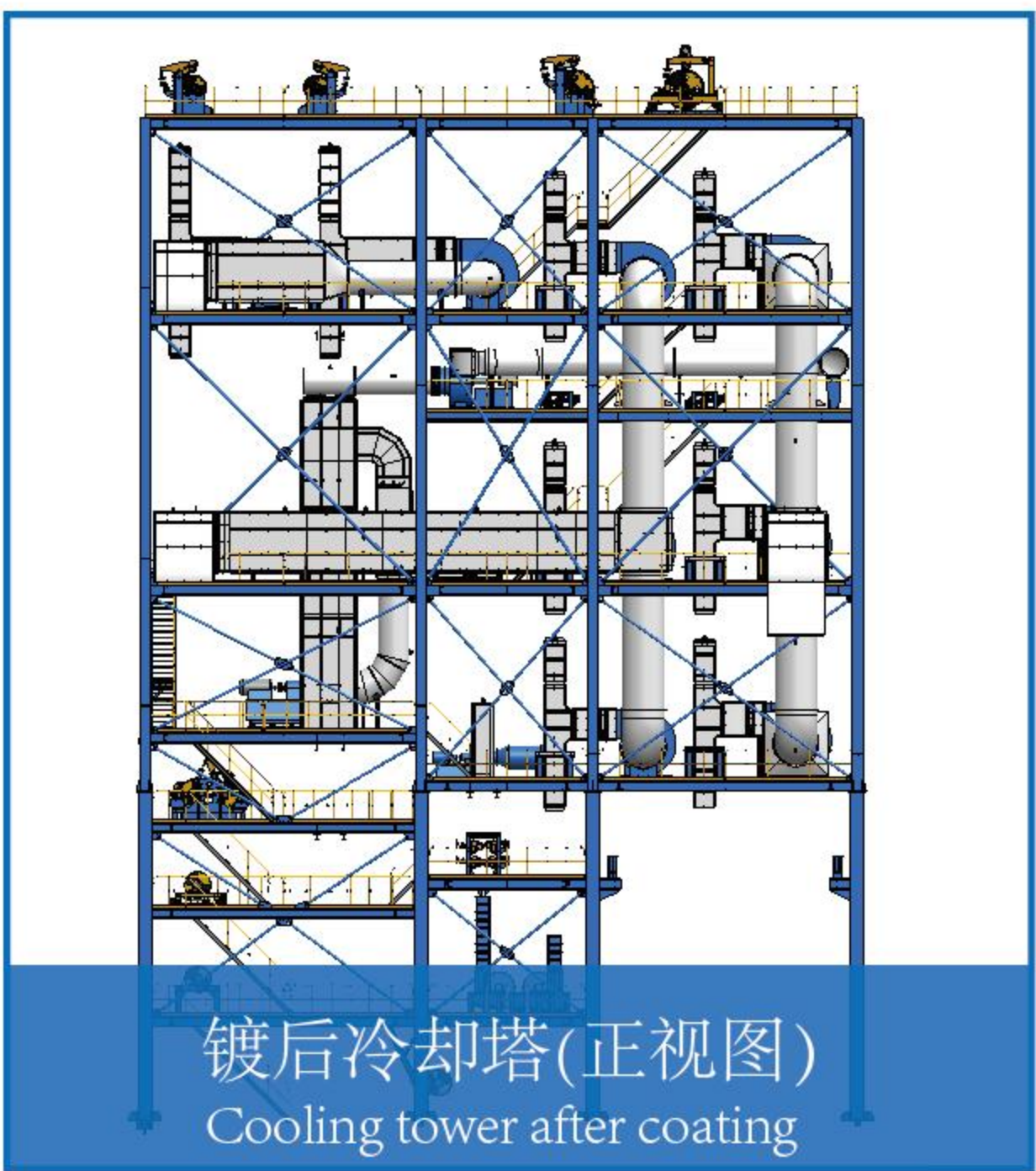
水淬
Water quenching



锌锅区
Zinc pot area



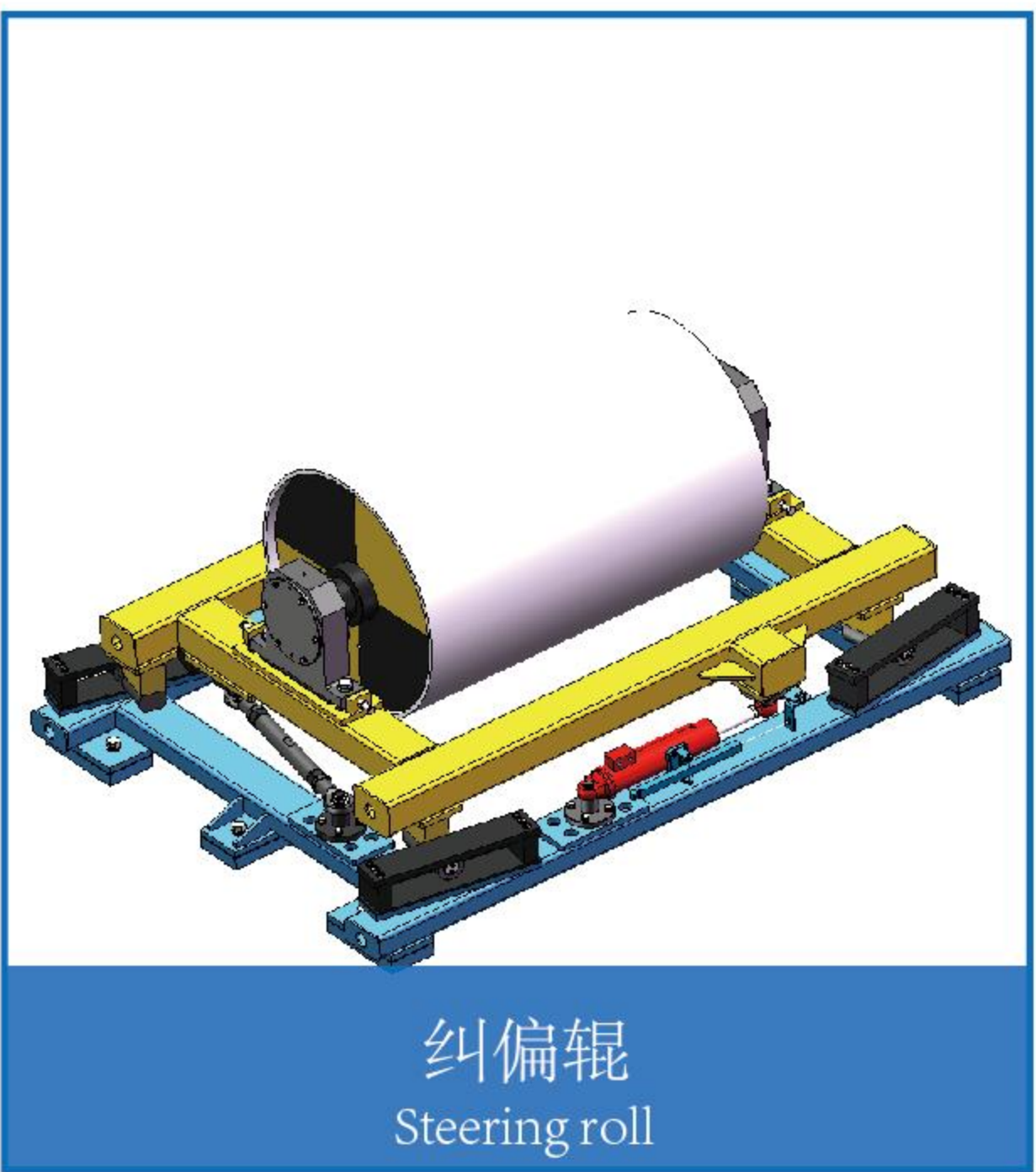
退火炉强冷段
Cooling section of the annealing furnace



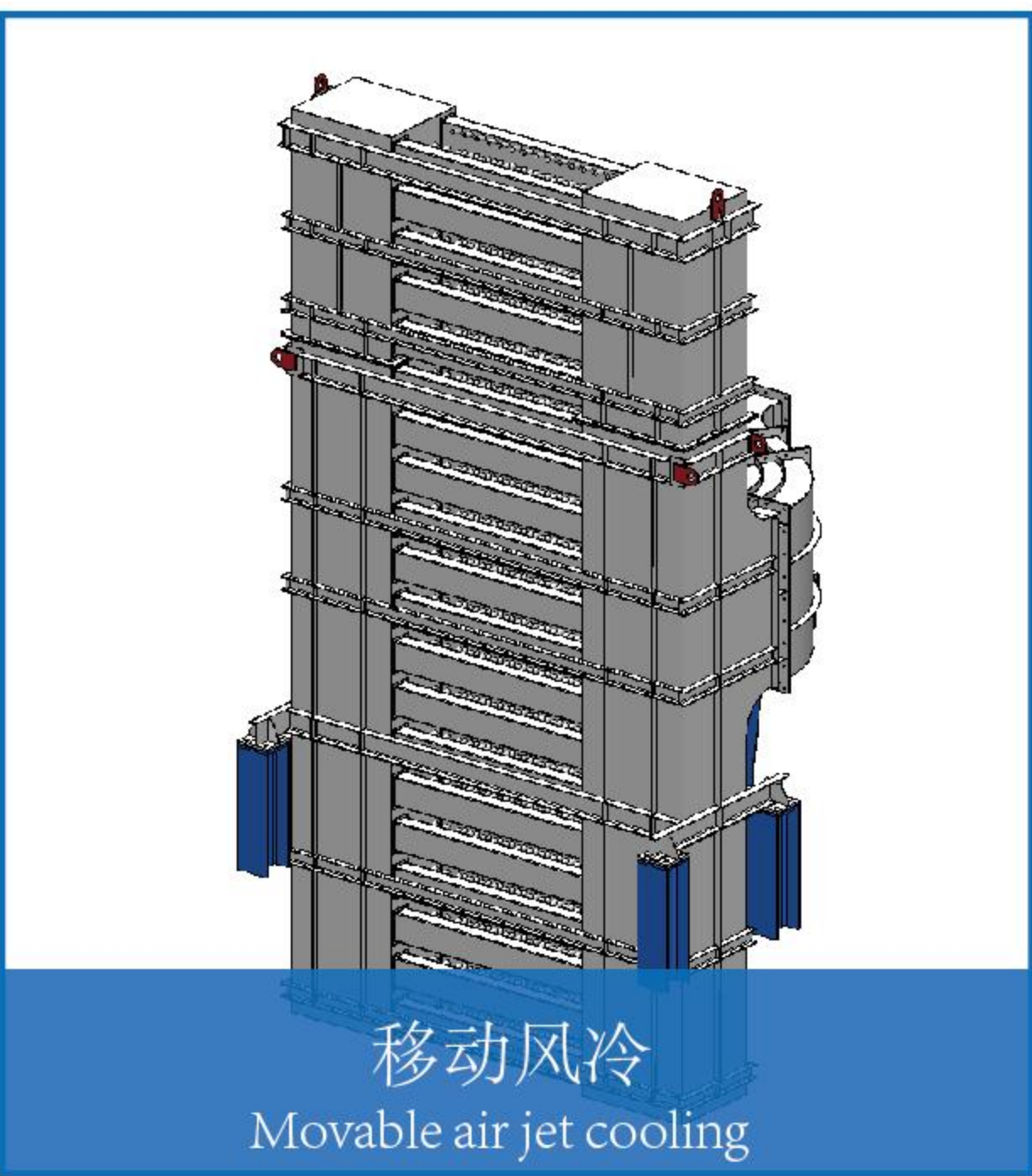
镀后冷却塔(正视图)
Cooling tower after coating



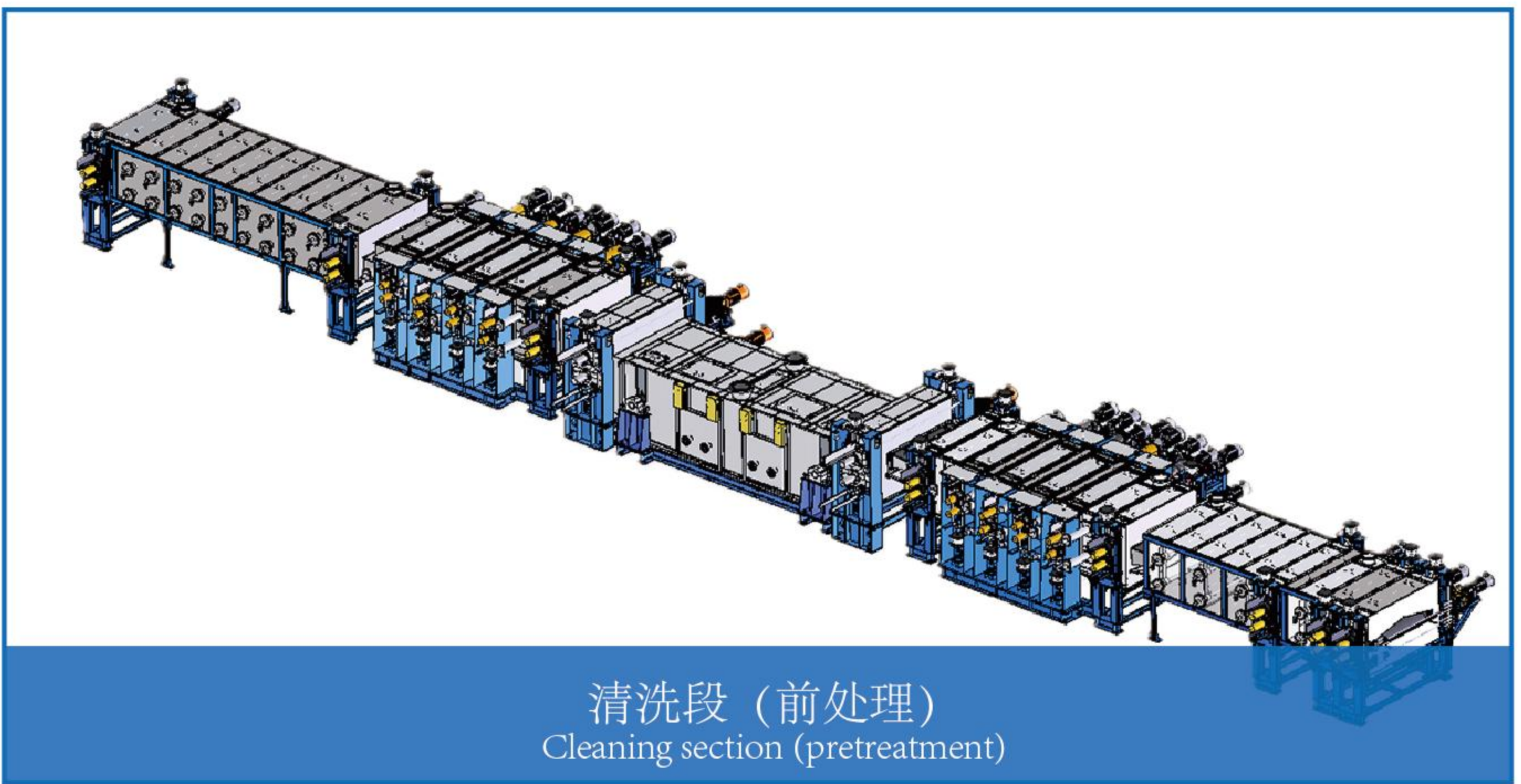
张紧机
Tensioner



纠偏辊
Steering roll



移动风冷
Movable air jet cooling



清洗段（前处理）
Cleaning section (pretreatment)

OUR ADVANTAGES

我们的优势

► 仿真技术应用

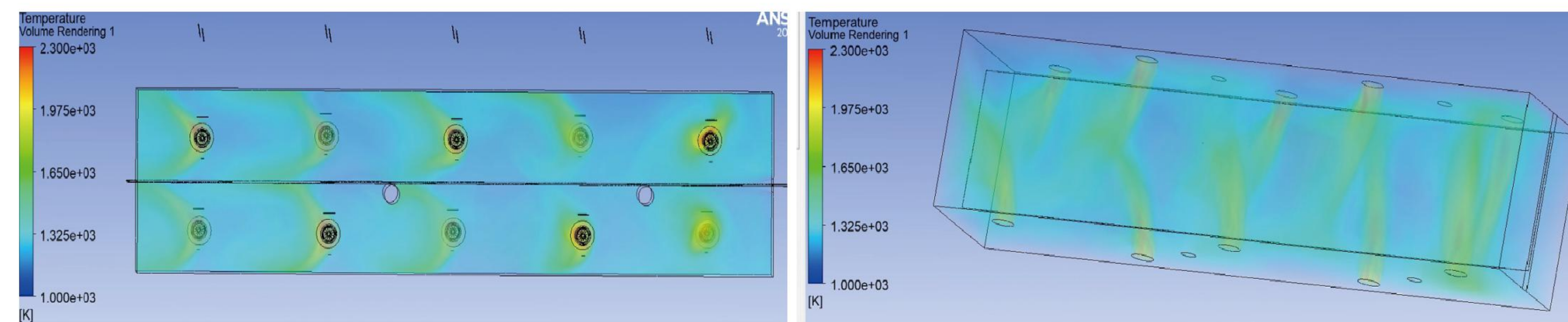
Application of simulation technology

热力学仿真技术应用

Application of thermodynamic simulation technology

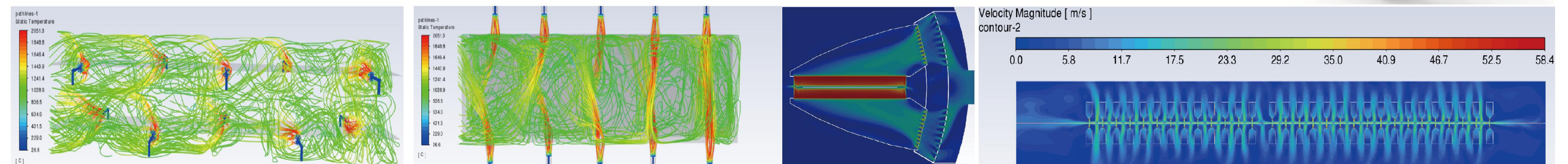
通过比较经验值调整流体动态计算参数，对炉区进行流场及热力学仿真分析，进一步验算设计选型及布局的合理性，将热工效率发挥至最佳。

By comparing the empirical values and adjusting the fluid dynamic calculation parameters, the flow field and thermodynamic simulation analyses of the furnace area are carried out to further verify the reasonableness of the design selection and layout, so that the thermal efficiency can be brought to the best.



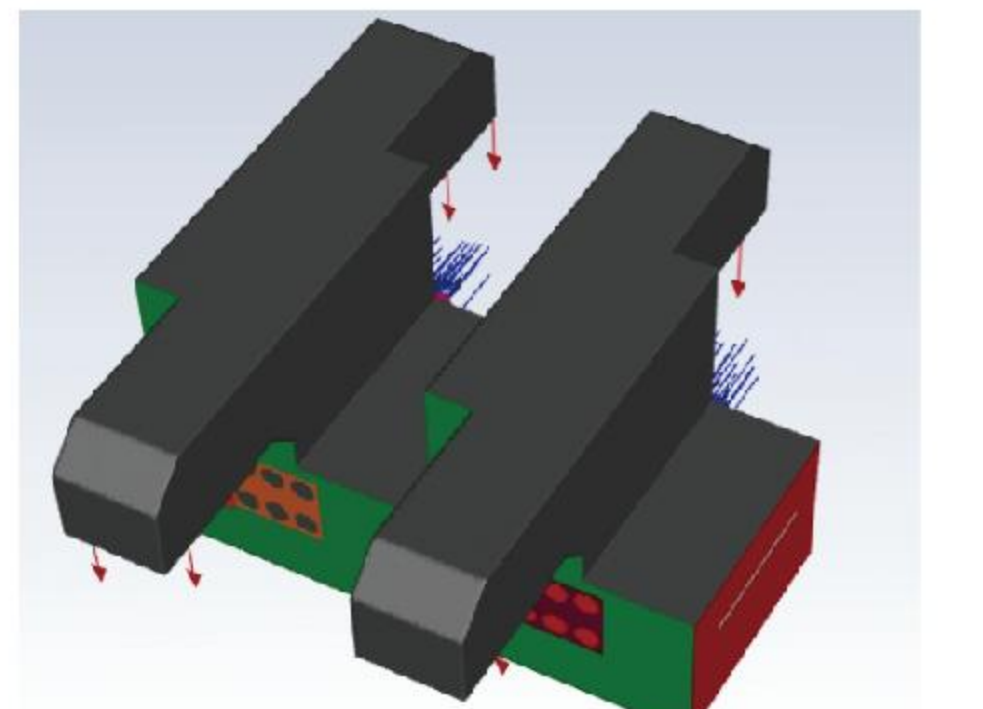
明火段内烧嘴截面火焰分布：炉膛热气流流场的分布，将在钢板面边部出现聚集态，而且下表面更为明显。

Flame distribution of the burner cross-section in the open fire section: the distribution of the hot gas flow field in the furnace chamber will appear in the aggregated state at the edge of the steel plate surface, and it is more obvious on the lower surface.



新型喷缝式强对流快冷系统，解决常规五分阀喷孔结构的换热强度差、板带边部过冷问题。

The new spray slit type strong convection fast cooling system solves the problems of poor heat exchange strength and overcooling of the edge of the strip in the conventional five-bit valve spray hole structure.



流场仿真技术应用

Application of flow field simulation technology

移动风冷喷嘴出风均匀，对流换热系数高，功耗低，板带宽度方向上的温度和冷却速率均匀一致。

Moving air-cooled nozzles produce uniform air, high convection heat transfer coefficient, low power consumption, and uniform temperature and cooling rate in the direction of the width of the strip.



OUR ADVANTAGES

我们的优势

► 模块化组装 Modular assembly

- I 工厂生产和现场组装相分离，提高了生产质量及效率，大幅度缩短施工安装周期，有效降低了施工成本。
Separation of factory production and on-site assembly improves production quality and efficiency, drastically shortens the construction and installation cycle, and effectively reduces construction costs.

- II 模块化施工可以大大提高构件加工精度和安装精度，使结构更加牢固。
Modular construction can greatly improve the precision of component processing and installation, making the structure more solid.

- III 模块化构件在工厂预制，可以更好地控制产品质量。同时，减少了现场作业难度，降低了人员的安全风险。
Modular components are prefabricated in the factory, which allows better control of product quality. At the same time, it reduces the difficulty of on-site work and reduces the safety risk of personnel.



OUR ADVANTAGES

我们的优势

► MOM智能制造运营管理平台

MOM intelligent manufacturing operation management platform

MOM智能制造运营管理平台，云端、本地部署并运行在手机、平板、电脑端，覆盖采购、销售、生产、物料、质检、设备、仓储等核心制造流程，帮助工厂低成本、高效率的实现从客户下单、原材料到成品出厂之间的全链路数字化管理。

通过实时、准确的数据传递，瑞马智能帮助工厂解决生产过程中遇到的交付期拖延、物料库存积压、工人和设备效率低、次品率居高不下、生产过程不透明等问题，最终，提高效率、降低成本、打通信息孤岛，真正实现数据驱动制造。

The MOM intelligent manufacturing operation management platform is deployed in the cloud and locally and runs on mobile phones, tablets and computers. It covers core manufacturing processes such as procurement, sales, production, materials, quality inspection, equipment and warehousing, helping factories to achieve low-cost and high-efficiency full-link digital management from customer orders, raw materials to finished products.

Through real-time, accurate data transfer, RITMAN helps factories to solve problems encountered in the production process such as delayed delivery period, material inventory backlog, low efficiency of workers and equipment, high rate of defective products, and non-transparent production process, etc. In the end, it improves efficiency, reduces costs, and breaks through the information silos to truly realize data-driven manufacturing.



本地部署

SaaS

快速上线

灵活配置

全链路数字化管理

实时协作+数据分析

OUR ADVANTAGES

我们的优势

► 专业的生产加工基地和设备

Professional production and processing base and equipment

拥有自主的生产基地，所有的制造加工建立在我们自己的最先进的车间。内部制造，包括热处理、组装和功能测试，可以在从工程设计到设备运输的整个过程中进行持续和精确的质量控制。

With an in-house production facility, all manufacturing processes are established in our own state-of-the-art workshop.

In-house manufacturing, including heat treatment, assembly and functional testing, allows for continuous and precise quality control throughout the entire process, from engineering to equipment shipment.

► 专业的施工团队及培训、伴产服务

Professional construction team and training, production companion services

我们拥有专家及博士领衔的技术团队，提供系统的技术支持、工艺保障；拥有专业的施工团队，打造精品工程；拥有资深的生产管理团队，提供陪产服务，开机即达产。

We have a technical team led by experts and PhDs to provide systematic technical support and craftsmanship guarantee; a professional construction team to create high-quality projects; and a senior production management team to provide production companion service, thus achieving full production capacity immediately after startup.



机电工程施工总包贰级资质
Mechanical and electrical engineering general contractor Grade II qualification

环保工程专业承包贰级资质
Environmental engineering professional contracting Grade II qualification

钢结构工程专业承包贰级资质
Steel structure engineering contracting Grade II qualification

江苏省 研究生工作站

江苏省教育厅
江苏省科学技术厅
二〇一七年四月九日

Awarded to: Xuzhou RITMAN Intelligent Technology Co., LTD
授予：徐州瑞马智能技术股份有限公司

International Galvanizing Technology
(China) Training Center
国际镀锌技术（中国）培训中心



CONTINUOUS STRIP PROCESSING UNIT

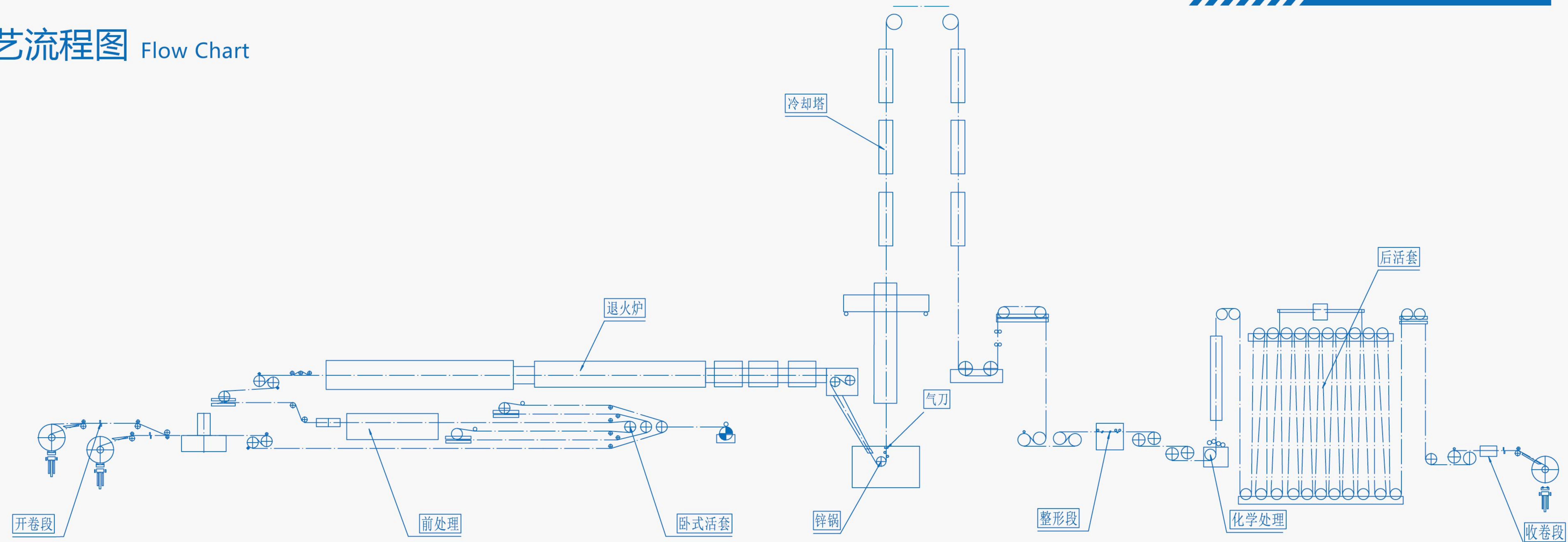
连续带钢处理机组

连续带钢处理机组广泛应用于镀锌、镀铝锌硅、镀锌铝镁、彩涂等产品领域，专注于各种处理线工艺体系的研发、机组设计和生产实践。在能源、热工工程、工业炉窑的工程设计上，通过三维建模、三维仿真技术的应用，实现在产线设计、精准控制等方面的重大技术突破；同时，将MOM（智能制造运营管理平台）应用于装备机组，有效提升了产线的数智化水平。

Continuous strip processing units are widely used in the fields of zinc galvanizing, Galvalume, ZAM, and color coating. RITMAN specializes in the R&D of the process systems for various lines, unit design, and production practice. In the engineering design of energy, thermal engineering, and industrial furnaces, we have achieved major technological breakthroughs in the design and precise control of production lines through the application of 3D modeling and 3D simulation technology; at the same time, we have applied the MOM (Intelligent Manufacturing Operation and Management Platform) to the equipment units, which has effectively upgraded the level of numerical intelligence of the production lines.



► 工艺流程图 Flow Chart



► 工艺特点 Process Features

ONE

前处理设置多级化学清洗和电
解脱脂复合清洗工艺。

The pre-treatment includes a
multi-stage chemical cleaning and
electrolytic degreasing composite
cleaning process.

TWO

采用直接火焰加热和辐射间接
加热相结合的改良森吉米尔热
处理工艺。

The improved Sendzimir heat treatment
process combines direct flame heating
with radiation indirect heating.

THREE

热浸镀段配置陶瓷感应锌锅+
预熔锅，能实施对锌液温度的
精确控制 $\pm 1^{\circ}\text{C}$ 。

The hot-dip galvanizing section is
equipped with a ceramic induction
zinc pot + pre-melting pot, which
can accurately control the zinc
liquid temperature to $\pm 1^{\circ}\text{C}$.

FOUR

具有恒轧制力、恒辊缝、恒延伸多种操作模
式及全开、软轧制、全闭三种过焊缝模式。

It has multiple operation modes including constant
rolling force, constant roll gap and constant
extension, and three welding seam passing modes
including full opening, soft rolling and full closing.

FIVE

镀后垂直上/下行风冷均采用两侧等压设计，
并配以防颤稳定装置。

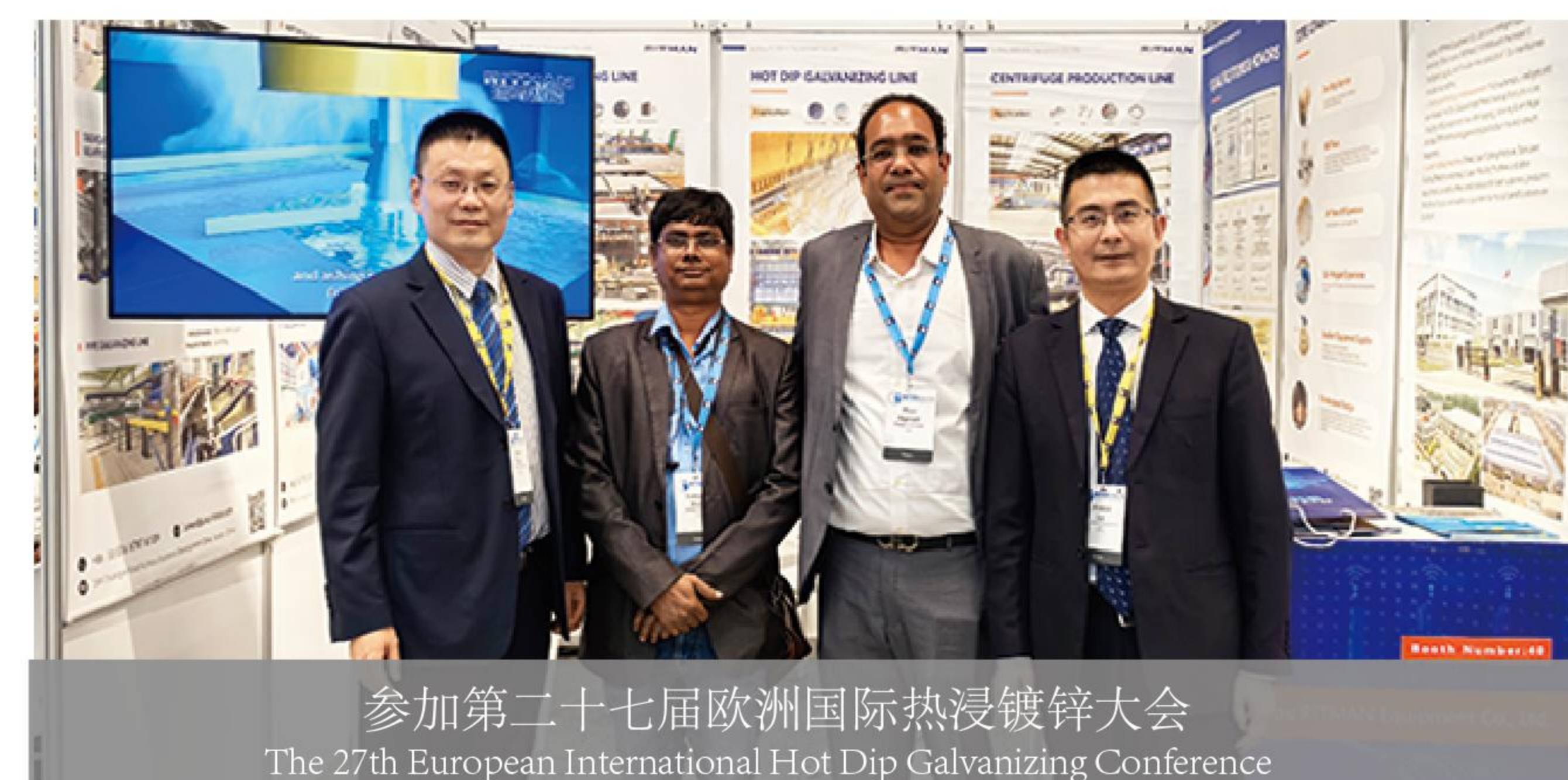
The vertical upward/downward air cooling after
galvanizing is designed with equal pressure on both sides
and is equipped with anti-vibration stabilization devices.

INTERNATIONAL EVENTS

国际交流

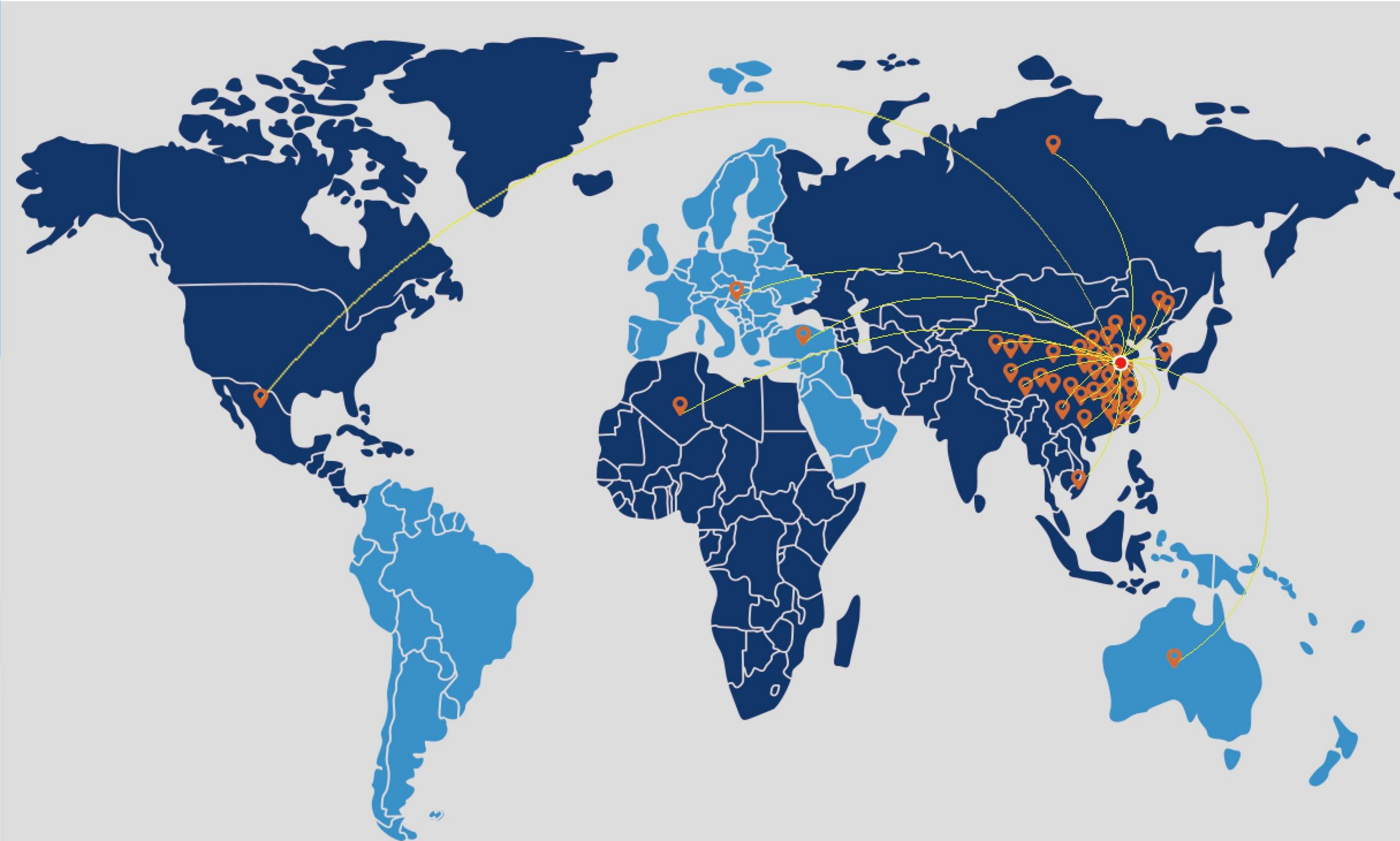
▶ 瑞马智能深度参与国际交流，持续支持国际锌协组织，连续五届成为其大会共同主办方；多次出访欧美、东南亚等地区，深入学习、交流热镀锌生产技术。

RITMAN is deeply involved in international exchanges and continues to support the International Zinc Association, becoming the co-organizer of its conference for five consecutive sessions. It has visited Europe, America, Southeast Asia and other regions many times to study and exchange hot-dip galvanizing production technology in depth.



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。

Domestic: With Xuzhou headquarters as R&D center and production center, and Jinan as international operation center, we plan to build 10 offices and 100 service outlets. The marketing and service network covers the whole country and radiates all over the world.

▶ 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%。

International: According to the company's national strategic plan, RITMAN's future global revenue will account for 35% in Asia, 20% in South America, 15% in Europe, 10% in North America, 10% in Australia, and 10% in Africa.