智能制造一站式
解决方案提供商

Deliver One-stop Intelligent
Manufacturing Solutions

www.seind.com.cn

上海先德企业集团成立于2001年，是集智能制造装备、电气自动化与信息化软件于一体的综合性整体解决方案服务商及装备供应商。旗下拥有先德智能装备、先德电气系统工程、萤山软件信息科技三家控股子公司。

公司秉持“匠心制造，用心服务”的经营理念，专注于为新能源汽车及一般工业领域提供定制化智能装备与数字化软件的研发、制造、销售及全周期服务。并与蔡司、柯马、ABB、西门子、蔚来、零跑、北京汽车、宝钢等知名企业建立了长期战略合作。

以科技创新为引擎，公司荣获国家创新发明奖、国家高新技术企业、专精特新企业、绿色工厂等资质，获批嘉兴市研发中心，拥有发明专利4项、实用新型34项、软件著作权30项，并通过ISO9001、ISO14001、ISO45001管理体系认证。

“以德为先”是先德集团一贯坚持的经营理念和宗旨，通过不断提升自我、增强客户满意度，在业内树立良好的口碑和品牌价值。

COMPANY PROFILE

Established in 2001, Seind Group is a comprehensive integrated solutions provider and equipment supplier, specializing in intelligent manufacturing equipment, electrical automation, and information software. The group consists of three major subsidiaries: Seind Intelligent Equipment, Seind Electrical Systems Engineering, and Yingshan Software Information Technology.

Adhering to the core philosophy of "Precision Craftsmanship & Dedicated Service," Seind focuses on the R&D, manufacturing, sales, and full-lifecycle services of customized intelligent equipment and digital software for the New Energy Vehicle (NEV) and general industrial sectors. We have established long-term strategic partnerships with industry leaders such as Carl Zeiss, Comau, ABB, Siemens, NIO, Leapmotor, BAIC, and Baosteel.

Peculiar, and Innovative" (SFPI) Enterprise, and a "Green Factory." We have earned the National Innovation and Invention Award and established the Jiaxing Municipal R&D Center. Our intellectual property portfolio includes 4 invention patents, 34 utility model patents, and 30 software copyrights. Furthermore, we have obtained ISO 9001, ISO 14001, and ISO 45001 management system certifications.

"Integrity First" is the enduring principle of Seind Group. Through continuous self-improvement and a commitment to customer satisfaction, we have built an excellent reputation and significant brand value within the industry.

企业文化 Corporate Culture

愿景

让制造变得更简单、更节约、更环保

使命

以人为本、追求卓越、回报社会

经营理念

安全、专业、高效、诚信、共赢

价值观

以德为先、崇尚精英、创新发展、共赢未来

Vision

Making manufacturing simpler,
more efficient,
and more sustainable.

Mission

People-oriented, pursuit of excellence,
and contributing to society.

Philosophy

Safety, Professionalism, Efficiency,
Integrity, and Mutual Success.

Values

Integrity First, Fostering Innovation,
and Winning the Future Together.

电气自动化
Electrical Automation

信息化软件
Information Software

智能制造
Intelligent Manufacturing

电气自动化
Electrical Automation

1 **电气总包业务**
Electrical EPC & Turnkey Solutions
PP.5~9

2 **电气分包业务**
Electrical Subcontracting Services
PP. 10~12

智能制造
Intelligent Manufacturing

7 **精密钢管生产线**
Precision Steel Pipe Production Lines
PP. 19~22

8 **汽车、高铁零部件装配和测试产线**
Automotive & High-speed Rail Component Assembly and Testing Lines
PP. 23~32

9 **产线机器换人改造升级业务**
Production Line Robotics Retrofitting & Upgrading Services
PP. 33~36

10 **智能专机设备**
Custom-Engineered Intelligent Machinery
PP. 37~38

Information Software

PP. 13~18

3 **定制化开发工厂、车间及产线MES系统**
Customized MES Solutions for Factories, Workshops, and Production Lines

4 **工业软件开发**
Industrial Software Development

5 **虚拟调试与数字孪生**
Virtual Commissioning & Digital Twin

6 **企业信息化管理软件**
Enterprise Information Management (EIM) Software

电气总包业务
Electrical EPC & Turnkey Solutions

1

- **控制类电气总包业务**
  Control System EPC Solutions
- **传动类电气总包业务**
  Drive & Motion Control Systems
- **数控类电气总包业务**
  CNC System Integration & EPC
- **机器人类电气总包业务**
  Robotics Systems & Integration
- **低压配电类电气总包业务**
  LV Power Distribution Solutions

电机装配线
Motor Assembly Line

该项目为中国知名新能源电动汽车品牌电机装配线项目，电气控制分为6个区域控制，共有108个手动 /半自动 /自动工位、640 米长的连接辊道组成。先德负责范围为电气设计、柜体集成、现场安装、现场调试工作。

电气各个环节按照客户最新电气标准与CE认证的标准要求执行，为客户提供了更加安全、可靠的产品与解决方案，整个电气系统达到全球高端水平。

This project is a motor assembly line for a well-known Chinese New Energy Vehicle (NEV) brand. The electrical control system is divided into 6 regional control zones, consisting of 108 manual/semi-automatic/automatic workstations and 640 meters of interconnected conveyor tracks. Seind's scope of work covers electrical design, cabinet integration, on-site installation, and commissioning.

Every stage of the electrical engineering process adheres to the client's latest electrical standards and CE certification requirements. By providing customers with safer and more reliable products and solutions, the entire electrical system has reached a world-class high-end standard.

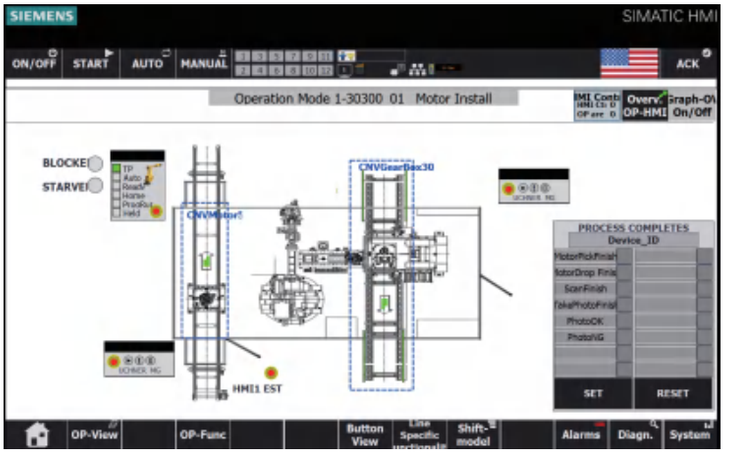
电池模组和电池包装配线
Battery Module and Pack Assembly Line

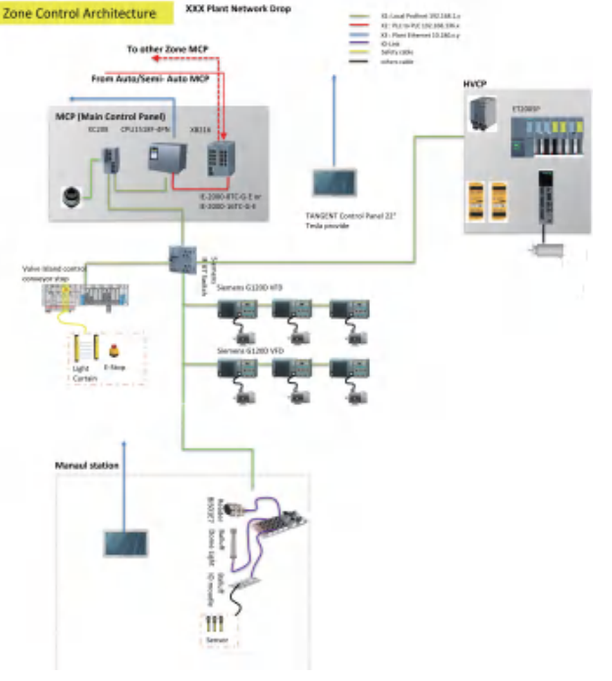
该项目为美国知名新能源电动汽车品牌美国超级工厂电池模组和电池包装配项目，电气控制分为9个区域控制，共有52个手动/半自动/自动工位、3300米长的运输辊道组成。先德负责范围为电气设计、柜体集成、现场安装、现场调试工作。

This project is a battery module and battery pack assembly project for a Gigafactory of a well-known American New Energy Vehicle (NEV) brand. The electrical control system is divided into 9 regional control zones, consisting of 52 manual/semi-automatic/automatic workstations and a 3,300-meter-long transport conveyor system. Seind's scope of work includes electrical design, cabinet integration, on-site installation, and commissioning.

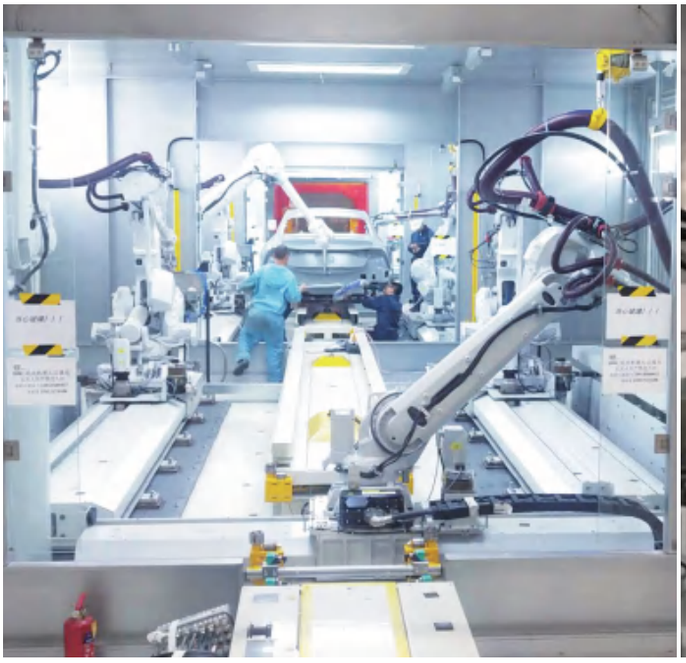
电气各个环节按照客户最新电气标准与UL认证的标准要求执行，整线电气系统通过SGS公司UL认证，为客户提供了更加安全、可靠的产品与解决方案，整个电气系统达到全球高端水平。

Every stage of the electrical engineering process is executed in accordance with the client's latest electrical standards and UL certification requirements. The entire production line's electrical system has passed the UL certification by SGS. By providing customers with safer and more reliable products and solutions, the entire electrical system has achieved a world-class high-end standard.





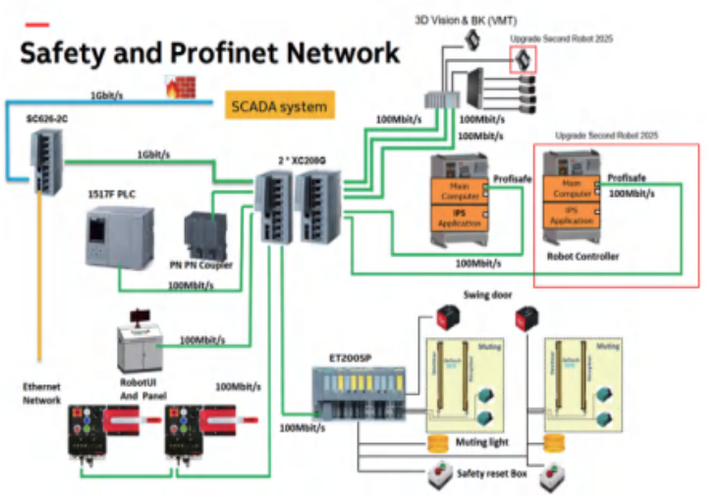
汽车喷涂项目
Automotive Painting Project



This project is a robotic painting project for the paint shop of a well-known German automotive brand's Changchun plant. The electrical control system consists of 3 sealing stations and 7 spray painting stations. Seind's scope of work includes electrical design, cabinet integration, on-site installation, and commissioning.

The project's control cabinets utilize Rittal's latest VX25 enclosures combined with the Lütze LSC wiring system. This system features a modular framework that simplifies component installation through integrated wiring. For on-site installation, imported German OBO cable trays and LAPP cables were utilized.

Every stage of the electrical engineering process adheres to the client's latest electrical standards and CE certification requirements. By providing customers with safer and more reliable products and solutions, the entire electrical system has achieved a world-class high-end standard.



该项目为德国知名汽车品牌长春工厂涂装车间机器人涂装项目，电气控制分为3个涂胶站、7个喷涂站组成。先德负责范围为电气设计、柜体集成、现场安装、现场调试工作。

项目柜体采用威图最新的 VX25 机柜 +吕策LSC布线系统组成，系统由模块化的框架组成，控制元器件安装简单，集成布线系统，现场安装桥架使用德国全进口的OBO桥架与LAPP电缆。

电气各环节按照客户最新电气标准与CE认证的标准要求执行，为客户提供了更加安全、可靠的产品与解决方案，整个电气系统达到全球高端水平。

汽车10L-12L发动机装配线电气总包项目

The Electrical Turnkey Project for the 10 to 12-Liter Engine Assembly Line

该项目电气控制系统包含区域控制系统、自动站控制系统、手动站控制系统、辊道控制系统和返修控制系统，并搭载了MES系统。

The electrical control system of this project includes regional control systems, automatic station control systems, manual station control systems, conveyor control systems, and repair/rework control systems, all integrated with a Manufacturing Execution System (MES)

区域标准配置有控制电源柜、区域触摸屏、CPU317-2PN/DP控制系统、区域内手动站、返修站触摸屏、ET200 eco从站，辊道SEW变频器和阀岛。

The standard regional configuration consists of control power cabinets, regional HMIs (Touchscreens), and Siemens CPU317-2PN/DP control systems. Within each region, the setup also includes manual stations, repair station HMIs, ET200 eco slave stations (I/O modules), SEW frequency inverters for conveyors, and valve terminals.

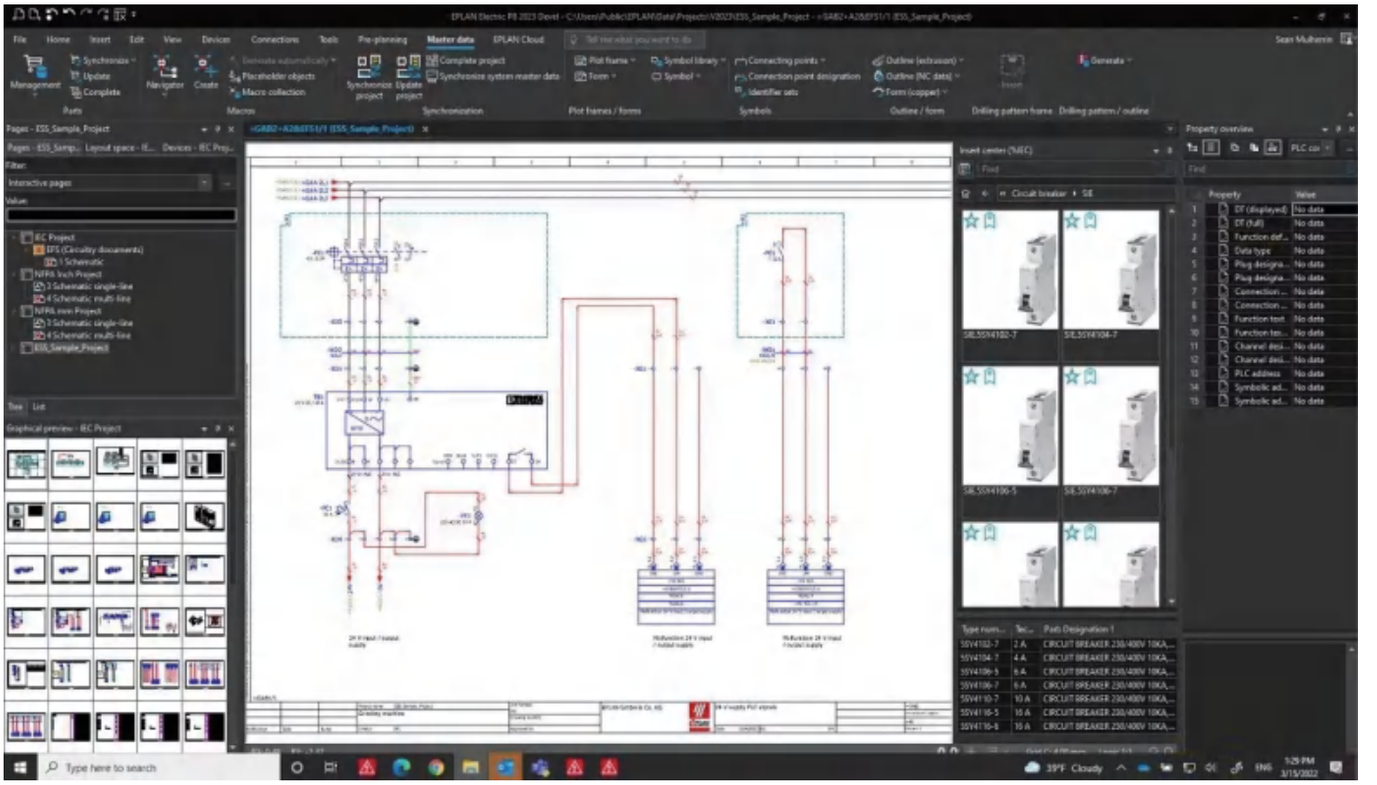
2

电气分包业务

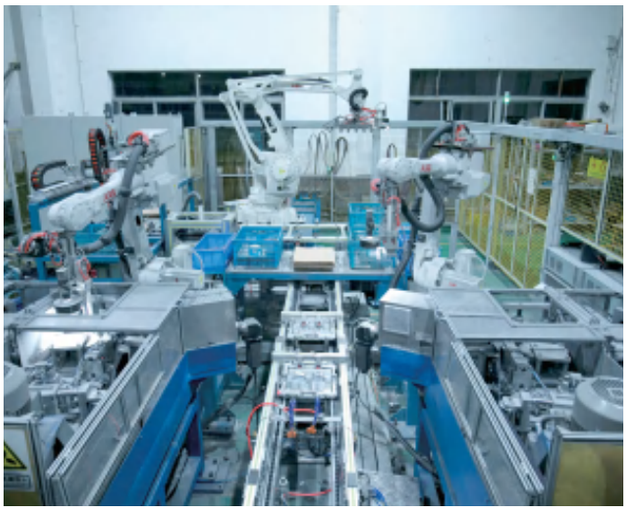
Electrical Subcon-tracting Services

- **硬件设计**
  Hardware Engineering & Design
- **柜体集成（OEM）**
  Control Cabinet Integration (OEM)
- **程序开发**
  PLC & Software Development
- **现场调试**
  On-site commissioning
- **技术支持与服务**
  Technical Support & After-sales Service
- **产线电气升级改造**
  Electrical Upgrades & Retrofitting
- **各类工控产品的贸易销售**
  Industrial Automation Product Sales

电气控制系统设计
Electrical Control System Design

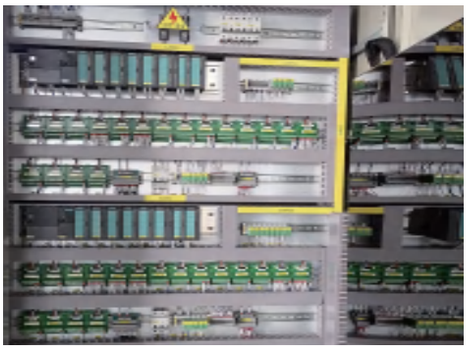


项目现场调试
Project On-site Commissioning



电气控制集成
Electrical Control Integration

柜体集成(OEM)
OEM Cabinet Integration



PLC柜
PLC Cabinet

MCC柜
MCC Cabinet

变频柜
VFD Cabinet

电源驱动柜
Power & Drive Cabinet

由统一的工厂建模到工艺流程，生产计划到数据追溯，设备管理到数据分析，将企业生产信息整合到平台上，实现精益生产，提高企业竞争力。

3

Our MES solutions enable the seamless integration of enterprise production information into a single platform. We cover the entire manufacturing spectrum-from unified factory modeling and process flow management to production scheduling, data traceability, asset management, and advanced data analytics. By digitalizing core operations, we empower enterprises to achieve Lean Manufacturing and significantly enhance their global competitiveness.

定制化开发工厂、车间及产线MES系统

Customized MES Solutions for Factories, Workshops, and Production Lines

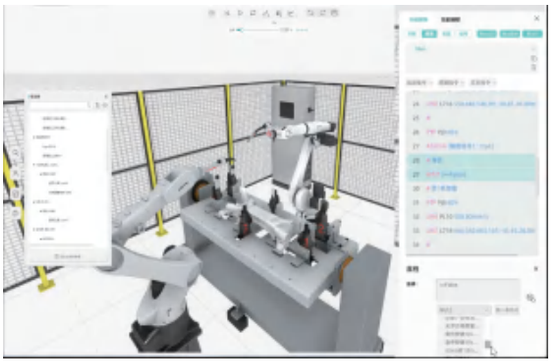
4

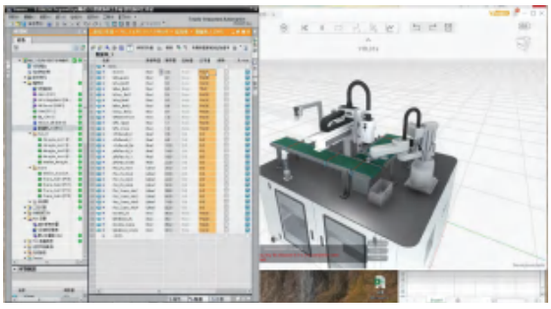
定制开发设备、非标生产线等工业软件系统。

We specialize in the bespoke development of industrial software systems tailored for specialized equipment and non-standard production lines

工业软件开发

Industrial Software Development





利用虚拟仿真技术对控制系统、机器人程序及机械设计进行全方位的模拟测试与验证。

利用数字模型实时映射生产线的运行状态，以支持决策分析和优化。

5

We utilize advanced virtual simulation technology to perform comprehensive simulation testing andvalidation of control systems, robotic programming, and mechanical designs.

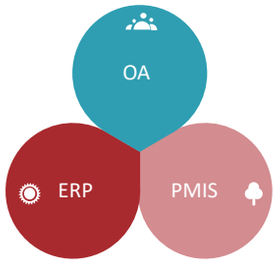
Furthermore, we leverage digital twin models to provide real-time mirroring of production line operational status, empowering informed decision-making, predictive analysis, and process optimization.

虚拟调试与数字孪生
Virtual Commissioning and Digital Twin

MixKing是一款集ERP、OA、PMIS于一体的综合型管理软件，旨在帮助客户革新优化企业运行模式， 为客户搭建一个整体的数据平台，实现精细化、可视化、无纸化管理，并且可以与MES系统实现无缝对接，为企业管理提供更多的信息支撑。

6

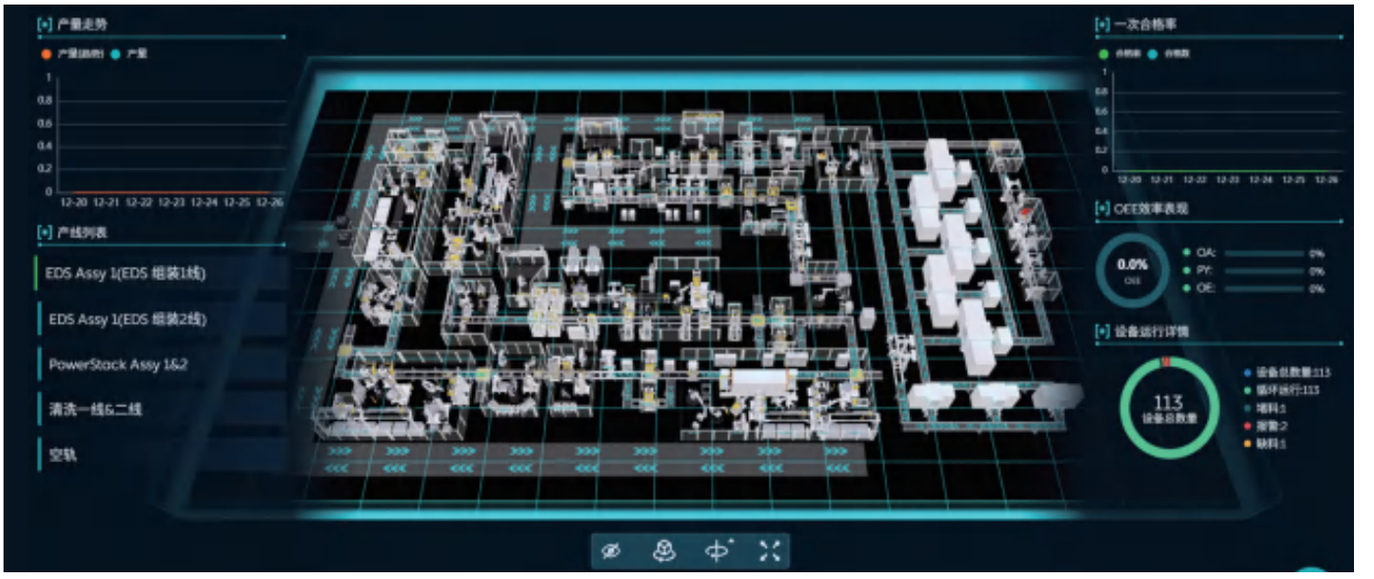
MixKing integrates ERP, OA, and PMIS into a single platform. It streamlines business operations by creating a unified data hub for refined, paperless management. Its seamless connectivity with MES systems further strengthens enterprise decision-making with comprehensive data support.



企业信息化管理软件
Enterprise Information Management (EIM) Software

EDS产线MES系统——数字孪生

EDS Production Line MES System – Digital Twin

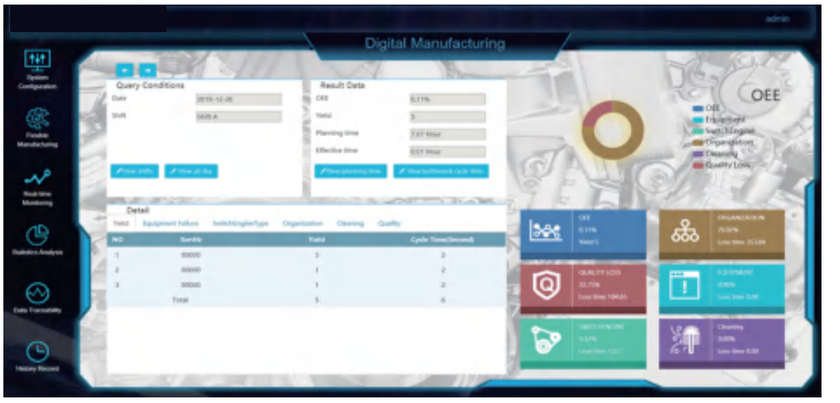


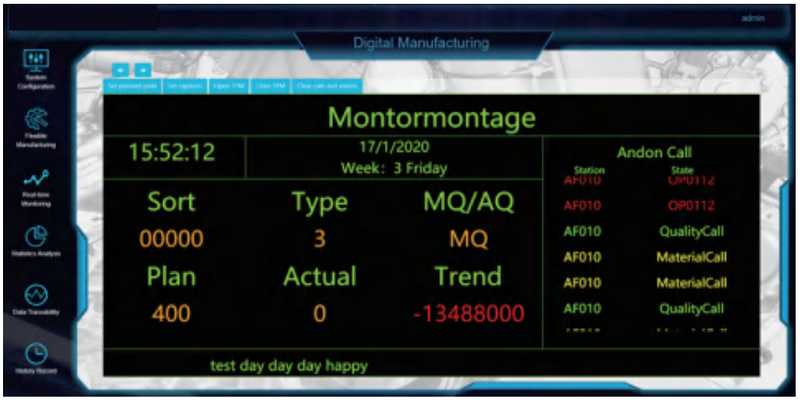
本项目用于工厂的EDS和PowerStack产线，结合机械、电气、MES统一标准，实现了产线MES的标准化。包含数字孪生、IOT、能源管理、AGV 调度、生产管理、工艺管理、质量管理、预防性维护、其他系统的接口等，实现数字化工厂。

This project is implemented for the company's EDS and PowerStack production lines. By integrating unified standards for mechanical, electrical, and MES systems, it achieves standardization of the production line MES. The system encompasses Digital Twin, IoT, Energy Management, AGV Dispatching, Production Management, Process Management, Quality Management, Predictive Maintenance, and interfaces with other systems, ultimately realizing a digital factory.

发动机产线MES系统
Engine Production Line MES System

该项目为发动机生产线提供MES解决方案，根据产线的柔性生产需求，MES系统中可配置各设备的动作顺序、动作程序号、动作的工艺参数等等，结合设备的实时数据，实现产线的数字化建设。



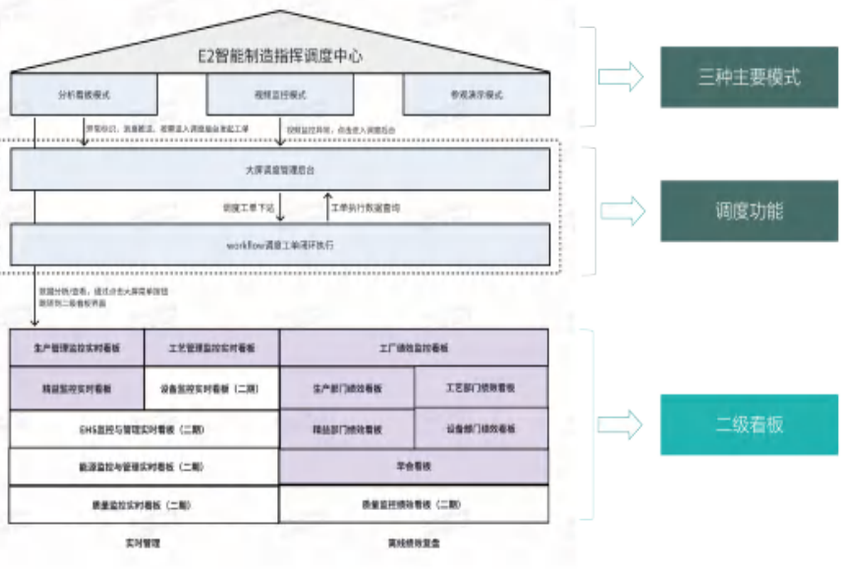


This MES solution for engine lines supports flexible production by enabling configuration of equipment sequences, program numbers, and process parameters. Integrated with real-time data, it drives production line digitalization.

电驱工厂智能调度中心
E-Drive Plant Intelligent Dispatch Center

本项目在电驱工厂建立统一的智能调度中心，利用多系统多维度的数据，全方位监控分析业务关键指标，实现异常预警与突发事件的快速调度。

一体化工作平台集成了数据采集、生产指令、作业控制、设备信号及异常报警等核心模块，对人、机、料、法、环进行全面监视与分析，实现集中化的生产调度指挥。



This project establishes a unified Intelligent Dispatch Center within the E-Drive plant. By leveraging multi-system and multi-dimensional data, the center provides comprehensive monitoring and analysis of key business indicators (KPIs), enabling anomaly early warning and rapid response to emergencies.

The integrated platform consolidates core modules such as data acquisition, production orders, operational control, equipment signaling, and alarm management. It performs extensive monitoring and analysis across the 5M1E (Man, Machine, Material, Method, Measurement, and Environment) framework, achieving centralized and streamlined production dispatch command.

减震器检修线MES系统
Shock Absorber Overhaul Line MES System

实现了装配信息全程跟踪及信息提示、产品检测信息记录、制程质量信息追溯、生产设备计算机监控、生产计划管理，确保整线稳定地批量装配合格产品，实现装配线的柔性化生产。数字化可视化管理系统以全景3D模型作为载体，实现油压减振器作业过程、设备状态、生产异常、作业环境等生产要素的信息化管控。

This MES solution provides full assembly information tracking and alerts, records product inspection data, ensures process quality traceability, and enables computer-based equipment monitoring. Through integrated production planning, it guarantees stable batch production and assembly line flexibility. A 3D panoramic digital twin visualizes and controls all key production elements-from operational processes and equipment status to anomalies and environmental factors-for comprehensive information management.

MixKing企业管理软
MixKing Enterprise Management Software

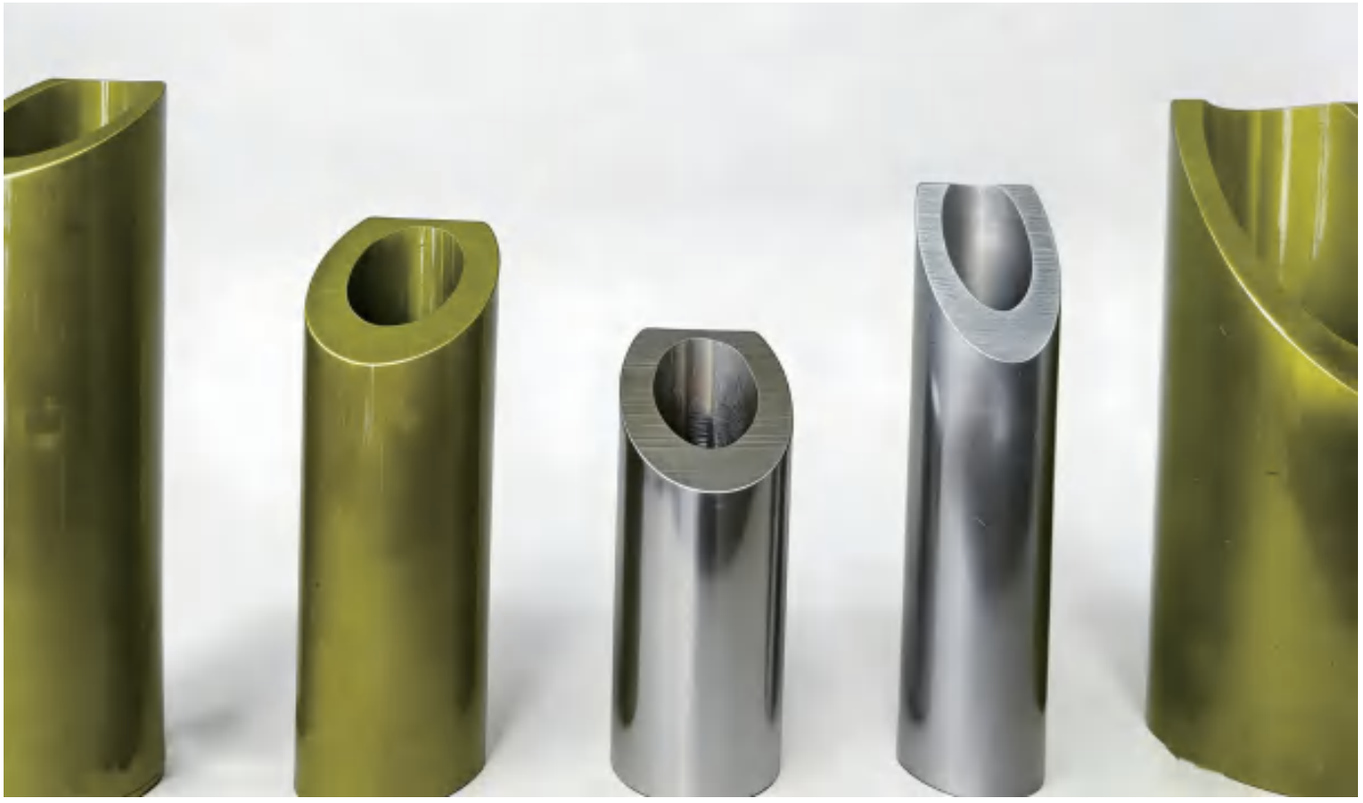
1

先德承接的每一条小口径厚壁精密高频焊管生产线，会根据客户不同的管材参数，首先确定成型工艺，运用科学的计算方式进行严密的设计计算；然后确定机架布置和结构强度，并利用三维仿真模型，确保设备设计的合理性和准确性。高精密的加工设备，严谨科学的加工工艺管理，确保产品的质量。

精密钢管生产线
Precision Steel Pipe Production Lines

For every small-diameter, thick-walled precision high-frequency welded pipe production line undertaken by Seind, we first determine the optimal forming process based on the customer's specific pipe parameters. We employ rigorous scientific methodologies for detailed design calculations, followed by the determination of stand layout and structural strength.

By utilizing 3D simulation models, we ensure the rationality and accuracy of the equipment design. Our commitment to high-precision machining equipment and rigorous, scientific manufacturing process management guarantees superior product quality.



76x4.5高频焊管生产线
76x4.5 ERW Tube Mill Line

材料 Material	SPCC、SPHF590
屈服强度 Yield Strength	550MPa
带钢厚度范围 Strip Thickness Range	1.0－4.5mm
外径范围 OD Range	Φ32–Φ76mm
外径公差 OD Tolerance	±0.08mm
生产速度 Production Speed	80m/min(Max)

65x6.5高频焊管生产线
65x6.5 ERW Tube Mill Line

材料 Material	26MnB5,34MnB5
屈服强度 Yield Strength	≤680MPa
带钢厚度范围 Strip Thickness Range	1.5－6.5mm
外径范围 OD Range	Φ21.7–Φ65mm
外径公差 OD Tolerance	±0.08mm
生产速度 Production Speed	60m/min(Max)

50.8x8.5高频焊管生产线

50.8x8.5 ERW Tube Mill Line

材料 Material	34MnB5，DP980
屈服强度 Yield Strength	≤980MPa
带钢厚度范围 Strip Thickness Range	2.0－8.5mm
外径范围 OD Range	Φ21.7–Φ50.8mm
外径公差 OD Tolerance	±0.08mm
生产速度 Production Speed	60m/min(Max)

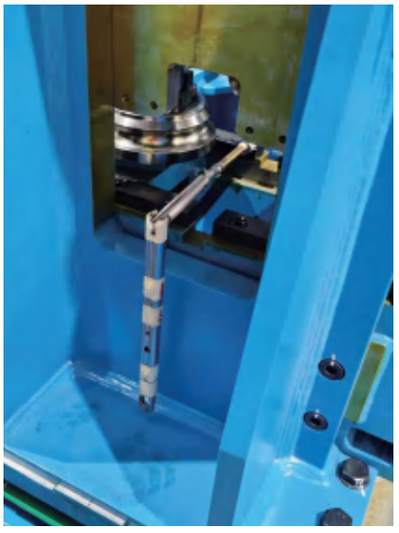
台湾508mm高频焊管生产线

Taiwan 508mm High-Frequency Welded Pipe Production Line

材料 Material	J55,N80,P110
屈服强度 Yield Strength	≤965MPa
带钢厚度范围 Strip Thickness Range	6.0－18mm
外径范围 OD Range	Φ219–Φ508mm
生产速度 Production Speed	30m/min(Max)

内毛刺刮刀
Inner Bead Remover

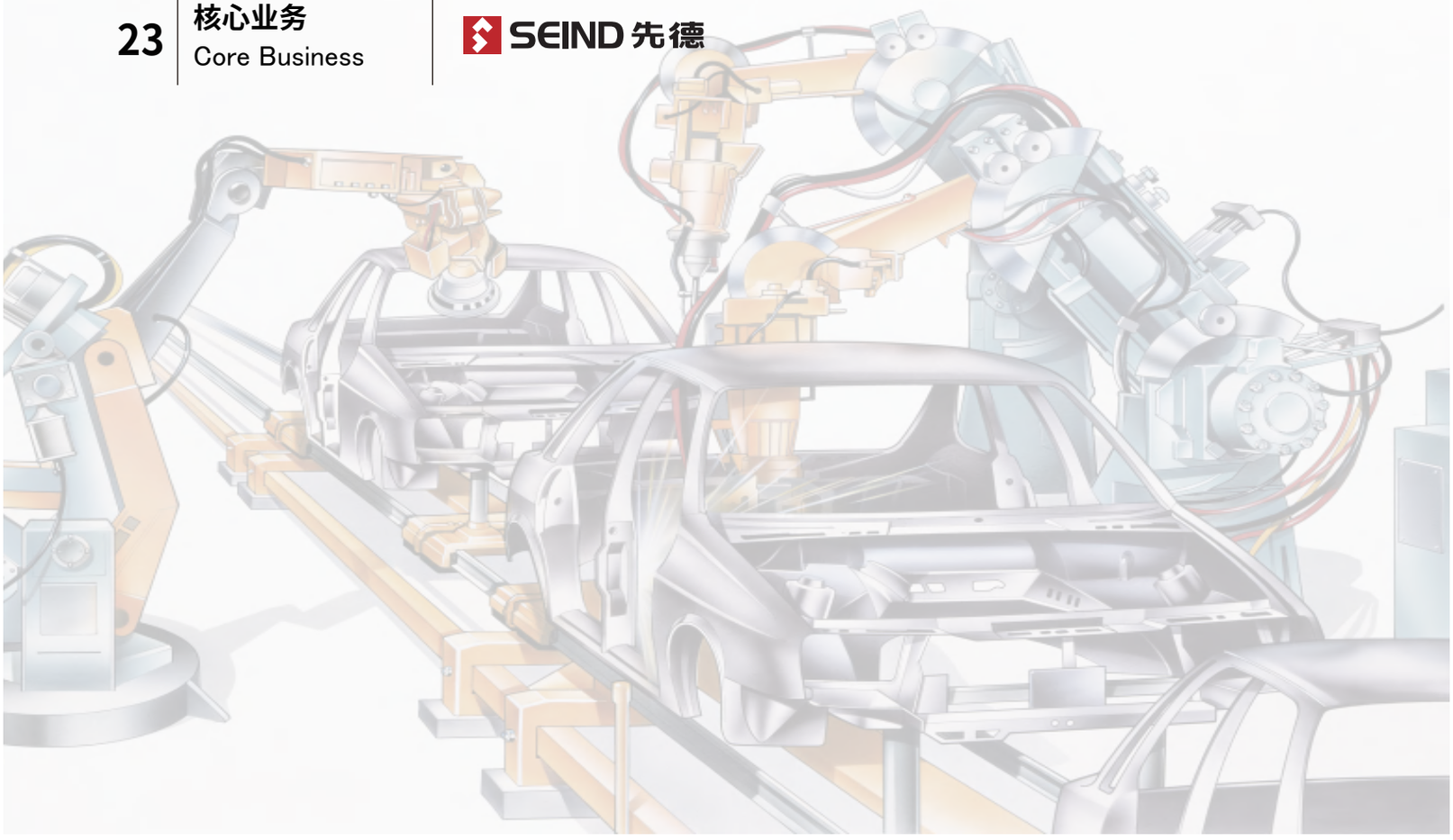




立式活套
Vertical Accumulator


MCM系列数控锯铣
MCM Series Cold Saw Cutters


SEIND 先德



为汽车、高铁零部件及其他通用制造企业，提供一体化的非标自动化解决方案。我们深度参与项目全过程，涵盖前期评估、方案制定、投资回报分析、项目规划与设计、实施及售后技术服务，致力于为客户打造先进的交钥匙自动化设备与产线。

We provide integrated, bespoke automation solutions for automotive, high-speed rail component, and general manufacturing enterprises. Seind is deeply involved in the full project lifecycle, covering initial assessment, solution development, ROI analysis, project planning and design, implementation, and after-sales technical support. We are committed to delivering advanced, turnkey automated equipment and production lines for our clients.

8 汽车、高铁零部件装配和测试产线

Automotive & High-speed Rail Component Assembly and Testing Lines

高铁动车组减震器组装线

High-speed Rail Shock Absorber Assembly Line

用于动车和高铁的减震器组装线，主要由辅线、主线及AGV自动供料系统构成。

辅线负责减震器半成品的组装与调试，关键设备包括激光打标工位、阀预调工位、定扭拧紧工位、旋铆工位和压装工位等。

主线则完成立体库来料与辅线半成品的总成装配，关键设备涵盖活塞杆预装工位、底阀内筒压装工位、活塞定扭拧紧工位、注油工位、导向座定扭拧紧工位及打标下线工位。

This assembly line for EMU (Electric Multiple Unit) and high-speed rail shock absorbers primarily consists of sub-assembly lines, a main assembly line, and an AGV automated material feeding system.

The sub-assembly lines are responsible for the assembly and testing of semi-finished shock absorbers. Key equipment includes laser marking stations, valve pre-setting stations, torque-controlled tightening stations, orbital riveting stations, and press-fit stations.

The main assembly line performs the final assembly of semi-finished products from the sub-lines with components from the automated storage and retrieval system (ASRS). Key processes encompass piston rod pre-assembly, base valve and inner cylinder press-fitting, piston torque tightening, oil filling, guide seat torque tightening, and marking/off-line stations.

新能源汽车控制器装配和测试产线

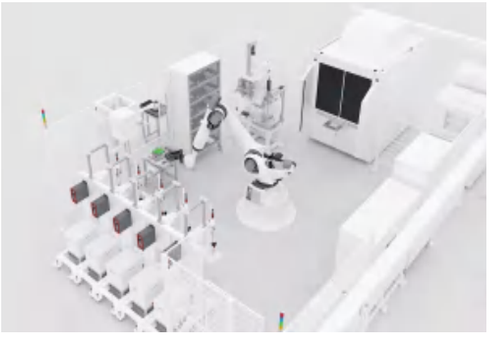
New Energy Vehicle (NEV) Controller Assembly and Testing Line

基于装配岛概念设计的装配线，采用人工上料与机器人自动移栽相结合的方式，集成了自动压装、自动拧紧、气密检测及自动激光焊接等工位。

该线体为高度柔性化设计，能够兼容不同工艺顺序的产品。除了设备自身的过程监控外，额外配置2D和3D视觉系统对装配质量进行检测，换型时间控制在15分钟以内。

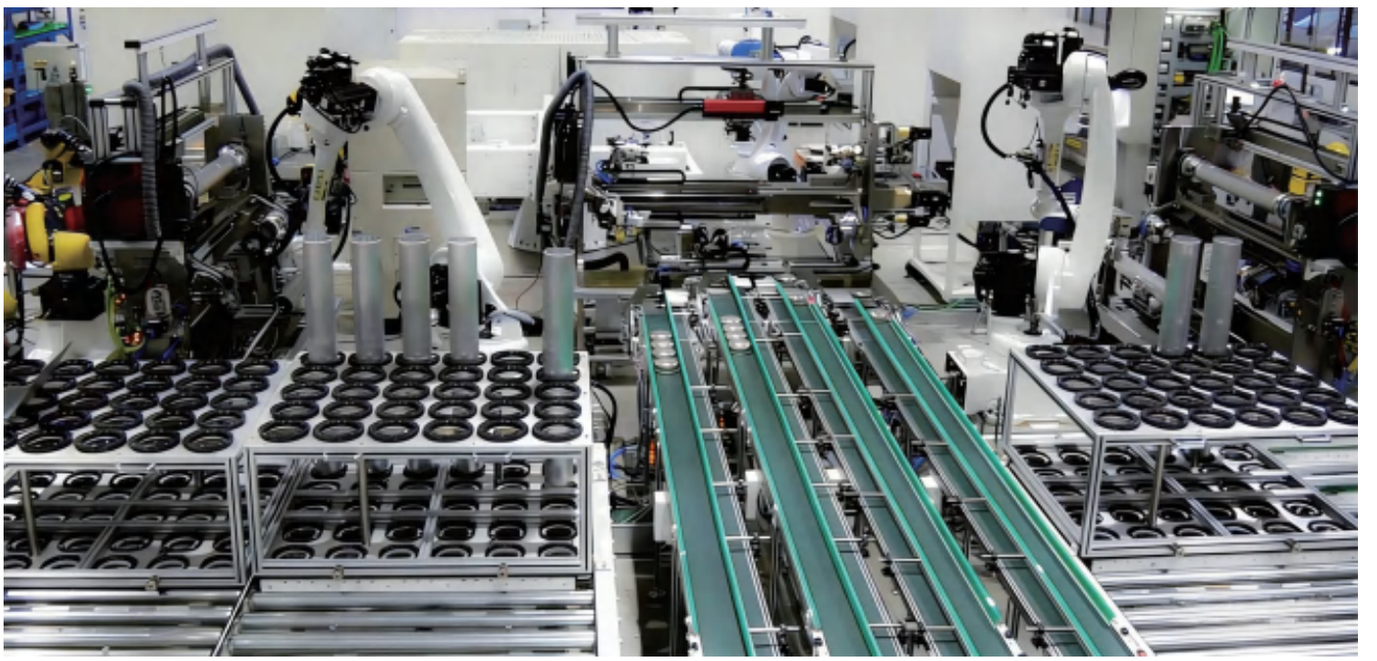
Designed based on the Assembly Island concept, this production line combines manual feeding with robotic automated transfer. It integrates specialized workstations for automated press-fitting, automated tightening, air-leak testing, and automated laser welding.

The line features a highly flexible design, capable of accommodating products with different process sequences. In addition to the equipment's built-in process monitoring, it is equipped with supplementary 2D and 3D vision systems for assembly quality inspection. The changeover time is efficiently controlled within 15 minutes.



新能源汽车储气罐自动焊接线

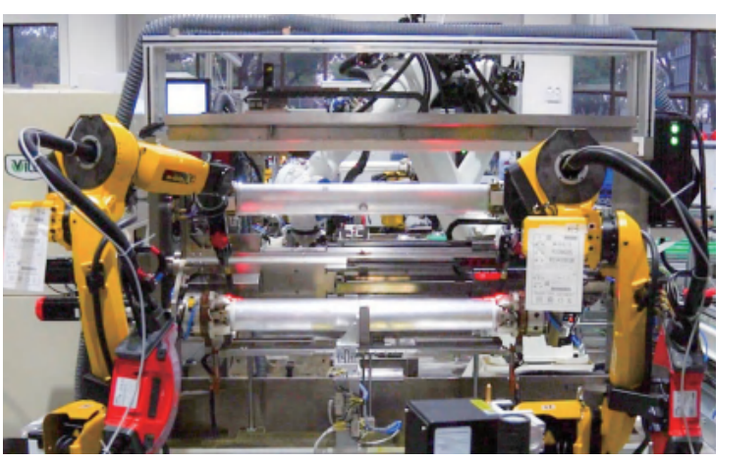
New Energy Vehicle (NEV) Air Tank Automatic Welding Line



先德自主研发的储气罐全自动化智能生产线，实现了从端盖与筒体自动上料组装、激光清洗、机器人焊接、焊缝清洗、激光打码、支架配件焊接组装到智能检测下料的全流程自动化。产线集成工业机器人、视觉检测与MES跟踪系统，确保全智能、高效率、高品质生产。

Seind has independently developed a fully automated intelligent production line for air tanks, achieving end-to-end automation. The comprehensive process includes automated loading and assembly of end caps and shells, laser cleaning, robotic welding, weld seam cleaning, laser marking, bracket accessory welding/assembly, and intelligent inspection and off-loading.

The production line integrates industrial robots, machine vision inspection, and MES tracking systems to ensure fully intelligent, high-efficiency, and premium-quality manufacturing.



新能源汽车控制器选择焊生产线

New Energy Vehicle (NEV) Control Unit Selective Soldering Production Line

新能源汽车控制器选择焊生产线采用全自动化方式，对两种驱动模块的裸露针脚进行焊接，并同步完成冷却与焊渣清理。

MES系统全程控制生产过程，通过RFID芯片与读写头绑定托盘和工件，结合扫码枪追溯产品全流程。

整线由主线体、六轴机械手、环形辊道线、选择焊焊机、锡珠清洁设备五大模块构成，涵盖机器人上料、辊道输送、焊接、冷却、除静电、清洁、机器人下料七个环节。

This fully automated production line is designed for the selective soldering of exposed pins on two types of drive modules, while simultaneously performing cooling and solder dross cleaning.

The MES governs the entire production process. By utilizing RFID tags and reader/writer heads to bind pallets and workpieces, combined with barcode scanners, the system ensures full-process product traceability.

The system architecture comprises five major modules: the main line body, 6-axis robotic arms, a circular conveyor line, a selective soldering machine, and solder ball cleaning equipment. The process flow encompasses seven key stages: robotic loading, conveyor transport, soldering, cooling, static elimination (ESD), cleaning, and robotic off-loading.

新能源汽车IPU EOL & Runin测试线

New Energy Vehicle (NEV) IPU EOL & Run-in Testing Line

新能源汽车的 IPU EOL & Runin 测试线，集成机器人自动上料、性能测试、跑合测试、激光打码、3D视觉检测及人工下料工位。生产节拍106秒/件，仅需1名操作员。

This IPU EOL (End-of-Line) and Run-in testing line for New Energy Vehicles (NEVs) integrates robotic automated loading, performance testing, burn-in (run-in) testing, laser marking, 3D vision inspection, and manual off-loading stations.The system achieves a production cycle time (Takt time) of 106 seconds per unit and requires only a single operator to manage the entire line.

- 2× EOL 站位
- 4× Runin 站位
- 自动上线工位
- 备用上线工位
- 辊道
- 手动下线工位
- 不合格下线工位
- 外观检测&附件安装工位
- 激光打码
- 托盘清洁工位
- 返修上线工位
- 移动刷机
- Master流线
- 成品缓存架等

- 2X EOL Station
- 4x Run-in Station
- Auto Load Station /
- Standby Loading Station
- Roller Conveyor
- Manual Unloading Station
- Defective Unloading Station
- Visual Inspection & Accessory Installation Station
- Laser Marking
- Tray Cleaning Station
- Rework Loading Station
- Mobile Flashing Station
- Master Line
- Finished Product Storage Rack

新能源汽车控制器DC-DC老化线

New Energy Vehicle (NEV) Control Unit DC-DC Burn-in Testing Line

该测试线体为控制器的DCDC模块老化测试设备，可以同时测试8个产品。
采用工件线外小车上安装，线上自动对接测试。生产节拍:70min/工件；仅需人工1人。

This testing line is a specialized burn-in (aging) system for DC-DC controller modules, capable of simultaneously testing 8 products.

The system utilizes an off-line cart mounting method for workpieces, which then undergo automatic on-line docking for testing. The production cycle time is 70 minutes per unit, and the entire line requires only a single operator.

关键部件性能检测数字线

Key Component Performance Testing Digital Line

钢簧性能检测站

Steel Spring Performance Testing Station

该产线集成钢簧性能检测站与节点性能检测站，依托数字孪生技术实现性能数据的自动采集、分析与可视化展示，检测数据可与既有数据平台无缝对接。

This production line integrates Steel Spring Performance Testing Stations and Node Performance Testing Stations. By leveraging Digital Twin technology, it enables the automated collection, analysis, and visualization of performance data. The generated testing data ensures seamless integration with existing data platforms.

节点性能检测站

Node Performance Testing Station

实现设备实时监控、历史数据追溯、能效分析、故障预警与诊断预测、状态维修闭环管理及运行组态可视化。

This station achieves real-time equipment monitoring, historical data traceability, and energy efficiency analysis. It features advanced fault early warning, diagnostic prediction, and closed-loop status maintenance management, while providing comprehensive operational configuration visualization.

中试产线-智能转向架
Pilot Line-Intelligent Bogie

转向架智能装配系统，主要实现转向架关键部件的智能处理及自动紧固件操作。

自动抓取 → 空间移位 → 自动放置→ 放置状态评估

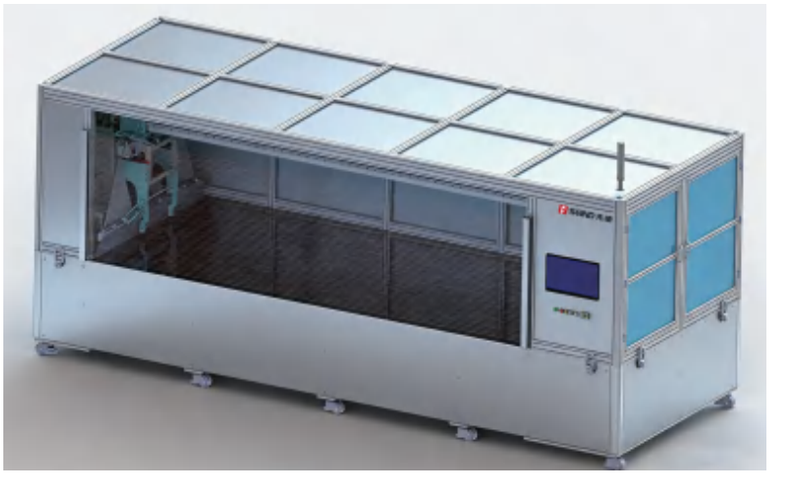
自动送料 → 自动对位 → 自动拧紧 → 数据上传 MES系统

The Intelligent Bogie Assembly System primarily enables the smart handling of key bogie components and automated fastening operations.
Process Flow A:
Automated Gripping → Spatial Displacement → Automated Placement → Placement Status Evaluation
Process Flow B:
Automated Feeding → Automated Alignment → Automated Tightening → Data Upload to MES System

钢板尺寸检测设备
Steel Plate Sizing Equipment

该设备用于钢板精准尺寸检测，最大检测尺寸4m×1.6m，检测精度±0.5mm。

采用大理石平台，配精研磨移动模组与磁栅尺，运动精度±0.02mm，Z轴可通过精密丝杆调节相机高度，适配不同板材厚度。



This equipment is designed for high-precision dimensional inspection of steel plates. It features a maximum inspection range of 4m x 1.6m with a measurement accuracy of ±0.5mm.

The system is built on a granite platform equipped with precision-ground linear modules and magnetic scales, achieving a motion repeatability of ±0.02mm. The camera height on the Z-axis can be adjusted via a precision lead screw to accommodate various plate thicknesses.

产线机器换人改造升级业务

9

Production Line Robotics Retr-ofitting & Upgrading Services

针对客户现有设备与工艺要求，通过加装通用机器人或专用设备，实现生产自动化与少人化。业务涵盖机床串联线和自动化工作站，广泛应用于机加工、喷涂、冶金、食品、幕墙、电缆等多行业。

Based on existing customer equipment and process requirements, we implement production automation and labor reduction (low-manning) by integrating universal robots or specialized machinery. Our service scope covers tandem machine tool lines and automated workstations, with extensive applications across industries such as machining, coating, metallurgy, food, curtain walls, and cabling.

机器人装配自动化产线

Robotic Assembly Automation Line

该产线基于工业机械手与AGV深度协同，形成了从装配、检测到仓储的完整数据闭环与智能化物流体系。

系统通过AGV实现物料的柔性配送与自动上下料，并与装配机器人岛精准对接，完成核心装配工序后，产品由AGV转运至全自动检测工位，进行机械手的功能与精度双重检测。最终，合格产品经由AGV送入智能立库。

This production line is built upon the deep synergy between industrial manipulators and AGVs, creating a comprehensive data closed-loop and an intelligent logistics system covering assembly, inspection, and warehousing.

The system utilizes AGVs for flexible material distribution and automated loading/off-loading, achieving high-precision docking with assembly robots. Upon completion of core assembly processes, products are transferred by AGVs to fully automated inspection stations for dual-verification of robotic functionality and precision. Finally, compliant products are transported by AGVs into an Intelligent Automated Storage and Retrieval System (ASRS).

玻璃幕墙装配生产线

Glass Curtain Wall Assembly Production Line

This production line enables the fully automated installation of glass panels. It integrates specialized workstations for lifting, loading, automated glass assembly, window frame assembly, glass cleaning, automated adhesive dispensing, glue scraping, and edge protector assembly.

The system utilizes a vision-based centering mechanism, identifying glass corners via cameras for precise positioning and snap-fit assembly. The loading and off-loading stations feature adjustable edge stoppers to accommodate various product specifications. Additionally, the line performs automated dispensing and post-application inspection for both structural and weather-resistant sealants.

该生产线实现玻璃的自动安装，集成了升降、上料、自动玻璃装配、开窗装配、玻璃清洁、自动涂胶、刮胶及护边装配等工位。

采用视觉对中机构，通过相机识别玻璃边角进行精确定位，完成玻璃卡点装配。上下料工位可自动调整挡边位置，适应不同规格产品。同时实现结构胶与耐候胶的自动涂胶及涂后检测。

10 智能专机设备 Custom-Engineered Intelligent Machinery

智能专机设备聚焦行业前沿，瞄准行业发展的未来，解决行业中所面临的高精度、高效率、高可靠性等问题。

Our intelligent special-purpose equipment stays at the forefront of the industry, aligning with future developmental trends. We are dedicated to addressing critical challenges within the sector, providing solutions characterized by high precision, maximum efficiency, and exceptional reliability.

PET泡沫多丝热熔切割设备

PET Foam Multifilament Hot-Melt Cutting Equipment

凭借先进的控制与加热系统，实现了高精度稳定切割。其损耗仅为传统工艺的两成，在实现一次性封孔的同时，大幅提升工作效率。

设备精选耐用割丝，可灵活加工多种规格产品。全流程无粉尘作业，更注重车间环境与操作安全。

Leveraging advanced control and heating systems, this equipment achieves high-precision, stable cutting. Its material waste is merely 20% of traditional processes, significantly enhancing operational efficiency while enabling one-step cell sealing.

The system features premium, durable cutting filaments, allowing for the flexible processing of various product specifications. Furthermore, the entire process is dust-free, prioritizing workshop environmental quality and operator safety.and operational safety.

激光焊接站

Laser Welding Station

用于新能源汽车上电池、控制器等元器件上铜铜电极、铜铝电极之间的焊接。

- 高灵活性，可通过机器人上料，也可采用流线托盘上料或人工上料；
- 高安全性，采用封闭机构，可防止激光散射以及焊接烟雾的扩散；
- 产品压紧力可调；
- 可控设备精度≦±0.02mm；
- 可增加集成光束质量检测仪和激光功率检测。

This station is designed for welding copper-to-copper and copper-to-aluminum electrodes in New Energy Vehicle (NEV) components, such as batteries and controllers.

- **High Flexibility:** Supports multiple loading methods, including robotic handling, conveyor pallets, or manual loading.
- **Enhanced Safety:** Utilizes an enclosed structure to prevent laser scattering and the diffusion of welding fumes.
- **Adjustable Clamping Force:** The product clamping pressure is fully adjustable to suit different requirements.
- **High Precision:** Achieves a controllable equipment accuracy of ≤±0.02mm.
- **Expandable Diagnostics:** Can be integrated with beam quality analyzers and laser power meters for enhanced monitoring.

1.电气总包业务
Electrical EPC & Turnkey Solutions

- 电机装配线电气控制系统
  Electrical Control System for Motor Assembly Line
- 电池模组和电池包装配线电气控制系统
  Electrical Control System for Battery Module and Pack Assembly Line
- 汽车10L-12L发动机装配线电气总包项目
  Electrical Turnkey Project for 10L-12L Automotive Engine Assembly Line
- 变速箱装配线电气控制系统
  Electrical Control System for Transmission Assembly Line
- 发动机装配线电气控制系统
  Engine Assembly Line Electrical Control System
- 汽车喷涂项目电气控制系统
  Electrical Control System for Automotive Painting Project
- 1500T扩径机电气控制系统
  Electrical Control System for 1500T Expanding Machine
- UOE整线电气控制系统
  Electrical Control System for UOE Line

2.电气分包业务
Electrical Subcontracting Services

- 自动轧机电气系统设计、程序开发及调试
  Automatic Rolling Mill Electrical System Design, Programming and Commissioning
- 新能源汽车喷涂电气柜设计及成套
  Design and Assembly of Electrical Cabinets for New Energy Vehicle Painting
- P&GRAL控制柜成套
  P&GRAL Control Cabinet Assembly
- 线缆设备提供商全系列OEM电气柜
  OEM of Full-Series Electrical Cabinets for Cable Machinery Manufacturers
- SPX控制系统调试
  SPX Control System Commissioning
- 18交联硫化管加热控制柜
  18 Crosslinking and Vulcanizing Tube Heating Control Cabinet
- 拉丝机驱动器改造
  Wire Drawing Machine Drive Retrofit
- 交联线电气改造
  CV Line Electrical Upgrade
- 大拉机电气控制系统
  Large Wire Drawing Machine Electrical Control System
- 150电缆护套线改造
  150 Cable Jacketing Line Upgrade
- 大陆轮胎项目OEM控制柜
  OEM Control Cabinet for Continental Tire Project

3. 定制化开发工厂、车间及产线MES系统
Customized MES Solutions for Factories, Workshops, and Production Lines

- 发动机产线MES系统
  Engine Production Line MES System
- 减震器检修线MES系统
  Shock Absorber Overhaul Line MES System
- 电驱MES系统
  Electric Drive MES System
- 动力装配线信息系统
  Powertrain Assembly Line Information System
- 变速箱MES系统
  Transmission MES System
- 汽车喷涂线生产计划系统
  Automotive Painting Line Production Scheduling System
- 电驱工厂智能调度中心
  E-Drive Plant Intelligent Dispatch Center

4. 工业软件开发
Industrial Software Development

- 机床串联线MES系统
  MES System for Tandem Machine Line
- 汽车喷涂线监控软件
  Monitoring Software for Automotive Painting Line
- 半导体封装设备控制软件
  Semiconductor Packaging Equipment Control Software

5. 虚拟调试与数字孪生
Virtual Commissioning and Digital Twin

- EDS产线MES系统—数字孪生
  EDS Production Line MES System – Digital Twin

6. 企业信息化管理软件
Enterprise Information Management (EIM) Software

- MixKing 企业管理系统
  MixKing Enterprise Management System

7. 精密钢管生产线
Precision Steel Pipe Production Lines

- 内毛刺刮刀
  Inner Bead Remover
- 立式活套
  Vertical Accumulator
- MCM系列数控铣锯
  MCM Series Cold Saw Cutters
- 台湾508mm高频焊管生产线
  Taiwan 508mm High-Frequency Welded Pipe Production Line
- 50.8x8.5高频焊管机生产线
  50.8x8.5 ERW Tube Mill Line
- 76x4.5高频焊管生产线
  76x4.5 ERW Tube Mill Line
- 65x6.5高频焊管生产线
  65x6.5 ERW Tube Mill Line
- 89x10高频焊管生产线
  89x10 ERW Tube Mill Line

9. 产线机器换人改造升级业务
Production Line Robotics Retrofitting & Upgrading Services

- 机器人装配自动化产线
  Robotic Assembly Automation Line
- 玻璃幕墙装配生产线
  Glass Curtain Wall Assembly Production Line
- 木材加工自动化产线
  Automated Wood Processing Line
- 等离子切割作业线及带锯床切割线
  Plasma Cutting Line and Band Saw Cutting Line
- 淬火线控制、冷却及传动系统
  Quenching Line Control, Cooling and Drive System
- 铝铸造件喷涂机器换人项目
  Aluminum Casting Spraying Robot Substitution Project

8. 汽车、高铁零部件装配和测试产线
Auto & High-speed Rail Component Assembly and Testing Lines

- 高铁动车组减震器组装线
  High-speed Rail Shock Absorber Assembly Line
- 新能源汽车控制器装配和测试产线
  New Energy Vehicle (NEV) Controller Assembly and Testing Line
- 新能源汽车储气罐自动焊接线
  New Energy Vehicle (NEV) Air Tank Automatic Welding Line
- 新能源汽车控制器选择焊生产线
  New Energy Vehicle (NEV) Control Unit Selective Soldering Production Line
- 新能源汽车IPU EOL & Runin测试线
  New Energy Vehicle (NEV) IPU EOL & Run-in Testing Line
- 新能源汽车控制器DC-DC老化线
  New Energy Vehicle (NEV) Control Unit DC-DC Burn-in Testing Line
- 电机和动力总成线改造项目
  New Energy Vehicle Control Unit Assembly Line Renovation
- 关键部件性能检测数字线
  Key Component Performance Testing Digital Line
- 中试产线-智能转向架
  Pilot Line-Intelligent Bogie
- 钢板尺寸检测设备
  Steel Plate Sizing Equipment

10. 智能专机设备
Custom-Engineered Intelligent Machinery

- 激光焊接站
  Laser Welding Station
- PET双工位自动焊接线
  PET Dual-Station Automatic Welding Line
- PET泡沫多丝热熔切割设备
  PET Foam Multifilament Hot-Melt Cutting Equipment
- 压力表智能检定装置
  Intelligent Pressure Gauge Calibration Device

SEIND 先德

上海先德企业集团
Shanghai Seind Enterprise Group

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