

洁净机器人系统及解决方案

Clean Room Robot +
Systems & Solutions



公司介绍

Company Introduction

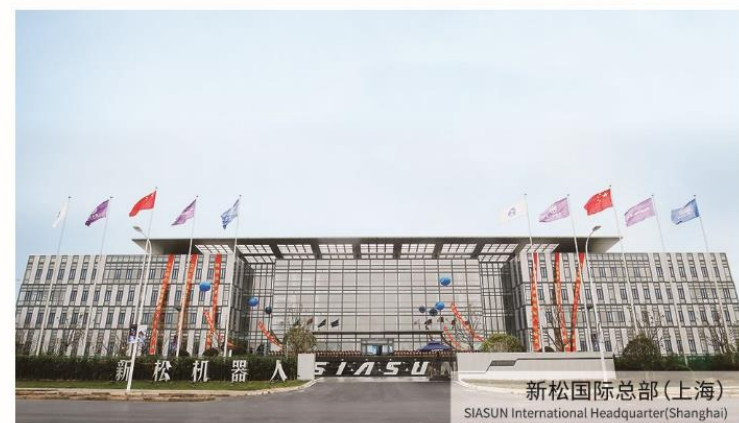
新松机器人自动化股份有限公司(以下简称“新松”),是一家以机器人技术为核心,致力于全智能产品及服务的高科技上市企业,是中国机器人产业 TOP10 核心牵头企业,也是全球机器人产品全的厂商,国家机器人产业化基地。新松公司成立于 2000 年,本部位于沈阳,在上海设有国际总部、在北京设有投资总部,在沈阳、上海、杭州、青岛建有产业园区,现已在全国多个经济热点区域构建了立体化的研发及服务网络。同时,积极布局国际市场,在中国香港、新加坡等区域设立子公司。公司现拥有 4000 余人的研发创新团队,形成以自主核心技术、核心零部件、核心产品及行业系统解决方案为一体的完整全产业链。目前,公司总市值位居国际同行业前三位,成长性机器人行业国际领先!

作为中国机器人产业的翘楚和工业 4.0 的践行者和推动者,新松公司重点业务涵盖核心零部件、机器人和整厂自动化解决方案。洁净(真空)机器人及半导体装备是新松公司的核心业务之一,应用领域涵盖 IC 和 FPD 等行业,现已形成大气机械手、真空机械手、EFEM、真空平台及 STOCKER 和 AMHS 系统多个产品线。

2018 年新松公司整合了半导体装备业务,成立了半导体装备 BG,并收购韩国新盛(SHINSUNGFA),具备了为客户提供半导体制造、封装、检测自动化装备及整体解决方案的能力。

SIASUN is a high-tech listed enterprise, which takes robotic technology as the core and focuses on providing intelligent products services. It is TOP 10 leading enterprise in Chinese robotic industry, who has the most comprehensive robotic products line in the world. As the largest robot industrial base in China, SIASUN was established in the year of 2000. Its group HQ locates in Shenyang, international HQ locates in Shanghai and finance HQ locates in Beijing. With industrial parks established in Shenyang, Shanghai, Hangzhou and Qingdao, SIASUN has complete its national R&D and service network, which covers six major regions around China. In the meantime, SIASUN started to explore global market-branches are setup in Chinese Hong Kong and Singapore. The whole group has more than 4,000 R&D talents, and has formed a whole industrial value chain consists of core technologies, core components, leading products and industry solutions. At present, SIASUN market value is the 3rd in robotic industry globally, who has the fastest rate of growth.

As a leader in the Chinese robot industry and a practitioner and founder of Industry 4.0, SIASUN covers key components, robots and AMHS. Clean room (Vacuum) Robot and semiconductor equipment is one of the core businesses in SIASUN. Its application fields include IC FPD and other industries which has formed multiple product lines like Atmospheric Robot, Vacuum Robot, EFEM, Vacuum Platform, STOCKER and AMHS system etc. In 2018, SIASUN Company integrated the semiconductor equipment business, established the Semiconductor Equipment BG and acquired the Korean SHINSUNG FA, having the semiconductor total solution ability of equipment product and AMHS in Fab, OSAT and IDM field.



洁净自动化产业

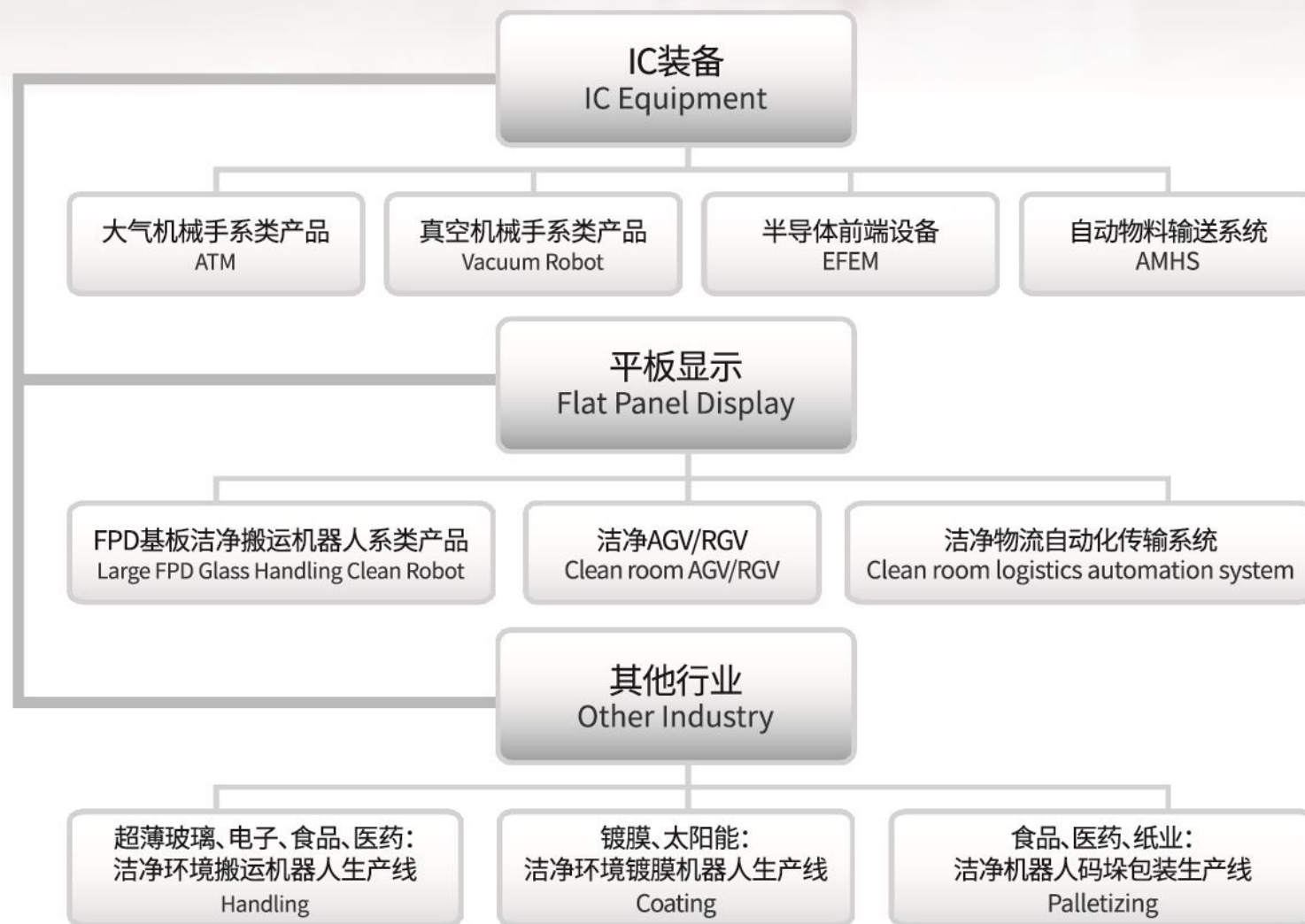
SIASUN Clean Room Automation Industry

新松洁净自动化系列产品经过 10 多年的技术沉淀已形成系列化单体产品，同时注重模块化单元及设备平台建设，以成套化和规模化为目标，拥有 100 余人的专业研发团队，在沈阳拥有 5000 平米的净化间，目前主要应用领域覆盖 IC 装备、平板显示、光伏、电子等行业，能够为客户提供完整的技术解决方案和交钥匙工程。完全拥有自主知识产权和核心技术，技术水平国内领先，达到国际先进水平。

洁净产品客户现已遍及大陆以及台湾地区。行业应用遍及 ETCH、PVD、CVD、MOCVD、MEMS、CMP、TRACK、PHOTO、IMP 等半导体工艺制程。机器人的自身性能正在不断提升，可以满足抗腐蚀、耐高温等特殊工艺要求。同时符合柔性化用户定制式设计，最大化满足用户需求。

SIASUN clean room automation products have now become serialized single items through several years' technology deposition, focus on the construction of modular unit and equipment platform, take sets and scale for the development targets. It has a professional R&D team of more than 100 people and has a 5000 square meter clean room in Shenyang. Robotic applications mainly cover the fields of IC equipment, FPD, PV, electronic, and etc. SIASUN could provide complete technology solution and turnkey project for customer, holds the independent intellectual property rights and core technology completely. Leading the domestic technical level, SIASUN clean room robotic technical level has reached the advanced international level.

Recently, the users of clean room products have throughout the mainland and Taiwan. The industrial applications are throughout ETCH、PVD、CVD、MOCVD、MEMS、CMP、TRACK、PHOTO、IMP and other semiconductor processes. Meantime, robotic performance continues to raise, robotic high temperature and corrosion resistant process continue to improve. Much more flexibility and higher performance with customized design could meet the customers' maximize needs.



洁净设备自动化 Automation In Clean Room Equipment

■ 大气机械手 Atmospheric robot

提供单臂、双臂、双末端执行器、侧翻末端和侧立柱大气机械手
Atmospheric series manipulator can be divided into Single Arm, Dual Arm, Dual end-effector, turnover end and side post ones

采用轻量、高刚性手臂、高精度、高性能的 AC 伺服电机和谐波减速器
Robot adopted light weight, high rigid arm, AC servo motor and harmonic reducer with high accuracy and performance

材料、加工以及表面处理多方面优选，满足 ISO Class 1 洁净度要求
Materials, processing and surface treatment was optimized in multi-aspect, Meet ISO Class 1

具有多重安全保护功能，灵敏的防碰撞功能保证机械手与晶圆的安全
With multiple security features, sensitive anti-collision function to ensure the safety of the robot and the wafer

可以根据客户应用的特殊要求，定制手臂尺寸，满足各种尺寸晶圆的使用
Can be customized according to customer requirements, custom arm size, to meet the use of various sizes of wafers

根据不同工艺，有满足耐高温，耐腐蚀等特性的定制化产品
According to different processes, meet the high temperature, corrosion resistance and other characteristics of customized products



Blade-S Series

Blade-D Series

洁净设备自动化 Automation In Clean Room Equipment

真空机械手 Vacuum Robot

真空大负载机械手 High Load Vacuum Robot

采用磁流体密封，可定制 1-3 轴不同的产品
Ferro-fluidic sealing, can be customized 1-3 different products

负载满足 3-20Kg (包含手指)
Loads meet 3-20Kg (including finger)

可根据腔室定制手臂长度和手指设计
Customer tailored for the length of the arm and finger design according to cavity

满足 10^{-6} Pa真空度要求，可支持高温环境使用
Meet the 10^{-6} Pa vacuum requirements, Heat-resistant

带有碰撞保护和动态纠偏功能
With collision protection and AWC function



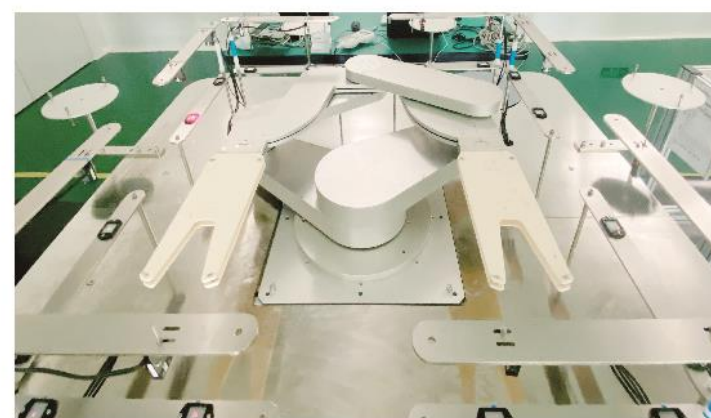
真空直驱机械手 Direct-Drive Vacuum Robot

采用直驱电机密封，运行更加平稳，MCBF>1100million cycles，耐真空达 5×10^{-9} Torr
Direct drive motor seal, run more smoothly, MCBF> 1100million cycles, vacuum performance up to 5×10^{-9} Torr

支持 200mm, 300mm 晶圆搬运，并可以定制手臂长度和手指，并支持复合运动
Support 200mm, 300mm wafer handling, can customize the length of the arm and fingers, and support the compound movement

IO 模块可灵活配置，支持多工位 AWC 配置功能，丰富的通讯接口可支持串口和以太网
IO module can be flexibly configured, support multi-station AWC configuration, rich communication interface can support serial and Ethernet

带有安全区配置功能和灵敏的碰撞保护功能，减少用户误操作导致的各种损失
With a safe area configuration function and sensitive collision protection, to reduce the user misuse caused by the various losses



洁净设备自动化 Automation In Clean Room Equipment



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■ 大气传输平台 Atmospheric Transferring Platform

有包括 TSS 系列的 EFEM 与 Sorter 产品，有 2-4 工位多种产品
There are a variety of products including the TSS series of EFEM and Sorter products, with 2-4 stations

基于 TSS 2000 的设备控制软件，操作人员上手操作简便，功能丰富
Based on TSS 2000 equipment control software, operators get started is simple, feature-rich

内置 FA 软件，可满足晶圆厂的自动化生产需要，并可根据晶圆厂 SPEC 进行定制修改
Built-in FA software to meet the needs of the fab automation production, and can be customized according to fab SPEC

TSS 系列通过了 S2, F47 认证
TSS series through the S2, F47 certification

配合高精度 CCD 传感器实现高精度纠偏，并可根据晶圆类型选择不同结构类型，支持标准晶圆和翘曲晶圆
With high-precision CCD sensor to achieve high precision correction, according to the type of wafer to choose a different type of structure to support the standard wafers and warping wafers

整机设计参照标准 Machine Design reference standard	SEMI S1-701; SEMI S2-1102; SEMI S7-96; SEMI S8-701; SEMI S9-1101; SEMI S10-1296; SEMI S13-298; SEMI E15-698; SEMI S11-1296; SEMI E54-997; SEMI E58-301; SEMI F47-400
软件界面设计参考标准 Software interface design reference standard	SEMI E30, E84, E87, E90, E40, E94, E99, E118, E116



EFEM Series

Aligner

洁净设备自动化 Automation In Clean Room Equipment

■ 真空传输平台 Vacuum Transferring Platform

传输系统可兼容 200、300mm 晶圆及键合片
The transmission system is compatible with 200,300mm wafers and bonded wafer

真空环境的预对准设备
Pre-Aligner for vacuum environment

智能调度控制系统
Intelligent dispatching control system

内置真空机械手，Aligner 全部为自主产权
Vacuum robot, Aligner all for independent property rights

管路及配电部分客户可定制选配
Pipeline and distribution of some customers can be customized matching

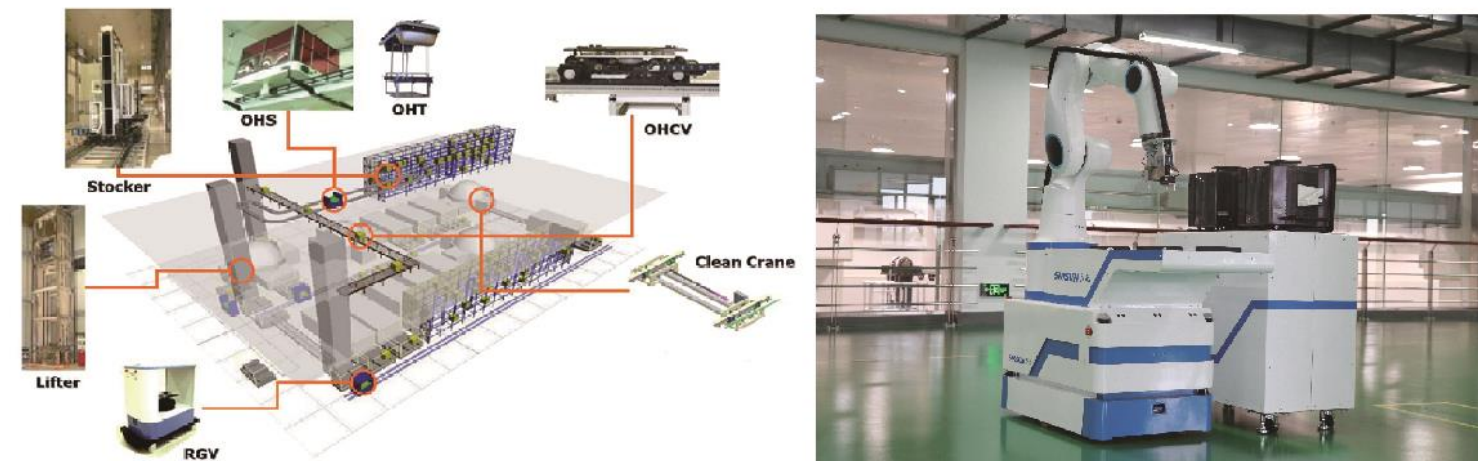


洁净工厂自动化 Automation In Clean Room Factory

■ 洁净物流自动搬运系统 AMHS

生产线自动物料搬运设备主要包括洁净 Stocker、洁净轨道系统、天车、天井式搬运车、洁净 RGV、洁净复合机器人 (MR) 及外接装载设备。

Automatic materials handling equipment (AMHS) mainly include the Clean Stocker, Clean track system, OHS, OHT, Clean RGV, Clean Mobile Robot (MR) and external load equipment



洁净工厂自动化 Automation In Clean Room Factory

■ FPD行业与IC行业应用 FPD and IC industry applications

通过结构优化实现轻量化，实现高速化
Through the structural optimization to achieve lightweight, high-speed

强化刚性与可靠性的设计理念，支持从 4 代线到 10.5 代线
Strengthen the rigidity and reliability of the design concept, support from the 4th to 10.5 generation line

密闭的手臂结构可实现高洁净度与稳定的直线动作
Closed arm structure can achieve high cleanliness and stability of the linear action

采用全新 Ethercat 总线控制器，控制性能优越
The new Ethercat bus controller is used to control superior performance

