

Services Build Trademarks, Profession Achievement The Future
服务打造品牌，专业成就未来

Established in 2002
成立于2002年



Specialized in optical industry, 3C and automotive electronics, ICT & FCT & EOL testing, MES whole line automation and intelligent equipment manufacturing!

专注于光学行业、3C和汽车电子、
ICT&FCT&EOL测试、MES整
线自动化与智能装备制造!

GUANGDONG SYFENG MACHINERY EQUIPMENT CO.,LTD.

广东赛峰机械设备有限公司

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GUANGDONG SYFENG MACHINERY EQUIPMENT CO.,LTD.

广东赛峰机械设备有限公司

COMPANY CULTURE 公司文化

Value 价值观

Build a culture where highly dedicated employees add value to all processes by reducing waste and solving challenges every day in an environment of mutual respect, building Syfeng into the most technologically advanced manufacturing company in the world.

建立一种文化，让高度敬业的员工在相互尊重的环境中，通过每天减少浪费和解决挑战来增加所有流程的价值，将赛峰打造为世界上技术最先进的制造公司。

SOLUTION 解决方案

Syfeng has many high-precision processing equipments and first-class technical talents, with strong production and testing ability.

- More than 70 sets of high-precision CNC machine tools and testing equipment.
- Machining equipments include large-scale gantry CNC, mill-turn, horizontal machining center, four-axis CNC, three-axis high-precision CNC, CNC lathe, center-winding, and high-precision grinder;
- Testing equipments include CMM, roundness meter, contour meter, image measuring instrument, spectrometer, height meter, tensile testing machine, etc., which have the complete supporting capacity for precision parts machining process.

赛峰拥有众多高精尖加工设备与一流的技术人才，具备雄厚的生产与检测能力。

- 拥有超过70台高精度数控机床及检测设备
- 加工设备包括大型龙门CNC、车铣复合、卧式加工中心、四轴联动CNC、三轴高精度CNC、数控车床、中走丝和高精密磨床等；
- 检测设备包括三坐标测量仪、圆度仪、轮廓度仪、影像测量仪、光谱仪、高度仪、拉伸试验机等，具备完整的精密零件加工工序配套能力。

COMPANY PROFILE 公司简介

Guangdong Syfeng Machinery Equipment Co., Ltd. was founded in 2002, with a registered capital of 10 million yuan, headquartered in Nancheng District, Dongguan City, the world's manufacturing center innovation city, with an existing plant area of 5,000 square meters, 70 + employees, R & D staff accounted for more than 25%, is a focus on the optical industry, 3C and automotive electronics, ICT&FCT&EOL test, MES whole line automation and intelligent equipment manufacturing of the national specialization and new high-tech enterprises. The company integrates R&D, manufacturing, assembly, sales and service, and its automation whole line products and precision parts are applied in the fields of optics, 3C electronics and automotive electronics, etc. The company has passed the certification of ISO9001, ISO14001, IATF16949 quality and environment management system, and has applied for more than 30 patents of various types of technologies.

广东赛峰机械设备有限公司成立于2002年，注册资本1000万元，总部位于世界制造中心创新城市——东莞市南城区，现有厂房面积5000㎡，员工70+人，研发人员占比25%以上，是一家专注于光学行业、3C和汽车电子、ICT&FCT&EOL测试、MES整线自动化与智能装备制造的国家专精特新高新技术企业。公司集研发、制造、装配、销售和服务于一体，自动化整机产品和精密零件应用于光学、3C电子、汽车电子等领域，通过了ISO9001、ISO14001、IATF16949品质和环境管理体系认证，累计申请各类专利技术30余项。



ENTERPRISE ADVANTAGE

企业优势

Three advantages of Syfeng Machinery 赛峰机械的3大优势

Specialized in optical industry, 3C and automotive electronics, ICT & FCT & EOL testing, MES whole line automation and intelligent equipment manufacturing
专注于光学行业、3C和汽车电子、ICT&FCT&EOL测试、MES整线自动化与智能装备制造



The production, sale and service of one-stop suppliers 生产、销售、服务一站式供应商

Guangdong Syfeng Machinery is a national high-tech enterprise specializing in optical industry, 3C and automotive electronics, ICT&FCT&EOL testing, MES whole line automation and intelligent equipment manufacturing.

广东赛峰机械是一家专注于光学行业、3C和汽车电子、ICT&FCT&EOL测试、MES整线自动化与智能装备制造的国家专精特新高新技术企业。



Complete range, price concessions, quality assurance 品种齐全，价格优惠，品质保证

At the beginning of the establishment of the company, we will rely on our own technical strength, absorb advanced automation technology and intelligent equipment technology at home and abroad, and provide our customers with high-quality products. And with advanced management mode, strict production procedures and perfect quality assurance to create an excellent enterprise team.

公司创立初期，将凭借自身的技术实力，吸取国内外先进的自动化工艺和智能装备技术，为广大客户提供优质的产品。并以先进的管理模式、严格的制作程序和完善的质量保证来打造一支优秀的企业团队。



Perfect after-sales, so that you never worry about 完善的售后，让您永无后顾之忧

The company has been pursuing the "technology as the core, quality as life, brand market development, integrity of the future", we promise to provide customers with quality, efficient service, sincerely look forward to working with you!

公司一直奉行“以技术为核心，以质量为生命，以品牌开拓市场，以诚信铸就未来”，我们承诺为客户提供优质、高效的服务，诚挚期待与您的合作！

Five reasons to choose Syfeng Machinery

选择赛峰机械的5大理由

The company has a group of high-quality and professional management and technical personnel, from product development, product services have always been completed. From the audit of raw material suppliers, incoming inspection, production online product screening to the final product testing, passed Environmental management and quality management system certification.

公司拥有一批高素质及专业管理人员和技术人员，从产品开发，产品服务一贯作业完成，从对原材料供货商的审核，进料检验，生产在线产品筛检到最后成品检测，通过了环境管理和质量管理体系认证。



CORPORATE BUSINESS SEGMENT
公司业务板块



PRODUCT CATALOG
产品目录

| | | | |
|--|-------|--|-------|
| Precision machining / OEM 精密加工/OEM | | Automotive millimeter wave radar fully automated line 车载毫米波雷达全自动线 | 25/26 |
| Precision parts 精密零件 | 01 | Automotive headlight controller ECU assembly test line 汽车前大灯控制器ECU组装测试线 | 27 |
| Production equipment 生产设备 | 02 | Radar microwave test camera obscura in car 车内雷达微波测试暗箱 | 28 |
| OEM/ODM foundry OEM/ODM代工 | 03/04 | Millimeter wave radar aging temperature box 毫米波雷达老化温箱 | 29 |
| Intelligent equipment 智能装备 | | PCBA automatic burn-in test depaneling line PCBA自动刻录测试分板线 | 30 |
| 3C electron 3C电子 | | Car refrigerator and air conditioner controller production line 车载冰箱空调类控制器生产线 | 31 |
| Motor characteristics testing machine 马达特性检测机 | 05 | YQ radar automatic assembly line YQ 雷达自动组装线 | 32 |
| Automatic cutting machine 自动裁切机 | 06 | Automobile passive safety 汽车被动安全 | |
| Horizontal nail car automatic assembly machine 横钉生耳自动组装机 | 07 | Seat belt assembly automation line 座椅安全带组装自动化线 | 33 |
| Relay testing machine 继电器测试机 | 08 | Optical industry 点胶机 | |
| Glue dispenser 点胶机 | 09 | Double-station dispenser 双工位点胶机 | 34 |
| Optical industry 光学行业 | | In-line dispensers for the semiconductor industry 在线式半导体行业点胶机 | 35/36 |
| Small zoom a bunch of automatic assembly lines 小变焦一群自动组装线 | 10 | In-line Y-direction large size type dispenser 在线式Y向大尺寸型点胶机 | 37 |
| Car lens automatic line 车载镜头全自动线 | 11/12 | Shift-loaded flip-flop double-sided dispenser 移载翻板双面点胶机 | 38 |
| Zoom lens total group line 变焦镜头总组线 | 13 | ICT&FCT&EOL test ICT&FCT&EOL测试 | |
| Car lens test line 车载镜头测试线 | 14 | ICT&FCT on-line tester ICT&FCT在线测试机 | 39 |
| Car lens bake vibration line 车载镜头烘烤振动线 | 15 | ICT&FCT comprehensive testing machine ICT&FCT综合测试机 | 40 |
| High precision assembly machine 高精组装机 | 16 | EOL on-line tester EOL在线测试机 | 41 |
| Mirror seat transmittance detection machine 镜座透过率检测机 | 17 | Track test section automation line 轨道式测试段自动化线 | 42 |
| MTF sorting machine MTF分选机 | 18 | ICT+ double layer FCT automatic test line ICT+双层FCT自动测试线 | 43 |
| 4 station line dispensing machine 4工位线外点胶机 | 19 | PCBA test section parting line PCBA测试段分板线 | 44 |
| FA lens chief crew FA 镜头总组 | 20 | Smart factory MES 智慧工厂MES | |
| Lens pressure ring automatic locking attachment machine 镜头压圈自动锁附机 | 21 | 3D MES 3DMES | 45 |
| Sheet shears 剪片机 | 22 | Fi upper computer software platform Fi上位机软件平台 | 46 |
| Automotive electronics 汽车电子 | | | |
| BMS automated assembly line for automotive products BMS车载品自动组装线体 | 23 | | |
| Automated production line for car-linked screens 车联屏自动生产线 | 24 | | |

Precision parts
精密零件

Precision machining / OEM - Precision parts
精密加工/OEM-精密零件

Production equipment
生产设备

Precision machining/OEM -Production equipment
精密加工/OEM-生产设备

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赛峰精密零件




高精度制造
提升美观性
个性化定制








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赛峰精密零件

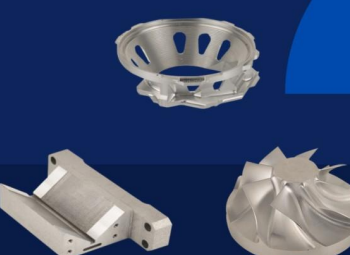


严控品质
高稳定性
易于维护








SFMACH

赛峰精密零件



创新设计
先进设备
精湛工艺



SFMACH
赛峰机械

SFMACH

赛峰精密零件

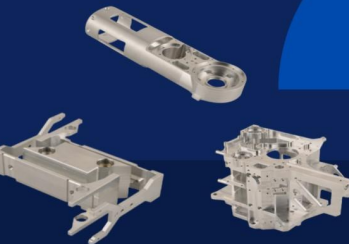


坚固耐用
品质保障
来图定制







SFMACH

赛峰精密零件




精密加工
严格公差
适应性强








SFMACH

赛峰精密零件



优质材料
耐用可靠
多功能性

SFMACH

赛峰 CNC
柔性
单元



CNC 柔性生产单元

全自动化
快速换型
减少人工
降低能耗

SFMACH

赛峰 携手
冈本
磨床



冈本精密磨床

高精度
高效率
操作简便
节能环保

SFMACH

赛峰 龙门
加工
中心



龙门加工中心

加工平面
稳定性强
行程大
使用寿命长

SFMACH

赛峰 加工
能力
之 切割



大族光纤激光切割

操作简单
性能卓越
切割精度高
节能环保

SFMACH

赛峰 零件
加工
中心



零件加工中心

提升效率
降低能耗
减少废品率
辅助成型

SFMACH

赛峰 卧式
加工
中心



卧式加工中心

高刚性
稳定性
龙门定位准
高刚性底座

SFMACH

赛峰 加工
能力
之 折弯



HBS 高性能数控伺服折弯机

操作简单
性能卓越
高精度
节能环保

SFMACH

赛峰 金属
加工
中心



金属加工中心

提升效率
精准控制
复杂形状加工
减少人为误差

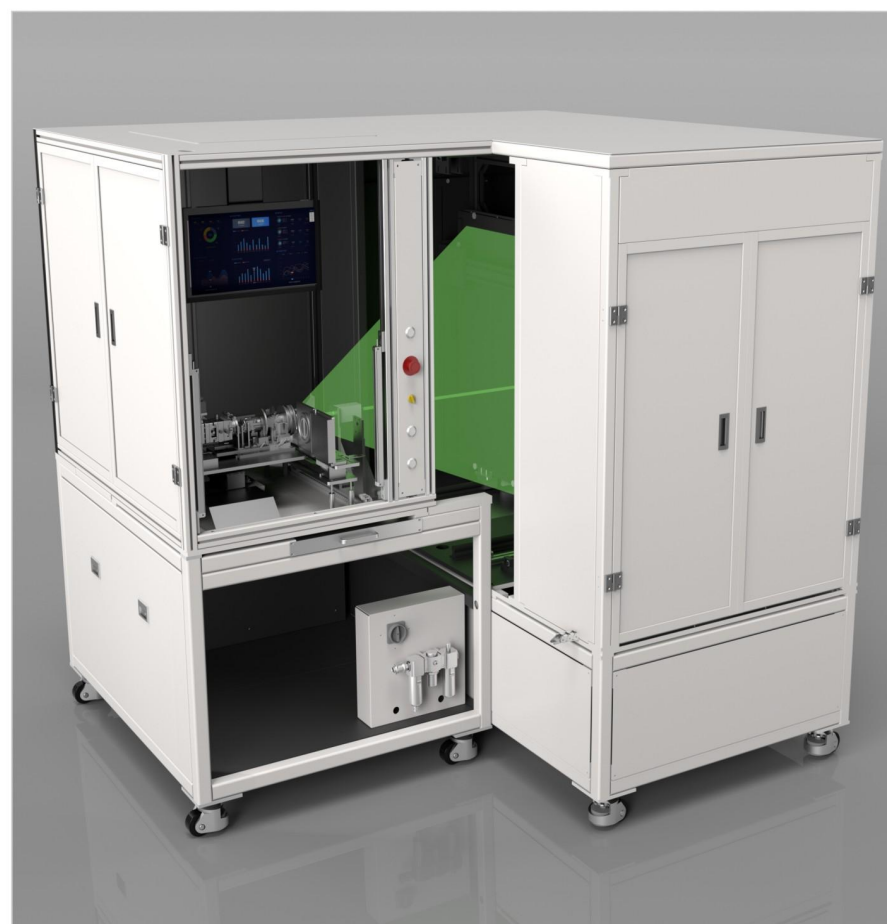
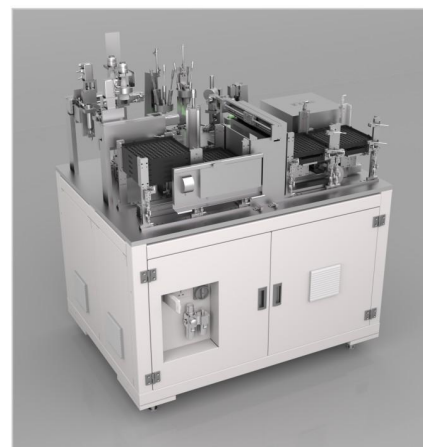
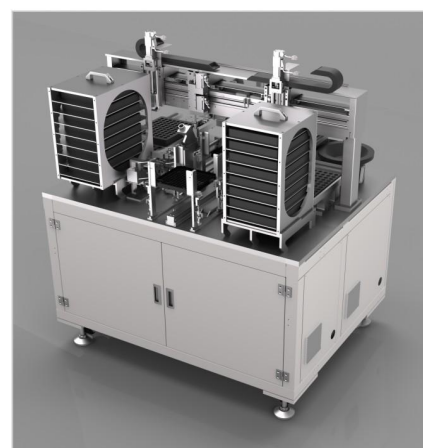
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赛峰 高速
钻孔
攻牙机



高速钻孔攻牙机

高速切削
先进数控
稳定性强
快速换刀



OEM (Original Equipment Manufacturer) and ODM (Original Design Manufacturer) are two commonly used production modes in the manufacturing industry. They play different roles in the process of product design, manufacturing, and sales.

OEM (Original Equipment Manufacturer) 和 ODM (Original Design Manufacturer) 是制造业中常用的两种生产模式，它们在产品的设计、制造和销售的过程中扮演着不同的角色。

1. OEM (Original Equipment Manufacturer) : Definition: OEM refers to a model in which company A (the customer) designs the product and outsources the production to Company B (the manufacturer). Company B produces products according to Company A's design specifications, and the products are usually labeled with Company A's brand. Features: Company A holds the product design and brand control, while Company B is responsible for manufacturing and production. This pattern is common in industries such as automobiles and electronics. For example, some well-known smartphone brands will outsource the production of their products to other specialized manufacturing companies.

1. OEM（原始设备制造商）：定义：OEM是指一种由A公司（客户）设计产品，并将生产任务外包给B公司（制造商）的模式。B公司按照A公司的设计规格进行生产，产品通常会贴上A公司的品牌。特点：A公司掌握了产品设计和品牌控制权，而B公司负责制造和生产。这种模式常见于汽车、电子产品等行业。例如，一些知名的智能手机品牌会将其产品的生产外包给其他专业的制造公司。

2. ODM (Original Design Manufacturer) : Definition: ODM means that the manufacturer is not only responsible for the production of the product, but also responsible for the design and development of the product. Customer companies can buy these off-the-shelf designs directly and sell them under their own brand name. Features: The manufacturer has the lead in design and production, and the customer company usually does not participate in the design process of the product, but it can be partially customized according to demand. This model is suitable for companies that want to get to market quickly but lack the resources for design and development.

2. ODM（原始设计制造商）：定义：ODM是指制造商不仅负责生产产品，还负责产品的设计和开发。客户公司可以直接购买这些现成的设计，并以自己的品牌名义进行销售。特点：制造商拥有设计和生产的主导权，客户公司通常不参与产品的设计过程，但可以根据需求进行部分定制。这种模式适合那些希望快速进入市场但缺乏设计和开发资源的公司。

Syfeng is not only able to provide OEM or ODM services for complete equipment, but also has significant cost advantages. We have vertically integrated machining and sheet metal production capabilities, which not only increase production efficiency, but also significantly reduce manufacturing costs. Together with our experienced design and assembly team, Safran is able to provide you with a comprehensive, efficient and fast OEM/ODM solution at a more competitive price, ensuring that every project can meet your every need at the highest cost performance and speed.

赛峰不仅能够提供整机设备的OEM或ODM服务，还具备显著的成本优势。我们拥有垂直整合的机加工和钣金生产能力，这不仅提高了生产效率，还大幅降低了制造成本。再加上我们经验丰富的设计和装配团队，赛峰能够以更具竞争力的价格为您提供全面、高效、快捷的OEM/ODM解决方案，确保每个项目都能以最高性价比和最快的速度来满足您的每一个需求。

Motor characteristics testing machine
马达特性检测机

Intelligent equipment-3C electron
智能装备-3C电子



Product introduction

- ◆ Based on the characteristic detection of mobile phone camera module (VCM) products, the existing labor-intensive detection process is automatically reformed, and the defect characteristics beyond the physiological limitations of the human eye are quickly identified, and the product is fully real-time and accurate detection.

产品简介

- ◆ 基于手机摄像模组（VCM）产品的特性检测，对现有劳动力密集的检测工艺环节进行自动化改造，快速地识别出超出人眼生理局限的缺陷特征，实现产品全方位实时精确检测。

Process content

- ◆ With mobile phone camera module surface quality defect characteristics automatic identification, logistics transmission system linkage control, automatic sorting of defective products and other functions, the detection speed is very high, greatly saving labor costs, can customize different product quality control implementation standards according to customer needs, flexible control of product quality standards, to meet the needs of different application levels of customers.

工艺内容

- ◆ 具备手机摄像模组表面品质缺陷特征的自动识别、物流传送系统联动控制、正次品自动分拣等功能，检测速度极高，大幅节约了人工成本，可根据客户需求定制不同的产品质量控制执行标准，灵活控制产品出厂的品质标准，以满足不同应用层面的客户需求。

Automatic cutting machine
自动裁切机

Intelligent equipment-3C electron
智能装备-3C电子



Product introduction

- ◆ The device is used to cut the material from the steel belt of a mobile phone device bracket and then swing the material from the plate after turning and changing the pitch.

产品简介

- ◆ 该设备用于手机某器件支架从钢带上裁切下料后经翻转、变距后摆盘下料。

Process content

- ◆ Mainly composed of steel strip coil feeding system, steel strip stepping and fine positioning system, blanking system, mechanism and movement system, plate disassembly, plate stacking system, PLC control system and so on. It is required that the product has no scratch, and the burr is $\leq 0.03\text{mm}$.

工艺内容

- ◆ 主要由钢带卷料供料系统、钢带步进及精定位系统、冲裁系统、机构及运动系统、料盘拆盘、叠盘系统、PLC控制系统等组成。要求产品无划伤，毛刺 $\leq 0.03\text{mm}$ 。

Horizontal nail ear automatic assembly machine
横钉生耳自动组装机

Intelligent equipment—3C electron
智能装备-3C电子



Product introduction

- ◆ The equipment is used for the automatic identification, assembly and detection of horizontal nails and raw ears in the watch industry.

产品简介

- ◆ 该设备用于手表行业横钉与生耳的自动化识别和组装及检测。

Process content

- ◆ It is necessary to identify the inner and outer hole position of the raw ear, and make it coincide by rotating, the transverse nail with a diameter of less than 1mm is assembled to the specified height through pressure interference, and then the laser is used to weld on both sides of the intersecting line at the joint, and the transverse nail height is detected before cutting. The equipment can be compatible with the same diameter of different lengths of products, cutting machine does not change, do not adjust the point position. Products with abnormal lengths or diameters can be quickly compatible by changing the clamp.

工艺内容

- ◆ 需要识别生耳的内外孔位置，并通过转动使其重合，直径不到1mm的横钉通过压力过盈装配到指定高度，然后使用激光在连接处相贯线两侧进行焊接，下料前进行横钉高度检测，横钉焊死检测。该设备可兼容同直径不同长度的产品，切机不换件，不调点位。长度异常或直径不同的产品可通过更换夹治具快速兼容。

Relay testing machine
继电器测试机

Intelligent equipment—3C electron
智能装备-3C电子



Product introduction

- ◆ The device has the automatic detection function of relay, the key material of smart grid equipment products, and realizes the full automation of relay detection process. The main functions include the testing of all graded screening relays, the sampling inspection of conventional relays and the replacement of packaging methods.

产品简介

- ◆ 该设备具有智能电网装备产品关键物料继电器的自动检测功能，实现了继电器检测流程的全自动化。主要功能包括所有分级筛选继电器的测试、常规继电器的抽检以及包装方式更换等。

Process content

- ◆ The feeding module is responsible for the feeding of disc and foam loaded relays;
- ◆ Relay is tested and graded;
- ◆ The inkjet printer performs inkjet operation on the graded relay;
- ◆ The feeding module will load the relay tube;
- ◆ The material tube warehouse has an independent display screen, which can display the current warehouse category and the quantity of storage materials in real time, and can customize the category of volunteer warehouse;
- ◆ The equipment supports the docking with the MES system to realize information sharing and data transmission.

工艺内容

- ◆ 上料模块负责盘装和泡沫装继电器的上料；
- ◆ 继电器进行测试并进行分级处理；
- ◆ 喷码机对分级完成的继电器进行喷码操作；
- ◆ 下料模块将继电器进行管装下料；
- ◆ 料管仓具备独立显示屏，可实时显示当前仓类别及储料数量，可自定义仓类别；
- ◆ 设备支持与MES系统的对接，实现信息共享和数据传输。

Glue dispenser
点胶机

Intelligent equipment—3C electron
智能装备-3C电子



Product introduction

- ◆ The equipment can be designed according to customer requirements desktop or floor type, single or two-component, single or online, linear interpolation or arc interpolation, dispensing measurement and calibration, automatic needle alignment and so on. It is widely used in 3C, lens, automotive electronics and other industries.

产品简介

- ◆ 该设备可根据客户要求设计桌面式或落地式、单组份或双组份、单机或在线式、直线插补或圆弧插补、点胶计量校准、自动对针等等。在3C、镜头、汽车电子等行业均有大量应用。

Small zoom a bunch of automatic assembly lines
小变焦一群自动组装线

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ Small zoom group of automatic assembly line is a kind of production line equipment specializing in automatic assembly of high-precision small components with high precision, high efficiency and good compatibility. It adopts advanced visual recognition and position correction system to ensure the precise positioning and assembly of each component; the whole line operation is managed by PLC controller or other automation control system, realizing unattended operation and improving production efficiency; it is suitable for production line arrangement in narrow space and saves workshop floor space; it monitors the assembly process in real time, and the abnormal situation is automatically alarmed and recorded to ensure product quality.

产品简介

- ◆ 小变焦一群自动组装线是一种专门用于高精度小型零部件自动组装的生产线设备，具备高精度、高效率和良好的兼容性。采用先进的视觉识别和位置校正系统，确保每个组件的精确定位和组装；整线操作由PLC控制器或其他自动化控制系统管理，实现无人值守操作，提升生产效率；适合狭小空间内的生产线布置，节省车间占地面积；实时监控组装过程，异常情况自动报警并记录，保证产品质量。

Process content

- ◆ Automatic assembly, automatic pressing, automatic dispensing, UV curing and testing process, finished product discharging and plating.

工艺内容

- ◆ 自动组装、自动打压、自动点胶、UV固化及检测工艺、成品下料摆盘。

Car lens automatic line
车载镜头全自动线

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ Lens scanning code loading, lens, diaphragm, masking paper, sealing ring assembly, cap locking, total height and float height detection, IR assembly and welding, cap dispensing, sweep code unloading and other processes.

Process content

- ◆ Lens scanning code loading, lens, diaphragm, masking paper, sealing ring assembly, cap locking, total height and float height detection, IR assembly and welding, cap dispensing, sweep code unloading and other processes.
- ◆ Among them, the lens spacer assembly machine is constructed with a marble platform and a grating linear motor, and the assembly shaft is constructed with a grating voice coil motor, while monitoring the assembly pressure and height. Suction nozzle adopts magnetic quick change design.
- ◆ The gland lock adopts dynamic torque sensor to monitor torque in real time, and the lock shaft adopts floating design to make the torque more stable.
- ◆ The IR assembly machine can be compatible with a variety of processes, including first dispensing and then assembly and then UV curing, first assembly and then dispensing and UV curing, and first assembly and then melting.
- ◆ A 3D camera was used to measure the amount of glue in the dispensing process of the gland.



产品简介

- ◆ 该生产线用于车载镜头的全自动组装，支持快速切换多种机型。下料可与AGV自动运行对接。

工艺内容

- ◆ 镜头扫码上料、镜片、隔圈、遮光纸、密封圈的组装，压盖锁付，总高和浮高度的检测，IR组装及熔接，压盖点胶、扫码下料等工序。
- ◆ 其中，镜片隔圈组装机采用大理石平台和光栅直线电机构建，组装轴采用光栅音圈电机，同时监控组装压力和高度。吸嘴采用磁吸快换设计。
- ◆ 压盖锁付采用动态扭矩传感器实时监控扭矩，锁付轴采用浮动设计，扭矩更加平稳。
- ◆ IR组装机可兼容多种工艺，包括先点胶后组装再UV固化、先组装后点胶再UV固化、先组装再熔着三种工艺。
- ◆ 压盖点胶工序采用3D相机进行胶量检测。

Zoom lens total group line 变焦镜头总组线

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- Zoom lens assembly line is an automated production line specialized in assembling zoom lenses. Equipped with high-precision optical testing and calibration equipment, it can monitor and adjust the position of optical elements in real time during the assembly process to ensure that the focal length, optical axis and optical performance of each lens meets the design standards; the production line is designed with a high degree of flexibility, and can be quickly switched and adjusted according to different lens models to meet the needs of production of multi-species and small batch; it is equipped with advanced control system to realize precise management of the entire assembly process, including process parameter setting, production data recording, equipment status monitoring, etc., to ensure product consistency and stability. It is equipped with advanced control system to realize precise management of the whole assembly process, including process parameter setting, production data recording, equipment status monitoring, etc., to ensure product consistency and stability.

产品简介

- 变焦镜头总组线是一种专门用于组装变焦镜头的自动化生产线。配备高精度的光学检测和校准设备，能够在组装过程中实时监测和调整光学元件的位置，确保每个镜头的焦距、光轴和光学性能达到设计标准；生产线设计具有高度的灵活性，可以根据不同的镜头型号进行快速切换和调整，适应多品种、小批量的生产需求；搭载先进的控制系统，实现对整个组装过程的精确管理，包括工艺参数设置、生产数据记录、设备状态监控等，保证产品一致性和稳定性。

Process content

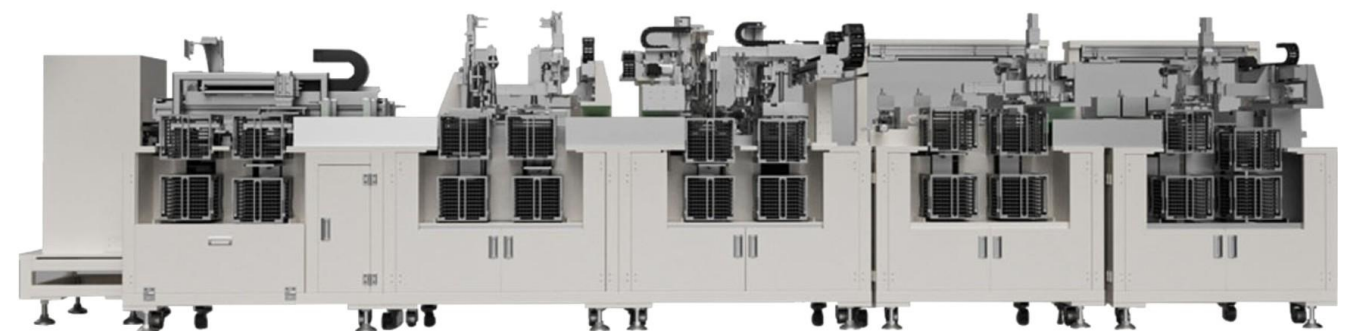
- One group loading guide bar assembly, two group assembly, three group assembly, four group assembly, back cover assembly, back cover locking, motor assembly locking, NG scanning and discharging.

工艺内容

- 一群上料导杆组装、二群组装、三群组装、四群组装、后盖组装、后盖锁付、电机组装锁付、NG扫码下料。

Car lens test line 车载镜头测试线

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- The production line is suitable for the automatic inspection of the car lens after the process, including watertight test, airtight inspection, height measurement, baking, IR assembly melting, anti-fog glue dispensing, MTF detection and sorting. The material transfer between the machines can be carried out through the conveyor belt, and it also has the function of single AGV feeding. The baking process is transported by AGV to the baking vibration line for processing. The line body machine is controlled by bus, and the process can be changed freely according to the process requirements.

产品简介

- 该生产线适用于车载镜头后工序的自动化检测，包括水密测试、气密检测、高度测量、烘烤、IR组装熔着、防雾胶点胶、MTF检测以及分选等工艺。机台之间的物料传递可以通过输送带进行，同时还具备AGV单机上料的功能。烘烤工序则由AGV运送至烘烤振动线进行处理。线体机台为总线控制，可根据工艺需求自由调换工序。

Car lens bake vibration line
车载镜头烘烤振动线

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ This production line is used for automatic baking and vibration test of car lens. The material turnover can be directly connected by AGV from the assembly line of the previous process to the test line of the post-process segment to realize the automatic material turnover of the whole process. The temperature box adopts automatic heating and cooling oven, internal multi-point temperature control measurement, transverse air channel reflux, air drying, and automatic temperature box door.

产品简介

- ◆ 该产线用于车载镜头的全自动烘烤与振动测试。物料周转可采用AGV从前工序组装线直接对接至后工序段测试线，实现全工序自动物料周转。温箱采用全自动升温降温烤箱，内部多点温控测量，横向风道回流，气流干燥，设有自动温箱门。

Process content

- ◆ Lens tray scanning code feeding, lens high temperature baking, and temperature rise, heat preservation, cooling time controllable. According to the end customer's request, the vibration test of the shipped packaging material for the turntable is carried out. The vibration test includes horizontal and 45° tilt vibration for half an hour.

工艺内容

- ◆ 镜头料盘扫码上料、镜头高温烘烤，以及升温、保温、降温的时长可控。根据终端客户要求对转盘用出货包材进行振动测试，其中振动测试包含水平和45°倾斜各半小时时长振动。

High precision assembly machine
高精组装机

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ This equipment is used for the assembly of lenses, spacer rings, soma sheets, etc. in the optical industry.

产品简介

- ◆ 该设备用于光学行业镜片、隔圈、soma片等组装。

Process content

- ◆ It mainly consists of high-precision marble platform, linear motor and voice coil motor axis motion system, camera vision positioning system, lens barrel feeding axis, spacer and other material feeding vibration disc, and upper computer system. High-precision marble platform and stable machine base with motion control system vibration suppression algorithm ensures the stability of the machine under high speed condition and the consistency of the height and pressure of the lens assembly. Double linear motors are used for material loading and assembling alternately to improve the efficiency. Vibrating disc can be compatible with a variety of specifications of materials, to achieve fast cutting machine.

工艺内容

- ◆ 主要由高精度大理石平台、直线电机及音圈电机轴运动系统、相机视觉定位系统、镜片镜筒供料轴、隔圈等物料供料振动盘、上位机系统等组成。高精度大理石平台及稳固机座配合运动控制系统振动抑制算法确保机台高速状态下稳定性以及镜片组装的高度与压力一致性。双定子直线电机交替进行物料的上料与组装，提高效率。振动盘可兼容多种规格物料，实现快速切机。

Mirror seat transmittance detection machine
镜座透过率检测机

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ The equipment is used for optical industry injection lens seat beam transmittance detection.

产品简介

- ◆ 该设备用于光学行业注塑镜座光束透过率检测。

Process content

- ◆ It is mainly composed of mirror base feeding system, beam transmittance detection system, blister plate disassembling and folding plate loading and unloading system, double suction head handling manipulator, upper computer system, etc. And the test result of the device is connected to the system Mes. After the mirror seat is screened positive and negative by the vibration plate, the gap is identified by the optical fiber sensor, and the robot is carried to the double-station turntable. The double-station turntable detects the feeding and unloading functions at the same time. Finally, the robot completes the sorting and loading plate of NG and OK materials. The device requires a false detection rate of 0.

工艺内容

- ◆ 主要由镜座供料系统、光束透过率检测系统、吸塑盘拆盘叠盘上下料系统、双吸头搬运机械手、上位机系统等组成。且该设备检测结果对接系统Mes。镜座由振动盘筛选正反后，经光纤传感器识别缺口后，由机械手搬运至双工位转台，双工位转台同时进行检测上料及下料功能，最后由机械手完成NG料和OK料的分拣装盘。该设备要求误检率为0。

MTF sorting machine
MTF分选机

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ This equipment is used for optical industry lens MTF inspection feeding and sorting.

产品简介

- ◆ 该设备用于光学行业镜头MTF检测上料及分选。

Process content

- ◆ It is composed of loading and unloading manipulator, multi-bin disassembly, stacking system, MTF detection system, mechanism and motion system, and host computer control system. Using the high-speed and accurate characteristics of the double-acting linear motor, it can complete the loading detection and sorting of the lens, which can be sorted into class A, Class B, class C and NG. Can support the Angle detection, improve the detection efficiency.

工艺内容

- ◆ 由上下料机械手、多料仓拆盘、叠盘系统、MTF检测系统、机构及运动系统、上位机控制系统等组成。利用双动子直线电机的高速、精准特点，完成镜头的上料检测和下料分拣，可分选A级、B级、C级、NG。可支持带角度检测，提高检测效率。

4 station line dispensing machine
4工位线外点胶机

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

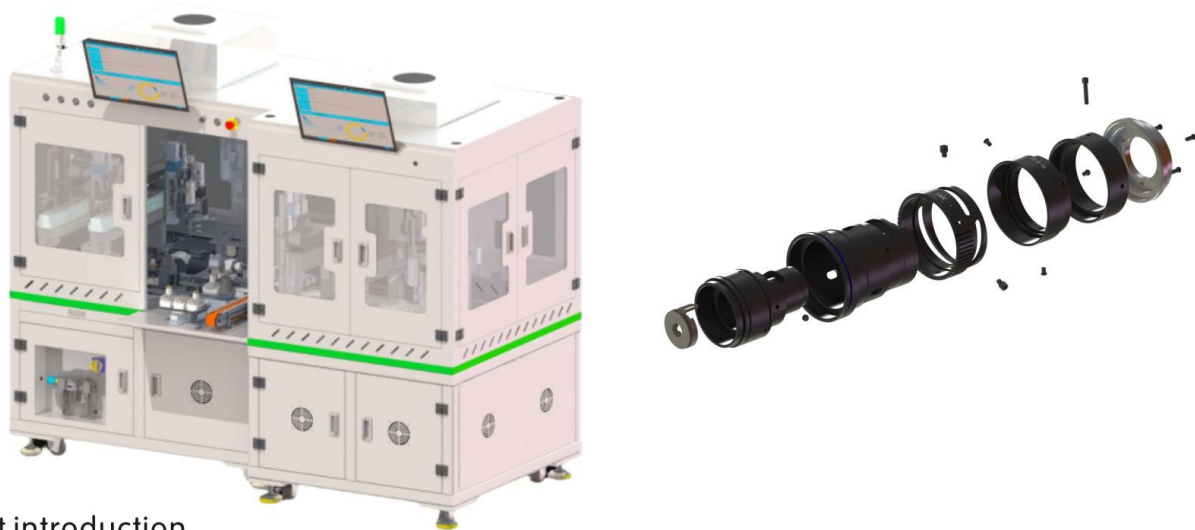
- ◆ The equipment is used in the optical industry lens UV dispensing. Customized design for the current production line, the external production line grabs the fixture from the assembly line, carries out the secondary positioning glue, the camera identifies and locates the dispensing quality. 4 Station can work independently, station failure without stopping maintenance. Improve the dispensing process, greatly reduce the number of firing needles, reduce glue break, glue overflow, quick needle change, simple needle can be operated by one person.

产品简介

- ◆ 该设备用于光学行业镜头UV点胶。为当前产线增产降故而定制设计，外挂产线从流水线抓取治具，进行二次定位点胶，相机识别定位并检测点胶质量。4工位可独立工作，工位故障不停机检修。改善点胶工艺，大幅降低撞针次数,减少断胶、溢胶，换针快捷，对针简单可单人操作。

FA lens chief crew
FA 镜头总组

Intelligent equipment—Optical industry
智能装备-光学行业



Product introduction

- ◆ This equipment is used for automatic assembly of industrial FA lens. The machine size is 1400×2000mmx1900mm high. The assembly table is driven by a linear motor, and the process sequence is programmable to adapt to the fast switching of multiple machine types, and the product process can be arranged freely. The process of shortening one line to two units is realized.

产品简介

- ◆ 该设备用于工业FA镜头的自动组装。机台尺寸为1400×2000mmx高1900mm。采用多工站并行，组装台由直线电机驱动，工艺顺序可编程，以适用多机种的快速切换，同时也可以自由编排产品工艺。实现将一条线的工艺缩短至两台机组合。

Process content

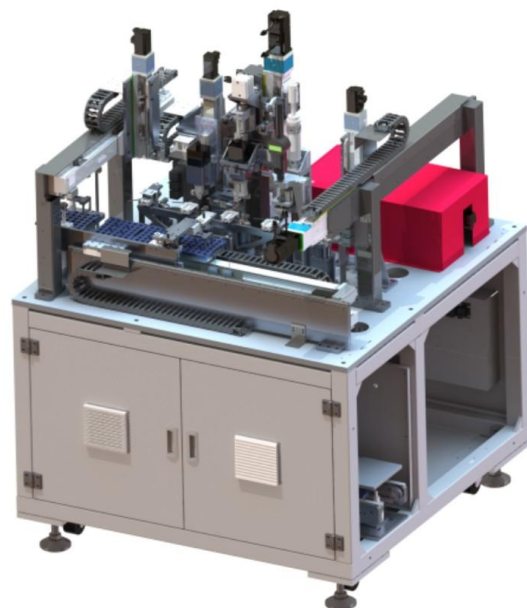
- ◆ Automatic assembly and oiling of cylinder, diaphragm, mirror base, aperture adjusting ring, focusing ring and interface ring
- ◆ Installation of diaphragm top wire
- ◆ Lock the guide nail after the three holes under the lens base, lens barrel and focusing ring coincide
- ◆ Aperture adjustment ring pull out the nail lock
- ◆ The interface ring locks
- ◆ Lock torque monitoring, height monitoring, data upload
- ◆ Assembly in place test
- ◆ NG cull, etc

工艺内容

- ◆ 镜筒、光阑、镜座、光圈调节环、调焦环、接口环的自动组装及涂油
- ◆ 光阑顶丝的安装
- ◆ 镜座、镜筒、调焦环视觉下三孔重合后锁付导钉
- ◆ 光圈调节环拔钉锁付
- ◆ 接口环锁付
- ◆ 锁付扭矩监控，高度监控，数据上传
- ◆ 组装到位检测
- ◆ NG剔除等

Lens pressure ring automatic locking attachment machine

镜头压圈自动锁附机

Intelligent equipment—Optical industry
智能装备-光学行业

Product introduction

- ◆ Pressure ring through the vibration plate or material tray loading, the equipment will automatically pressure ring and the lens in accordance with the torque requirements for lock attachment, after the completion of the lens back to the material tray;
- ◆ Large pressure ring and lens lock attached by the torque sensor real-time monitoring torque, torque size adjustable, high precision control;
- ◆ High control precision;
- ◆ With the function of holding down the lens by the middle pressure bar;
- ◆ With 0-ring shape variable detection function;
- ◆ The locking height and locking speed can be controlled in several stages, which makes debugging easy;
- ◆ The lens can be directly loaded and unloaded by bubble box, and has the structure of material bin, the interval between changing materials; after the completion of lock attachment, OK products and NG products are collected separately;
- ◆ Data real-time display, height, pressure, torque real-time monitoring, and data analysis waveform diagram, intuitive and easy to understand, easier to maintain the operation;
- ◆ Adopt touch screen control, simple operation.

产品简介

- ◆ 压圈通过振动盘或者料盘上料，设备自动将压圈和镜头按照扭力要求进行锁附，完成后将镜头收回料盘；
- ◆ 大压圈与镜头锁附时由扭力传感器实时监测扭力，扭力大小可调；
- ◆ 控制精度高；
- ◆ 具备中间压棒压住镜片功能；
- ◆ 具有0型圈形变量检测功能；
- ◆ 锁附高度和锁附速度分多段控制，调试简便；
- ◆ 镜头可采用泡盒直接上下料，并具有料仓结构，换料间隔时间；锁附完成后，OK品和NG品分开收取；
- ◆ 数据实时显示，高度、压力、扭力实时监控，并有数据分析波形图，直观易懂，更易维护操作；
- ◆ 采用触摸屏控制，操作简单。

Sheet shears

剪片机

Intelligent equipment—Optical industry
智能装备-光学行业

Product introduction

- ◆ This equipment is a fully automatic shear for optical plastic lenses with flexible application for various optical lenses. It is a post-processing equipment for plastic lenses that is connected to the robot of injection molding machine through the machine docking device. At the same time, the height of the robot can be adjusted flexibly, and a special shear knife is used to cut the lenses from the sprue after the automatic pickup, and the lenses are arranged in sequence on an independent corresponding packing tray according to the mold cavities. The packing trays are carried on pallets for easy removal or delivery to the next process, i.e., automatic feeding, automatic tray changing, and automatic storage. The whole machine is equipped with real-time monitoring system. Precise mechanical structure and control system are adopted to ensure that the cutting accuracy meets the high standard requirements; automated feeding, cutting and discharging process reduces manual intervention and improves the production efficiency; according to the characteristics of different materials, the cutting parameters are adjusted to realize the processing of a variety of materials.

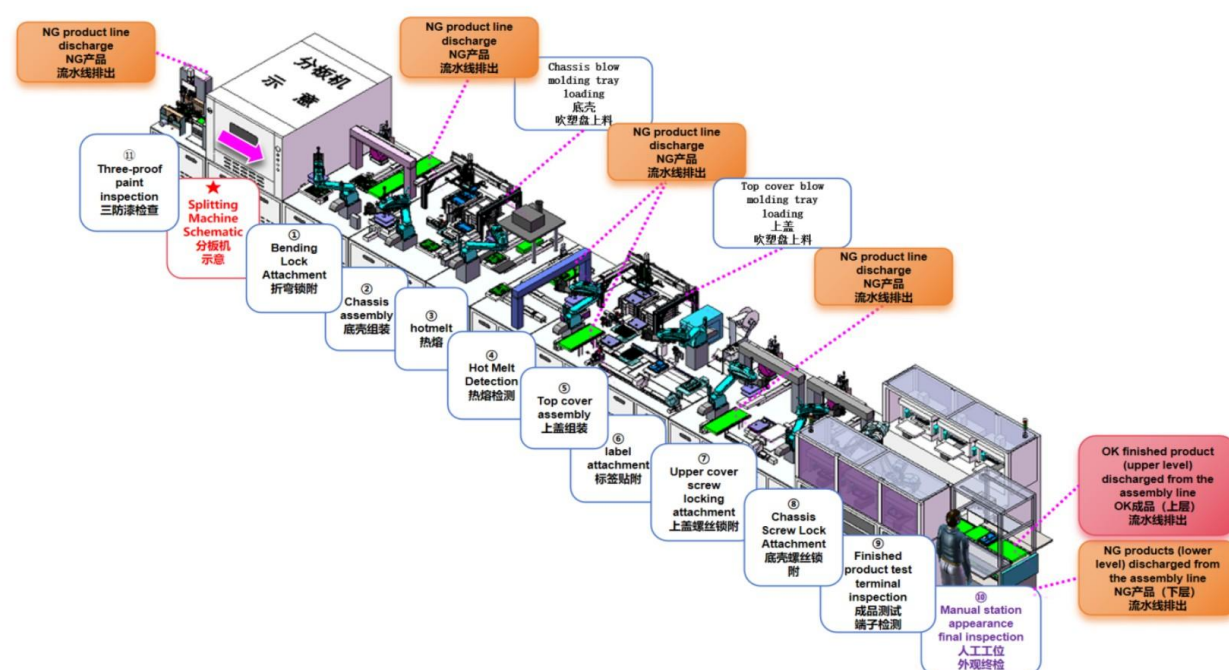
产品简介

- ◆ 本设备为一款可弹性应用的光学塑胶镜片全自动剪切的设备，适用于各种光学镜片。该设备是通过机台对接装置连接射出成型机机械手取出的塑胶镜片后处理设备。同时灵活对应机械手高度可调，自动接料后以特制的剪切刀进行镜片的浇口剪切，并且依据模穴将镜片依序排列在独立对应的包装盘上。包装盘是以托盘承载便于作业中取出或送至下一制程，即自动送料、自动换盘、自动仓储。全程机台自带实时监控系統。采用精密的机械结构和控制系统，确保切割精度满足高标准要求；自动化送料、切割、排料流程，减少人工干预，提高生产效率；根据不同材料特性，调整切割参数，实现多种材料的加工。

BMS automated assembly line for automotive products

BMS车载品自动组装线体

Intelligent equipment—Automotive electronics
智能装备-汽车电子



Product introduction

- ◆ Automatic assembly line for BMS in-vehicle products is a highly efficient and automated production line for the production of Battery Management System (BMS), a core component in new energy vehicles. The system is responsible for monitoring the safety and efficiency of the battery pack, including real-time monitoring of battery cell voltage, current and temperature, as well as accurate estimation of charge state and health state.

产品简介

- ◆ BMS车载品自动组装线是一种高效、自动化的生产线，用于生产新能源汽车中的核心组件——电池管理系统（BMS）。该系统负责监控电池包的安全和效率，包括电池单体电压、电流、温度的实时监测，以及荷电状态和健康状态的精确估算。

Process content

- ◆ Automatic board loading, burn-in, depaneling, cleaning, ICT testing and automatic discharging; compatibility with a variety of products such as 48V and 12V, with quick-change capability; quick-change fixture design, adapting to the production needs of different types of products; single shielded continuous production capacity, which is convenient for equipment maintenance, overhaul, and type change.

工艺内容

- ◆ 自动上板、烧录、分板、清洁、ICT测试和自动下料；兼容48V和12V等多种产品，具有快速换型能力；快换式夹具设计，适应不同种类产品的生产需求；单台屏蔽连续生产能力，便于设备维修、检修、换型。

Automated production line for car-linked screens

车联屏自动生产线

Intelligent equipment—Automotive electronics
智能装备-汽车电子



Product introduction

- ◆ The automated production line for car link screen is an automated production system designed specifically for automotive displays. The production line design is highly flexible and can be quickly adjusted to meet the production needs of different models and specifications; integrated design, the parts are tightly integrated to reduce intermediate links and production cycle, improve overall production efficiency and product consistency, ensure product quality, and adapt to the automotive industry's demand for intelligent and personalized.

产品简介

- ◆ 车联屏自动生产线是一种专为汽车显示屏设计的自动化生产系统。生产线设计具有高度的灵活性，可快速调整以适应不同型号和规格的生产需求；集成化设计，各部分紧密集成，减少中间环节和生产周期，提高整体生产效率和产品的一致性，保证产品质量，并适应汽车行业对智能化、个性化的需求。

Process content

- ◆ Thermal conductive adhesive, cap locking, locking screws, Insertion Line, ICT, FCT, screen interface test, CAN test, air tightness test, aging bake test

工艺内容

- ◆ 导热熔胶、压盖锁付锁螺丝、插排线、ICT、FCT、屏幕界面测试、CAN测试、气密测试、老化烘烤测试

Automotive millimeter wave radar fully automated line
车载毫米波雷达全自动线

Intelligent equipment—Automotive electronics
智能装备-汽车电子

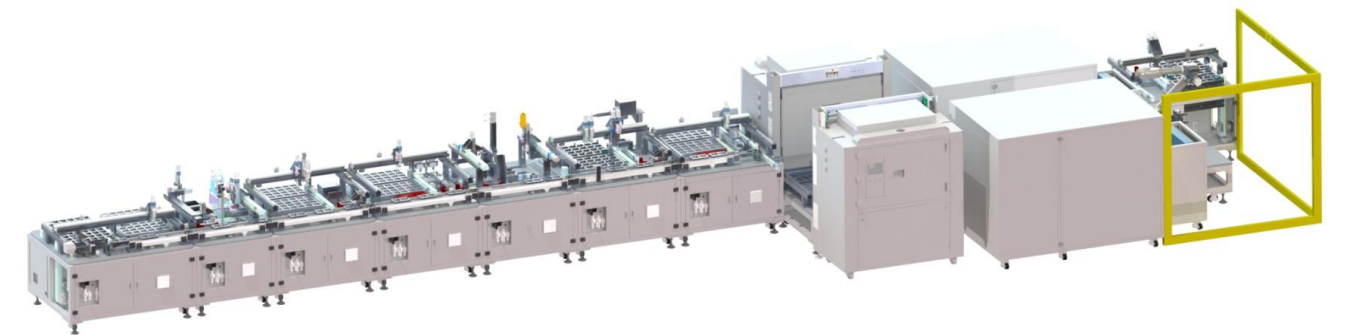


Product introduction

- ◆ The fully automated production line for vehicle millimeter wave radar is an efficient and intelligent production solution designed for the automated manufacturing of millimeter wave radar. It has core features such as modularized design, high degree of automation, data management, special process handling and environmental adaptability. Compatible with working voltage of 12V and 24V in-vehicle radar and forward, forward angle, rear angle millimeter wave radar assembly.

Process content

- ◆ Automatic loading of bottom cover, laser engraving, code scanning, thermally conductive silicone grease coating, dust removal and breathable film testing, PCB on-line depaneling, FCT, ICT, burn-in, PLASMA cleaning, seal assembly, shield assembly, antenna cover assembly, watertight test, airtight test, high-temperature banding aging, and microwave dark-box test.



产品简介

- ◆ 车载毫米波雷达全自动生产线是一种高效、智能化的生产解决方案，专为毫米波雷达的自动化制造而设计。具有模块化设计、高自动化程度、数据管理、特殊工艺处理、环境适应性等核心特点。兼容工作电压为12V和24V车内雷达和前向、前角、后角毫米波雷达组装。

工艺内容

- ◆ 底盖自动上料、镭雕、扫码、导热硅脂涂覆，除尘及透气膜检测、PCB在线分板、FCT、ICT、烧录、PLASMA清洗，密封圈组装、屏蔽罩组装、天线盖组装、水密测试、气密测试、高温带电老化、微波暗箱测试等。

Automotive headlight controller ECU assembly test line

汽车前大灯控制器ECU组装测试线

Intelligent equipment—Automotive electronics
智能装备-汽车电子

Product introduction

- ◆ The total length of the whole line is 28 meters, the total width is ≤ 1.8 meters, design capacity: 100-150pcs/h, design CT: 33s/pcs.

产品简介

- ◆ 整线总长28米，总宽 ≤ 1.8 米，设计产能：100-150pcs/h，设计CT：33s/pcs

Process content

- ◆ PCBA board loading, product burn-in, ICT test, board splitting, FCT test, dusting plate, PCBA dispensing, automatic loading (bottom case), automatic loading (top cover), laser marking, plasma cleaning, applying thermally conductive silicone grease, PCBA assembling and locking, applying sealant, installing the top cover, in-line aging machine, airtightness test, EOL test, visual checking of the appearance and the PIN pins. Inspection, finished product automatic discharging, weighing and packaging.

工艺内容

- ◆ PCBA拼板上料、产品烧录、ICT测试、拼板分板、FCT测试、除尘摆盘、PCBA点胶、自动上料(底壳)、自动上料(上盖)、激光打标、等离子清洗、涂导热硅脂、PCBA组装锁付、涂密封胶、上盖安装、在线老化机、气密性测试、EOL测试、外观及PIN针视觉检查、成品自动下料、称重包装。

Radar microwave test camera obscura in car

车内雷达微波测试暗箱

Intelligent equipment—Automotive electronics
智能装备-汽车电子

Product introduction

- ◆ The vehicle millimeter wave radar test system is mainly used for 60/77/79GHz vehicle millimeter wave radar related indicators test, the system includes millimeter wave shielding darkroom, millimeter wave absorbing material, the measured object turntable, Angle reflector, automatic loading and unloading door, dark room auxiliary devices (cross laser, waveguide window, interface board, voltage regulator, fire alarm system, uninterruptible power supply, etc.).

产品简介

- ◆ 车载毫米波雷达测试系统主要用于60/77/79GHz车载毫米波雷达相关指标的测试，该系统包含毫米波屏蔽暗室、毫米波吸波材料、被测物转台、角反射器、自动上下料门、暗室辅助装置（十字激光、波导窗、接口板、稳压源、消防报警系统、不间断电源等）等。

Process content

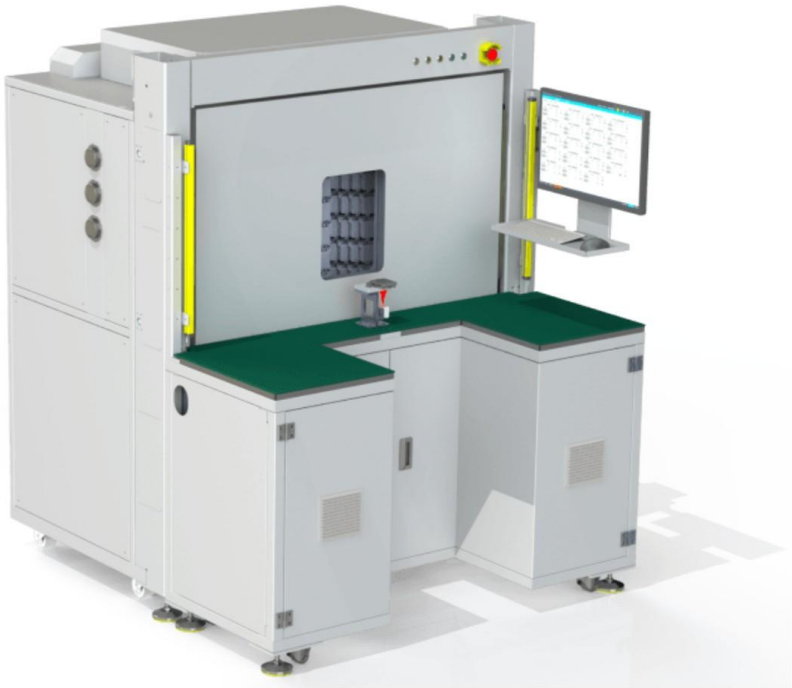
- ◆ This system designs a set of high-precision multi-axis turntable according to the test requirements of the tested object, including a pitch axis/azimuth axis, automatic insertion/pulling and clamping/loosening device, the turntable provides a pitch axis that can realize up-down pitching rotation in the range of $-70^{\circ} \sim 100^{\circ}$, and a azimuth axis that can realize $0^{\circ} \sim 360^{\circ}$ rotation. The azimuth axis can measure the horizontal azimuth Angle of the radar. The azimuth axis, the pitch axis and the displacement axis of the inverse Angle can realize the testing work of multiple spatial angles and multiple orientations.

工艺内容

- ◆ 本系统依据被测物测试需求设计了一套高精度多轴转台，包含俯仰轴/方位轴、自动插/拔及夹紧/松开装置，转台提供了一个可实现 $-70^{\circ} \sim 100^{\circ}$ 范围内上下俯仰转动的俯仰轴、可实现 $0^{\circ} \sim 360^{\circ}$ 旋转的方位轴。俯仰轴可对雷达的测试过程中的姿态进行调整，方位轴可实现雷达水平方位角度上的测量，通过方位轴、俯仰轴以及角反的位移轴可实现多个空间角度多个方位的测试工作。

Millimeter wave radar aging temperature box
毫米波雷达老化温箱

Intelligent equipment—Automotive electronics
智能装备-汽车电子



Product introduction

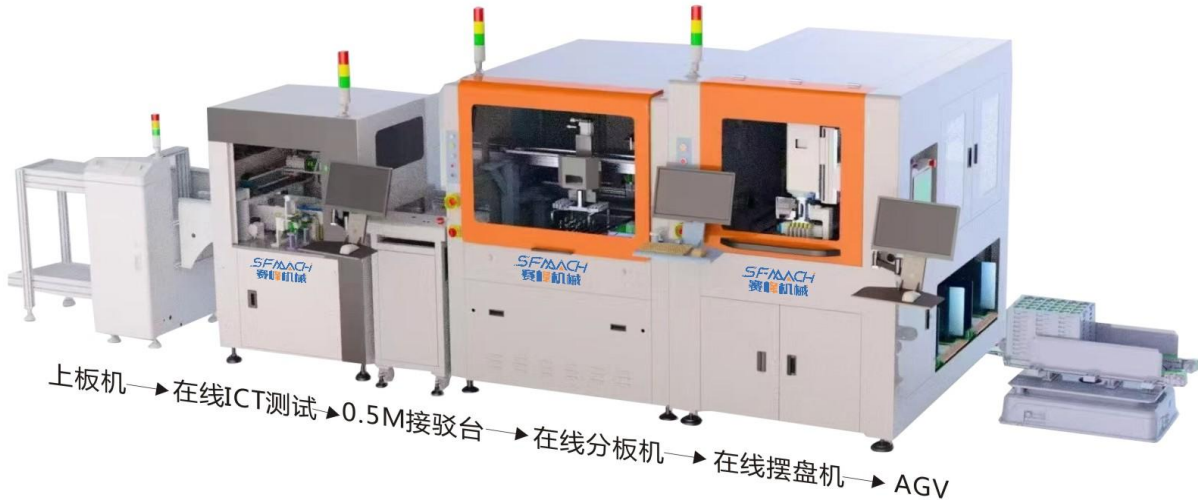
- ◆ Product function: The device is used for high temperature aging test of millimeter wave radar in the car
- ◆ Temperature range: Support aging test from room temperature to 85℃ (Up to 120℃)
- ◆ Control characteristics: heating, cooling and holding time can be set in the control panel
- ◆ Output function: Output temperature-time curve based on actual temperature rise data
- ◆ Number of supports: 175pcs radar power-on test can be supported at the same time(Support customization)
- ◆ Communication method: Each product supports independent CAN communication

产品简介

- ◆ 产品功能：该设备用于车内毫米波雷达的高温老化测试
- ◆ 温度范围：支持室温至85℃老化测试（最高可达120℃）
- ◆ 控制特性：升温、降温、保温时长均可在控制面板设置
- ◆ 输出功能：根据实际温升数据输出温度-时间曲线
- ◆ 支持数量：可同时支持175pcs雷达通电测试（支持定制）
- ◆ 通讯方式：每个产品支持独立CAN通讯

PCBA automatic burn-in test depaneling line
PCBA自动刻录测试分板线

Intelligent equipment—Automotive electronics
智能装备-汽车电子



Product introduction

- ◆ It realizes the automation of all the processes of burning, ICT testing, CCD testing and board splitting, and the whole line is equipped with only one operator, who is used for loading, inspecting the machine and converting the product specifications, and does not fix the operation position. In addition to local preservation, burning, ICT testing, CCD testing, board separation are to scan the code, in the MES system is connected and not connected to the two states are to realize the two-dimensional code of each small board and the corresponding test data associated with each section, and ultimately realize the test of each small board and the production of data forward and reverse traceability.

产品简介

- ◆ 实现刻录、ICT测试、CCD测试、分板所有工序自动化流水作业，全线只配1名操作人员，用于上料、巡机、转换产品规格，不固定操作岗位。除本地保存之外，刻录、ICT测试、CCD测试、分板均要扫码，在与MES系统相连和不相连两个状态下都要实现每个小板的二维码与各段的相应测试数据关联，最终能实现每个小板的测试和生产数据正反向追溯。

Process content

- ◆ PCBA into the board machine after the track transfer into the automatic burning and ICT test machine, burning and testing is completed after the need to distinguish between OK / NG boards, OK boards of good products into the automatic CCD test machine, CCD test needs to distinguish between OK / NG boards, OK boards of good products into the automatic board splitter for the distribution of boards, the entire process of the test section and the distribution of boards to realize the unmanned operation, after the distribution of boards of the boards of the small plate After the boards are separated, the small boards are placed in the tray which is automatically placed on the crawler, and then the tray is transferred to the manual board receiving station via the crawler.

工艺内容

- ◆ PCBA进入上板机后轨道传输进入自动刻录及ICT测试机，刻录及测试完成后需要区分OK/NG板，OK板良品流入到自动CCD测试机，CCD测试后需要区分OK/NG板，OK板良品进入到自动分板机中进行分板，整个过程实现测试段和分板无人化作业，分板后的各小板放置于设备自动放置在履带上的托盘内，再由托盘经履带传送至人工收板工位。

Car refrigerator and air conditioner controller production line
车载冰箱空调类控制器生产线

Intelligent equipment—Automotive electronics
智能装备-汽车电子



Product introduction

- ◆ Assembly of the upper shell, circuit board and lower shell of the car refrigerator controller; testing of controller function items, including standby mode quiescent current, wake-up function, refrigerator software version number checking, ambient light control, refrigerator door Hall, refrigerator power on, compressor module, compressor communication, blower control module, heating module control, and heating module NTC testing; beat: assembly 60s/piece.

产品简介

- ◆ 实现车载冰箱控制器上壳体、电路板、下壳体的组装；控制器功能项检测，包括待机模式静态电流、唤醒功能、冰箱软件版本号检查、氛围灯控制、冰箱门霍尔、冰箱开机、压缩机模块、压缩机通讯、风机控制模块、加热模控制、加热模NTC的检测；节拍：组装60s/件。

YQ radar automatic assembly line
YQ 雷达自动组装线

Intelligent equipment—Automotive electronics
智能装备-汽车电子



Product introduction

- ◆ The whole line is 11.5 meters long, 1.3/1.7 meters wide, 1.9 meters high, can be docked to the AGV automatic loading and unloading

产品简介

- ◆ 整线长11.5米，宽1.3/1.7米，高1.9米，可对接AGV自动上下料

Process content

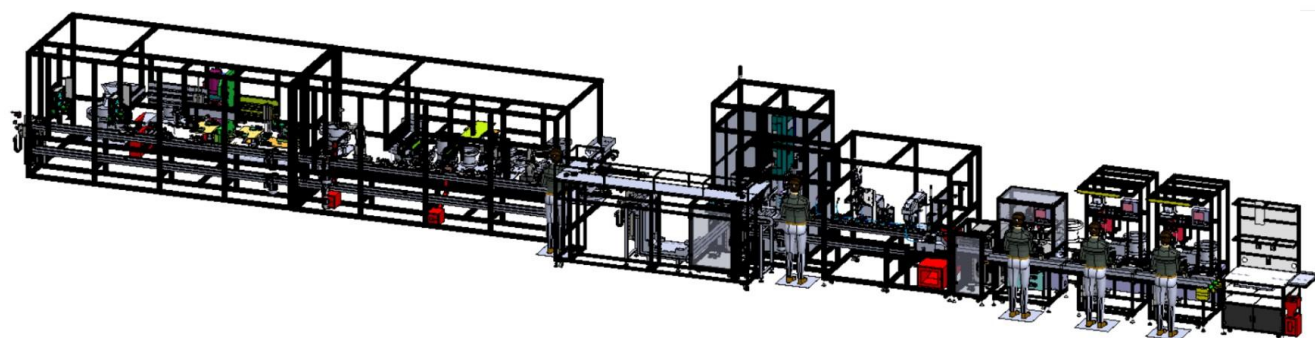
- ◆ Base case radome loading, dust removal and breathable film testing, shield loading and dispensing, PCB burn-in testing, PCB assembly and locking, base case assembly and soldering, hermetic sealing test, aging test, and semi-finished product discharging.

工艺内容

- ◆ 底壳天线罩上料、除尘及透气膜检测、屏蔽罩上料点胶、PCB烧录测试、PCB组装锁付、底壳组装及焊接、气密测试、老化测试、半成品下料

Seat belt assembly automation line
座椅安全带组装自动化线

Intelligent equipment—Automobile passive safety
智能装备-汽车被动安全



Product introduction

- ◆ Automation line for seat belt assembly is an efficient and highly automated production line, which is mainly used for assembling seat belts for automobile seats. By integrating many kinds of automation equipments and control systems, the production line is able to realize the fully automated production process from raw materials to finished products, which greatly improves the production efficiency and product quality. Strong compatibility, can adapt to a variety of models and specifications of the seat belt production, has a good flexibility and expandability; integrated intelligent detection system, real-time monitoring of product quality, to ensure that the assembly of seat belts precision and reliability; through the advanced control system, the production process can be accurately controlled, and at the same time to ensure the traceability of the production process; the degree of automation is high, the operator is only responsible for the simple processes of loading and unloading, other processes such as the With high degree of automation, the operator is only responsible for simple processes such as loading and unloading, while other processes such as winder installation, webbing guiding and fixed buckle assembly are completed by automated equipment.

产品简介

- ◆ 座椅安全带组装自动化线是一种高效、自动化程度高的生产线，主要用于汽车座椅安全带的组装。生产线通过集成多种自动化设备和控制系统，能够实现从原材料到成品的全自动化生产过程，大大提高了生产效率和产品质量。兼容性强，能够适应多种型号和规格的安全带生产，具有很好的灵活性和扩展性；集成了智能检测系统，实时监控产品质量，确保安全带的组装精度和可靠性；通过先进的控制系统，可以对生产过程进行精确控制，同时保证了生产过程的可追溯性；自动化程度高，操作人员只需负责上料、下料等简单工序，其他工序如卷收器安装、织带引导、固定扣装配等均由自动化设备完成。

Double-station dispenser
双工位点胶机

Intelligent equipment—Dispenser
智能装备-点胶机



Product introduction

- ◆ When the dispensing system is running, the product positioning and dispensing operation are separated to two stations, and the double Y-axis parallel operation realizes efficiency improvement. High performance and low cost; Powerful vision positioning system, dispensing according to the path planned by recognizing the work station.

产品简介

- ◆ 点胶系统运行时，产品定位与点胶作业分开至两工位，双Y轴并行作业，实现效率提升。 高性能、低成本；强大的视觉定位系统，根据识别工位规划的路径进行点胶。

Process content

- ◆ After the product is fed into the machine, it will first run to the recognition station for visual positioning, including Mark point recognition or straight edge/circular arc edge grabbing, to obtain the product position or deformation amount, and then run to the dispensing station, which will carry out dispensing operation according to the path planned by the recognition station.

工艺内容

- ◆ 产品送入机台后，先运行至识别工位进行视觉定位，包含Mark点识别或直边/圆弧边抓取，获取产品位置或变形量，后运行至点胶工位，点胶工位根据识别工位规划的路径进行点胶作业。

In-line dispensers for the semiconductor industry
在线式半导体行业点胶机

Intelligent equipment—Dispenser
智能装备-点胶机

Intelligent equipment—Dispenser
智能装备-点胶机



Product introduction

- ◆ Linear motor with micron resolution scale closed-loop control, greatly improving the system speed and accuracy. Equipped with simple and friendly operation interface to ensure system stability and reliability. The system is designed for semiconductor chip packaging precision dispensing applications, dispensing area up to 350mm * 500mm. cost-effective, reliable performance, streamlined design.

产品简介

- ◆ 采用直线电机搭配微米分辨率光栅尺闭环控制，大大提高系统运行速度与精度。配备简单友好的操作界面，确保系统稳定可靠。该系统为半导体芯片封装的精密点胶应用而设计，点胶区域达到350mm*500mm。高性价比，性能可靠，设计精简。

Process content

- ◆ body identification function, AVI detection, left/right tilt dispensing, four-way tilt dispensing, dual-track transfer, rail heating module, dual-valve configuration

工艺内容

- ◆ 本体识别功能、AVI检测、左右倾斜点胶、四方位倾斜点胶、双轨传送、轨道加热模块、双阀配置、倒装芯片 Flip Chip 封装点胶。

Flip Chip packaging technology, as one of the key technologies in the field of modern electronics manufacturing, has always been the technological high ground in the industry due to its complex process and high precision requirements.

With the microelectronics industry to lightweight, thin, miniaturized, the number of I / O end of the increase as well as the development of functional diversification, flip chip packaging technology came into being. And encapsulation dispensing technology plays a vital role in which has many significant advantages.

- ◆ Improve electrical performance: shorten the signal transmission path and enhance signal integrity.
- ◆ Optimize thermal performance: efficient heat transfer, flexible design of thermal structure.
- ◆ Miniaturization and high integration: Reduced package size and increased I/O pin density.
- ◆ Enhance mechanical stability: tight bonding and shock resistance, stress dispersion and reliability enhancement
- ◆ Reduced production costs: simplified process flow, material cost savings

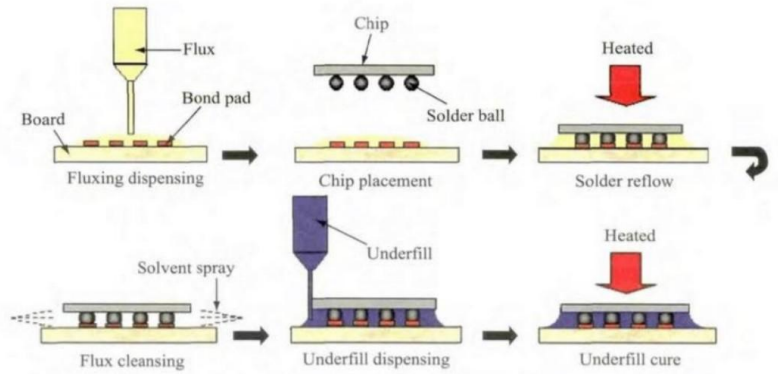
倒装芯片 Flip Chip 封装技术，作为现代电子制造领域的关键技术之一，其复杂的工艺流程和高精度要求，一直是行业内的技术高地。

随着微电子产业向轻量化、薄型化、小型化、I/O端数的增加以及功能多样化的发展，倒装芯片封装技术应运而生。而封装点胶技术在其中更是起着至关重要的作用，具有诸多显著优势。

- ◆ 提升电气性能：缩短信号传输路径、增强信号完整性
- ◆ 优化散热性能：高效热传导、散热结构设计灵活
- ◆ 实现小型化与高集成度：减小封装尺寸、提高 I/O 引脚密度
- ◆ 增强机械稳定性：紧密结合与抗冲击、应力分散与可靠性提升
- ◆ 降低生产成本：简化工艺流程、节约材料成本

Flip Chip packaging process
倒装芯片封装流程

助焊剂涂覆—贴片—加热回流—去除助焊剂—底部填充Underfill—热固化



Application cases
应用案例



In-line Y-direction large size type dispenser
在线式Y向大尺寸型点胶机

Intelligent equipment—Dispenser
智能装备-点胶机



Product introduction

- ◆ High cost performance
Integrated rack design, structural stability, more durable system operation, short downtime, higher efficiency; the use of international top components, reducing the failure rate, the use of cost significantly reduced; less wearing parts, saving the acquisition cost.
- ◆ Flexibility
Able to handle a variety of products with different substrate sizes; flexible configuration of various function modules such as dual-rail, dual-valve, tilting, bottom heating, etc.; universal platform can be applied to a wide range of dispensing processes and glues, and the machine can be quickly replaced.
- ◆ Increase Productivity
Reduce manual intervention, improve the equipment crop rate; non-contact dispensing, no need to move up and down the z-axis, increase production capacity; accurate glue volume control, accurate vision algorithms, improve the yield of dispensing operations;
- ◆ Non-contact injection: pneumatic injection valve, piezoelectric injection valve.
No need for Z-axis movement, pneumatic injection speed up to 250 points/s, which is 3~7 times higher than traditional dispensing; piezoelectric injection speed up to 500 points/s; minimum dispensing volume of 3nl, and has the consistency that traditional dispensing can not reach; non-contact, to avoid needle collision with the workpiece; very small dispensing volume, suitable for more compact space.

产品简介

- ◆ 高性价比
一体化机架设计，结构稳定，系统运行更持久，停机时间短，效率更高；国际顶级元器件的使用，减小故障发生率，使用成本大幅降低；易损部件少，节约了购置成本。
- ◆ 灵活性
能够处理多种不同基板尺寸的产品；双轨、双阀、倾斜、底部加热等多种功能模块灵活配置；通用的平台可适用多种点胶工艺及胶水，可快速更换机种。
- ◆ 提高生产力
减少人工干预，提高设备稼动率；非接触式点胶，无需z轴上下移动，增加生产产能；精准的胶量控制，精确的视觉算法，提高了点胶作业良率；
- ◆ 非接触式喷射：气动喷射阀，压电喷射阀
无需Z轴运动，气动喷射速度最高250点/s，是传统点胶的3~7倍；压电喷射速度最高可达500点/s；最小点胶量3nl，且具有传统点胶无法企及的一致性；非接触，避免针头碰撞工件；极小点胶量，适用于更紧凑的空间。

Shift-loaded flip-flop double-sided dispenser
移载翻板双面点胶机

Intelligent equipment—Dispenser
智能装备-点胶机



Product introduction

- ◆ Integrated rack design, stable structure, more durable system operation, short downtime; the use of international top components to reduce the failure rate, the use of cost is greatly reduced; in the dispensing position can be flipped to meet the front and back side of the product dispensing, to reduce the number of auxiliary flap equipment; jet valve, screw valve and other flexible configuration of the dispensing valve body; both ends of the transfer mechanism can be realized with the single-rail or dual-rail docking machine; Reduce manual intervention, improve the equipment crop rate; accurate glue volume control, vision algorithms, improve the yield of dispensing operations; machine internal dual-rail design, the dispensing head vacancy time is shorter, more efficient.

产品简介

- ◆ 一体化机架设计，结构稳定，系统运行更持久，停机时间短；国际顶级元器件的使用，减小故障发生率，使用成本大幅降低；在点胶位可对产品进行翻面，满足正反面点胶，减少辅助翻板设备；喷射阀、螺杆阀等多种点胶阀体灵活配置；两端的移载机构可实现跟单轨或双轨机台对接；减少人工干预，提高设备稼动率；精准的胶量控制、视觉算法，提高了点胶作业良率；机台内部双轨设计，点胶头空置时间短，效率更高。

Process content

- ◆ XYZ three axes all use precision ball screws, servo motors, equipped with simple and friendly operation software, to ensure the stability and reliability of the system. In-line rail design can be connected to double-rail or single-rail machine, can realize the product flip side, to meet the needs of positive and negative dispensing.

工艺内容

- ◆ XYZ三轴都采用精密滚珠丝杠，伺服马达，配备简单的友好型操作软件，确保系统稳定可靠。在线式轨道设计可连线双轨或单轨机台、可实现对产品翻面，满足正反面点胶需求。

ICT&FCT on-line tester
ICT&FCT在线测试机

ICT&FCT&EOL testing
ICT&FCT&EOL测试



Product introduction

- ◆ The system design can meet the functional test requirements of various white goods circuit boards. The newly added products only need to change the fixture and corresponding software, adopt well-known brand test accessories, automatically save the test teaching data, and cooperate with bar code management, which can effectively trace the source and count, improve the stability, remove the influence of human factors, automatically save the test data, and cooperate with bar code management to effectively trace the source and count the quality data.

产品简介

- ◆ 系统设计可满足各种白色家电电路板功能测试需求，新增产品只需更换治具及相应软件，采用知名品牌测试配件，测试数据自动保存，配合条码管理,可有效溯源和统计，提高稳定性，去除人为因素影响，测试数据自动保存，配合条码管理,可有效溯源和统计品质数据。

Process content

- ◆ This equipment is used for full-function testing of products (except remote control function), testing the hardware circuit of products and eliminating unqualified products.
- ◆ After the test is completed, it can enter the packaging off-line station, and this equipment adopts flexible design.
- ◆ The product in and out of all automation, the operator as long as a key to start.
- ◆ Compatible with a variety of products, rapid replacement of tooling.

工艺内容

- ◆ 本设备是用于对产品进行全功能检测（遥控功能除外），对产品的硬件电路进行检测，剔除不合格产品；
- ◆ 测试完成后可以进入包装下线工位，本设备采用柔性化设计；
- ◆ 产品进出全部自动化，操作员只要一键启动；
- ◆ 兼容多种产品、快速更换工装。

ICT&FCT comprehensive testing machine
ICT&FCT综合测试机

ICT&FCT&EOL testing
ICT&FCT&EOL测试



Product introduction

- ◆ The system realizes the functions and applications of automatic code scanning, online ICT, online FCT, defective product cache and so on. Based on the open hardware and software architecture design, it can flexibly expand the hardware, quickly establish the test program, and flexibly configure according to the needs of customers, providing users with a universal, flexible and standardized automatic test system solution.

产品简介

- ◆ 该系统实现自动扫码、在线ICT、在线FCT、不良品缓存等功能和应用。基于开放式硬、软件体系结构设计，能够灵活扩展硬件，快捷建立测试程序，可灵活地根据客户的需求进行配置，为用户提供通用、灵活、规范的自动测试系统解决方案。

Process content

- ◆ The equipment and the translation machine are made into an integrated machine.
- ◆ The scanning code is integrated in the translation structure to make an integrated structure.
- ◆ After the PCB board is in place, the upper needle die is pressed down, and the probe contacts the test point for testing.
- ◆ After the test is completed, the upper computer judges the results and distinguishes the defective products from the good products according to the test results.

工艺内容

- ◆ 设备与平移机做成一体机；
- ◆ 扫码集成在平移结构中，做成一体化结构
- ◆ PCB板到位后，上针模下压，探针接触测试点位，进行测试；
- ◆ 测试完成后，上位机进行结果判断，并且根据测试结果，区分不良品与良品。

EOL on-line tester
EOL在线测试机

ICT&FCT&EOL testing
ICT&FCT&EOL测试



Product introduction

- ◆ Support multiple rights management functions, support QR code startup, bar code and test data binding, and test data can be uploaded to MES system; Provide multi-channel CAN communication interface, and display and save the data through the upper computer management system; Suitable for reflow of carrier plate, and on-line testing with assembly station.

产品简介

- ◆ 支持多重权限管理功能，支持二维码启动、条码与测试数据绑定，测试数据可上传MES系统；提供多路CAN通讯接口，并通过上位机管理系统进行数据的整合显示及保存；适用于载板回流，配合组装站在线测试。

Process content

- ◆ Strong compatibility, which can meet different test requirements such as module, single box and PACK package;
- ◆ Strong expansibility, and different functional modules can be added or subtracted according to the requirements of battery testing;
- ◆ The workflow is fully intelligent and automatic, so as to reduce the number of operators and improve the testing efficiency;
- ◆ Independent research and development of open software platform, supporting the integrated use of different brands of instruments and meters, and meeting the needs of customers to the maximum extent.

工艺内容

- ◆ 兼容性强，可以满足模组、单箱体、PACK包等不同的测试需求；
- ◆ 扩展性强，可根据电池测试要求，增减不同功能模块；
- ◆ 工作流程全智能化、自动化，以达到减少操作人员、提高测试效率；
- ◆ 自主研发的开放软件平台，支持不同品牌的仪器仪表集成使用，最大限度的满足客户的使用需求。

Track test section automation line
轨道式测试段自动化线

ICT&FCT&EOL testing
ICT&FCT&EOL测试



Product introduction

- ◆ The rail structure is adopted, which directly connects with the production line through the docking station, covering all functions of optics, ICT, recording and FCT. Interface pin modular design, easy to quickly change models; Universal software testing platform to realize efficient programming; MES&SFC server system management; Double-track running parallel test.

产品简介

- ◆ 采用轨道式结构，通过接驳台直接与产线对接全面覆盖光学、ICT、烧录、FCT各功能检测；Interface pin模块化设计，方便快速更换机种；通用软件测试平台，实现高效编程；MES&SFC服务器系统管理；双轨运行连片并行测试。

Process content

- ◆ The automatic line of standard track test section is composed of upper board, docking station, ICT, NG buffer, FCT and NG/OK receiver, which can flexibly expand the test station, meet all kinds of application scenarios, realize unattended whole process, improve test efficiency and reduce labor cost.

工艺内容

- ◆ 标准轨道式测试段自动化线，由上板机、接驳台、ICT、NG缓存机、FCT、NG/OK收板机组成，可灵活拓展测试工位，满足各类应用场景，实现全程无人值守，提高测试效率，降低人工成本。

ICT+ double layer FCT automatic test line
ICT+双层FCT自动测试线

ICT&FCT&EOL testing
ICT&FCT&EOL测试



Product introduction

- ◆ It can be equipped with automatic loading and unloading machine, and IN line ICT is equipped with automatic code scanning function and automatic pressing test; Function Buffer Loader sorts good products and bad products, and the good products go into double-layer FCT test; In Line double-layer FCT equipment is equipped with its own provider, and two test systems work at the same time, which can provide twice the efficiency; Equipped with ON-Loader, good products and bad products are collected separately, and the PCBA automatic test is realized.

产品简介

- ◆ 可以配备全自动上板机上板，IN line ICT配备自动扫码功能，自动下压测试；Function Buffer Loader分选良品和不良品，良品进入双层FCT测试；In Line双层FCT设备自身配备提供机，两套测试系统同时工作，可以提供1倍的效率；在配上ON-Loader收板，良品不良品区分收集，实现PCBA全自动化测试。

Process content

- ◆ The product fixture can be replaced on-line without stopping production, and it has the design of crush-proof plate.
- ◆ The NG board automatically returns to the maintenance station, and the automatic width adjustment function of one-button guide rail saves the line changing time.
- ◆ Adopt PLC+PC intelligent linkage, without personnel on duty; Double-layer IN Line mechanism, the test efficiency is doubled.
- ◆ Support the function of adding plates for OK/NG product sorting; With quick change function, it is convenient for product to change models.
- ◆ Support automatic program burning, full-function automatic test and shunt signal calibration.
- ◆ Can expand the integration of automatic IN Line ICT.

工艺内容

- ◆ 可在线不停产更换产品夹具，有防压坏板设计
- ◆ 有 NG 板自动返回到维修工位设计，一键式导轨自动调宽功能节省换线时间
- ◆ 采用PLC+PC智能联动，无需人员值守；双层IN Line在线机构，测试效率提升1倍
- ◆ 支持OK/NG品分选加收板功能；具备快换功能，方便产品换型
- ◆ 支持程序自动烧录、全功能自动化测试、分流器信号校准功能
- ◆ 可拓展集成全自动IN Line ICT

PCBA test section parting line
PCBA测试段分板线

ICT&FCT&EOL testing
ICT&FCT&EOL测试



Product introduction

- ◆ Unmanned intelligent "PCBA circuit board" board separation integrated line realizes automatic board loading, board separation and board collection; Support product traceability, data storage and networking, bar code identification, uploading MES function single minute exchange of dies, automatic loading and unloading, unmanned operation, so as to improve production efficiency and product quality, and the machine will automatically stop working after opening the door. Support single minute exchange of dies, reduce personnel with vehicles, and improve production efficiency and product quality.

产品简介

- ◆ 无人智能化“PCBA线路板”分板一体化线，实现自动上板、分板和收板；支持产品追溯、数据存储及连网，条码识别，上传MES功能快速换线，自动上下料，无人化作业，达到提高生产效率及产品品质开机自检，开门后机器自动停止工作。支持快速换线，借助载具实现人员缩减，达到提高生产效率及产品品质。

Process content

- ◆ Board loader, board turnover machine, code scanner, ICT+ burning, NG buffer, CCD test, NG buffer, board splitter, manual position (adjustable length).

工艺内容

- ◆ 上板机、翻板机、扫码机、ICT+烧录、NG缓存机、CCD测试、NG缓存机、分板机、人工位（长短可调）

3D MES
3D MES

Intelligent equipment—Smart factory MES
智能装备-智慧工厂MES



Product introduction

- ◆ MES system intelligent management program, factory wisdom screen. By obtaining materials, equipment, personnel, process instructions and monitoring facilities and other resources in the factory, and fully integrating with ERP and DCS system, we can build a production and manufacturing integration platform for enterprises to realize the management of the entire production process.

简介

- ◆ MES系统智慧化管理方案，工厂智慧大屏。通过获取工厂内的物料、设备、人员、流程指令和监控设施等资源，与ERP、DCS系统全面集成，为企业搭建一个生产制造集成平台，实现对整个生产过程的管理。

Fi upper computer software platform
Fi 上位机软件平台

Intelligent equipment—Smart factory MES
智能装备-智慧工厂MES



Product introduction

- ◆ Fi is a low-code software development platform, which can improve the development speed and efficiency. Using Fi to develop the control software related to equipment can configure the related hardware resources and automatically generate the configuration code in a few simple steps, which greatly saves the development time and quickly delivers the equipment to the customer terminal. Make PC application development more convenient, simpler and lower threshold.

简介

- ◆ Fi是一款低代码的软件开发平台，可提升开发速度和开发效率，使用Fi开发设备相关的控制软件只需要简单几步便可以配置好相关的硬件资源、自动生成配置代码，极大地节约了开发时间快速交付设备到客户终端。让上位机应用开发更便捷、更简单、更低门槛。

ENTERPRISE HONOR
企业荣誉



COOPERATIVE CUSTOMER
合作客户

Sincerely thanks our business partners

真诚感谢与我们齐心协力的合作伙伴

