



博视源

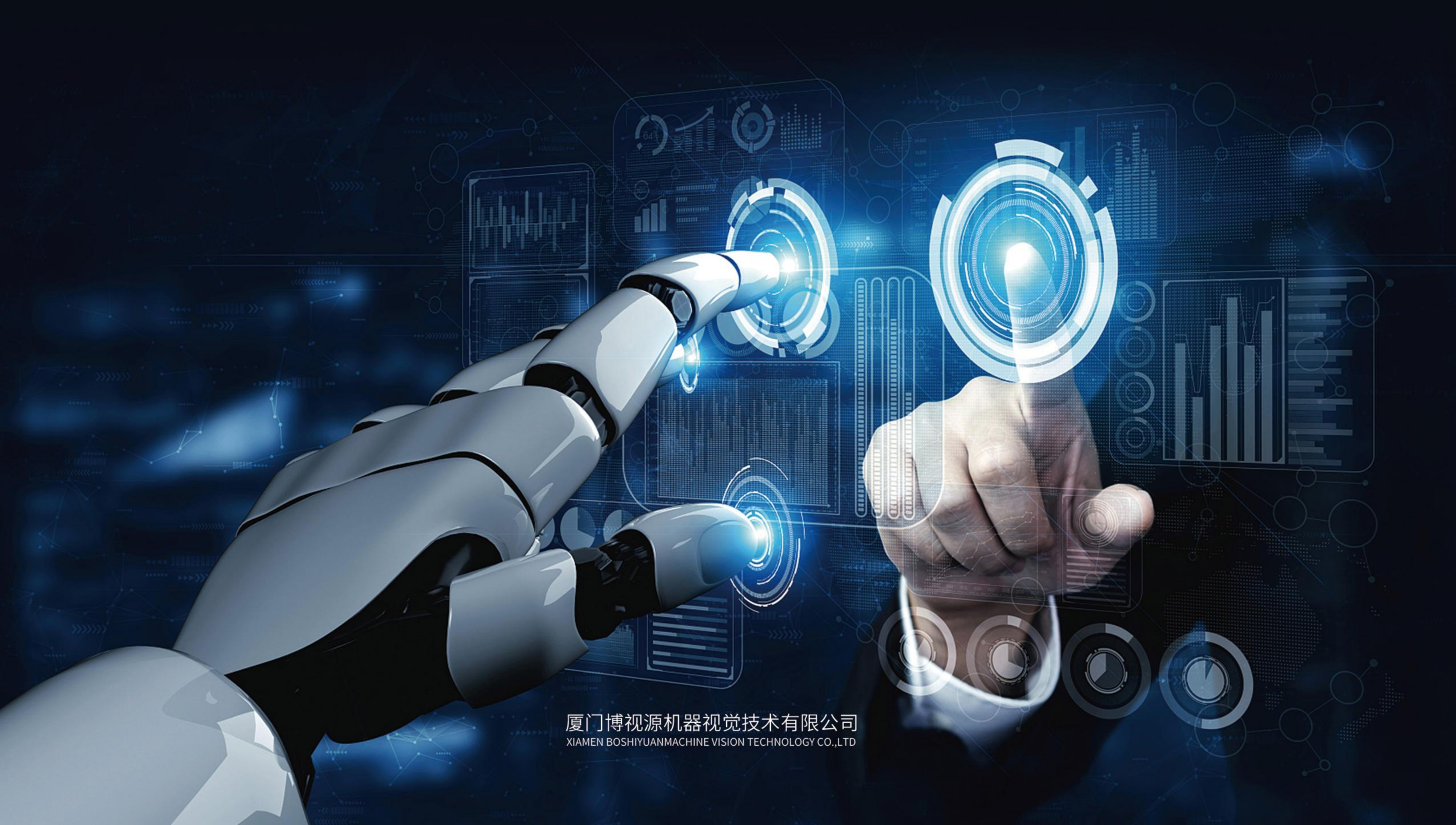
非标产品线

BOSHIYUAN[®]

Non standard Product Line

源于视觉，不止视觉
源至精密，追求卓越

From vision, not only vision
From precision to excellence



厦门博视源机器视觉技术有限公司
XIAMEN BOSHIYUAN MACHINE VISION TECHNOLOGY CO., LTD



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/INTELLIGENT / PLATFORM

博 视 源

走进自动化时代
Entering the automation Era

“ 打造专属 定制生产线 ”

Create a customized
production line



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源于视觉，不止视觉

Originating from vision, not just vision

源至精密，追求卓越。

Originating from precision and pursuing excellence.

博视源非标产品线

Boshiyuan Non-Standard Product Line

方案构成逻辑 Solution Architecture

通用视觉算法平台，集结了尺寸测量、脏污检测、污点/缺陷检测、定位抓取等各种市场上有需求的机器视觉功能，通过软件研发团队+电气团队+机械自动化团队的高度配合，可为客户实现优质的纯视觉解决方案和视觉自动化解决方案

The BSY-Vision System V21 integrates comprehensive machine vision capabilities - including but not limited to dimensional measurement, contamination/defect detection, and object positioning - delivering customized vision/automation solutions through seamless collaboration across Software R&D, Electrical, and Automation teams.

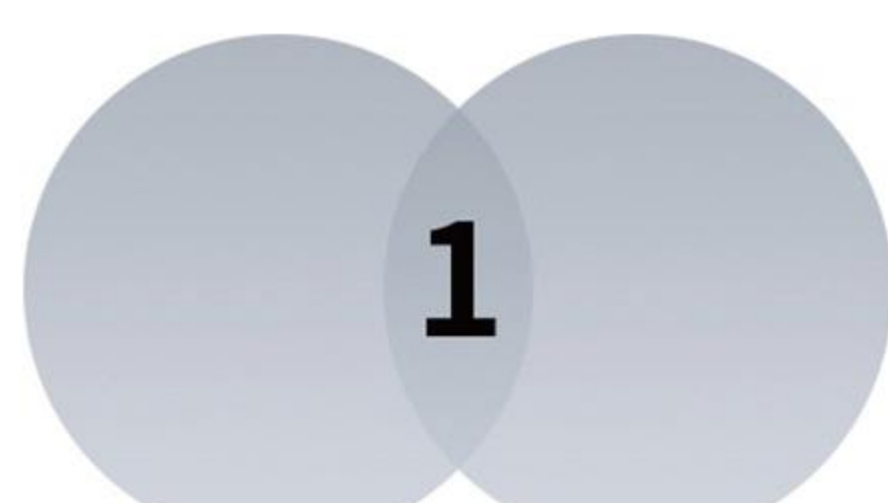
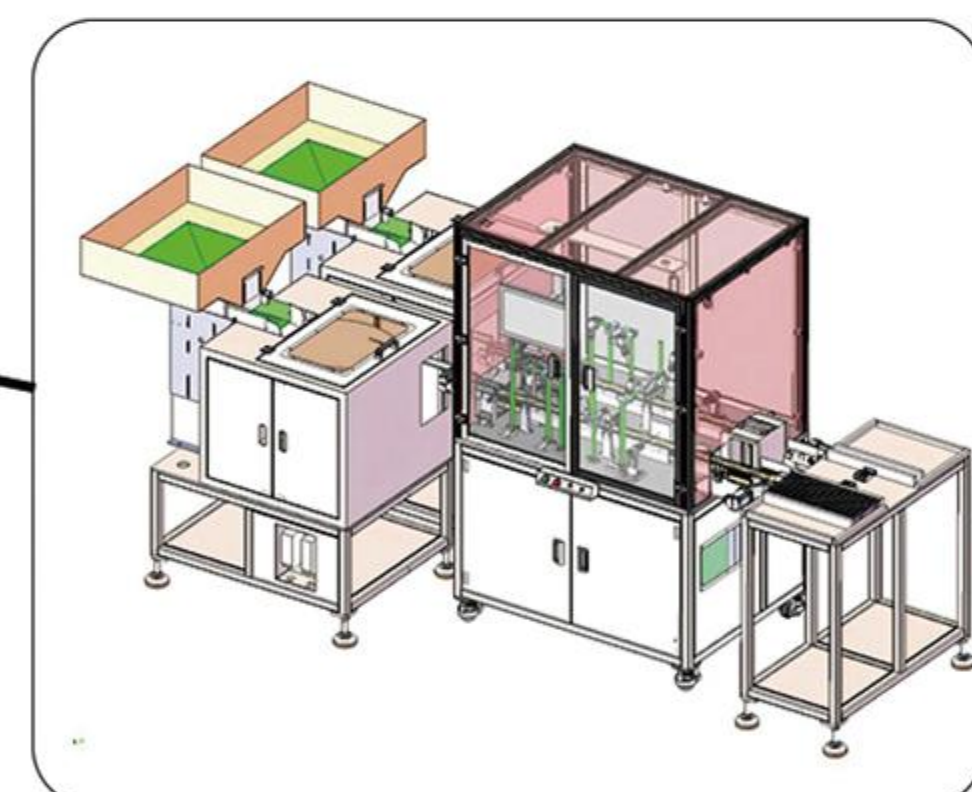
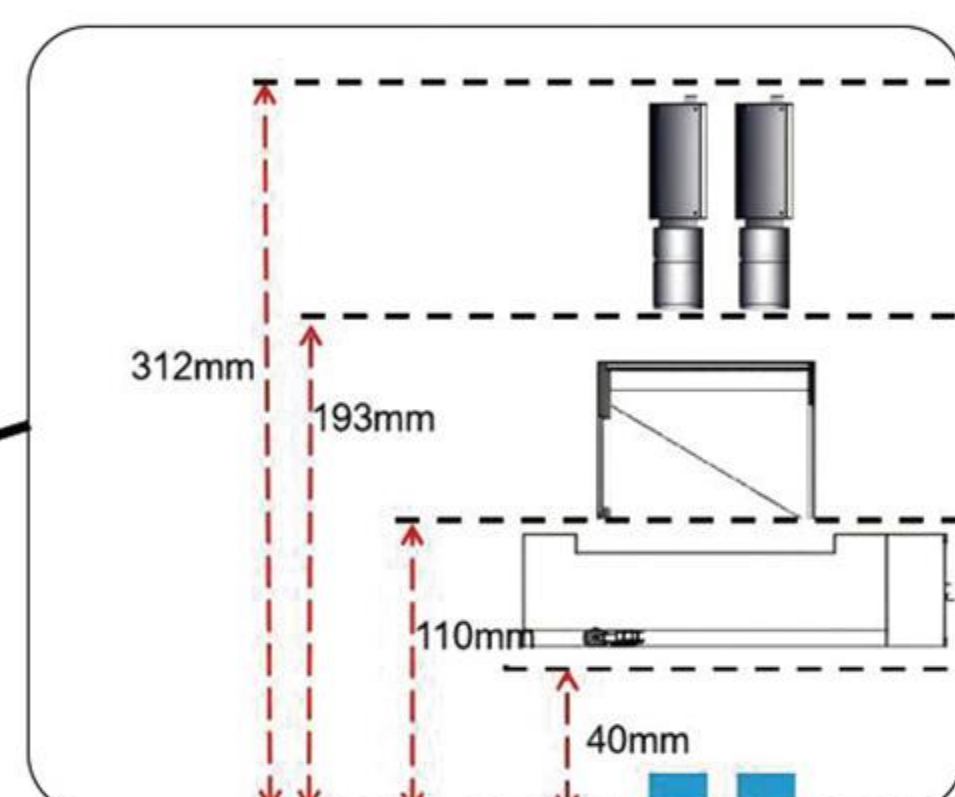
功能介绍 Function introduction

软件基底为博视源自研通用视觉算法平台，集结了尺寸测量、脏污检测、污点/缺陷检测、自动偏移定位等经过市场长期验证的机器视觉功能，通过C++算法工程师的编程，可以极高的匹配度适用于博视源多款非标自动化硬件设备上。实现外观检测、尺寸测量、不良品剔除、产品打包等一系列可独立运作且可串联的视觉方案，解决了产品制作后道出货前的检测闭环。

The software base is the Boshiyuan Research Universal Vision Algorithm Platform, which integrates machine vision functions such as size measurement, dirt detection, stain/defect detection, and automatic offset positioning that have been validated in the market for a long time. Through programming by C++ algorithm engineers, it can be highly matched and applicable to multiple non-standard automation hardware devices of Boshiyuan. A series of visual solutions that can operate independently and be connected in series, including appearance inspection, size measurement, defective product removal, and product packaging, have been implemented to solve the detection loop after product production and before shipment.

仅提供视觉
Visual only

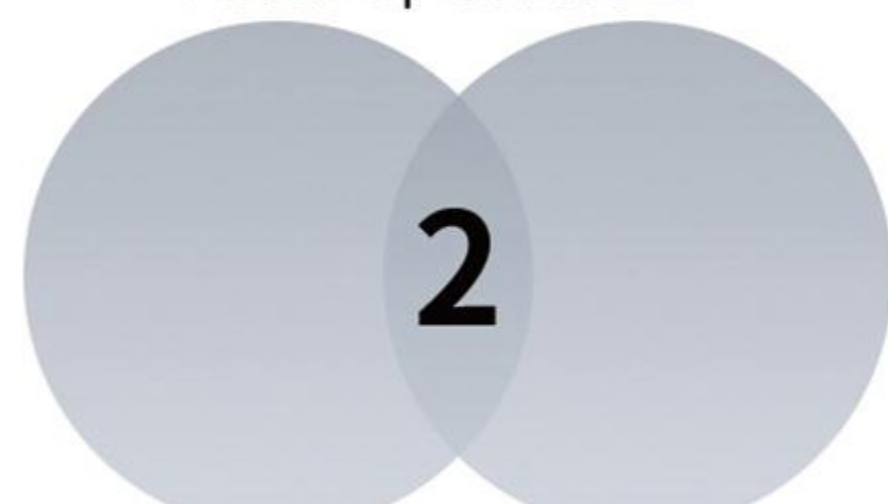
非标自动化机构
Non standard automation institutions



1 尺寸测量

测量产品尺寸

Dimensional measurement
Measure product size

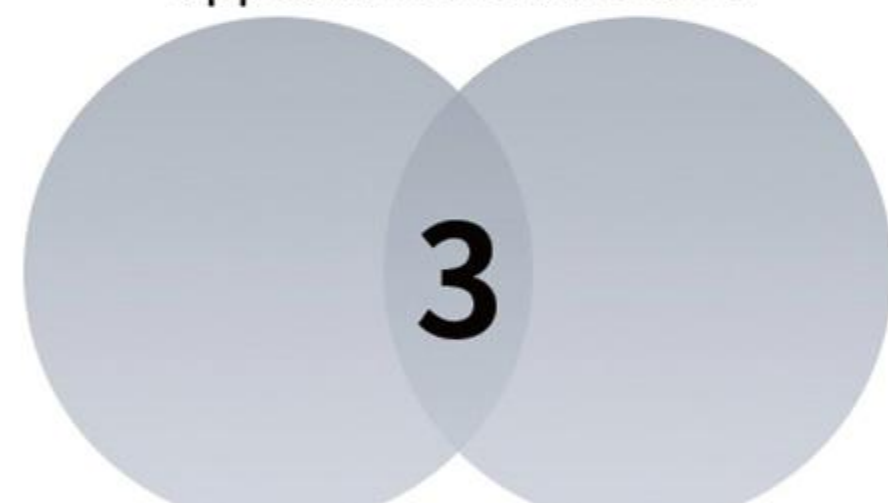


2 外观检测

检测产品外观

是否有缺陷

Appearance inspection
Check whether the product appearance is defective



3 OCR识别

检测产品条形

码、二维码等缺陷

OCR recognition
Detect product bar code, QR code and other defects

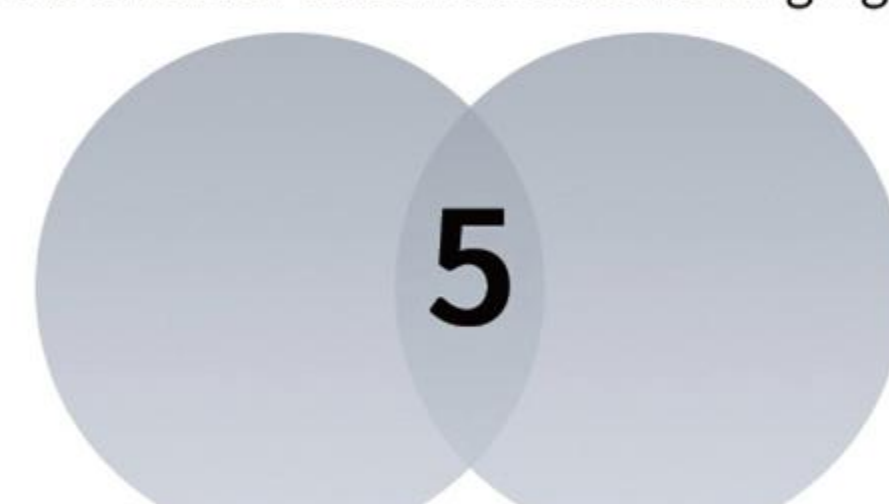


4 陈列摆盘

可与硬件联动

达到自动摆盘的效果

Display display plate
It can be linked with hardware to achieve the effect of automatic disk swinging



5 不良品剔除

检测出不合格

产品时自动剔除

Rejection of defective products
Unqualified products are automatically removed when detected



6 自动打包

应用于生产线

对产品进行自动包装

Automatic packaging
It is applied to the automatic packaging of products in the production line

软件介绍

Software introduction

博视源自研的**通用视觉算法平台**是一款通用型智能高速机器视觉应用平台，旨在解决工厂产品生产过程中的绝大多数视觉需求，该平台通过与相应硬件机构结合，即可实现如外观脏污或缺陷、尺寸不良、字符识别、抓取摆盘等功能。

Boshiyuan's independently developed BSY-Vision System V21 is a universal high-speed intelligent machine vision platform designed to address the majority of visual inspection needs in factory production. By integrating with corresponding hardware mechanisms, the platform can perform functions such as surface contamination/defect detection, dimensional measurement, character recognition, and pick-and-place operations.

一、瑕疵/污点检测

1、Flaw / stain detection

斑点检测 spot detection	块状物 Blocky items	明暗块 Shading block	瑕疵面积 Stain Area	缺陷检测 Defect detection	直线毛刺 Straight burr	圆环毛刺 Ring burr	曲线毛刺 Curve burr
特脂检测 Special fat test	缺件检测 Missing parts detection						

二、位置偏移补正

2、Position offset correction

轮廓定位 Contour positioning	边缘位置 Edge position	边缘角度 Edge angle	AI定位 AI positioning	圆圖定位 Circular positioning	圆线定位 Circular line positioning	2直线的交点 Intersection of 2 straight lines	四边形中线点 Quadrilateral centerline point
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三、几何测量

3、Geometric measurement

点和圆的距离 Distance between point and circle	点和直线的距离 Distance between electricity and straight line	点与直线的垂线交点 Intersection of point and vertical line	经过两点的直线 A straight line passing through two points	2点间的中点 Midpoint between 2 points	2点间的距离 Distance between 2 points
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四、测量工具

4、Measuring tools

点点距离 Dot distance	点线距离 Point line distance	点圆距离 Point circle distance	线线距离 Line distance	圆线距离 Circle line distance
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五、图形显示

5、Graphic display

点显示 Point display	2点直线显示 2 point straight line display	旋转直线显示 Rotate line display	圆/椭圆显示/刻度显示 Circle / ellipse display / scale display
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六、要素工具

6、Feature tools

要素点 Feature point	最值点 Maximum point	查找特征线 Find breaklines	查找特征圆 Find feature circle
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七、计数

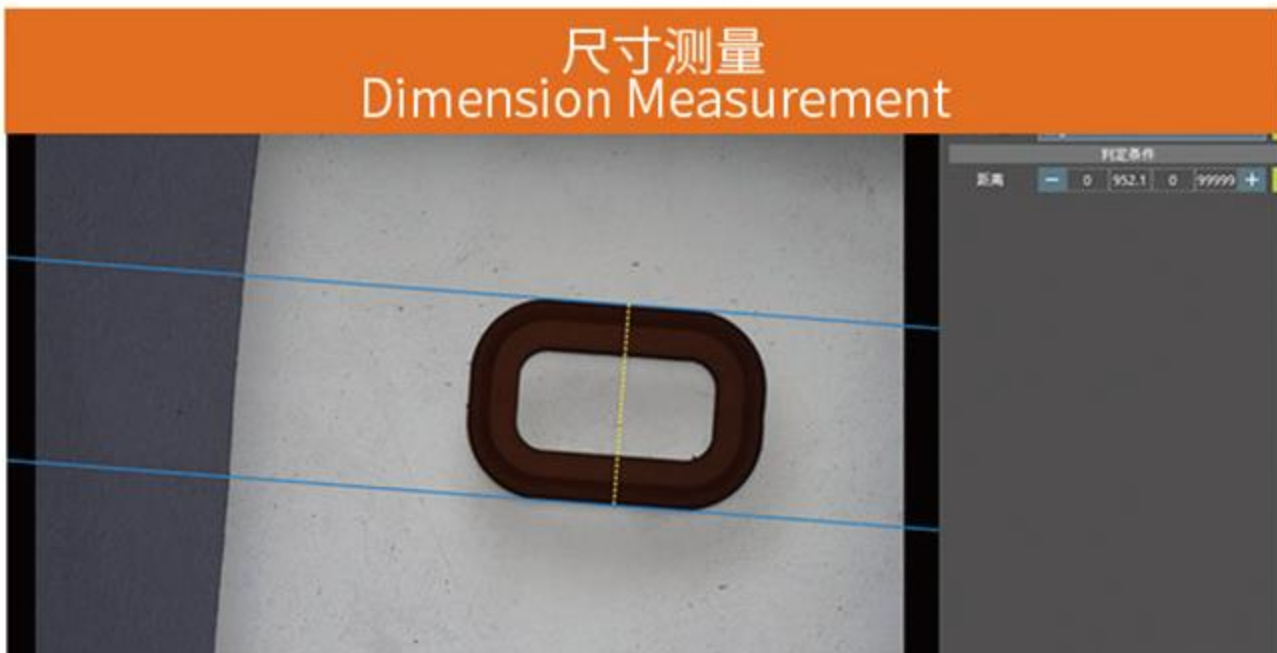
7、Count

块状物计数 Block count	明暗块计数 Shading block count	边缘计数 Edge count
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八、医疗检测

8、Medical testing

自动斑点 Automatic speckle	底部检测 Bottom detection	底部异物 Foreign matter at the bottom	底部毛发 Bottom fur	底部无针 No needle at the bottom	字线数量 Number of word lines	毛刺检测 Glitch detection	毛发检测 Hair detection
注射器检测 Syringe detection	刻度线查找 Tick mark lookup	注射器分割 Syringe segmentation	侧面毛发 Side hair	针管个数 Number of needle tubes	胶塞检测 Rubber plug detection	刻度检测 Scale detection	刻度毛发检测 Scale hair detection
刻度个数 Number of scales	注射器头部检测 Syringe head detection						



通用视觉算法的优势

Advantages of general vision algorithm

集成视觉算法库，软件功能多样，开发时间成本低

Integrated visual algorithm library, diverse software functions, low development time and cost

软件版本统一，通用于市面上90%视觉检测需求

The software version is uniform and can be used for 90% of the visual inspection

总结用户操作习惯，操作方式更人性化

Summarize the user's operation habits and make the operation more humanized

软件功能均已经多方市场验证，系统稳定，漏洞少

The software functions have been verified by multiple markets, the system is stable

可与AI算法结合，学习各类误检样本，持续降低误报率

It can be combined with AI algorithm to learn various false detection samples and continuously reduce the false alarm rate

操作界面下放且简化，用户可自行设定与修改视觉检测方案

The operation interface is decentralized and simplified, and the user can set and modify the visual inspection scheme by himself

添加
ADD

AI算法深度学习 | 市场检测误差率达0.0001%

AI algorithm deep learning | Market detection error rate reaches 0.0001%

持续降低检测难度

Continuously reducing the difficulty of detection

持续提高微弱特征识别度

Continuously improve the recognition accuracy of weak features

持续提高检测精度

Continuously improve detection accuracy

持续降低异常特征误报率

Continuously reduce the false alarm rate of abnormal features

特征识别 Feature Recognition

识别特征显示微弱的脏污异物

Identification features show weak dirt and foreign objects

AI算法可以识别微弱的脏污异物，我司对AI算法加以优化，重复进行异常误检中微弱特征的识别训练，加强暗面部位依旧能识别微弱特征的脏污异物。

AI algorithms can identify weak dirt and foreign objects. Our company has optimized the AI algorithm by repeatedly training on the recognition of weak features in abnormal false detections, and strengthening the ability to recognize dirt and foreign objects with weak features in dark areas.

检测结果更加精准

More accurate detection results

AI算法可以检测一般情况下的毛发和异物斑点，我司加强AI算法结构，增强对细微特征毛发、异物和斑点的检测，大幅降低误检率，提高企业生产率。

AI algorithms can detect hair and foreign object spots in general situations. Our company has strengthened the AI algorithm structure to enhance the detection of subtle features such as hair, foreign objects, and spots, significantly reducing false detection rates and improving enterprise productivity.

识别精准，任意摆放物件亦可检测

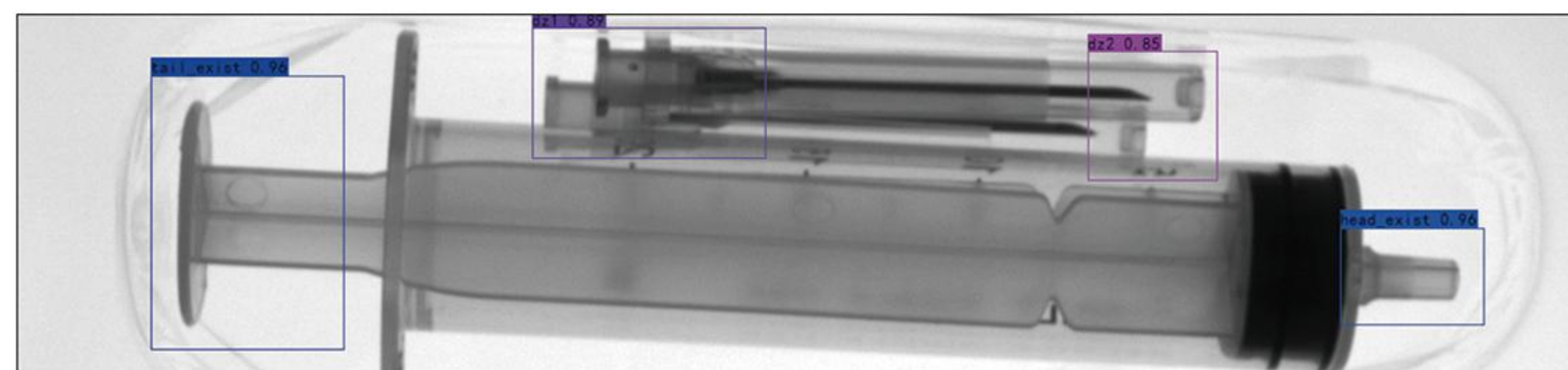
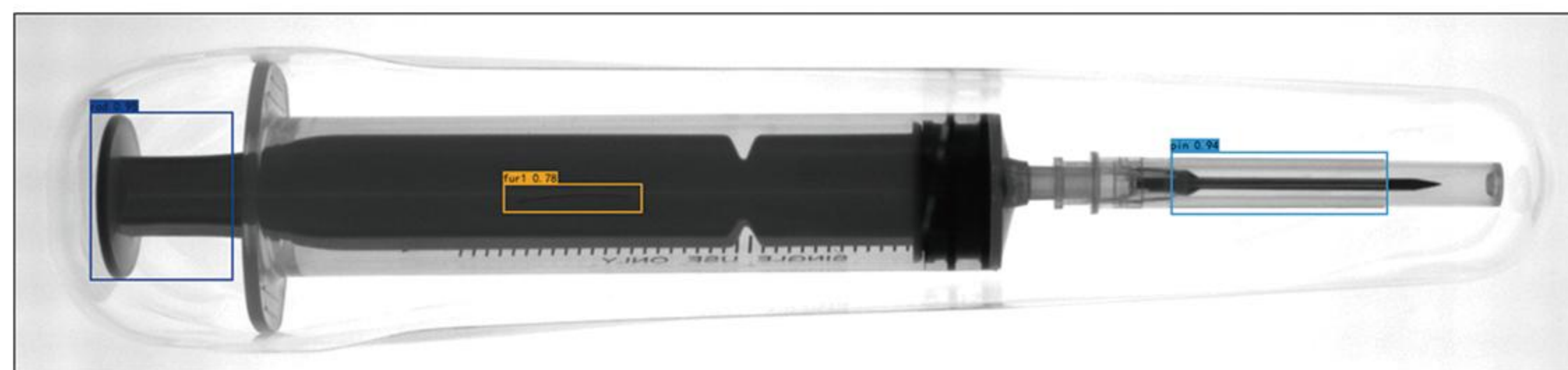
Accurate recognition, can detect any placed object

我司在AI算法中加强定位辅助校正功能，任意摆放物件，能自动精准识别检测物件，减少漏检率。

Our company has strengthened the positioning assistance correction function in AI algorithms, which can automatically and accurately identify and detect objects when placing them arbitrarily, reducing the rate of missed detections.

AI案例：吸塑包装下的医疗注射器

AI case: Medical syringes under vacuum packaging



3大特点

Characteristic

人机交互优化

Human computer interaction optimization

博视源机器视觉领域通过在运动控制器中写入代码，修改相机参数，实现软硬件的互通。经过版本迭代更新，算法插件化，UI界面深入优化。随着人机交互的优化，不仅降低客户对新软件界面的学习成本，还大幅缩短了工程师现场调试周期。

In the field of machine vision, Boshiyuan achieves software and hardware interoperability by writing code into motion controllers and modifying camera parameters. After version iteration updates, algorithm plugin, and in-depth optimization of UI interface. With the optimization of human-computer interaction, not only does it reduce the learning cost of customers for new software interfaces, but it also significantly shortens the on-site debugging cycle for engineers.

可实现工程师远程调控
Can achieve remote control by engineers

系统开源

System open source

博视源机器视觉领域集通用性与灵活性于一体，拥有完全自主知识产权。可与客户现场设备的系统适配，如注塑件、机械手等。实现跨设备交互操作，提高工作效率，减少工程师与客户之间的沟通时间成本。

Boshiyuan's machine vision field combines universality and flexibility, and has completely independent intellectual property rights. Can be adapted to customer's on-site equipment systems, such as injection molded parts, robotic arms, etc. Realize cross device interactive operations, improve work efficiency, and reduce communication time costs between engineers and customers.

检测功能
Detection function

测量功能
Measurement function

识别功能
Identification function

定位功能
Location

软件 ↔ 自动化机构

Software ↔ Automation organization

我司自有机械设计部门与自动化车间，现已将机构模块化、标准化，实现更快的交期、更科学的结构设计和更稳定的质量。

Our company has its own mechanical design department and automation workshop. We have modularized and standardized the mechanism to achieve faster delivery times, more scientific structural design, and more stable quality.

轻量化视觉检测
Lightweight visual inspection

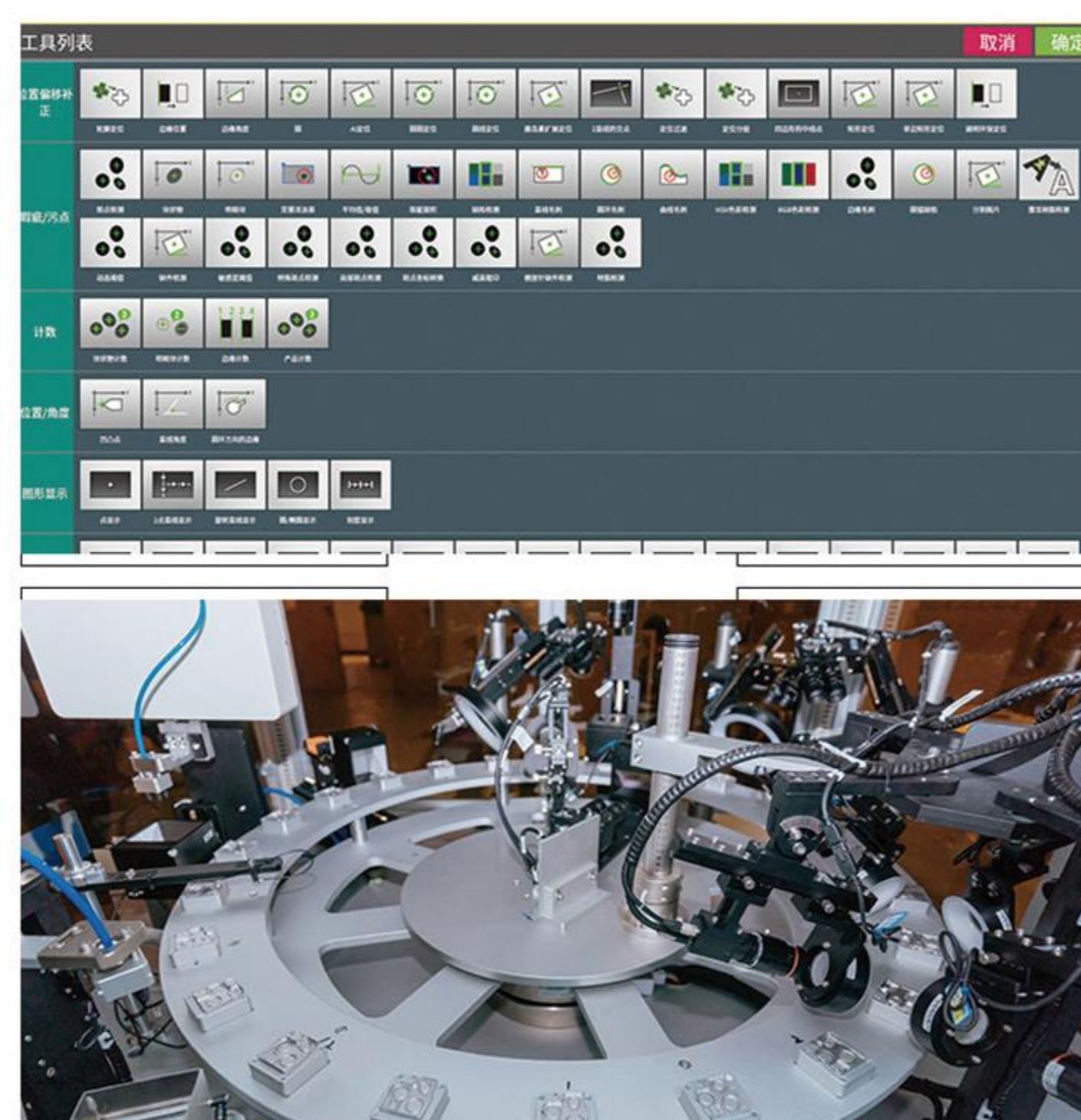
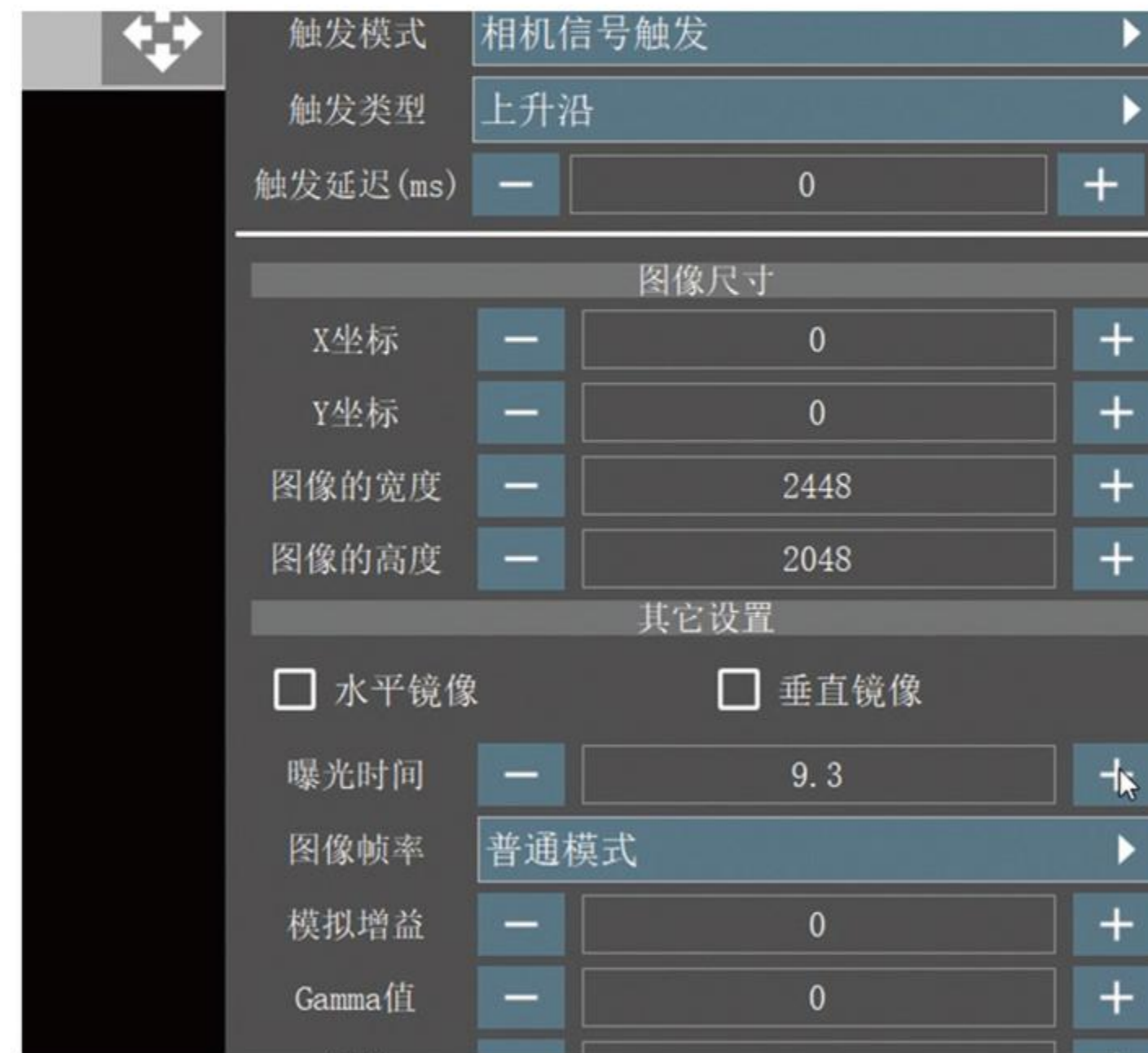
匹配自动化机构
Matching automation mechanisms

软件模块
Software module

上下料模块
Loading and unloading module

视觉模块
Visual module

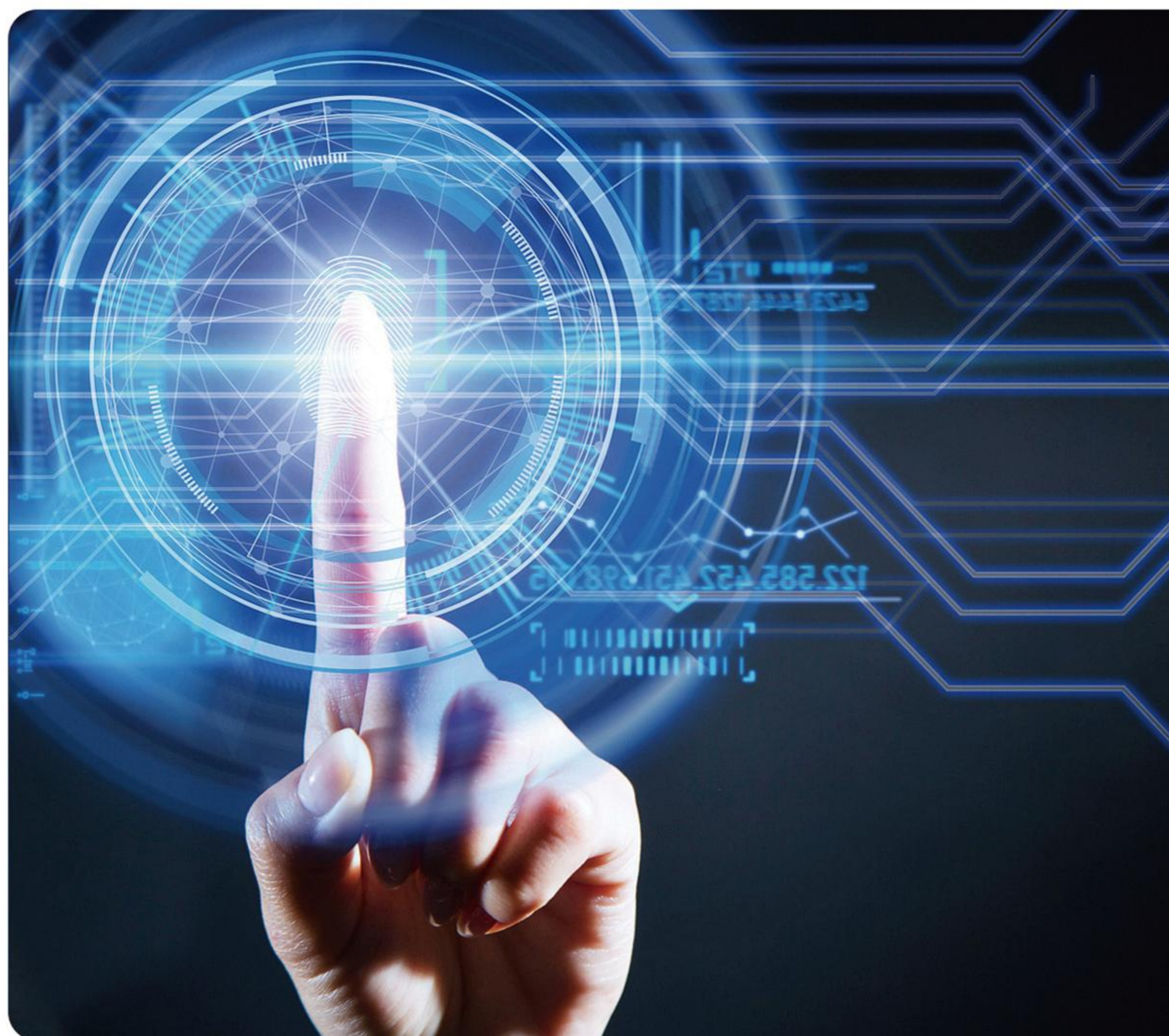
外形模块
Exterior module



视觉算法日渐成熟，可解决市面上绝大部分检测需求
Visual algorithms are becoming increasingly mature and can solve the vast majority of detection needs on the market

硬件与软件的交互

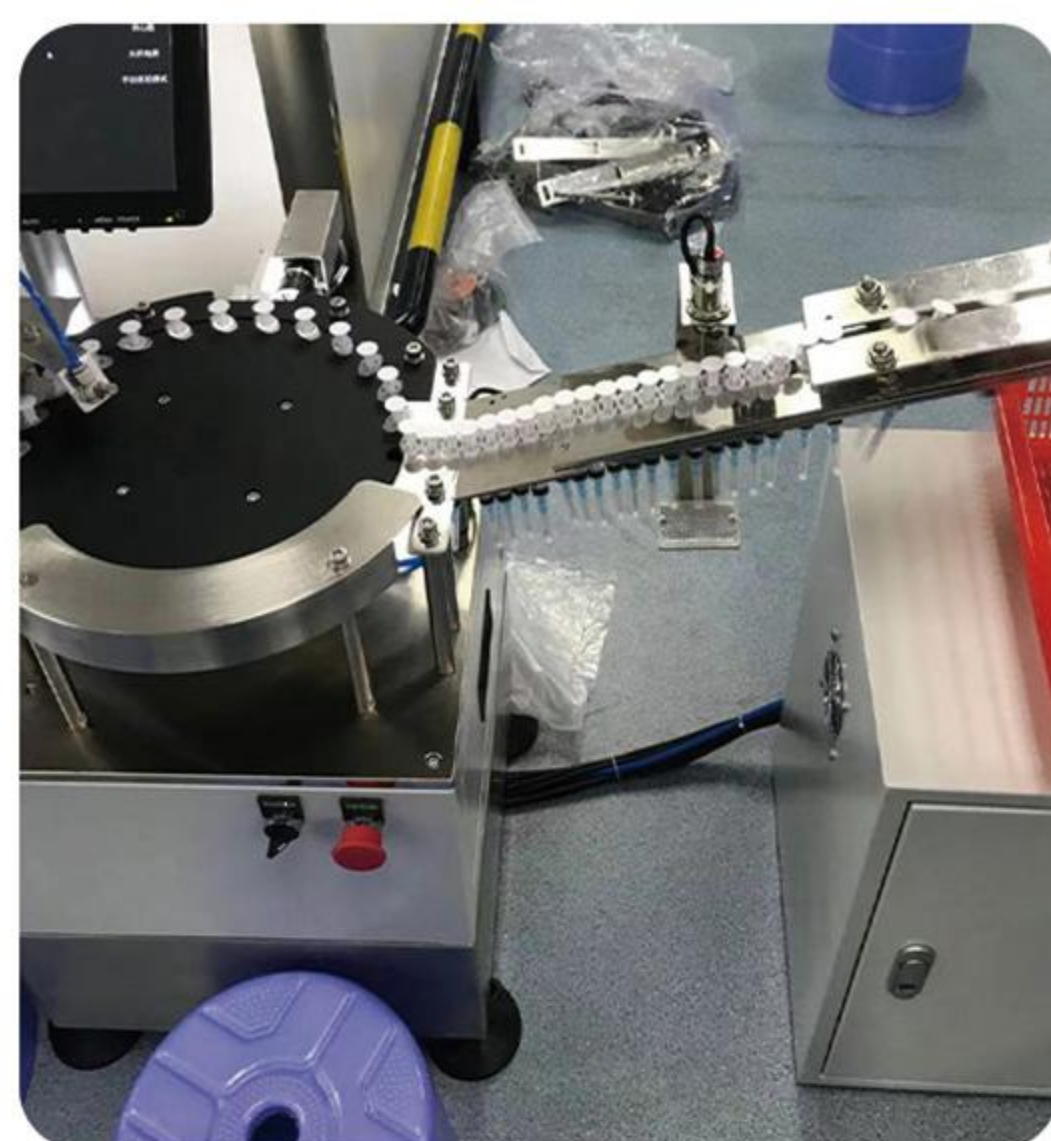
Interaction between hardware and software



交互方面 Interaction

软件通过在运动控制器中写入控制代码，结合直观的人机交互UI设计，配合伺服电机对设备的物理控制，可实现对曝光、机内调焦、镜头距离的自动调整，达到一键自动调节视觉硬件的运动交互。

By writing the control code in the motion controller, combining with the intuitive human-computer interaction UI design, and cooperating with the physical control of the servo motor on the equipment, the software can realize the automatic adjustment of the exposure, the focus adjustment in the machine and the lens distance, and achieve the motion interaction of the visual hardware with one key.



远程控制方面 Remote control

工程师调机无需到设备运作现场，可通过博视源服务器对设备进行联网操作，实现远程对用户产品检测的软硬件设置，真正实现远程生产调试。

The engineer does not need to go to the equipment operation site to adjust the machine, but can conduct networking operation on the equipment through the boshiyuan server, so as to realize the software and hardware settings for remote product detection of users, and truly realize remote production debugging.



医疗行业

Medical industry

注射器外观检测

Appearance inspection of injector

产品功能 Product Features

博视源为医疗设备生产商定制的注射器外观检测线。可提供纯视觉模组集成自动化设备，接入用户生产线，为注射器生产进行外观质量检测 and NG品剔除。

Boshiyuan is a customized syringe appearance testing line for medical equipment manufacturers. Can provide pure visual module integrated automation equipment connect to the user's production line to conduct appearance quality testing and NG product removal for syringe production.

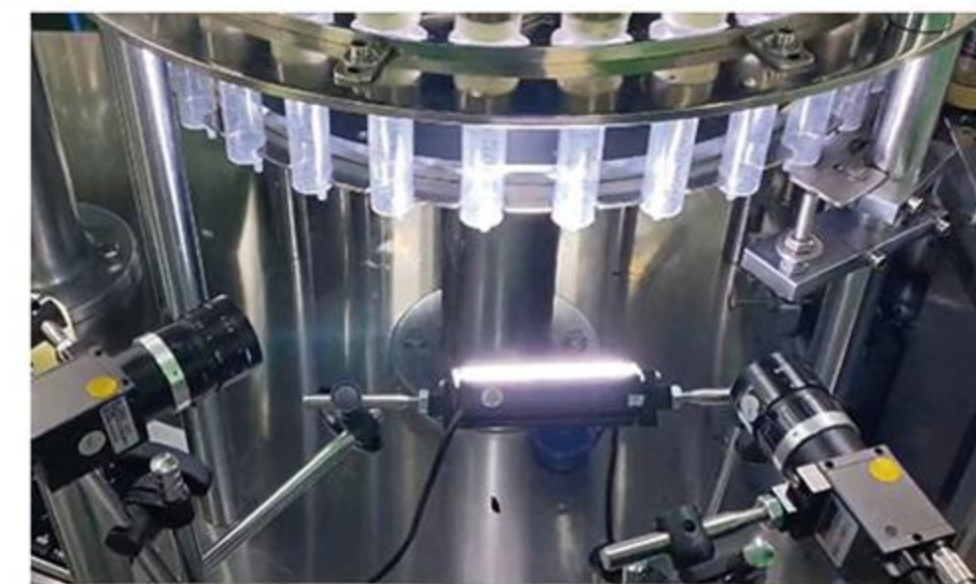
优势介绍 Advantages Introduction

I 检测功能强大、效率高（可加入AI算法，增加检测模块）
I Strong detection function and high efficiency (AI algorithm can be added and detection module can be added)

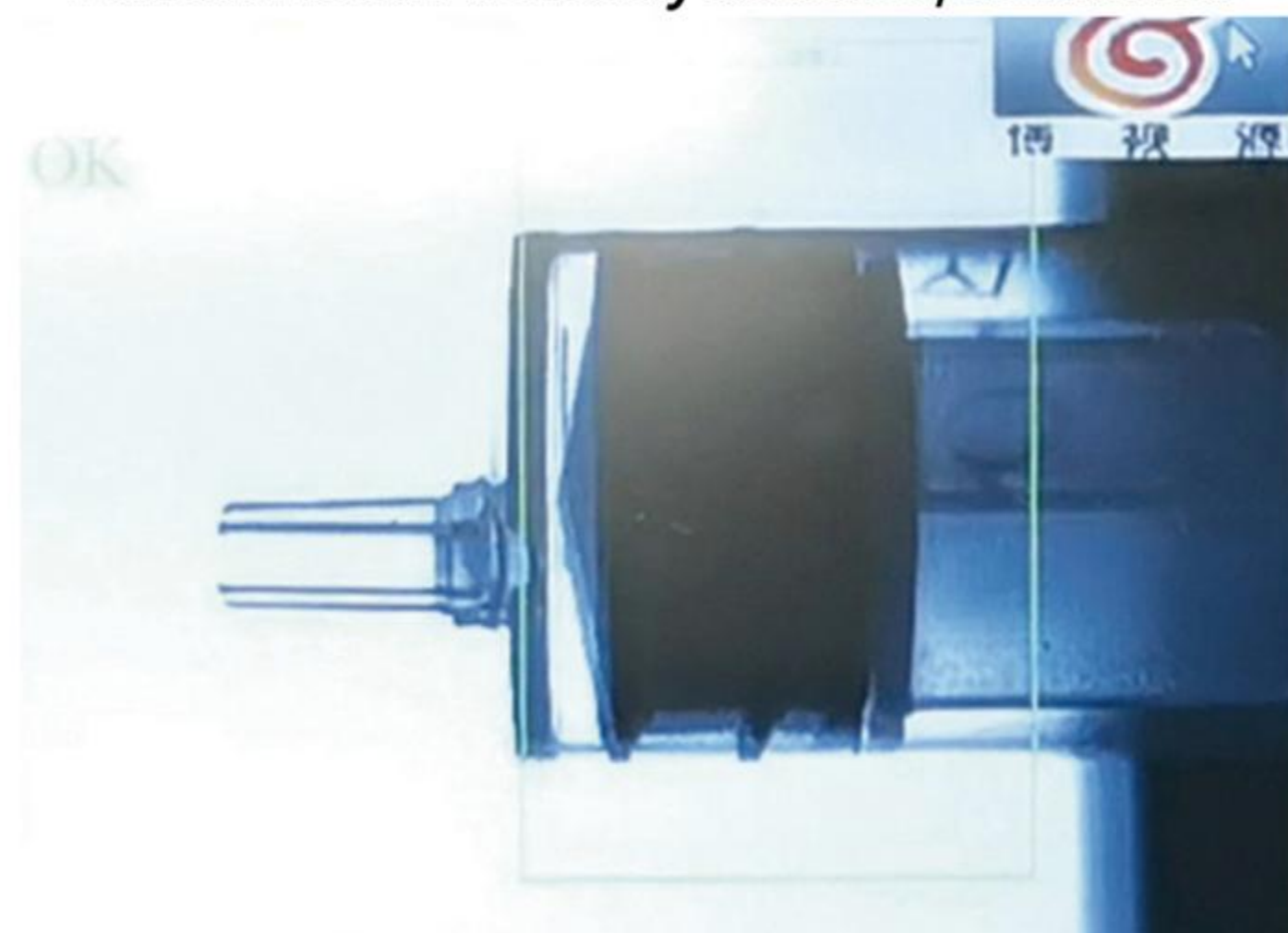
II 可选定制化，根据用户生产线环境匹配机型，可选完整机构设备或视觉模组
II. Customization can be selected, and the model can be matched according to the user's production line environment. Complete mechanism equipment or visual module can be selected.



胶塞有无 Rubber plug present or not	磨针尺寸 Grinding needle size	传统算法400个/分钟 Traditional algorithm 400 pieces/minute	针套有无 Needle sleeve present or not	针头有无 Needles present or not
筒底毛发异物 Hair foreign matter at the bottom of the cylinder	刻度线脏污/缺陷 Dirty/defective scale marks	胶塞底部异物 Foreign matter at the bottom of the rubber plug	芯杆有无 Core rod present or not	



功能可自由选配/组合 Functions can be freely selected/combined



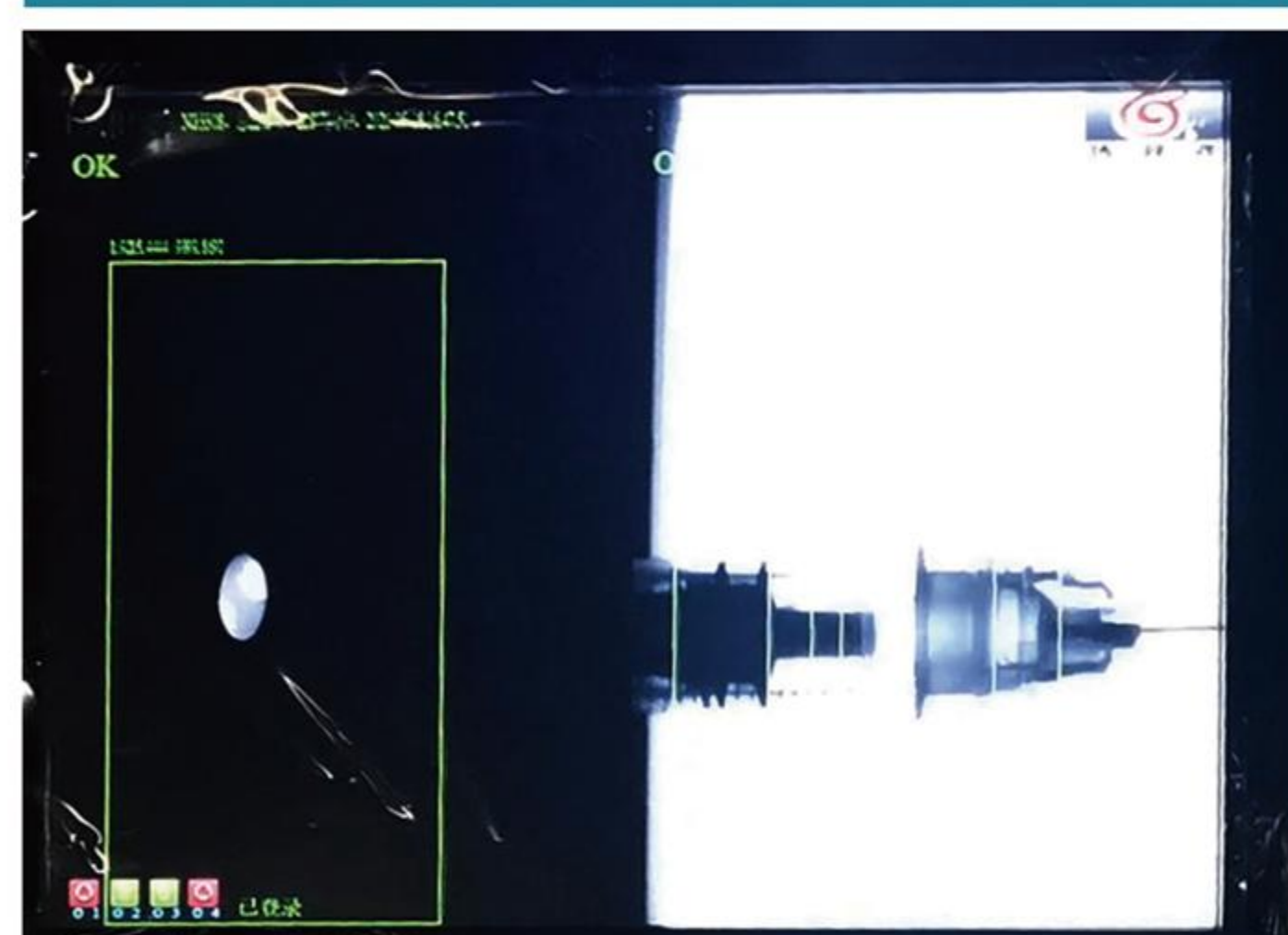
胶塞有无
Rubber plug present or not



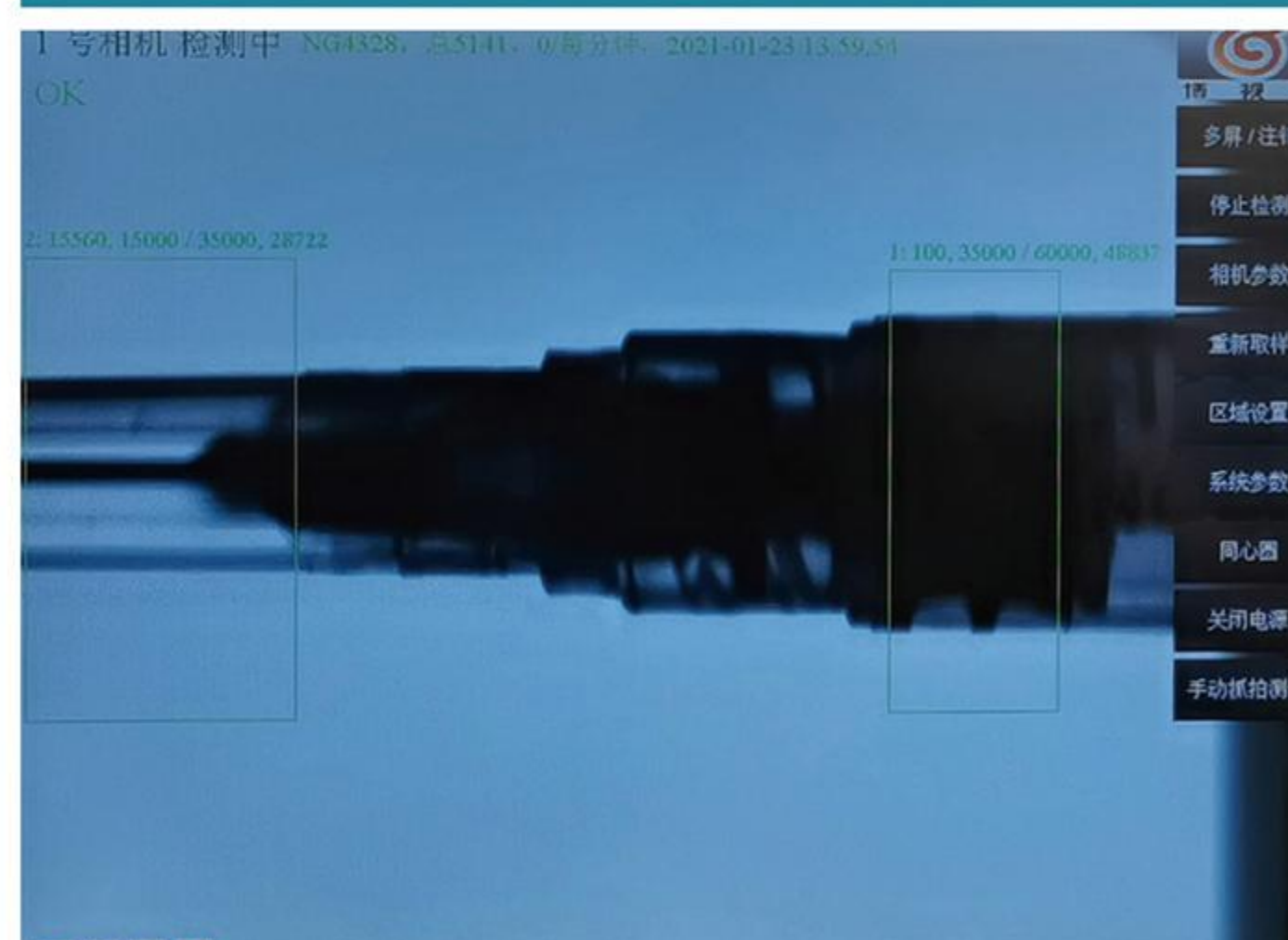
磨针检测
Grinding needle detection



筒内异物
Foreign matter in the cylinder



芯杆检测
Core rod detection



针筒检测
Needle cylinder detection



胶塞底部异物
Foreign matter at the bottom of ccplug

AI吸塑包装检测机

AI blister packaging tester

产品功能

Product function

博视源为医疗设备生产商定制的注射器后道吸塑包装生产线外观检测。可接入用户注射器包装生产线，为吸塑包装后的注射器进行最后一道的外观质量检测。

Boshiyuan provides appearance inspection for the syringe back channel blister packaging production line customized by medical equipment manufacturers. It can be connected to the user's syringe packaging production line to conduct the final appearance quality inspection for the syringes after blister packaging.



主机设备
Host equipment

主要功能

配合其后道包装生产线包装速率，视觉检测程序可写入AI算法，实现更加精细的外观检测。

With the packaging speed of the next packaging production line, the visual inspection program can be written into the AI algorithm to achieve more precise appearance inspection.



剔除机构
Elimination mechanism

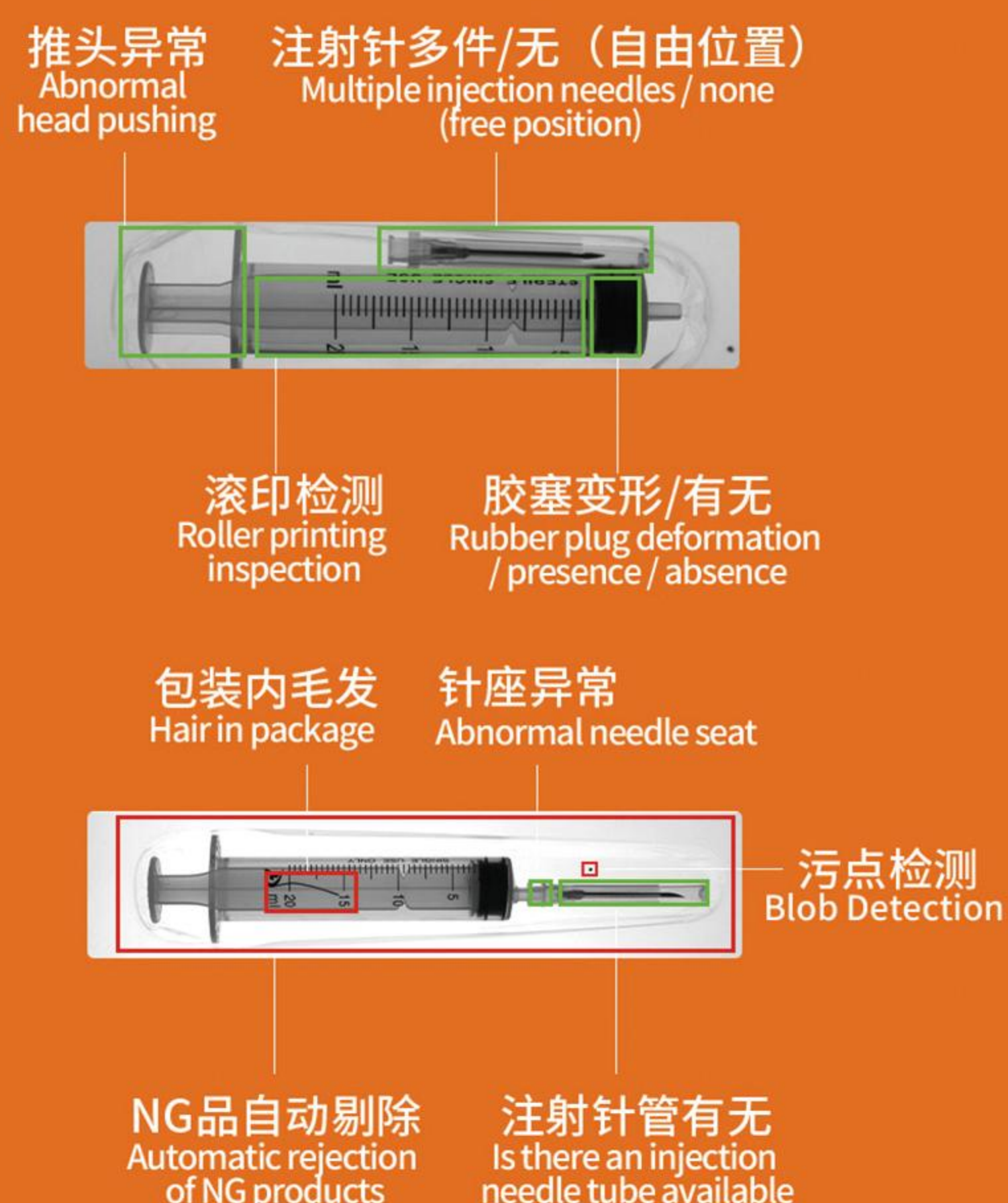
具体可实现的功能

Specific realizable functions



加入AI算法深入学习，检测精度高，误差小。同时新增检测功能，扩大检测范围，并且检测部位任意摆放也可精准定位。

Join AI algorithm to learn deeply, with high detection accuracy and small error. At the same time, a new detection function is added to expand the detection range, and the arbitrary placement of the detection position can also be accurately positioned.



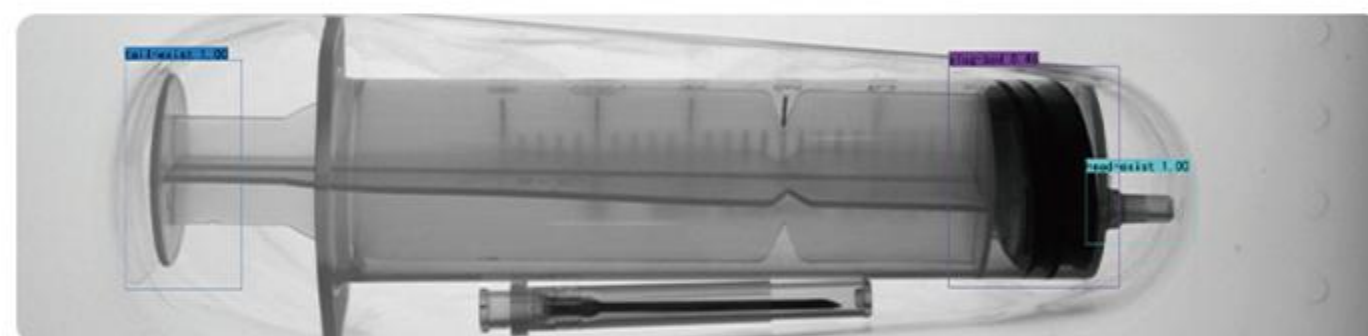
优势介绍

Advantages introduction

I. 可检测直径0.08-0.44mm，长度5mm的毛发
It can detect hair with diameter of 0.08-0.44mm and length of 5mm.



II. 产品轻微变形亦可检测
Slight deformation of the product can also be detected

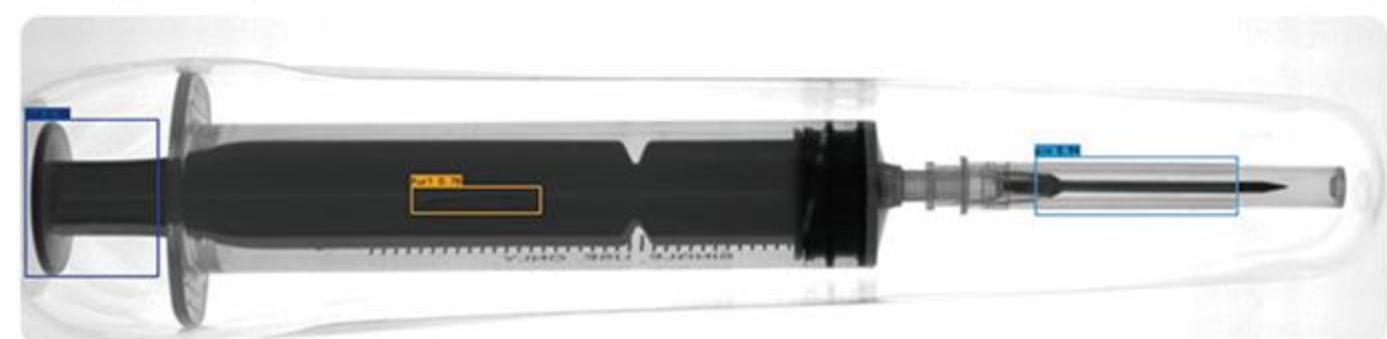


III. 检测效率达18模/分钟
The detection efficiency is up to 18 modes / min



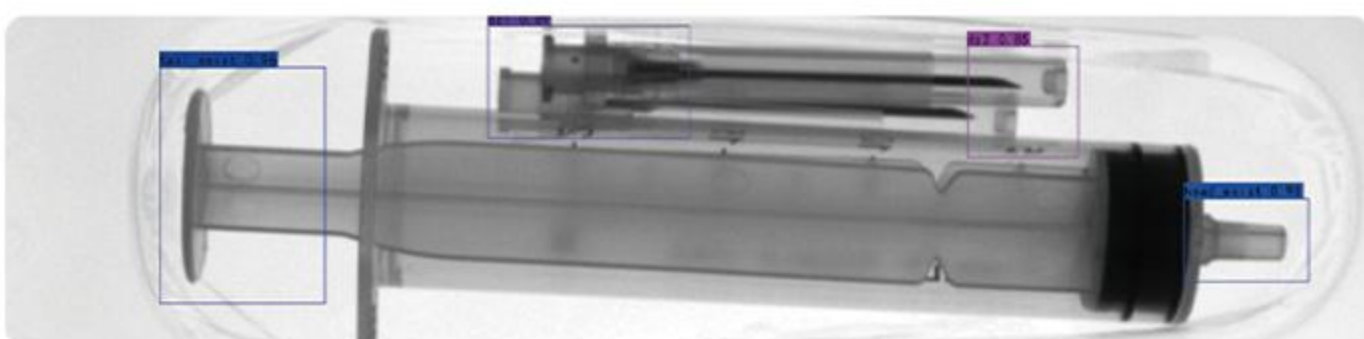
IV. 不惧不透光注射器背光打光、不惧正面打光，精准检测污点、毛发

No fear of backlighting of light tight syringes, no fear of front lighting, accurate detection of stains and hair.



V. 检测区域无需固定位置
(如侧放针头检测有无)

The detection area does not need to be fixed (for example, whether the side needle is detected)



注射器自动打包机

Syringe automatic packing machine

产品功能

Product function

博视源为医疗设备生产商定制的注射器打包装盒自动线，用于注射器吸塑包装完毕与装箱前的装中盒工序。
The automatic line for syringe packaging customized by boshiyuan for medical equipment manufacturers is used for the process of syringe packaging after blister packaging and before packaging.

优势介绍

Advantages introduction

替代人工，将前道注射器组装质量检测-中道吸塑包装自动检测-后道包装后注射器装盒链接，组成完整的质量检测自动化生产线。
Instead of manual work, the front syringe assembly quality inspection - middle syringe blister packaging automatic inspection - rear syringe packaging are linked to form a complete automatic quality inspection production line.



生产效率

12盒/分钟

(每盒100支)

12 boxes / min

(100 pieces per box)



主要功能



将吸塑包装后的整排注射器和说明书一起放入纸盒
Put the whole row of syringes after blister packaging into the carton together with the instructions.



纸盒封盖
Carton cover



可与前道AI吸塑包装检测机组合使用，NG品剔除，OK品装盒
It can be used in combination with the previous AI blister packaging inspection machine, NG products are removed, and OK products are packed

流程介绍

Process introduction



自动检针机

Automatic needle detection machine

产品功能

博视源为医疗设备生产商定制的一款高速检针机，设备应用于针管安装于针座之前的外观检测和方向检测。

Boshiyuan is a high-speed needle testing machine customized for medical equipment manufacturers, which is used for the appearance and direction detection of needle tubes before they are installed on the needle holder.

针头倒针
Needle inverted needle

针头倒钩
Needle barb

针头圆润
Round needle

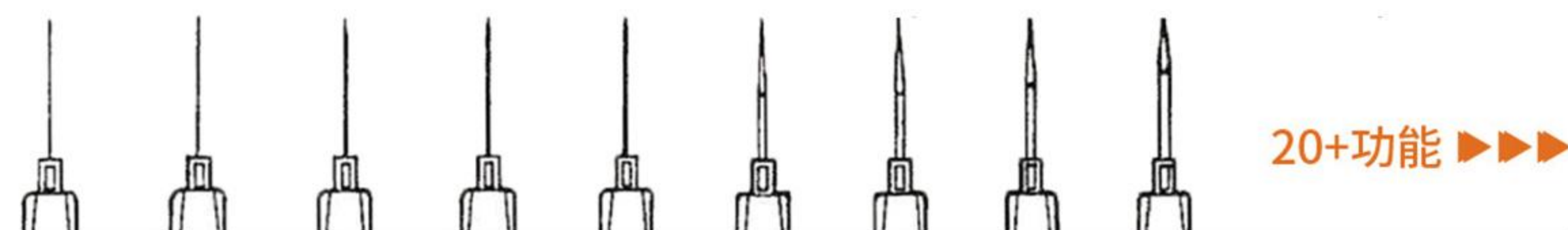
通孔堵塞
Through-hole blockage

生产效率

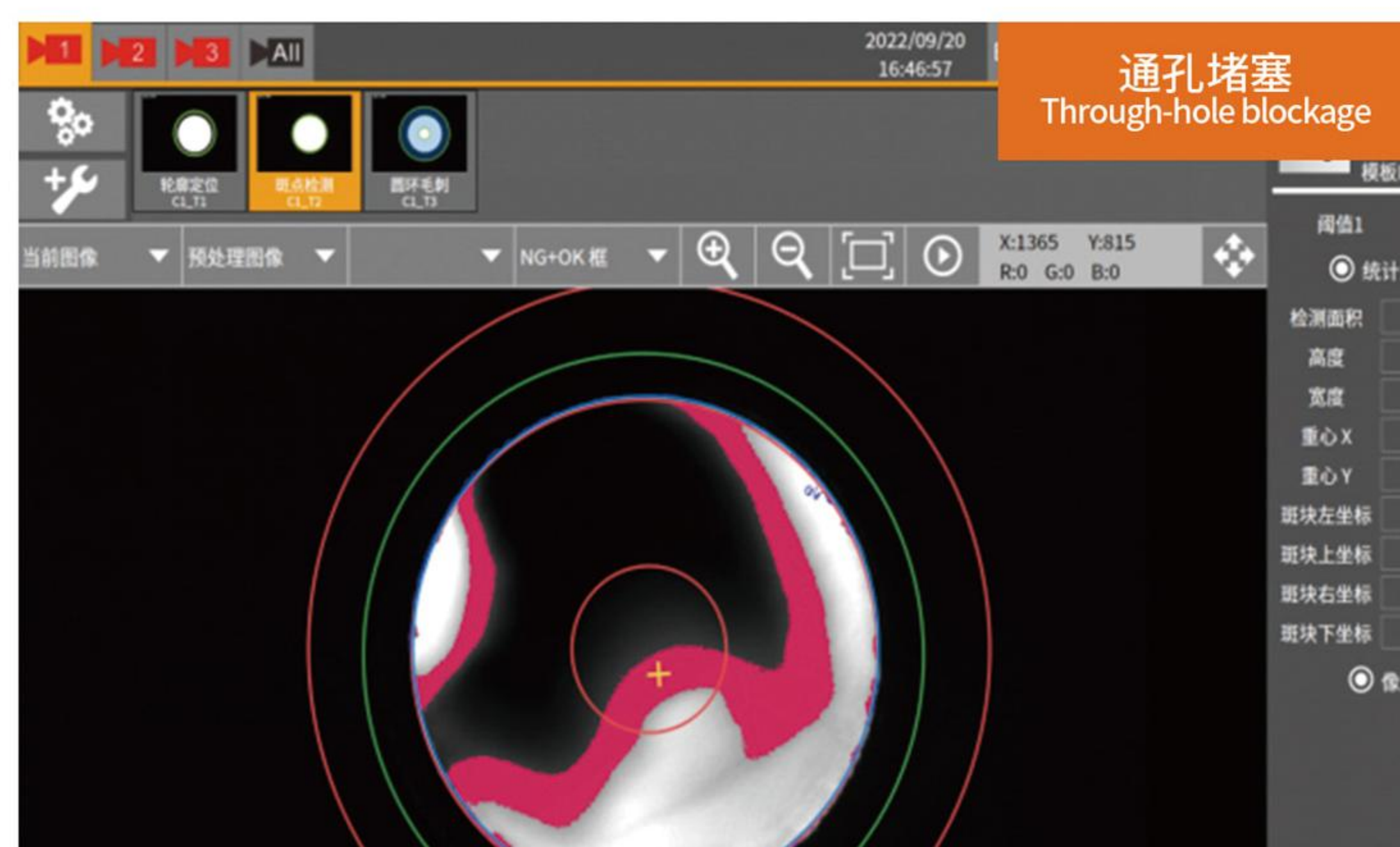
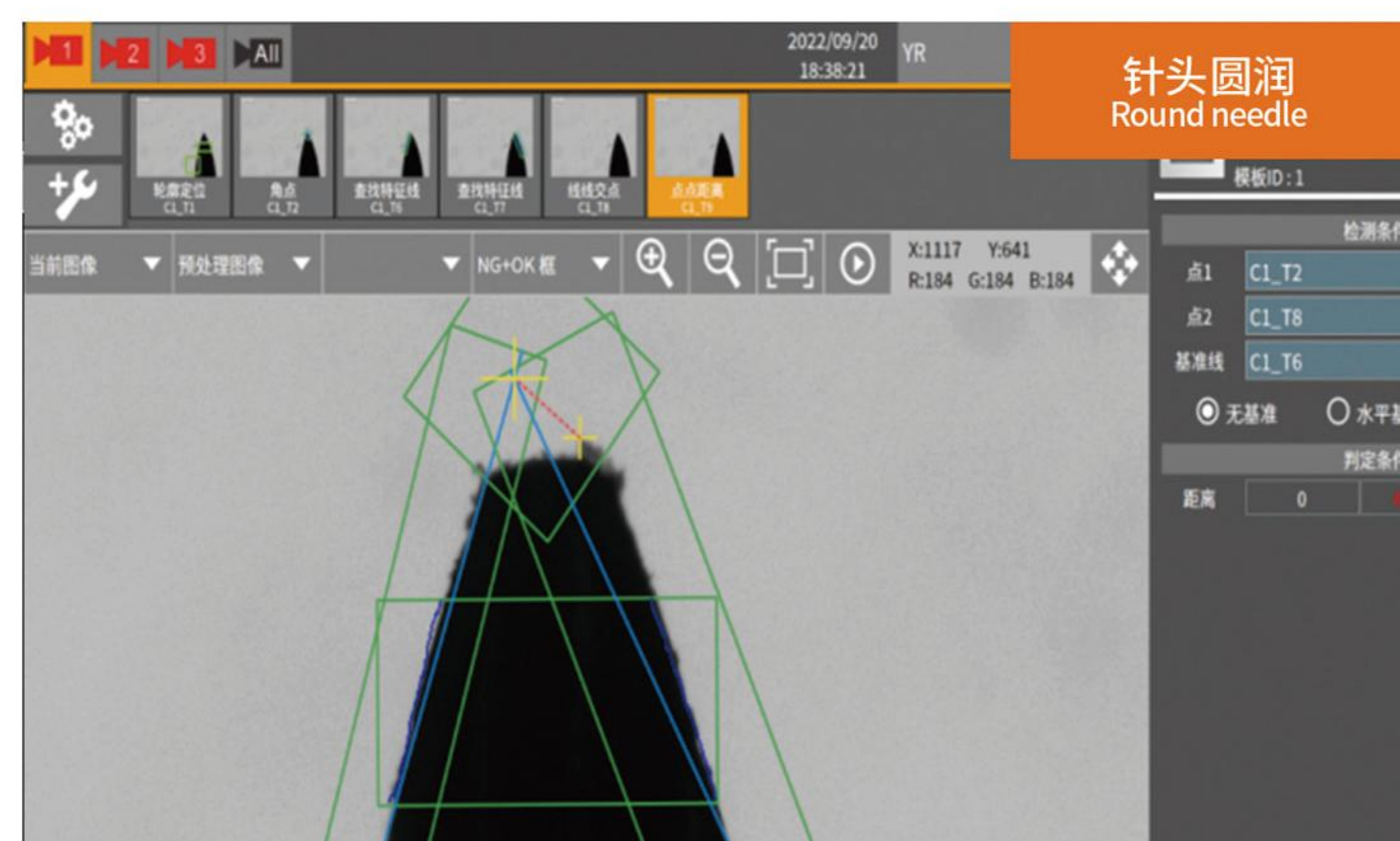
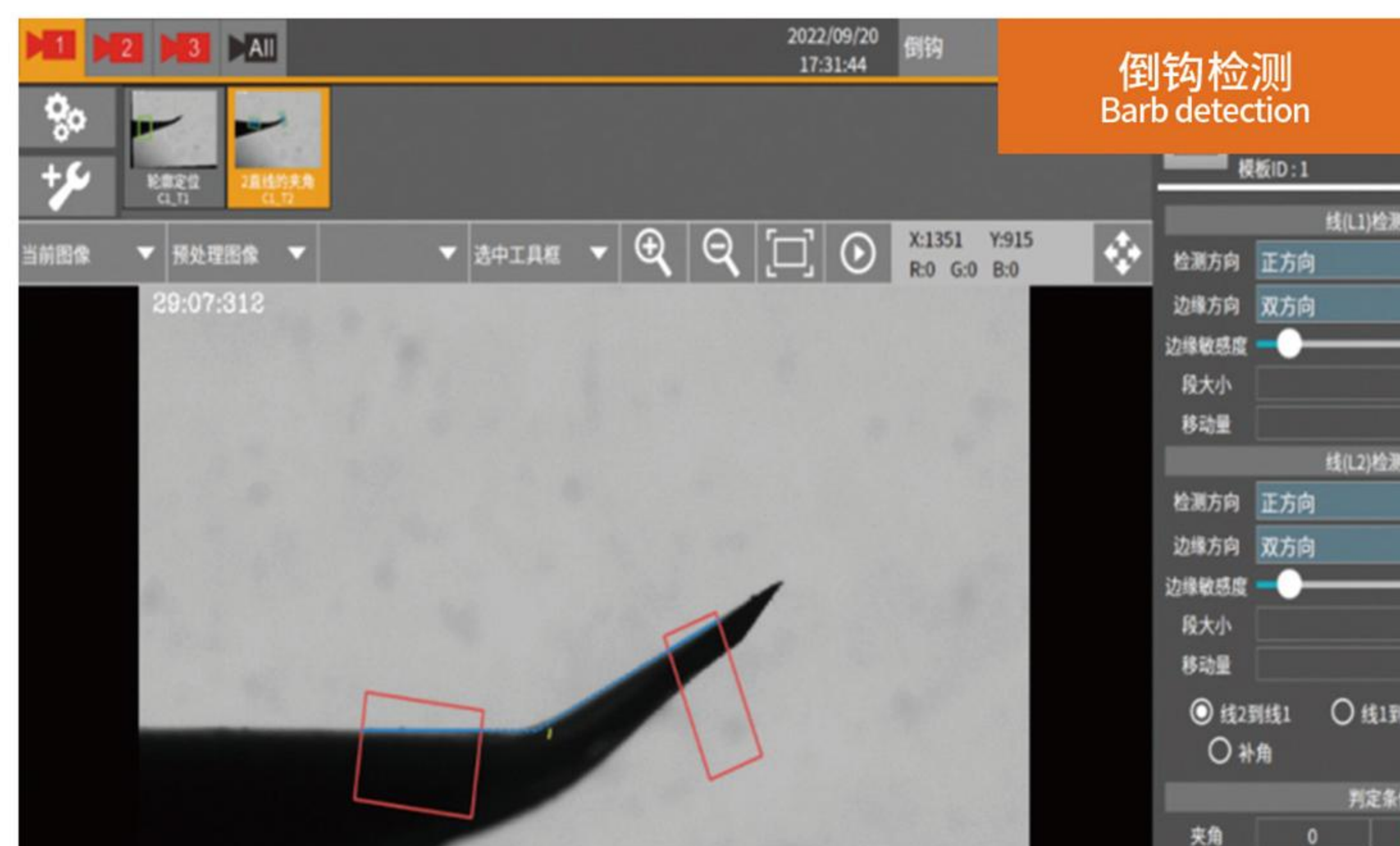
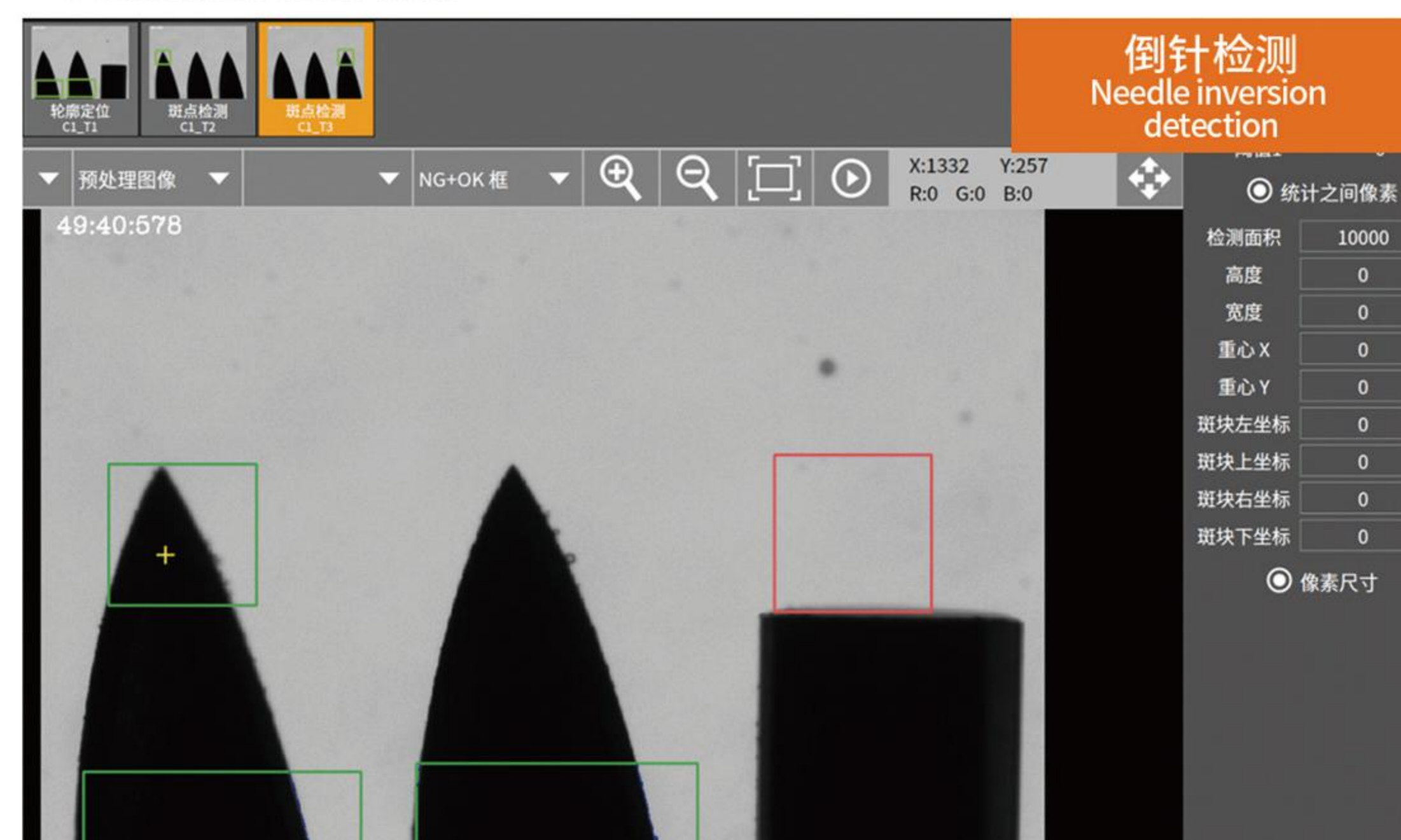
20针/秒
20 stitches/second

设备特点

设备具有兼容性，通过程序设置和硬件调整，可兼容20+款不同尺寸针头。
The device is compatible with 20+needles of different sizes through program settings and hardware adjustments.



检测界面



汽配行业

Auto parts industry

双传送带继电器外壳检测机

Double conveyor relay shell detection machine

产品功能

Product function

①继电器外壳4个侧面和顶部的异常；②检测缺胶、划伤、开裂；③良品摆盘，不良品剔除

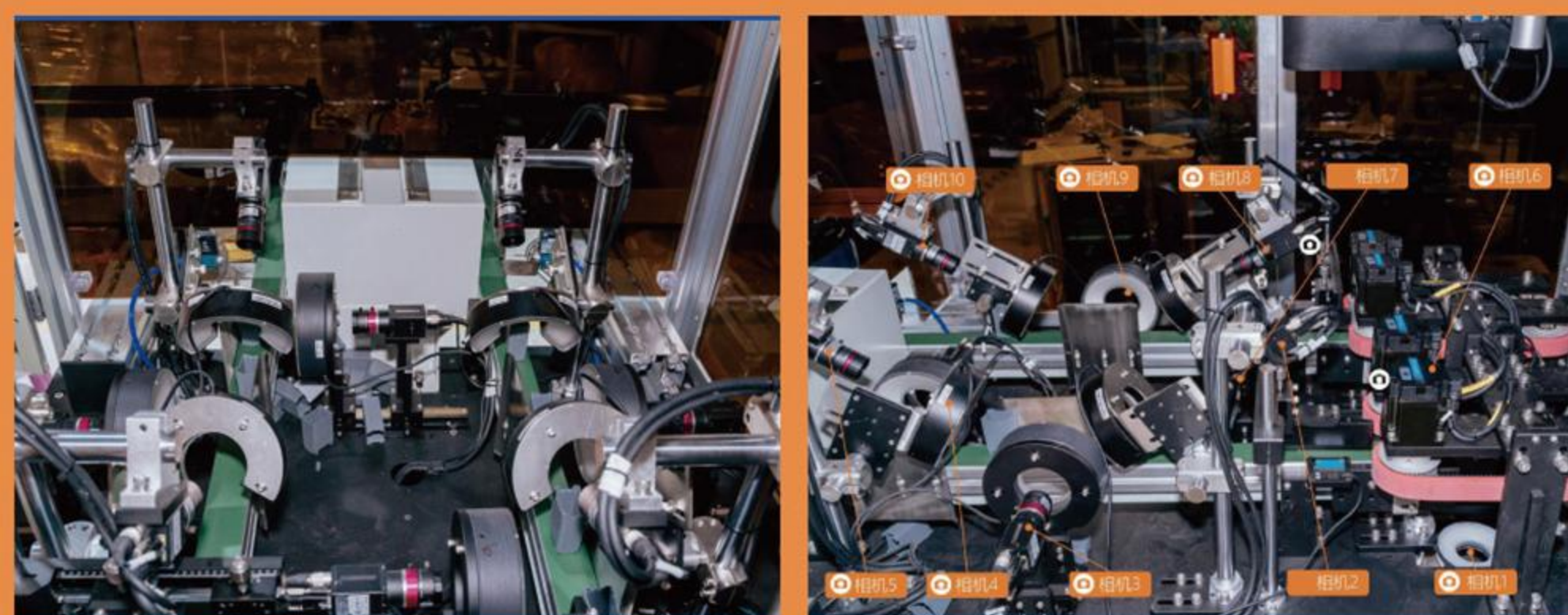
① Abnormalities on the four sides and top of the relay housing; ② Detect missing glue, scratches cracking; ③ Arrange good products and eliminate defective ones

产品结构

Product mix

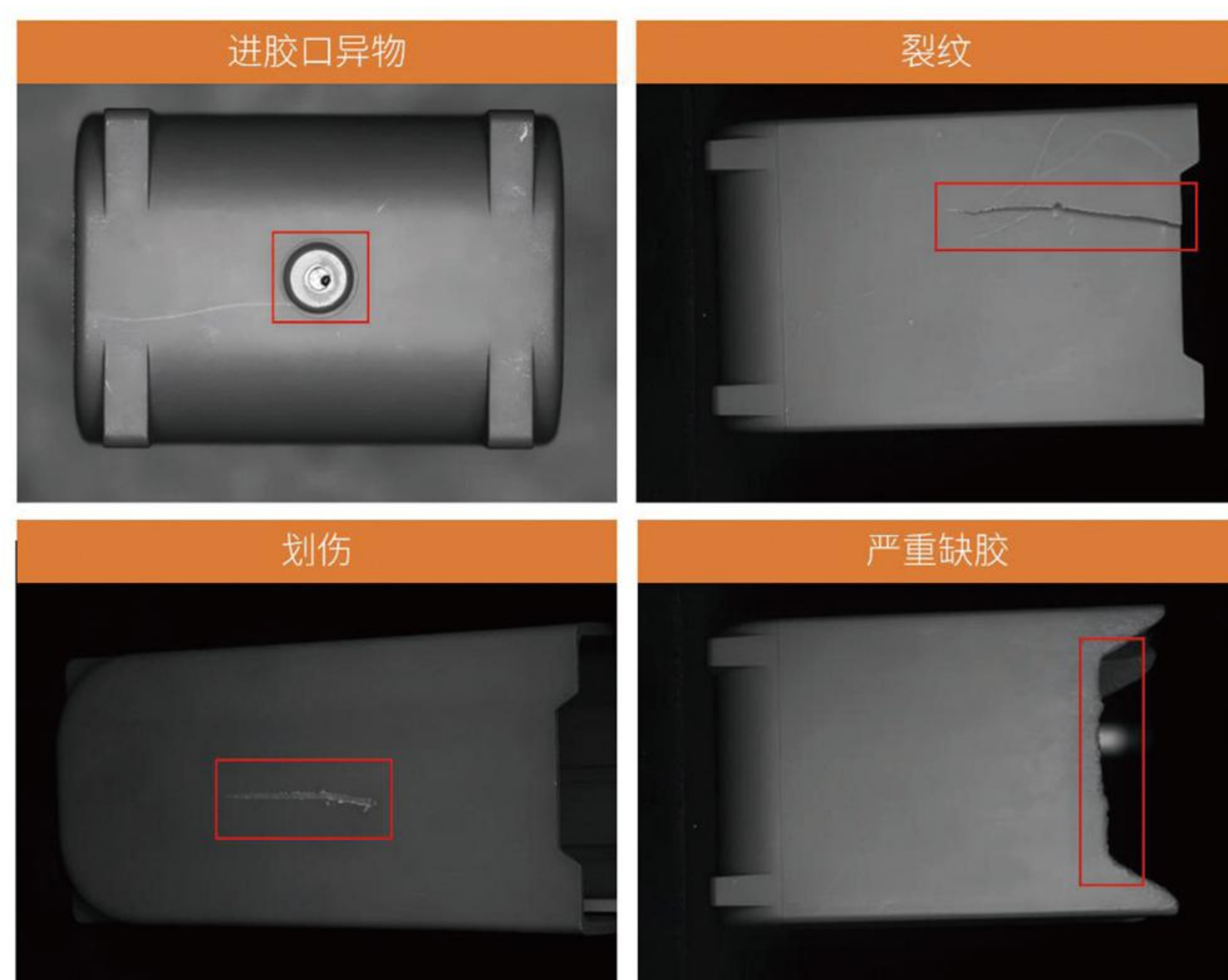
双自动料仓+双振动盘+双传送带，匹配10套内置了AI模型的相机模组

Dual automatic silos+dual vibrating discs+dual conveyor belts, matched with 10 sets of camera modules with built-in AI models



在视觉程序上，采用了博视源自研通用视觉算法平台BSY-Vision Lib里的缺陷检测算法，并加入了同样自研的AI深度学习算法，该程序可支持继电器产品底部的进胶口异物检测，4个侧面和顶部开口的缺胶、划伤、开裂。经过市场长期验证过的完整算法+模型不断训练，将进一步提升产品检测准确性。

In terms of visual program, the defect detection algorithm from BSY Vision Lib, a general visual algorithm platform developed by Boshi, was adopted, and the same self-developed AI deep learning algorithm was added. The program can support foreign object detection at the bottom of the relay product's glue inlet, as well as missing glue, scratches, and cracks on the four sides and top openings. The complete algorithm and model that have been validated by the market for a long time will be continuously trained to further improve the accuracy of product detection.



检测物料

Testing materials



检测效率

Detection efficiency

180个/分钟
180pcs/min

汽车卡扣检测包装机

Automobile buckle detection and packaging machine

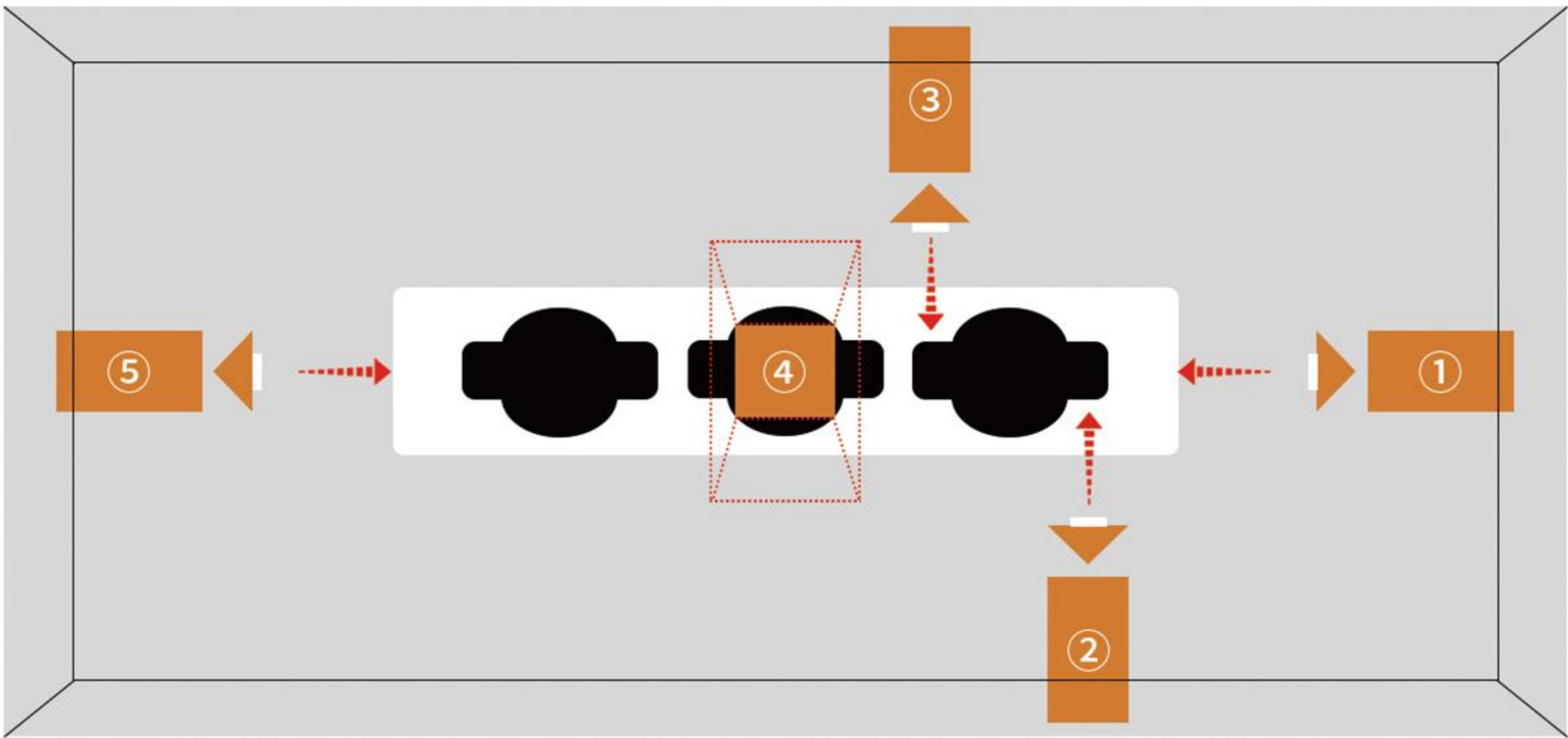
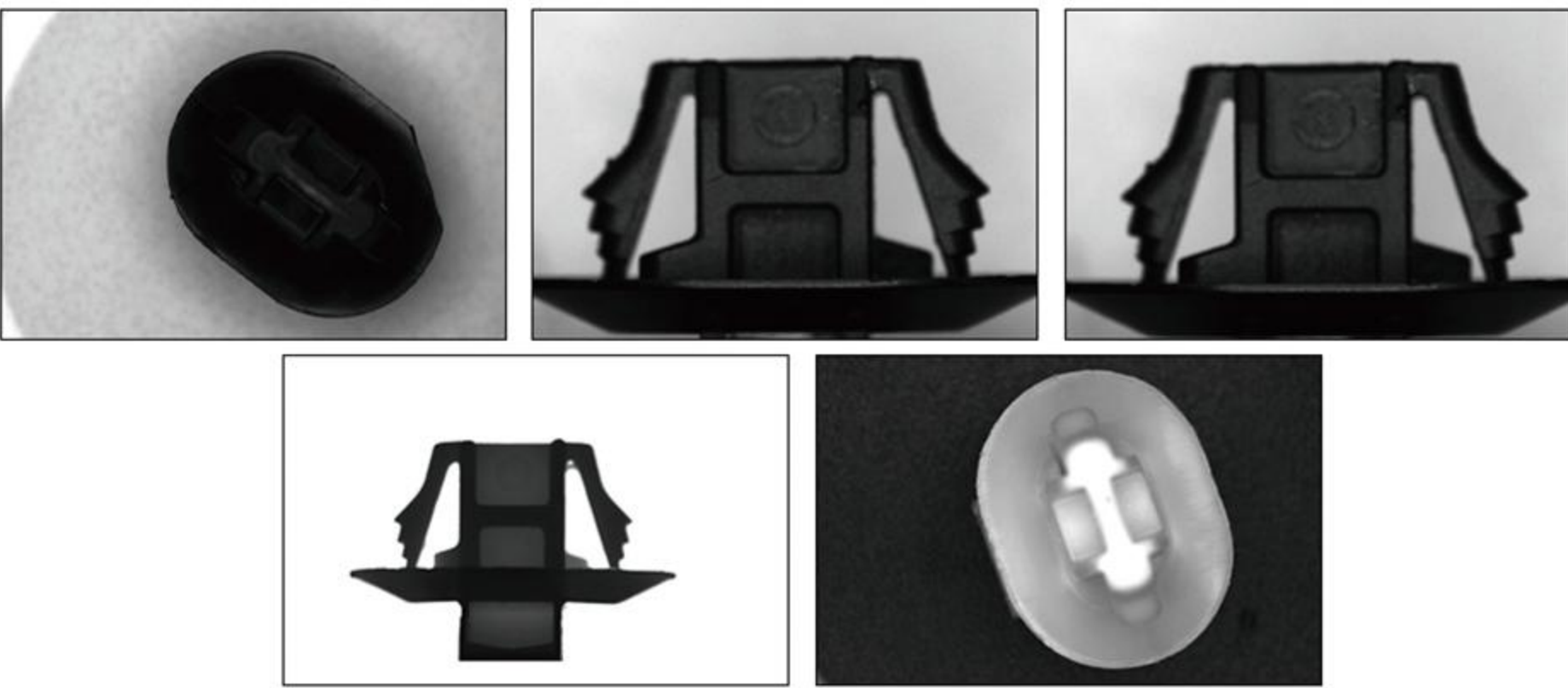
产品功能 Product Features

博视源为汽车配件生产商打造的非标自动化设备，设备用于检测汽车卡扣多个角度的缺陷并对良品进行分拣打包封装。
Boshtyuan is a non-standard automation equipment built for auto parts manufacturers, which is used to detect defects in multiple angles of car clips and to sort, package, and package good products.

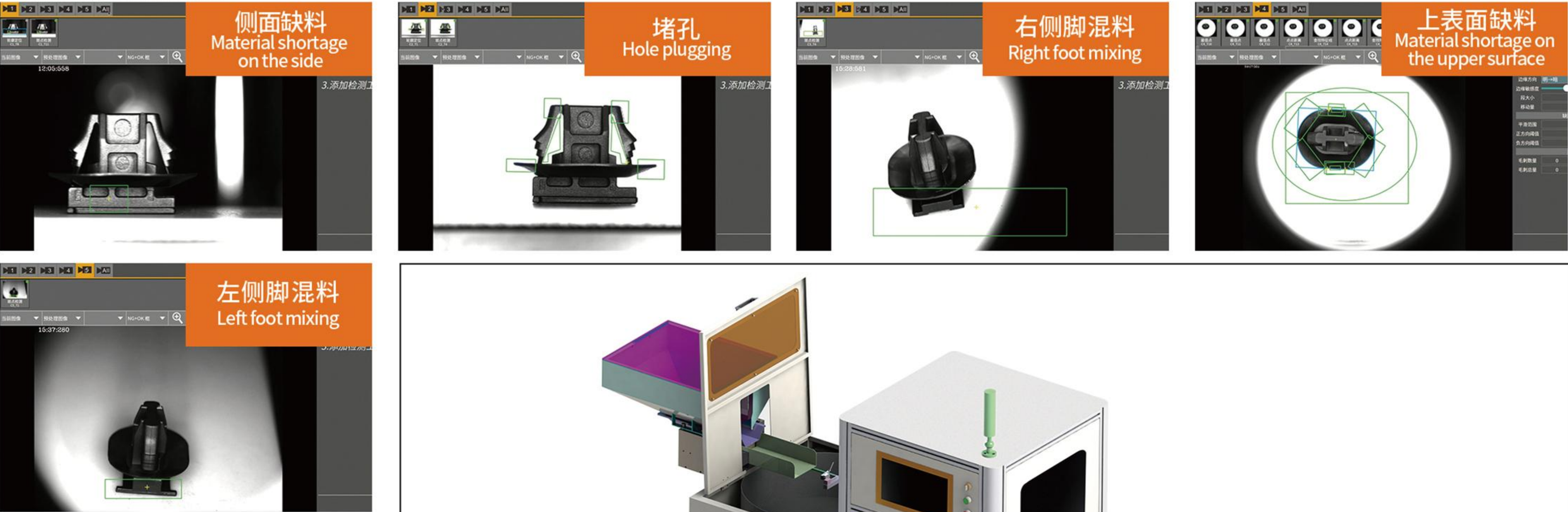
- 汽车卡扣是否缺料
Whether the car buckle is short of material
- 汽车卡扣是否变形
Is the car buckle deformed
- 汽车卡扣是否混料
Whether the car buckle is mixed
- 汽车卡扣侧面是否堵孔
Whether the side of the car buckle is blocked

设备特点 Equipment characteristics

- 设备在视觉上配备了5个相机模组，实现产品270°缺陷检测
The device is visually equipped with 5 camera modules to achieve 270 ° defect detection of the product.



检测界面 Detection interface



生产效率 Production efficiency

90个/分
90 pieces/minute



压铸件螺纹检测机

Die casting thread tester

产品功能(Product function)

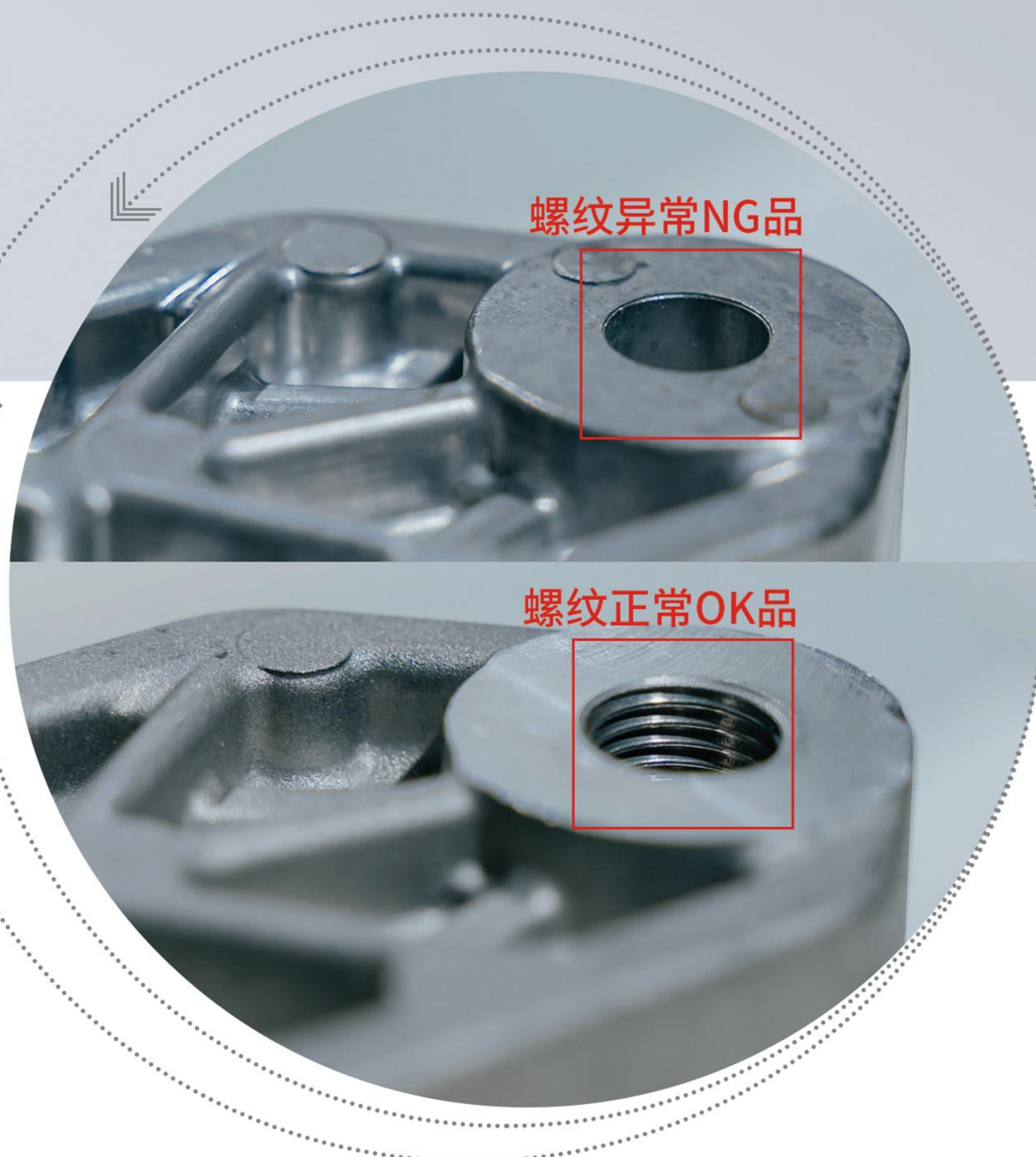
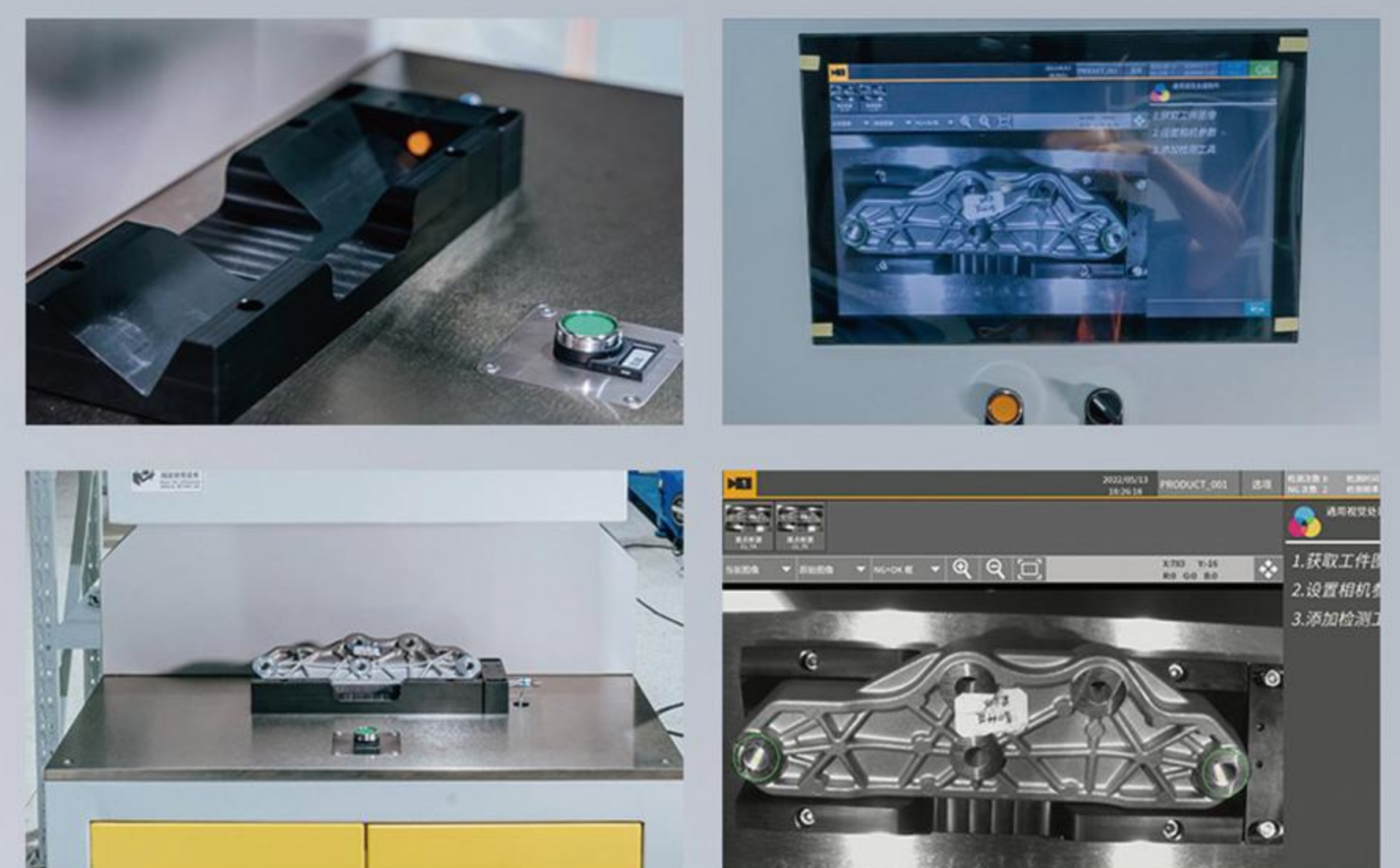
人工上下料，检测压铸件圆孔内是否有加工螺纹、螺纹异常或无螺纹，如螺纹异常，将发出警报并标注异常孔位。

Manual loading and unloading, detect whether there are processed threads, abnormal threads or no threads in the round hole of the die casting. If the thread is abnormal, an alarm will be sent and the abnormal hole position will be marked.

产品结构(Product mix)

设备配备业内领先的红外摄像头，检测效率可达100帧，搭载可伸缩移栽平台。

The equipment is equipped with an industry-leading infrared camera, with detection efficiency of up to 100 frames, and is equipped with a scalable transplanting platform.



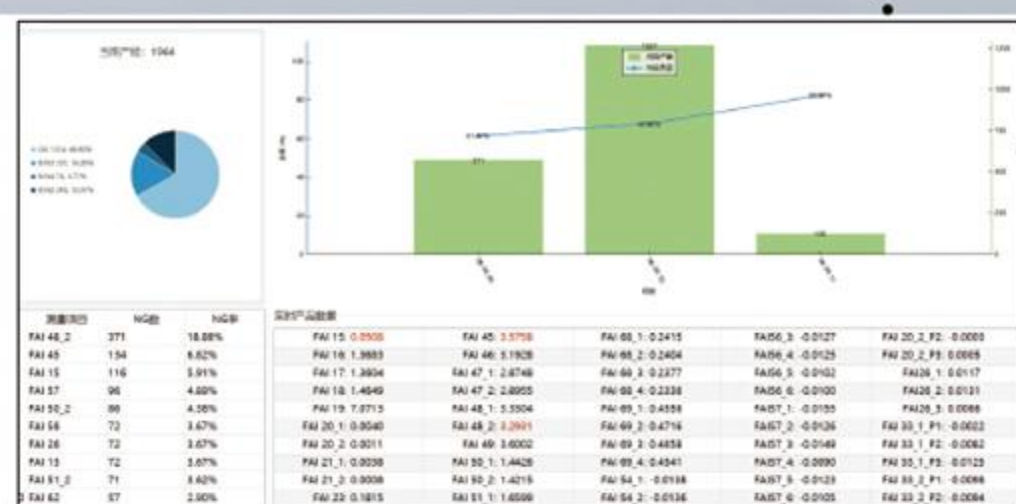
检测效率(Detection efficiency)

300次/分钟
300 times/minute



3C electronic industry

Cato AOI dimension measuring machine



数据报表 | Data report

Product function

Product mix



Detection efficiency

13

耳机舱二维码检测机

Headphone cabin QR code detector

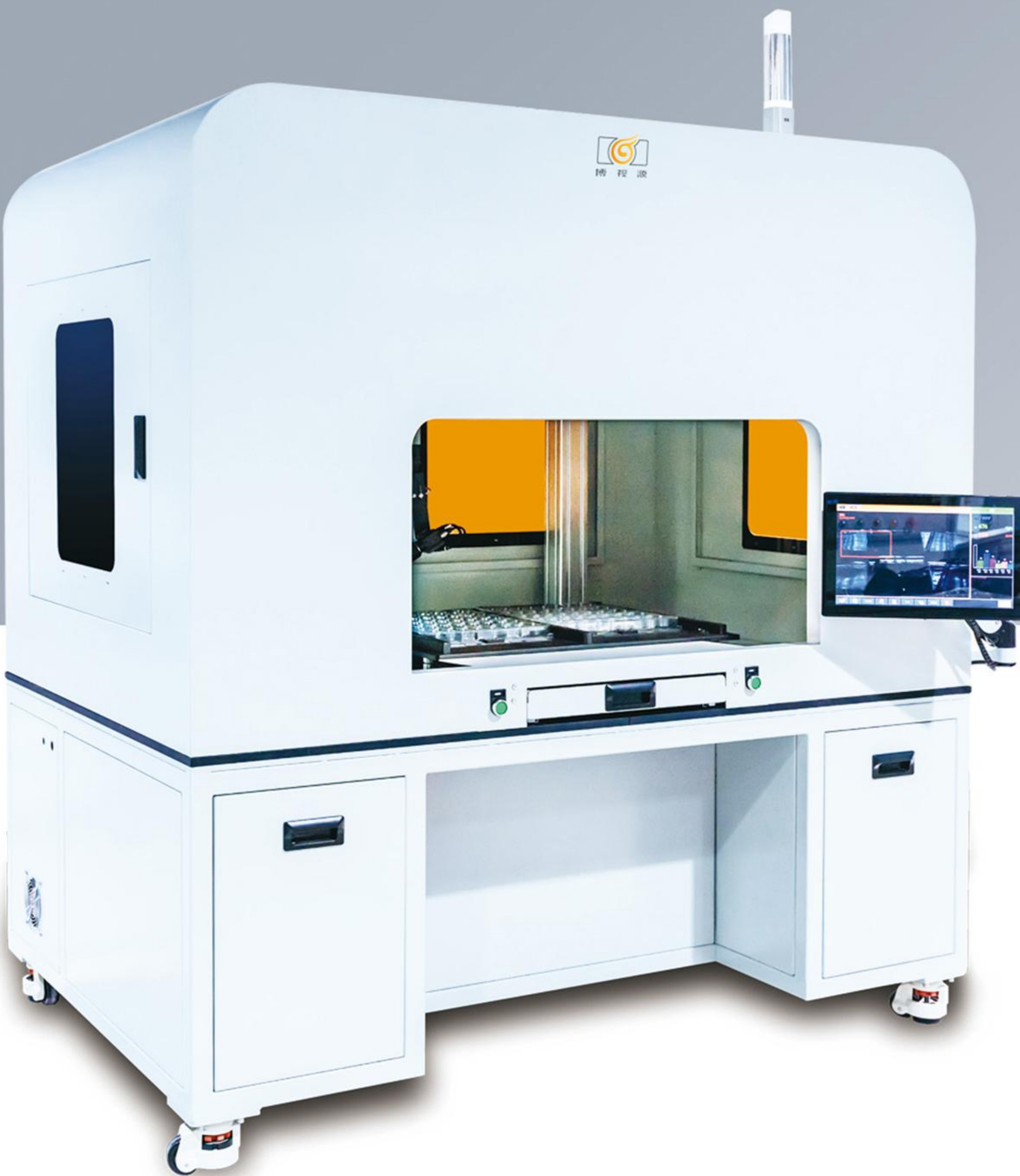


产品功能

- I. 视觉解码，确保二维码印刷OK
- II. 明码(右下角完整编码)OCR识别
- III. 明码和暗码(二维码识别的编码)核对是否一致
- IV. 编码(固定代码+年月标识)错误，检测不符合编码规则的字符
- V. 重复编码(流水号)检测，确保编码唯一性
- VI. 印刷部分：印刷错误，残缺，缺失等

Product function

- I. visual decoding to ensure 2D code printing is OK
- II. Clear code (complete code at the lower right corner) OCR recognition
- III. check whether the clear code and the secret code (two-dimensional code identification code) are consistent
- IV. Coding (fixed code + year / month identification) error, detect characters that do not conform to coding rule
- V. detection of repeated codes (serial numbers) to ensure the uniqueness of codes
- VI. printing part: printing error, incomplete, missing, etc



产品结构

Product mix

采用双托盘工位+伺服模组+500万像素工业相机+25mm广角工业镜头，NG品测出将显示于托盘方位，方便人工取出。

Double tray station + servo module + 5 megapixel industrial camera + 25mm wide-angle industrial lens are adopted. Ng products will be displayed on the tray position for easy manual removal.

检测效率

Detection efficiency

1400个/分钟

1400 pcs / min

摄像头模组外观检测机

Camera module appearance inspection machine

产品功能

Product function

用于检测该金属配件外观16个面的开裂、缺料、压伤、粘料、划伤、变形等外观异常，以及对配件商模号的识别读取。

It is used to detect the appearance abnormalities such as cracking, lack of material, crushing, sticking, scratch and deformation on the 16 surfaces of the appearance of the metal fitting, and to identify and read the model number of the fitting.



优势介绍

Advantages introduction

设备采用传统视觉算法+AI深度学习算法，对细小划伤变形的识别精度将不断提高

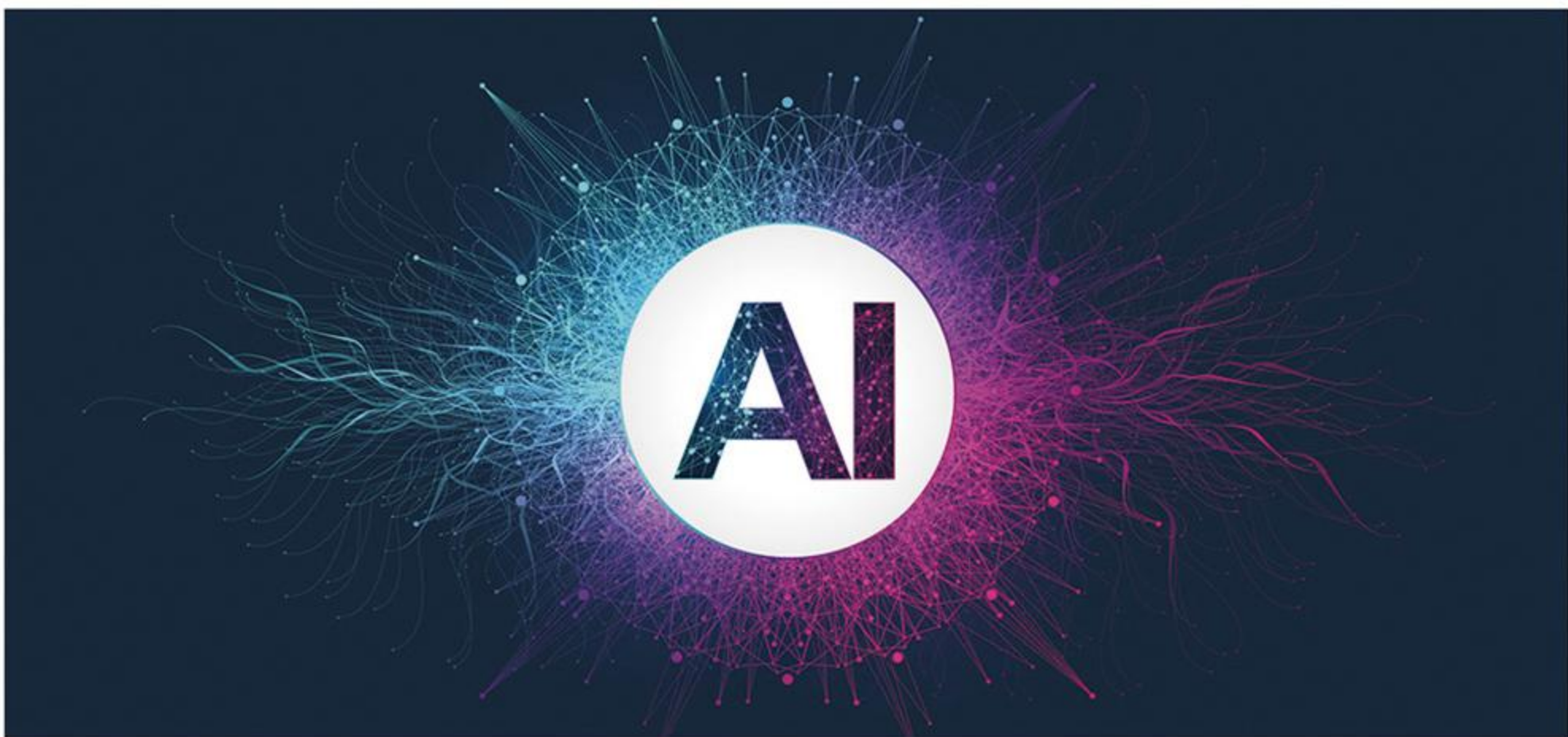
The equipment adopts the traditional vision algorithm + AI deep learning algorithm, and the recognition accuracy of small scratches and deformation will be continuously improved

检测效率

Detection efficiency

1模/秒

1 mode / s

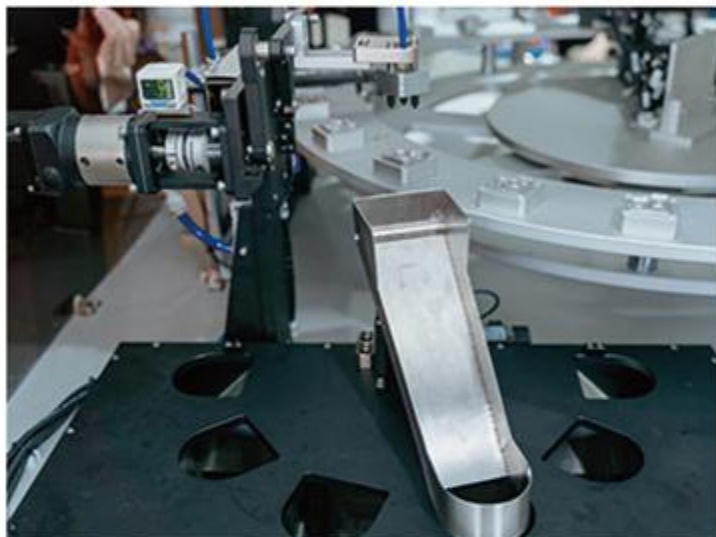
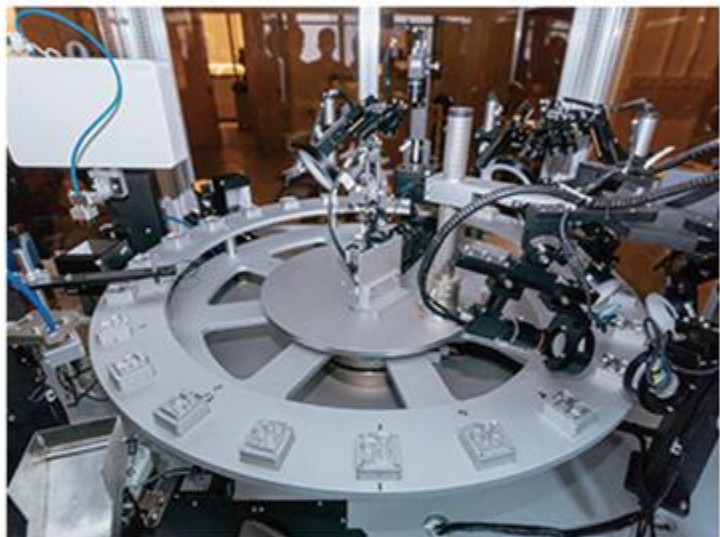


产品结构

Product mix

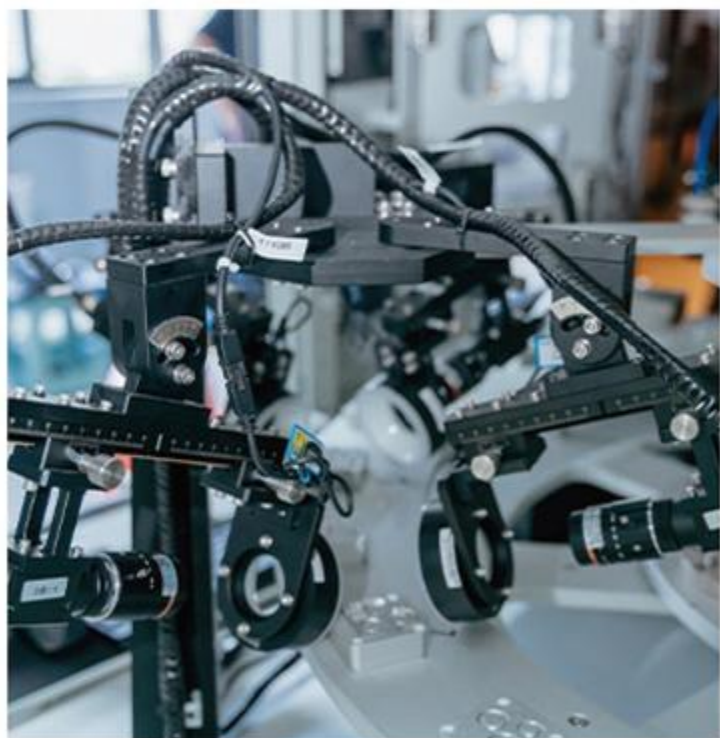
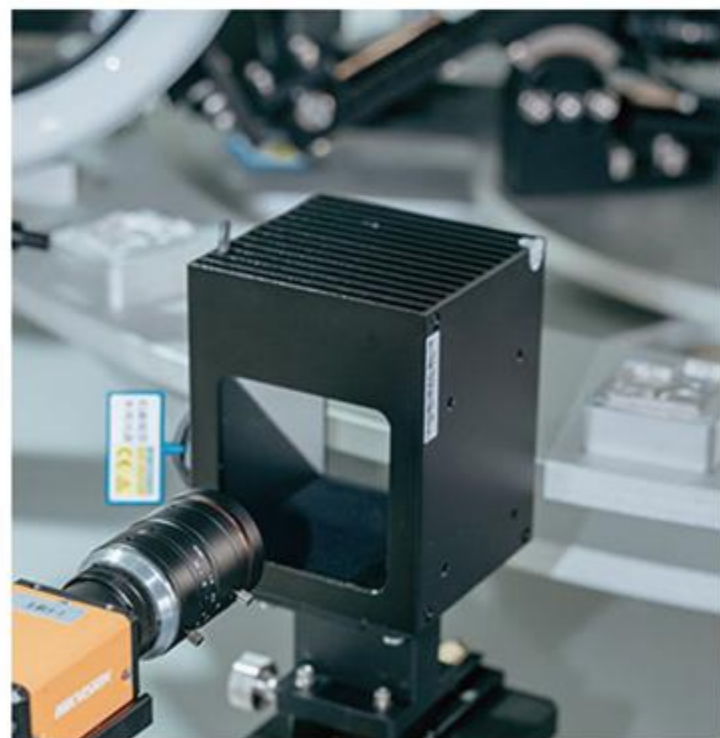
采用振动盘+直振上料，PPU吸盘机械手抓取产品至转盘固定工位，由16个1200万像素相机分别进行检测和识别，再由机械手进行NG/OK产品分拣。

The vibrating disk + direct vibration is used for feeding, and the PPU sucker manipulator grabs the products to the fixed station of the turntable. The 16 12 megapixel cameras are used for detection and identification, and then the manipulator sorts NG / OK products.



相机架设

Camera erection



显示屏配件 Display accessories

玻璃银线检测机 Glass silver wire detector

产品功能 Product function

博视源为显示屏配件生厂商打造的非标自动化设备。设备用于检测产品银线的多种不良情况视觉上配备3个线扫相机实现了产品银线的全覆盖检测。

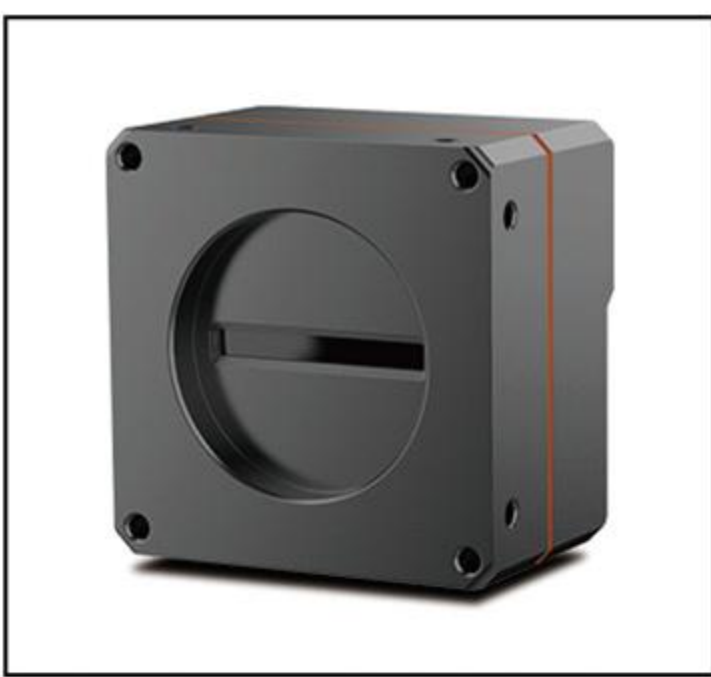
Boshiyuan is a non-standard automation equipment for display accessory manufacturers. The equipment is used to detect a variety of bad conditions of the product silver line. Visually, it is equipped with three line scanning cameras to realize the full coverage detection of the product silver line.



16个检测功能
16 detection functions

缺口 Breach	缺焊盘 Missing pad	针眼 Needle eye	线路缺失 Line missing	短路 Short circuit	开路 Open a way	线凸 Linear convexity
线路偏移 Line offset	纳米层残留 Nanolayer residue	线粗细 Line thickness	玻璃裂纹 Glass crack	玻璃破损 Glass breakage	残铜 Residual copper	

硬件优势 Hardware advantages



相机内部集成了国际领先的高速线阵图像传感器（分辨率16384x1），大规模现场可编程逻辑门阵列并行处理器，通过高速工业 CameraLink 总线对外输出数据（线速度 51kHz），同时具备了高速、高灵敏度和低噪声的特点。相机所有部件（包括元器件、PCB、外壳）均符合RoHs标准。
The camera is internally integrated with the internationally leading high-speed linear array image sensor (resolution 16384x1), a large-scale field programmable logic gate array parallel processor, and outputs data (line speed 51kHz) through the high-speed industrial CameraLink bus. At the same time, it has the characteristics of high speed, high sensitivity and low noise. All parts of the camera (including components, PCB and shell) comply with RoHs standards.

线扫相机通过X轴移位，线扫相机可以精准地抓取不良品特征。
The line scan camera can accurately capture the features of defective products by shifting the X axis.

检测精度 check the accuracy

缺口宽度>0.03mm
Notch width > 0.03mm

缺焊盘宽度>0.03mm
Width of missing pad > 0.03mm

针眼>0.03mm
Needle eye > 0.03mm

线路偏移路间距±0.05mm
Line offset distance ± 0.05mm

残铜长度>0.03mm
Residual copper length > 0.03mm

变形>0.05mm
Deformation > 0.05mm

纳米层残留宽度>0.05mm
Residual width of nano layer > 0.05mm

玻璃裂纹宽度>0.05mm，长度>1mm
Glass crack width > 0.05mm, length > 1mm

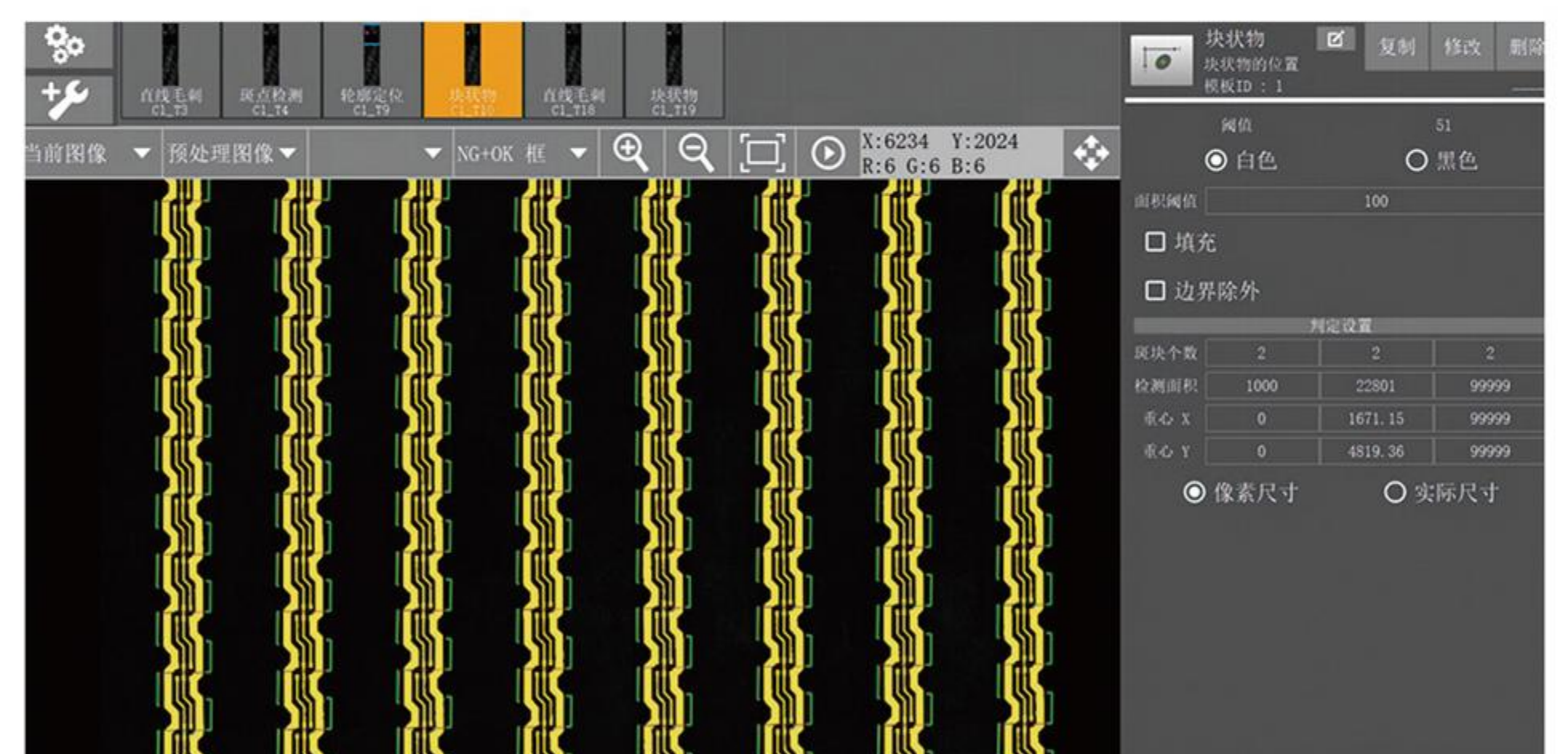
擦伤宽度>0.05mm，长度>1mm
Scratch width > 0.05mm, length > 1mm

检测效率 Detection efficiency

配合人工放料，设备检测效率可达1pcs/60s

With manual feeding, the equipment detection efficiency can reach 1pcs/60s

1pcs/60s



生活用品

Daily necessities

铝箔封口红外检测仪

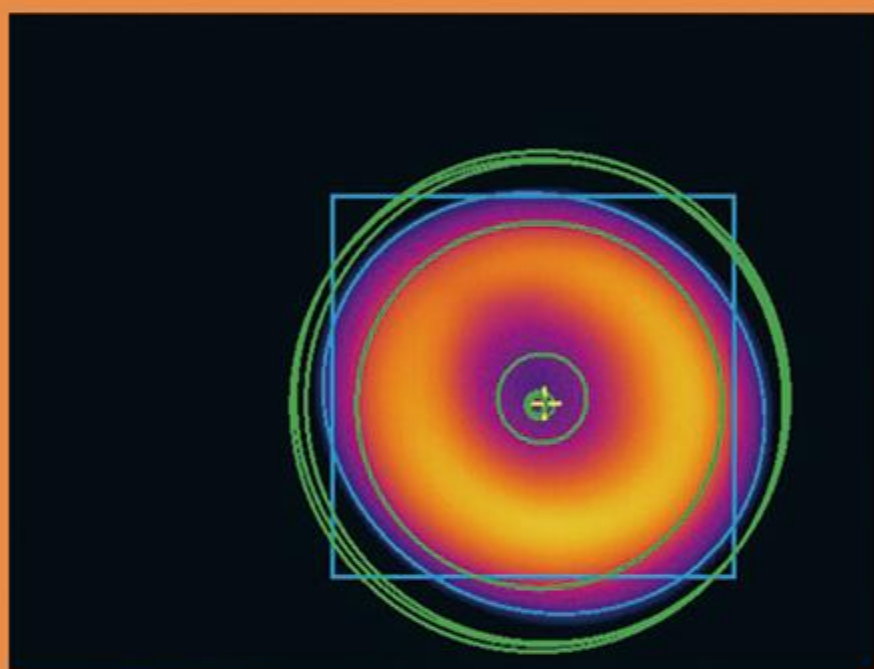
Infrared detector for aluminum foil sealing

产品功能

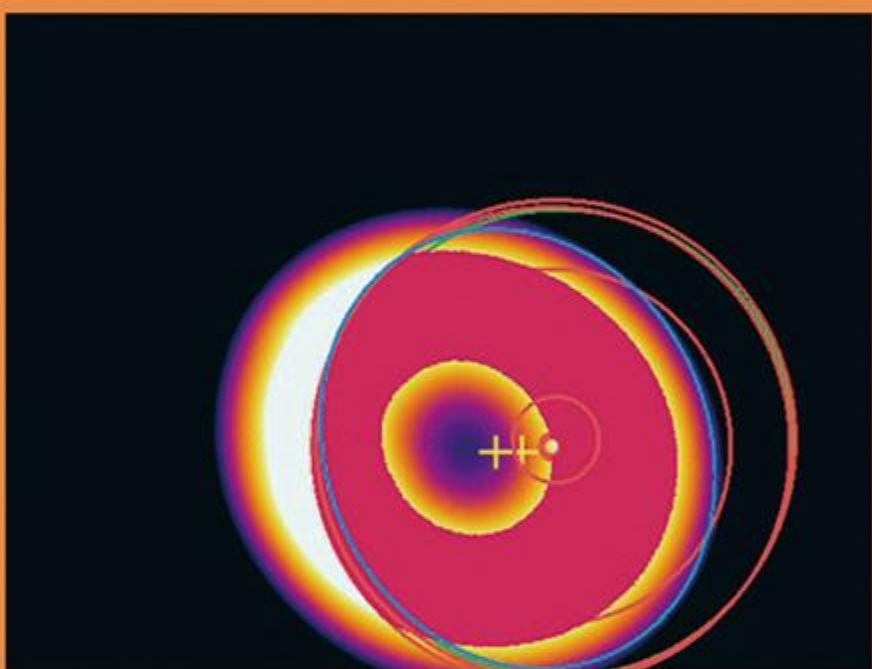
Product function

检测饮料瓶口的铝箔封口是否完好，具体可检测异常为：无铝箔、铝箔翘边、反铝箔、铝箔穿孔、瓶沿铝箔破损、铝箔封口不良。

Check whether the aluminum foil seal of the beverage bottle mouth is intact. The specific detectable abnormalities are: no aluminum foil, aluminum foil warping, reverse aluminum foil, aluminum foil perforation, aluminum foil damage along the bottle edge, and poor aluminum foil seal.



OK图



NG图

产品结构

Product mix

红外线感应

Infrared induction



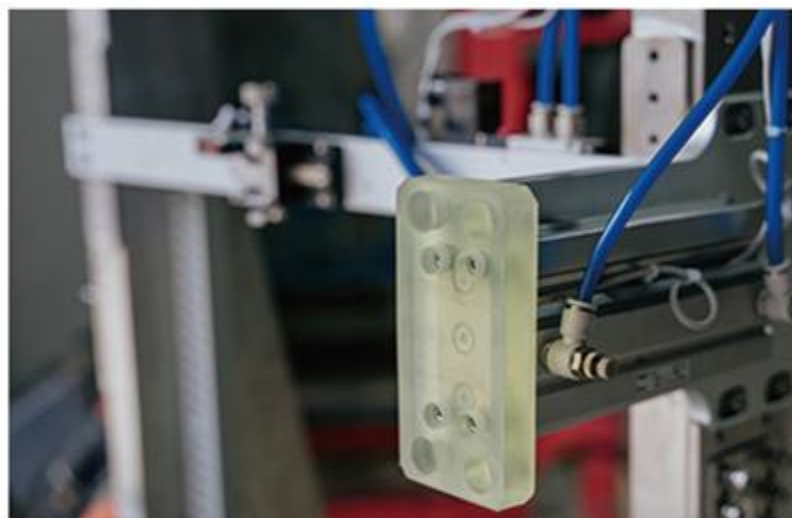
拍摄机位

Camera stand



剔除机构

Elimination mechanism



操作按钮

Operation button



显示屏

Display



自动剔除兼容性

Auto reject compatibility



优势介绍

- I .应用范围广

II .适用于铝箔电磁封口及热封合的产品，目适用于各类瓶盖/铝箔

III.技术先进，系统安全可靠，稳定性强

IV.采用业内最先进的红外热像设备，最高精速达100帧，对热像图捕捉入微，算法自底层自行研发，安全稳定。

V .定制化算法，更贴合客户需求，操作界面简洁，方便操作。

VI.图像所见即所得，实时监控；数据实时保存，可追溯，便于分析不合格品成因。

检测效率

Detection efficiency

5瓶/秒

5 bottles / second

Advantages introduction

- I. wide application range

II. It is suitable for electromagnetic sealing and heat sealing of aluminum foil. It is suitable for all kinds of bottle caps / aluminum foil

III. advanced technology, safe and reliable system and strong stability

IV. It adopts the most advanced infrared thermal imaging equipment in the industry, with a maximum precision of 100 frames. It can capture the thermal image in detail. The algorithm is self-developed from the bottom layer, safe and stable.

V. customized algorithm, more suitable for customer needs, simple operation interface and convenient operation.

VI. Image WYSIWYG, real-time monitoring; The data is saved in real time and can be traced to facilitate the analysis of the causes of

卫浴配件

Sanitary fittings

雾头内径检测机

Fog head inner diameter detector

产品功能

Product function

用于测量花洒雾头的内径尺寸和内径是否有异物堵塞。

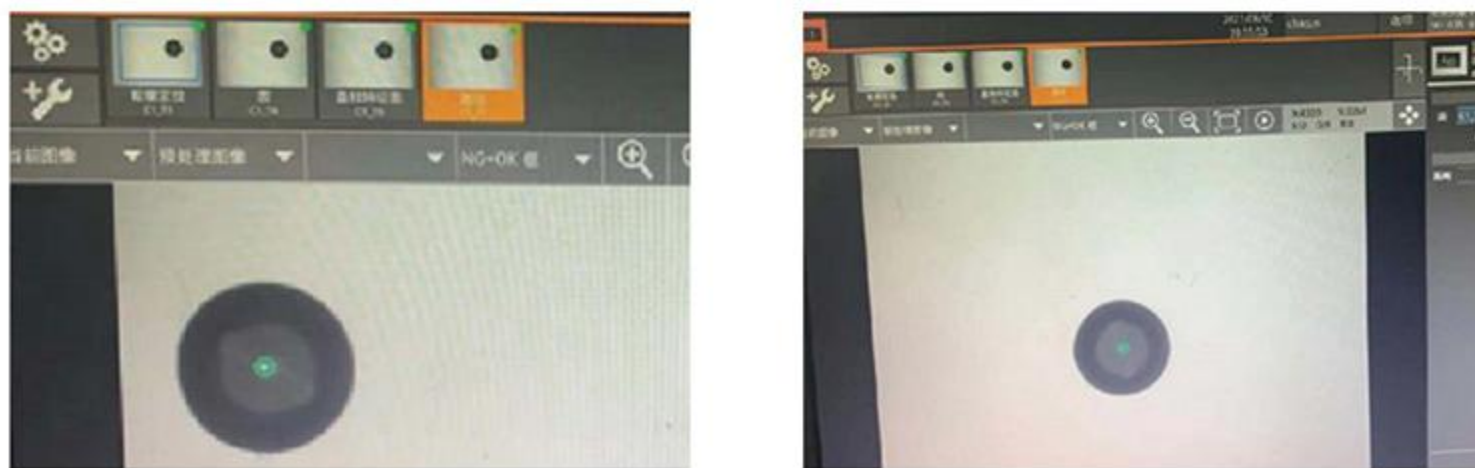
It is used to measure the inner diameter of the spray head and whether there is foreign matter blocking in the inner diameter.

产品结构

Product mix

采用振动盘+直振上料，上到带有精准卡位的金属转盘上，进行内径测量和孔异物检测。异物将进行气吹疏通，如无法疏通将通过气吹筛选剔除不良品。

The vibrating disk + direct vibration is used to load the material onto the metal rotary table with accurate clamping position for inner diameter measurement and hole foreign matter detection. The foreign matter will be dredged by air blowing. If it cannot be dredged, the defective products will be removed by air blowing screening.



检测效率

Detection efficiency

180个/分钟

180 pcs/ min



案例运用-外观检测

Case application - appearance inspection

3C行业-面板线路缺陷检测

3C industry - panel circuit defect detection

客户检测需求

Customer detection requirements

面板线路缺陷检测

Panel circuit defect detection

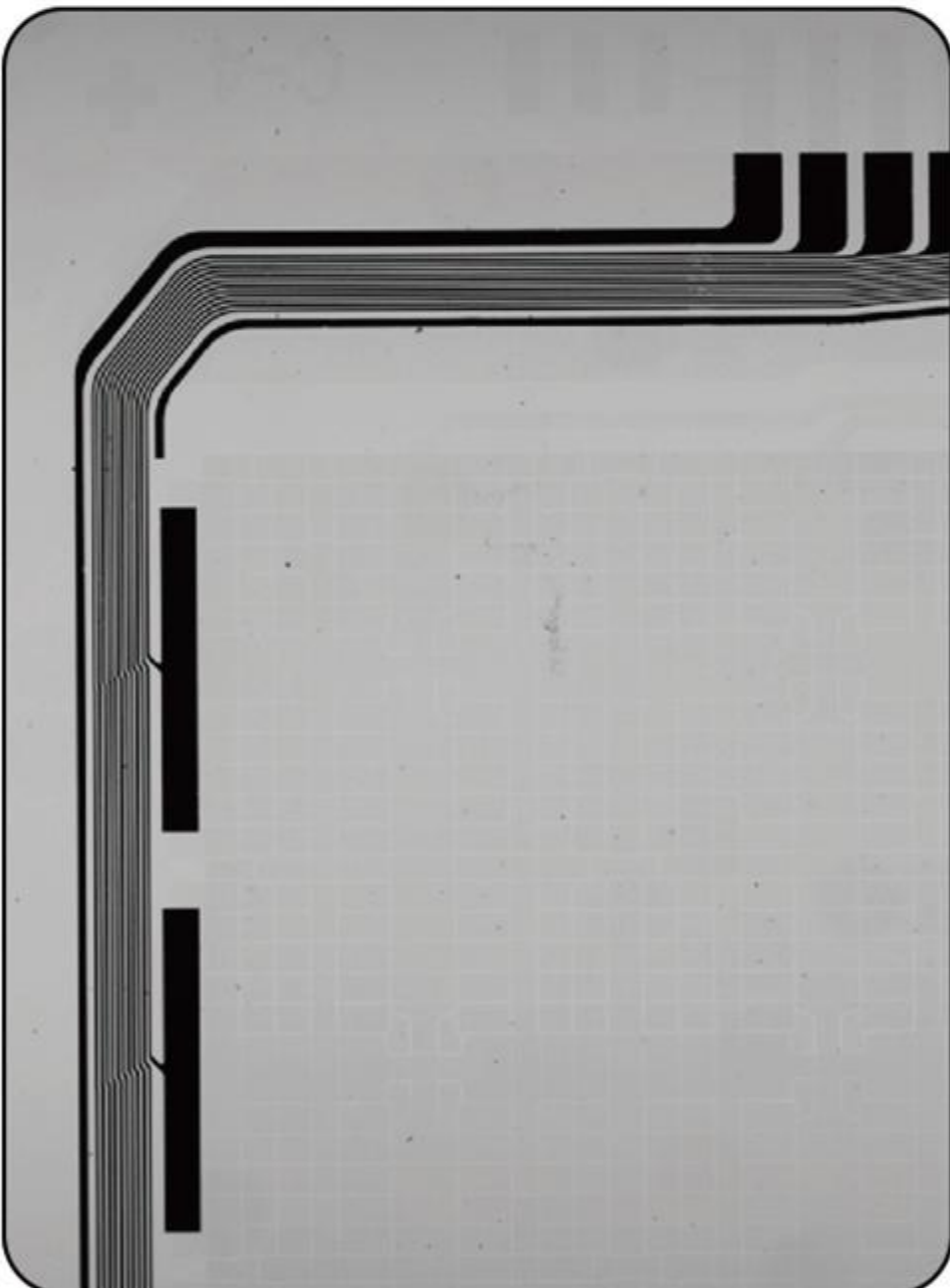


检测物品

Test items

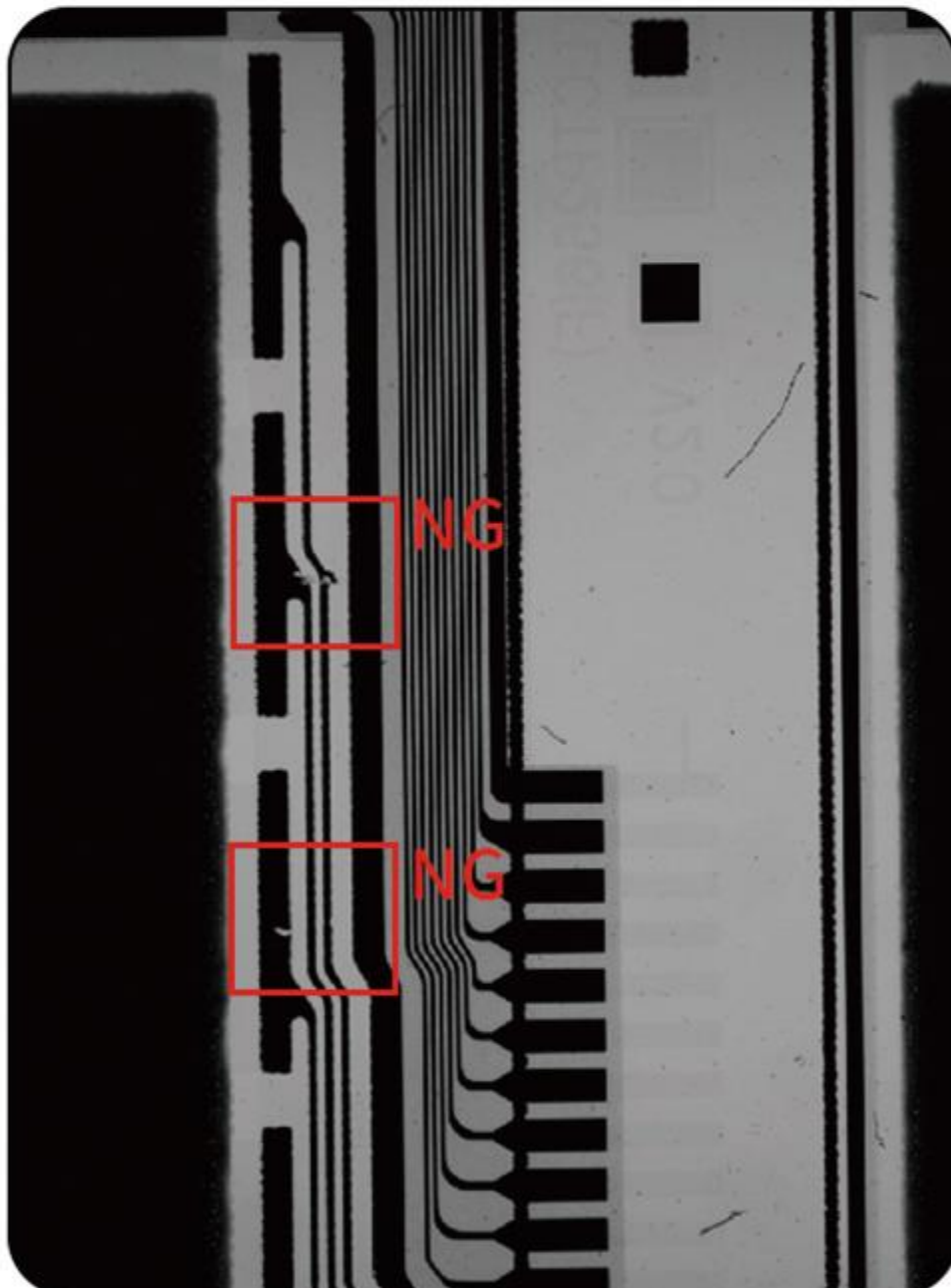
检测图

(Inspection chart)



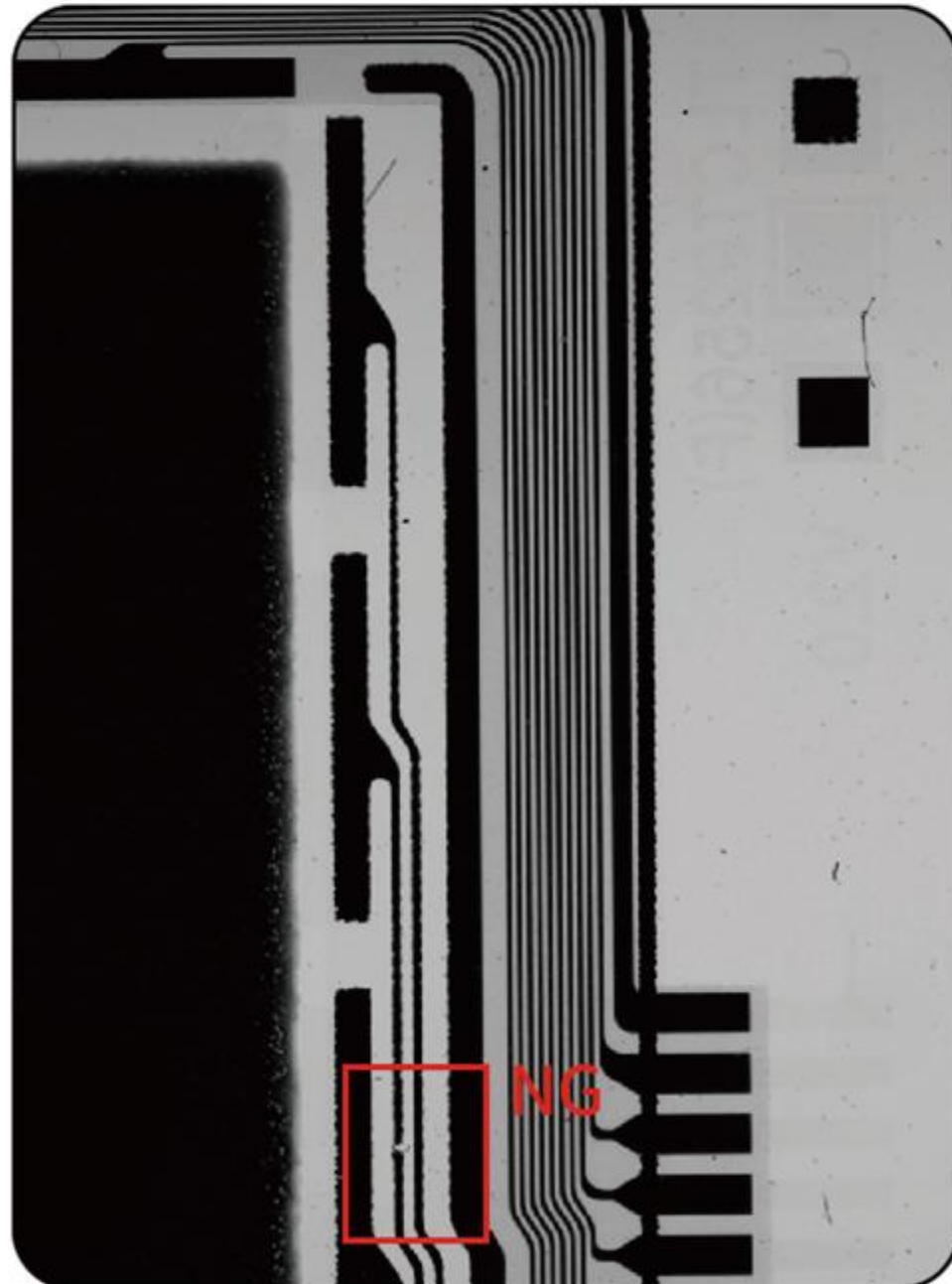
OK品

OK products



缺陷

Defect



缺陷

Defect

3C行业-车载膜外观检测

3C industry - appearance inspection of on-board film

客户检测需求

Customer detection requirements

①缺口、多废料、胶带溢胶、缺撕手的、变形；②多废料、多料、重叠性多料③多膜

① Gaps, excessive waste, adhesive tape overflow, lack of tearing hands, deformation; ② Multiple wastes, multiple materials, overlapping multiple materials ③ Multiple films



检测物品

Test items

检测图

(Inspection chart)



OK品

OK products



多料

Multiple materials



变形

be out of shape

汽配行业-注塑件外观检测

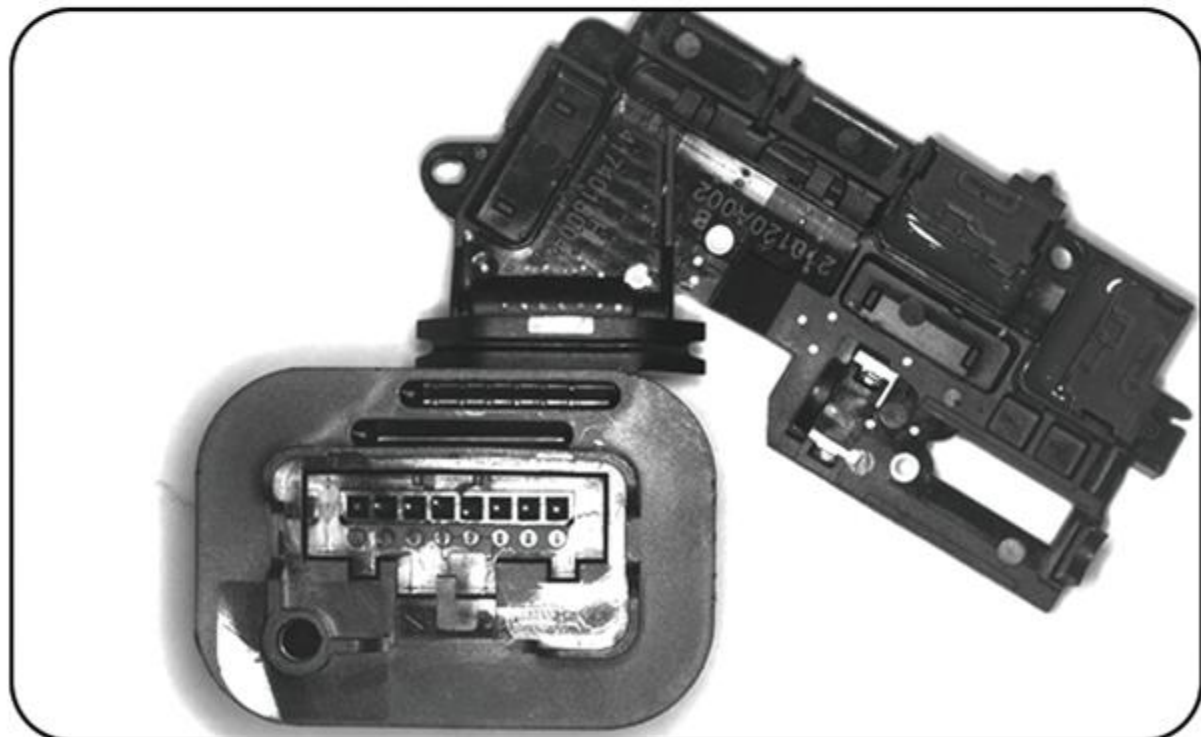
Auto parts industry - appearance inspection of injection molding parts

客户检测需求

Customer detection requirements

检测产品外观缺陷

Detect product appearance defects

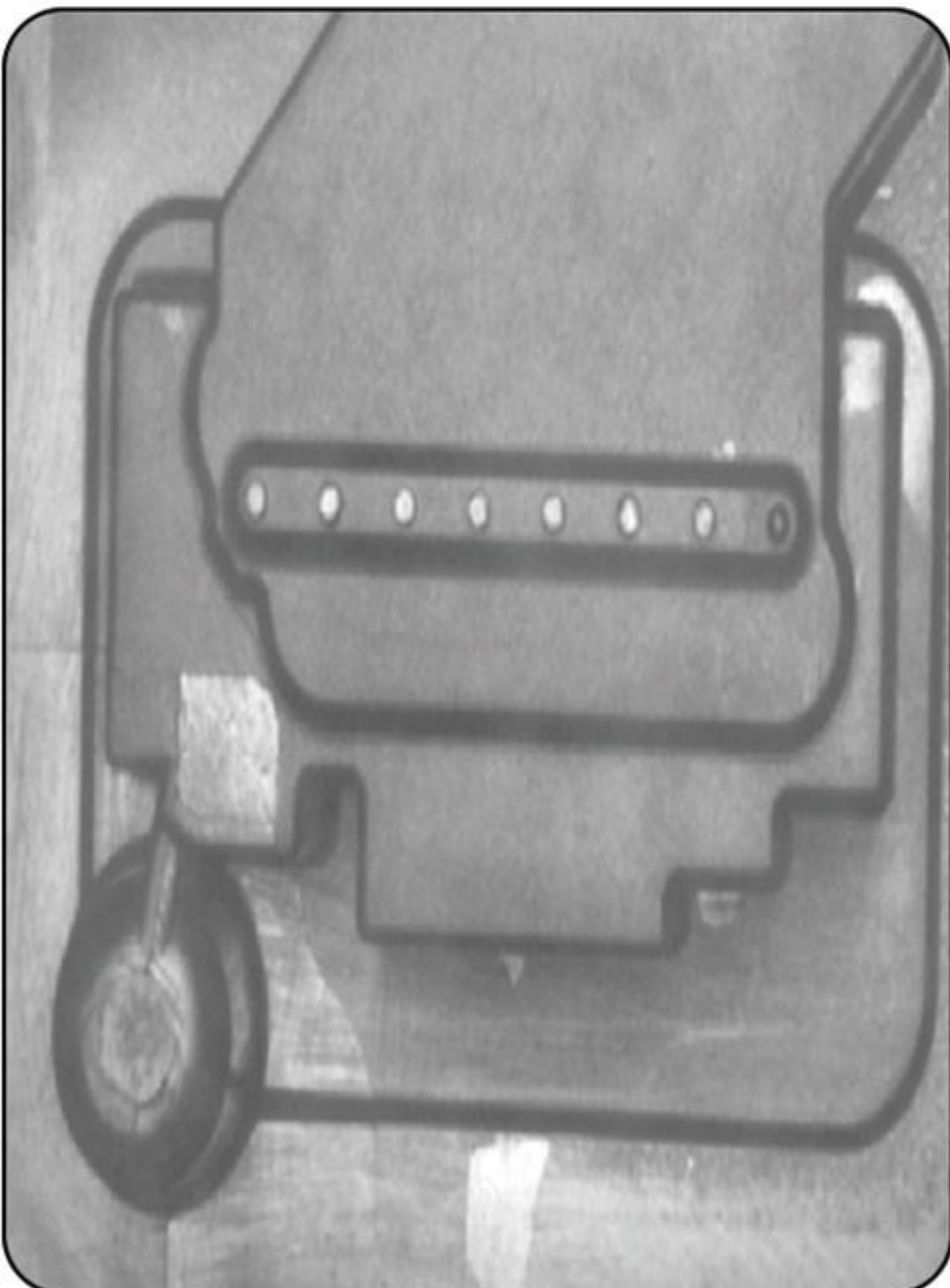


检测物品

Test items

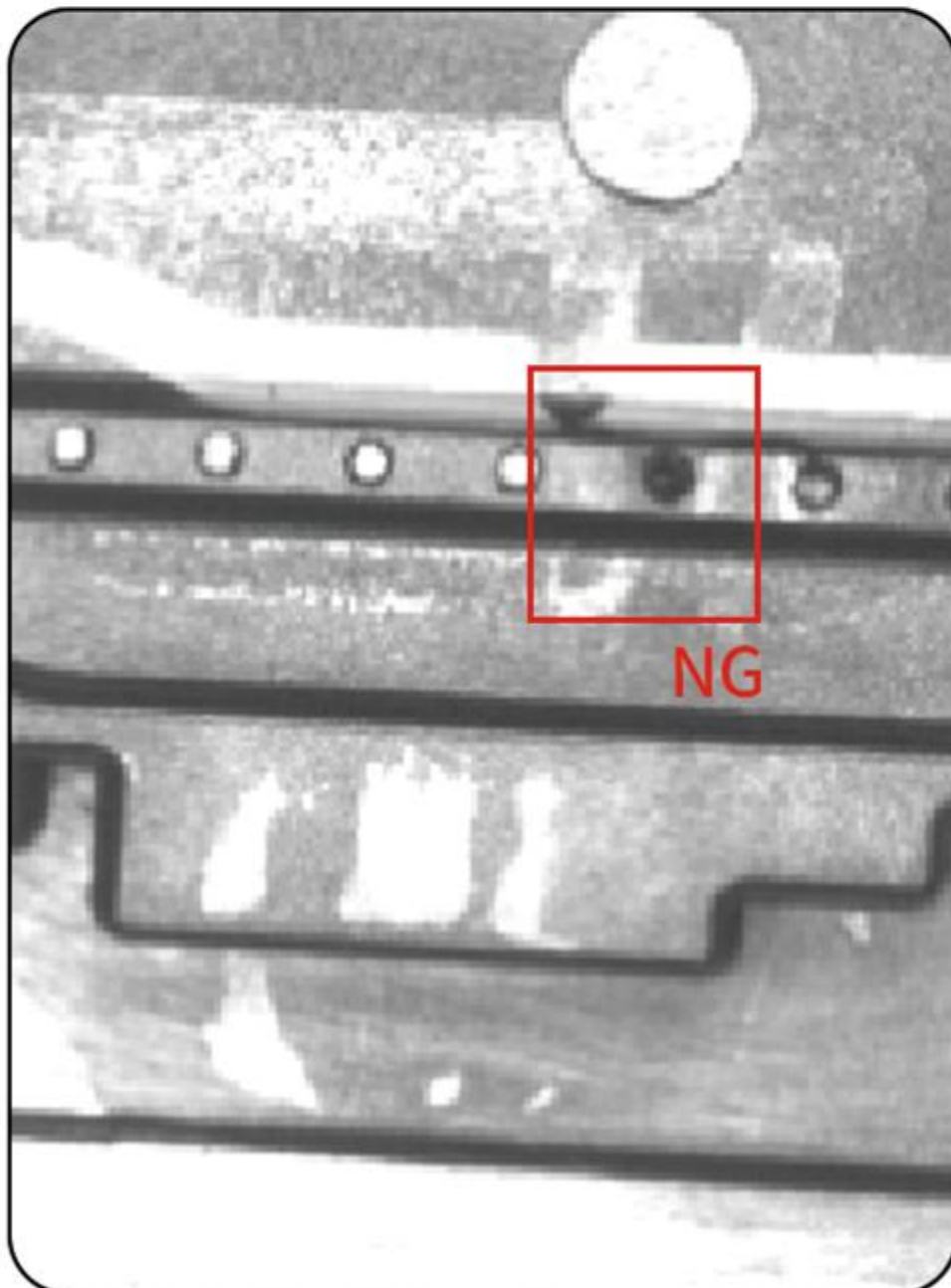
检测图

(Inspection chart)



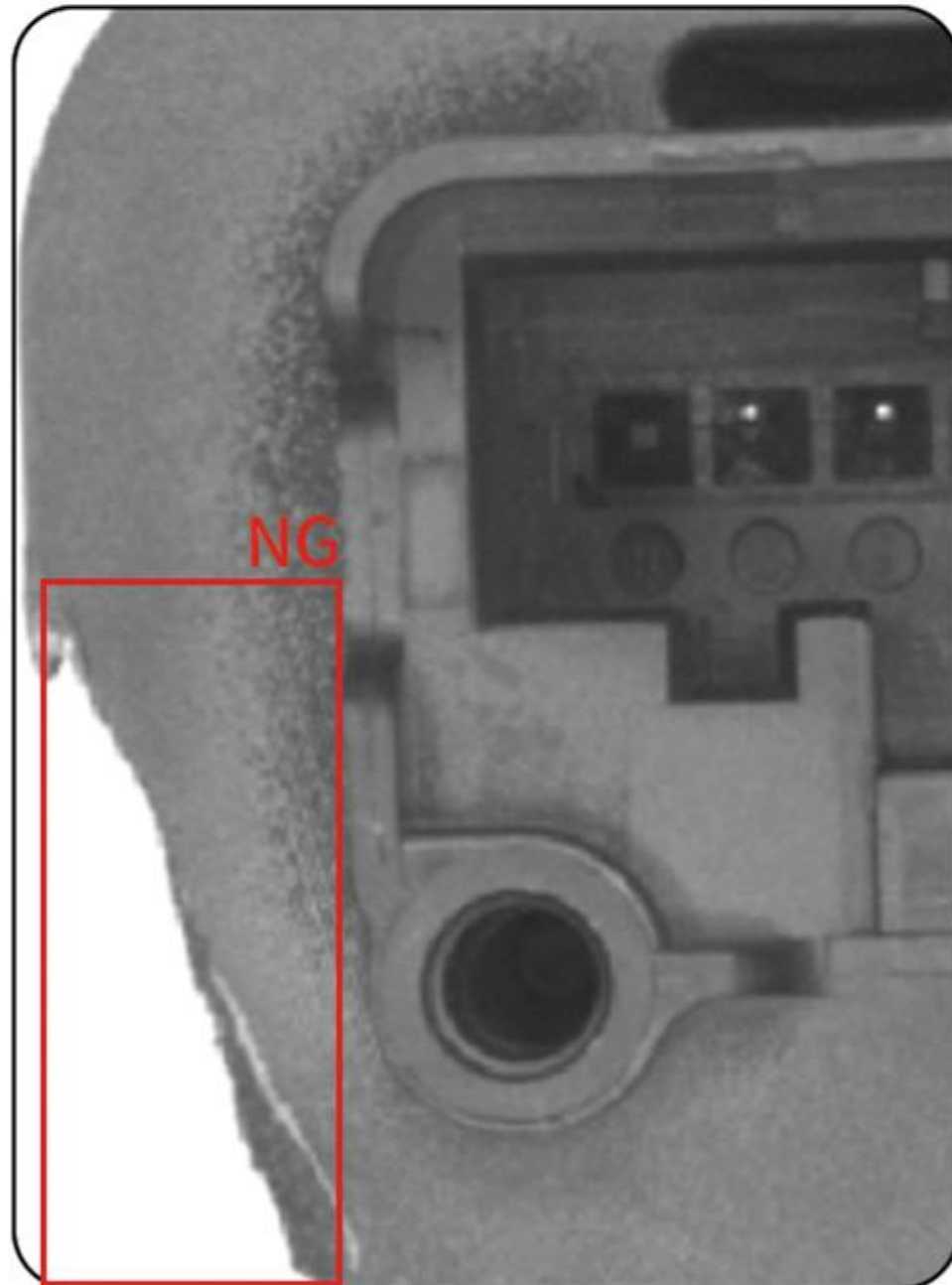
OK品

OK products



凸点

Bump



缺料

Material shortage

案例运用-脏污异物检测

Case application - dirt and foreign matter detection

橡胶行业-硅胶外观检测

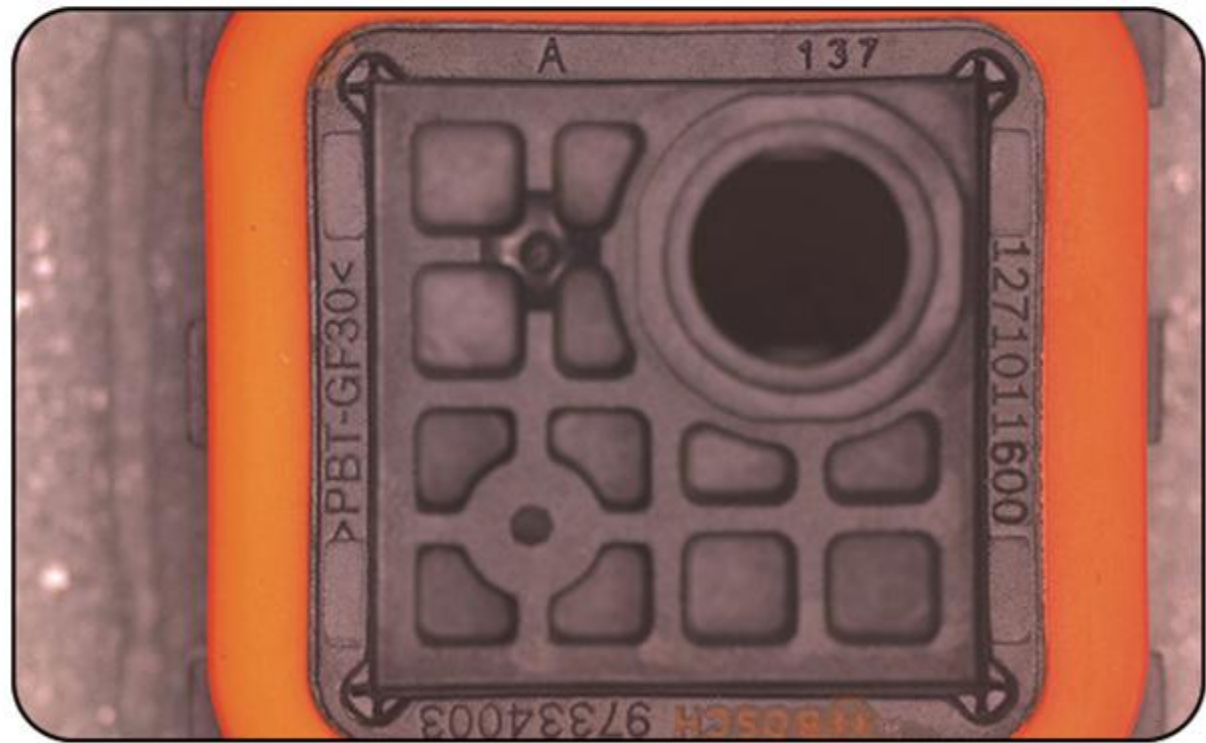
Rubber industry - silicone appearance inspection

客户检测需求

Customer detection requirements

污点检测

Blob Detection

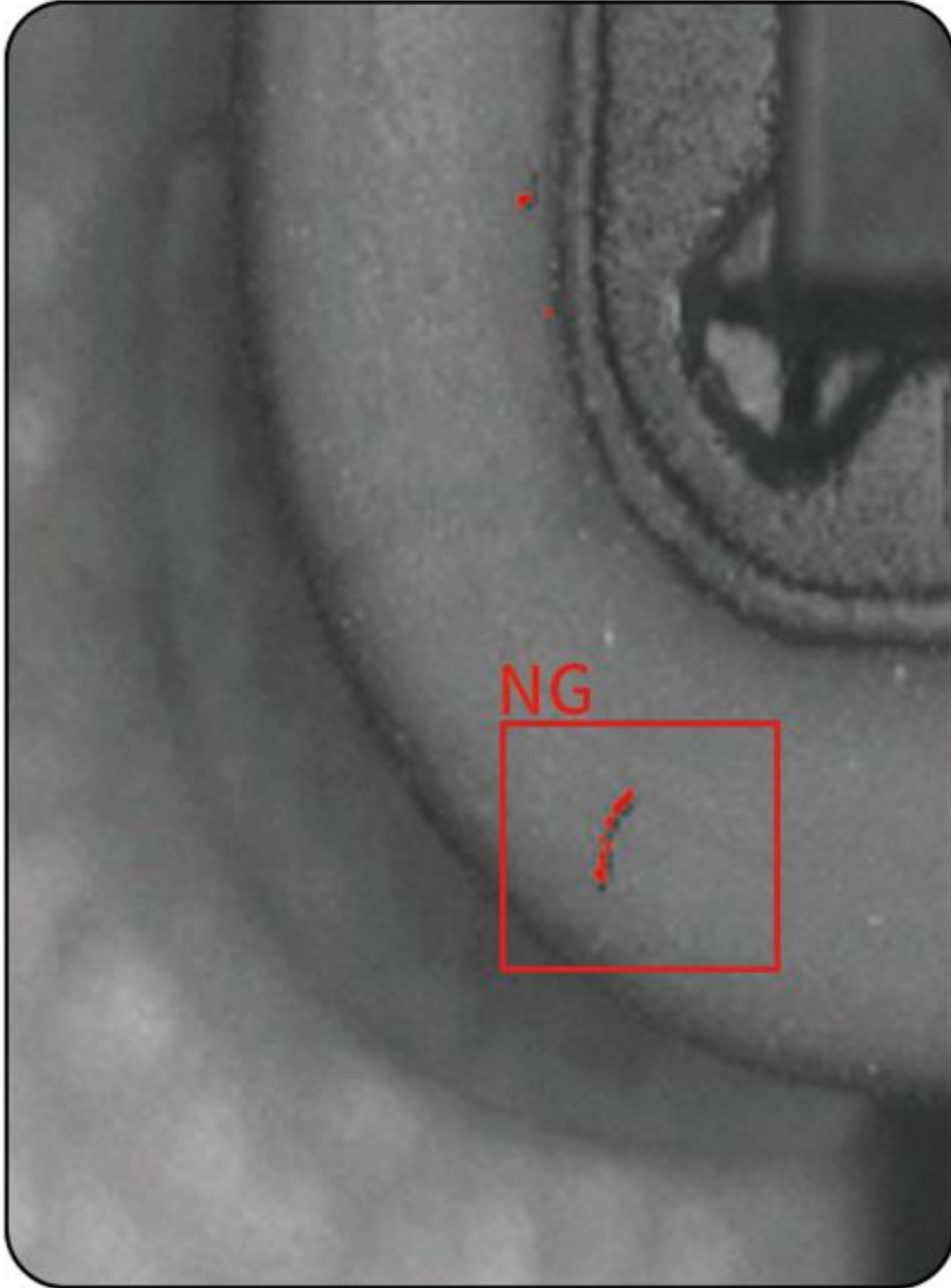


检测物品 Test items

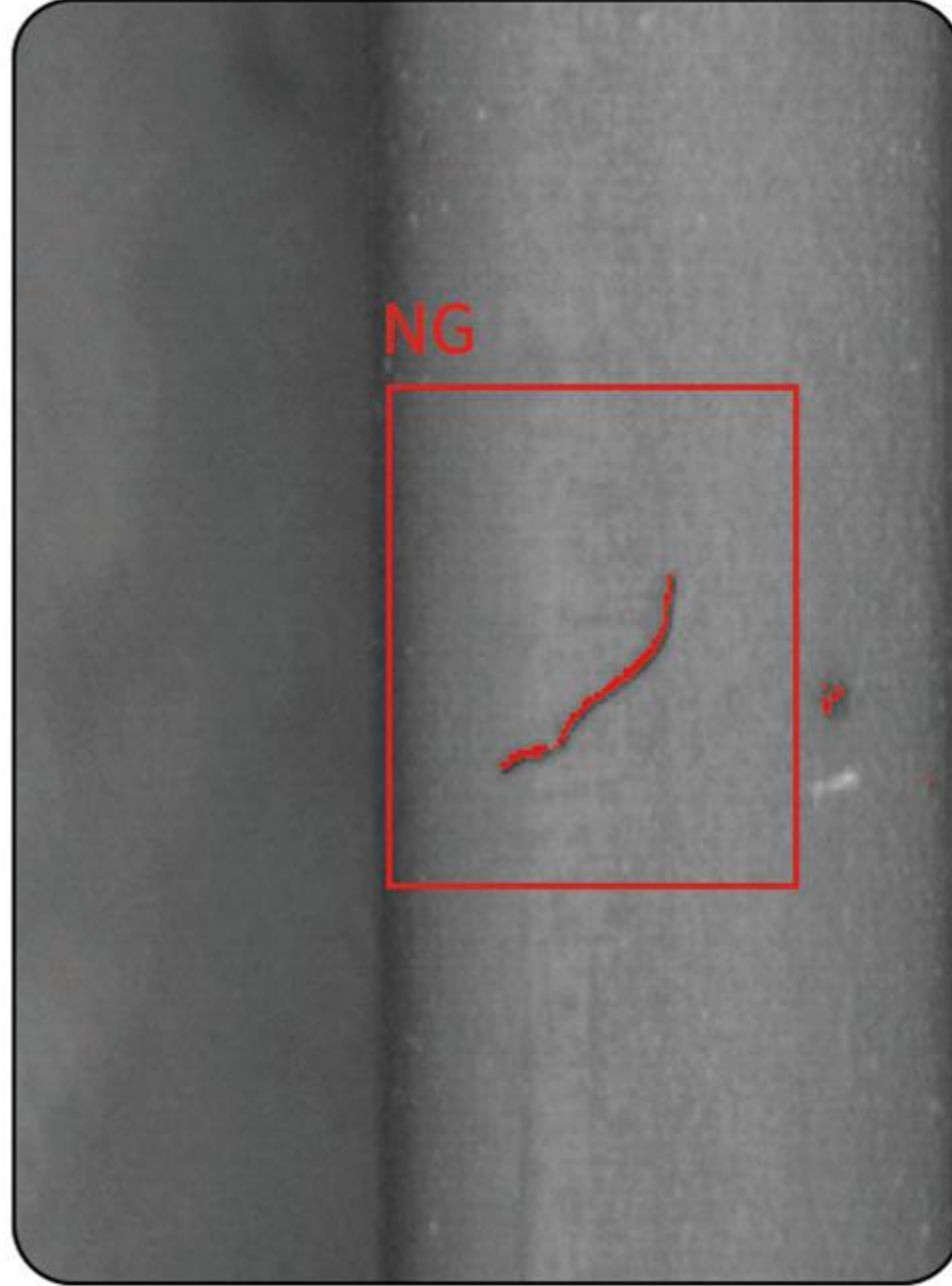
检测图 (Inspection chart)



OK品 OK products



黑点 Shading



黑点 Shading

医疗行业-采样管外观检测

Medical industry - sampling tube appearance inspection

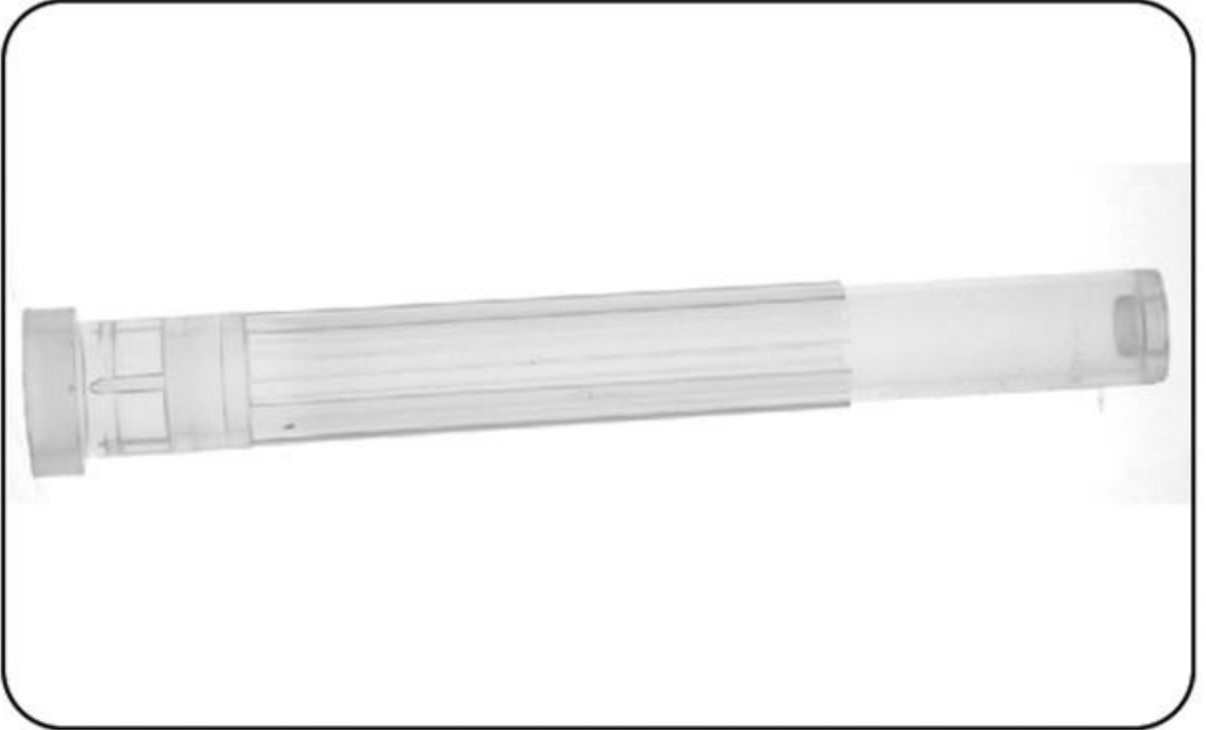
客户检测需求

Customer detection requirements

①脏污、异物检测；②缺陷检测

① Detection of dirt and foreign matters;

② defect detection



检测物品 Test items

检测图 (Inspection chart)



OK品 OK products



黑点 Shading



黑油 Black oil stain

家电行业-塑料壳外观检测

Household appliance industry - plastic shell appearance inspection

客户检测需求

Customer detection requirements

①脏污检测；②缺陷检测

① Dirty detection; ② defect detection

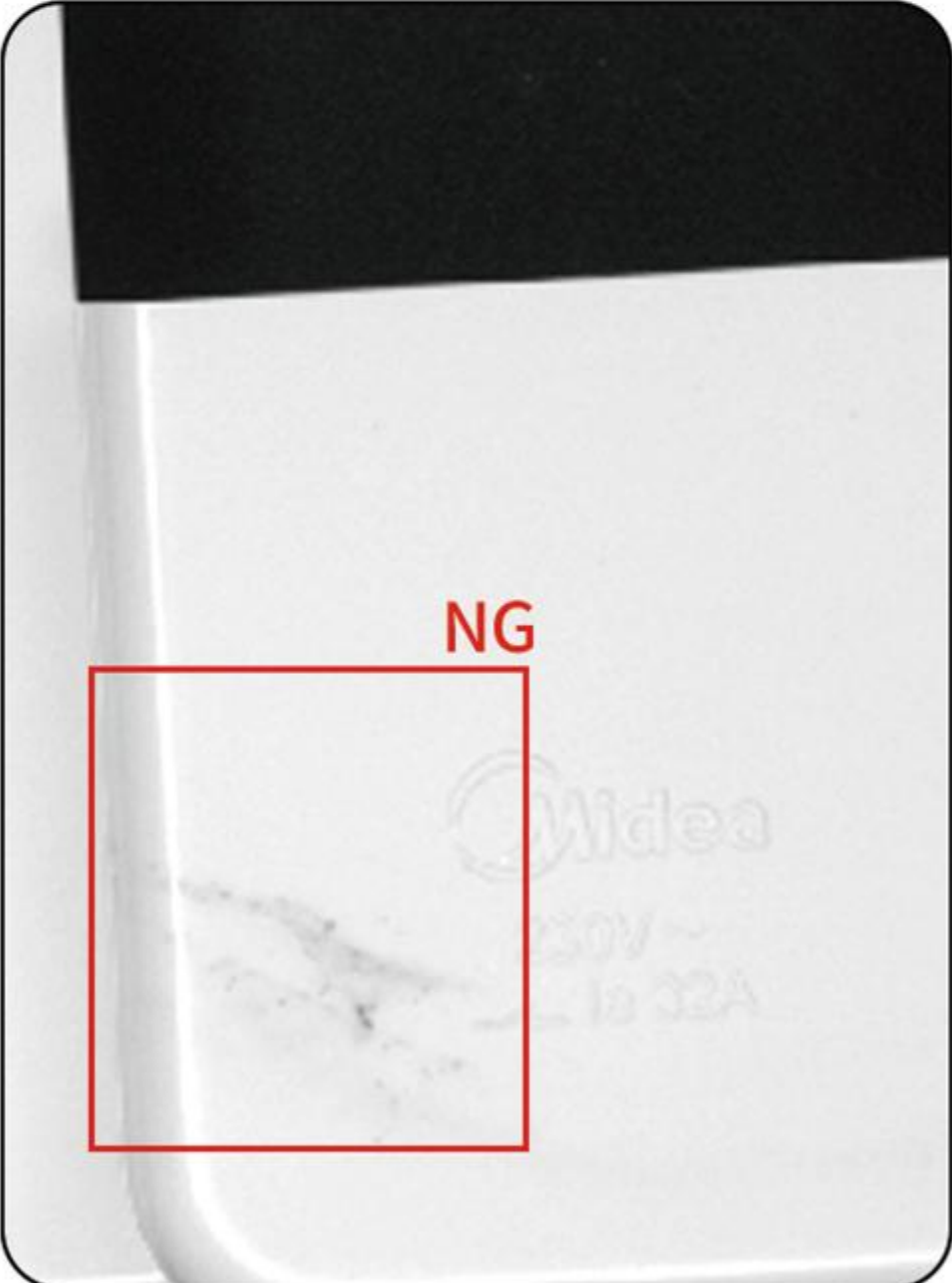


检测物品 Test items

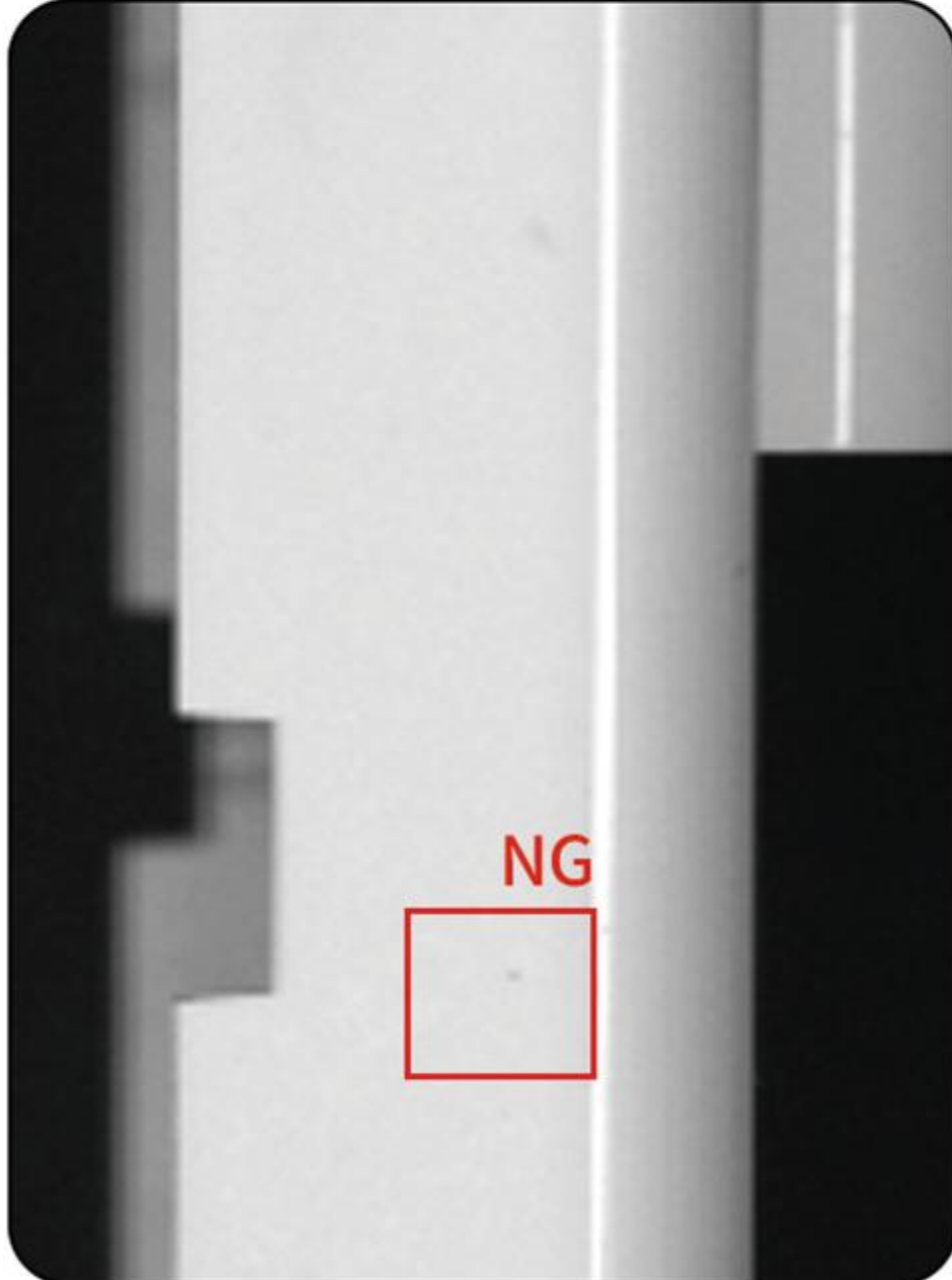
检测图 (Inspection chart)



OK品 OK products



灰印 Gray print



黑点 Shading

案例运用-尺寸测量

Case application - dirt and foreign matter detection

3C行业-电池铜壳外观检测

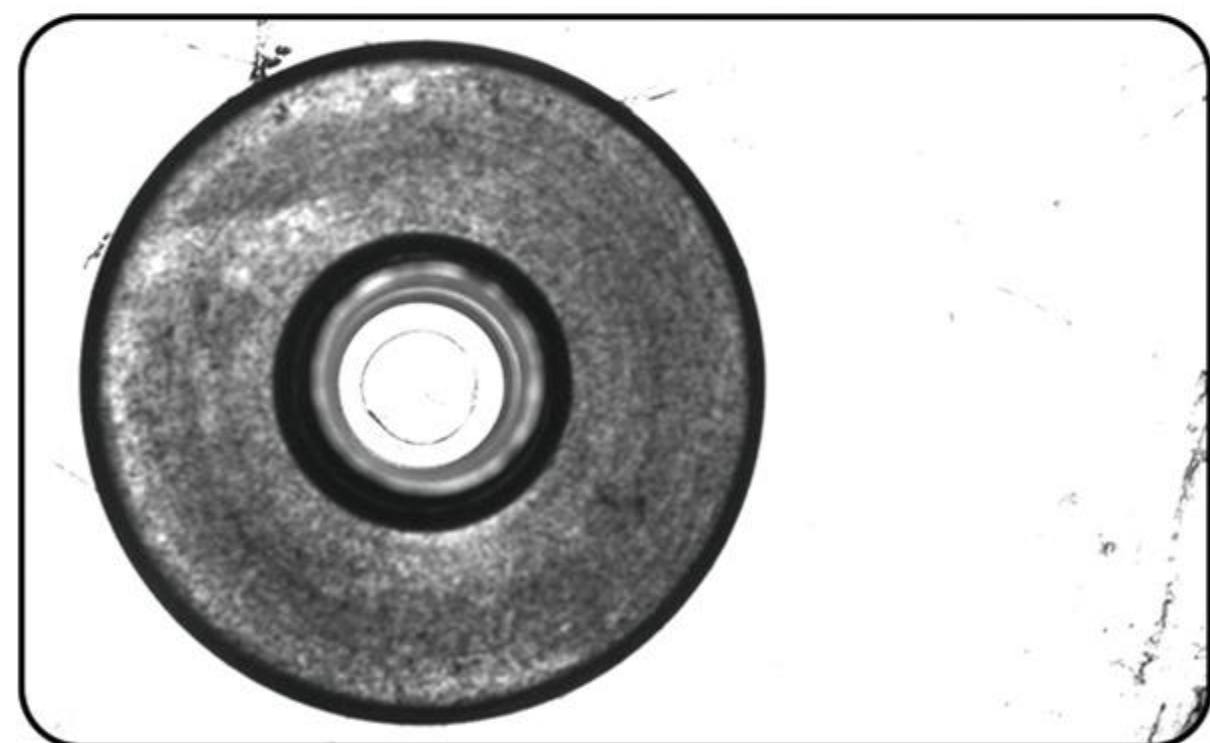
3C industry - appearance inspection of battery copper shell

客户检测需求

Customer detection requirements

①尺寸测量；②缺陷检测

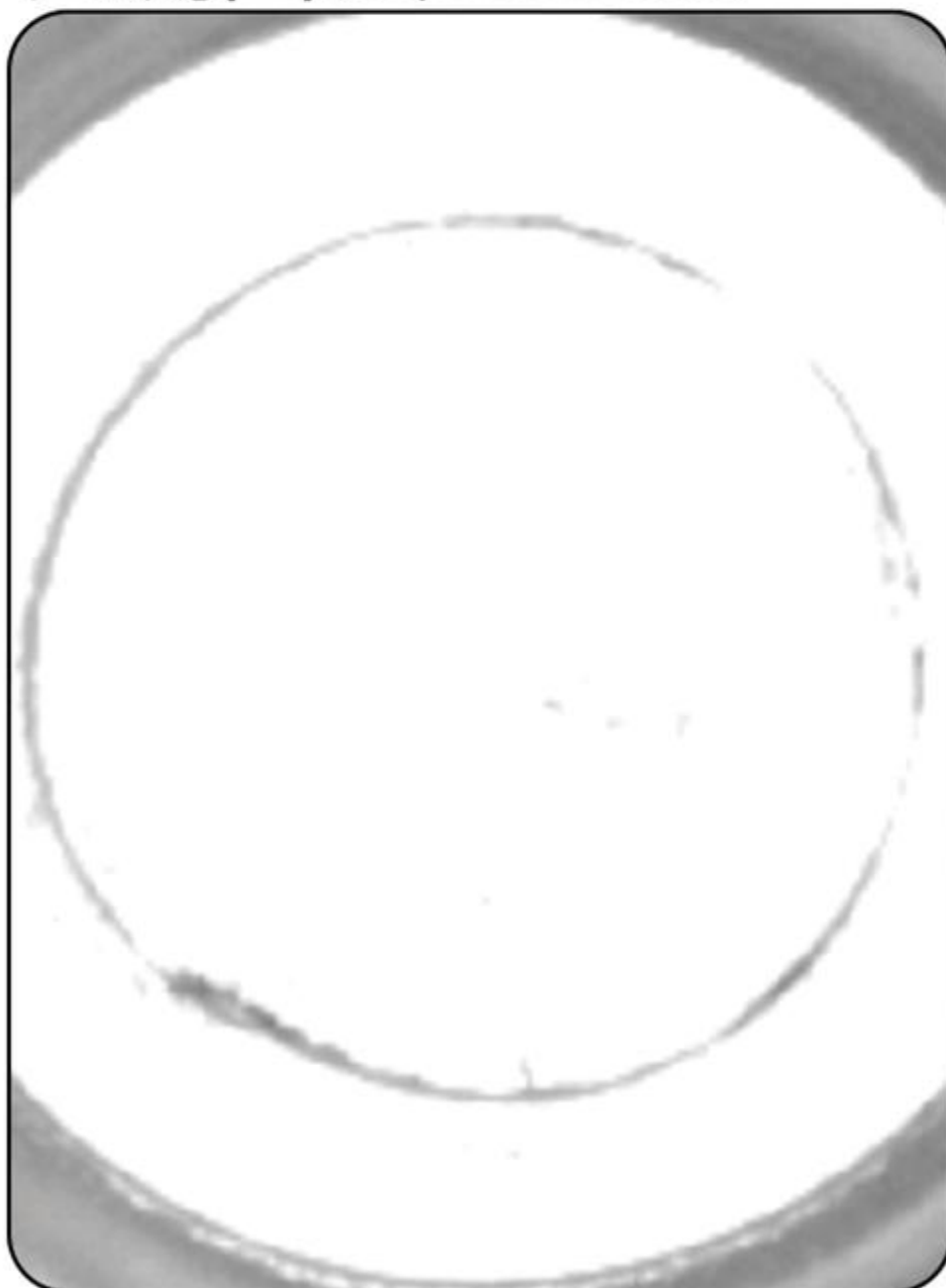
① Dimension measurement; ② defect detection



检测物品

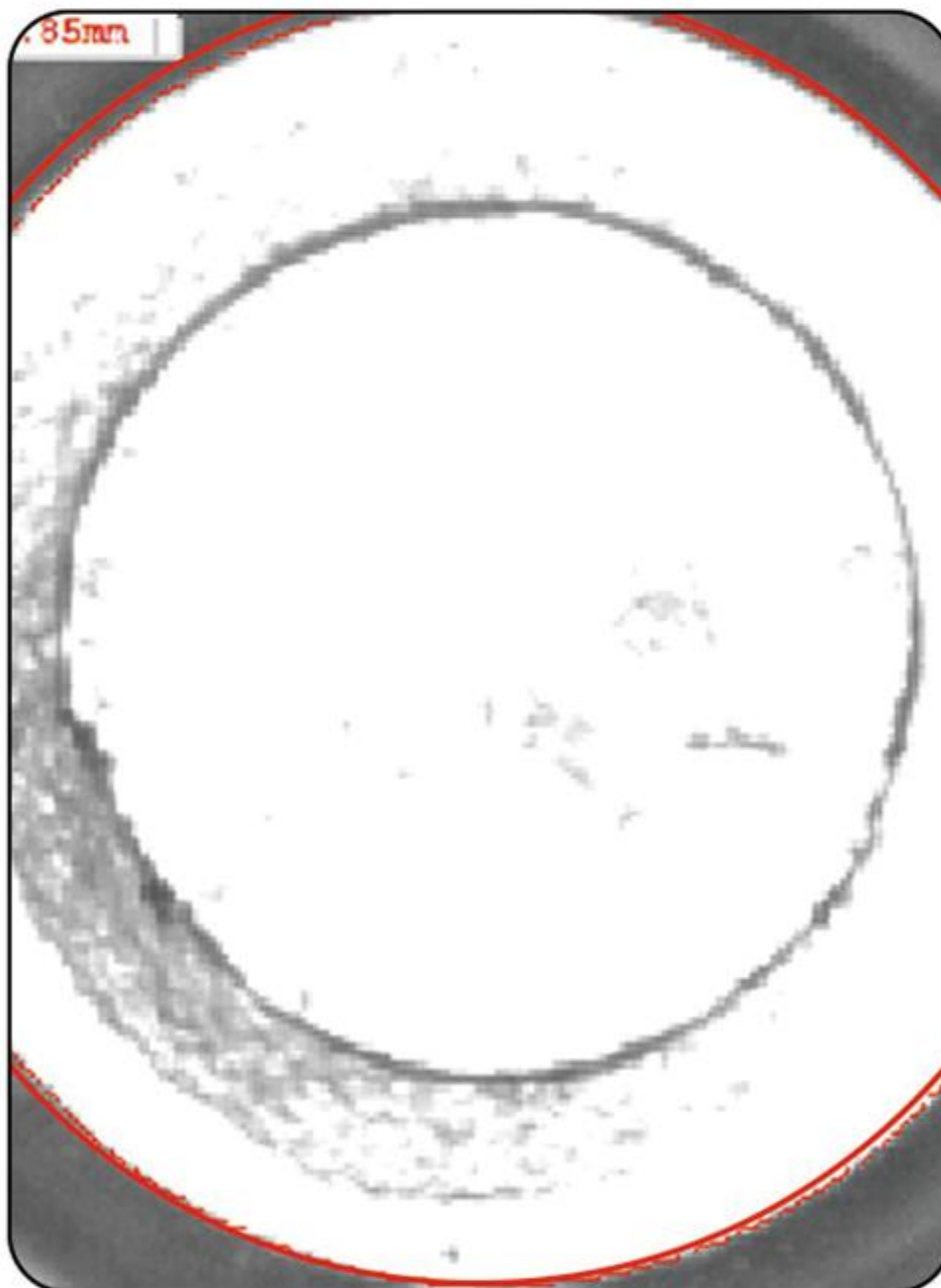
Test items

检测图 (Inspection chart)



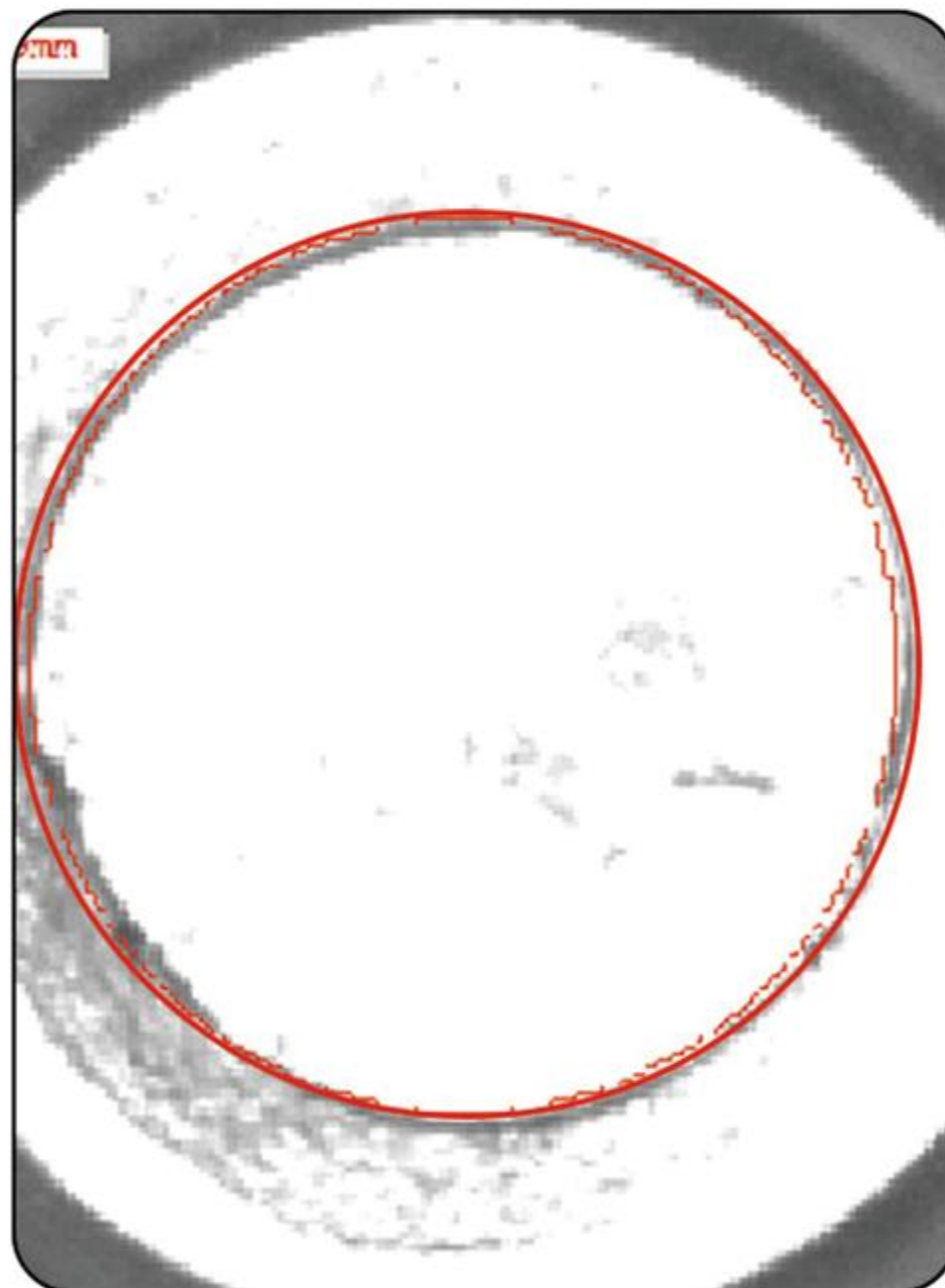
OK品

OK products



直径测量

Diameter measurement



直径测量

Diameter measurement

3C行业-金属棒外观检测

3C industry - metal bar appearance inspection

客户检测需求

Customer detection requirements

①尺寸测量；②缺陷检测

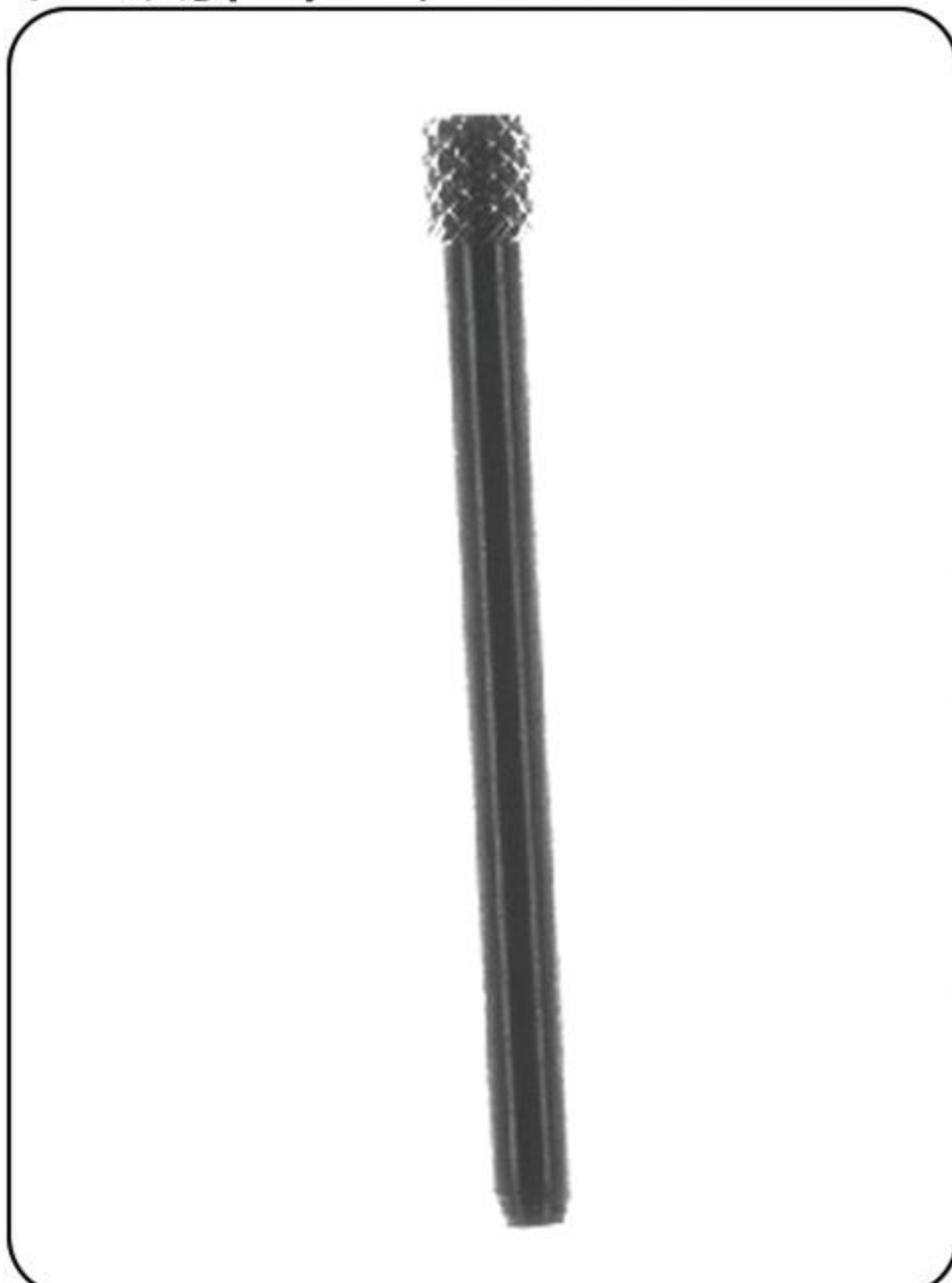
① Dimension measurement; ② defect detection



检测物品

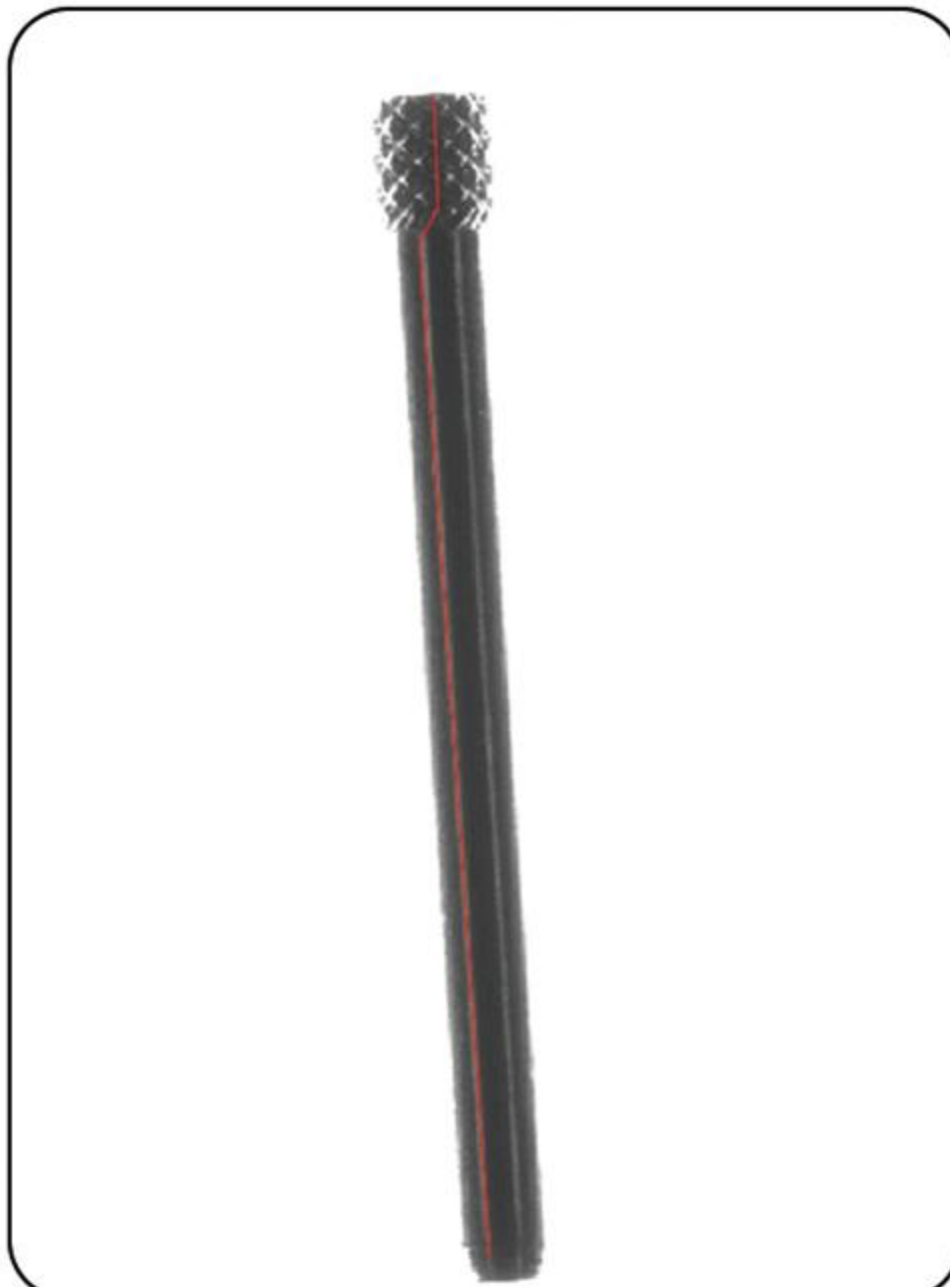
Test items

检测图 (Inspection chart)



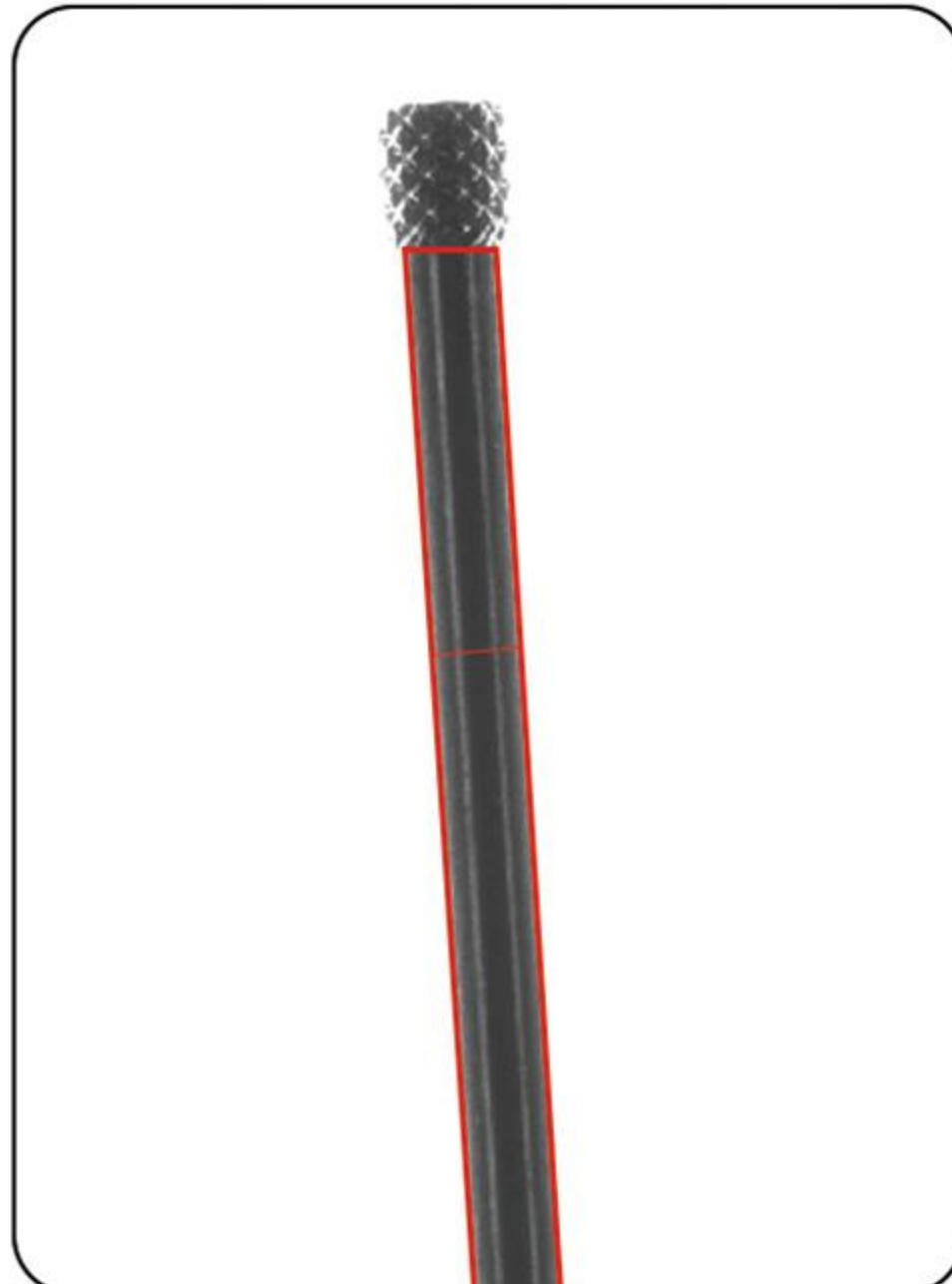
OK品

OK products



长度测量

Length measurement



直径测量

Diameter measurement

家电行业-手机后盖尺寸测量

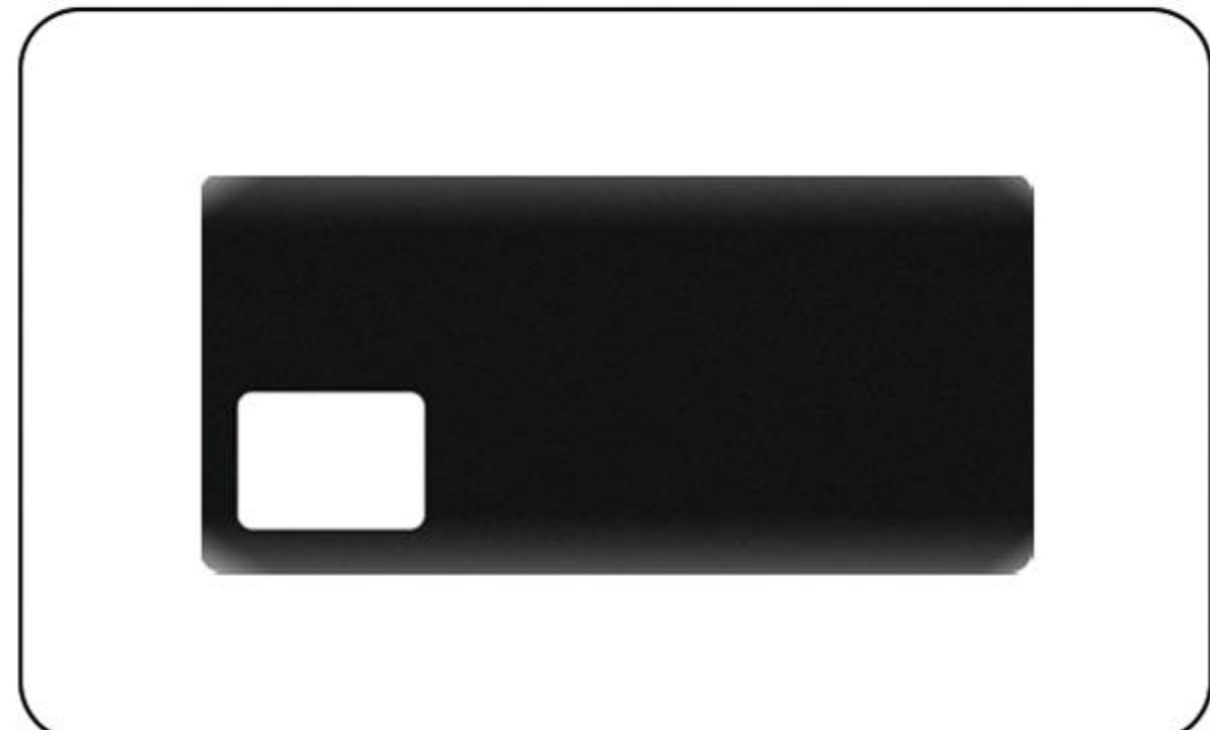
Home appliance industry - mobile phone back cover size measurement

客户检测需求

Customer detection requirements

①弧度检测；②尺寸测量

① Arc detection; ② Dimension measurement



检测物品

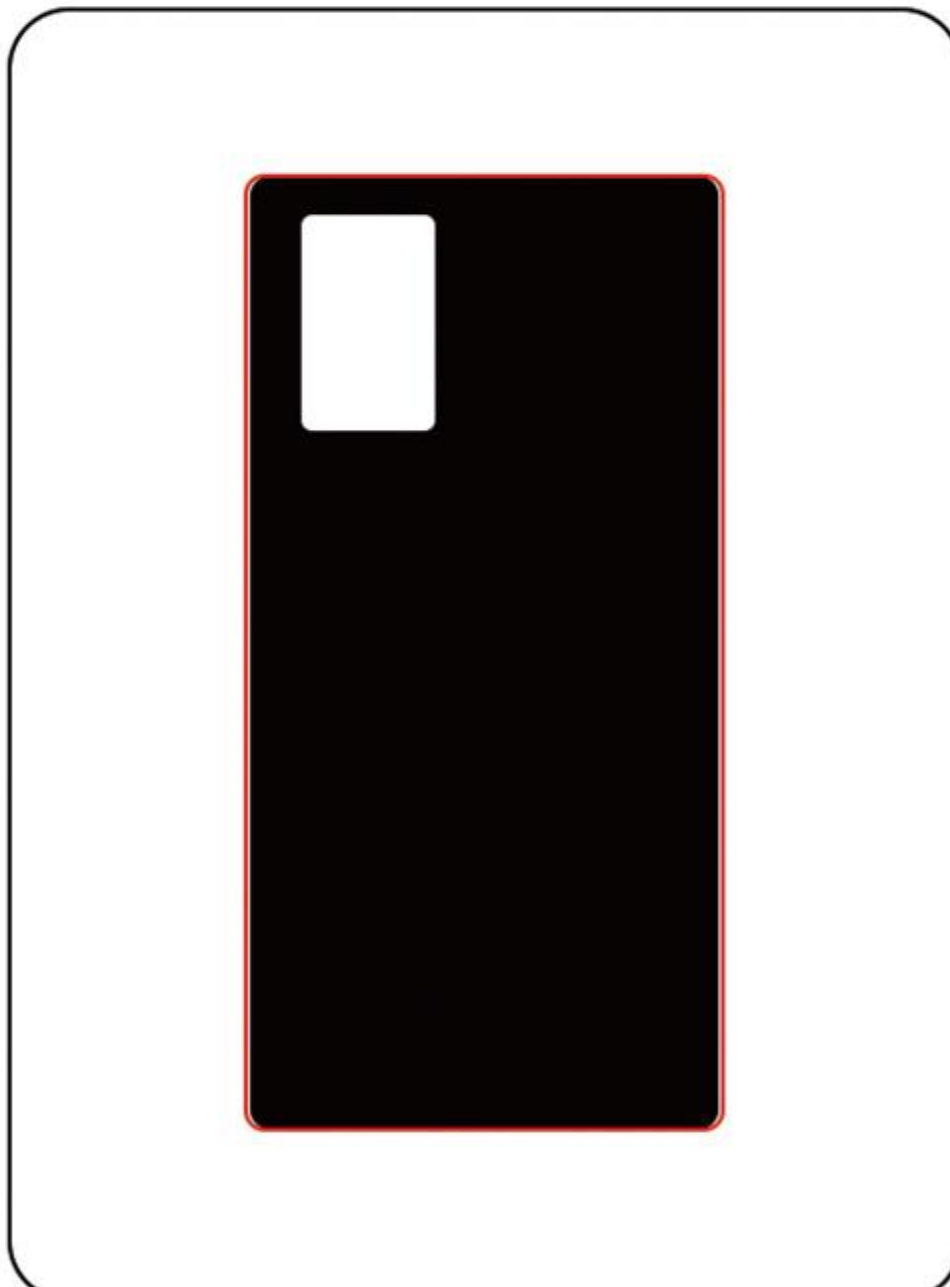
Test items

检测图 (Inspection chart)



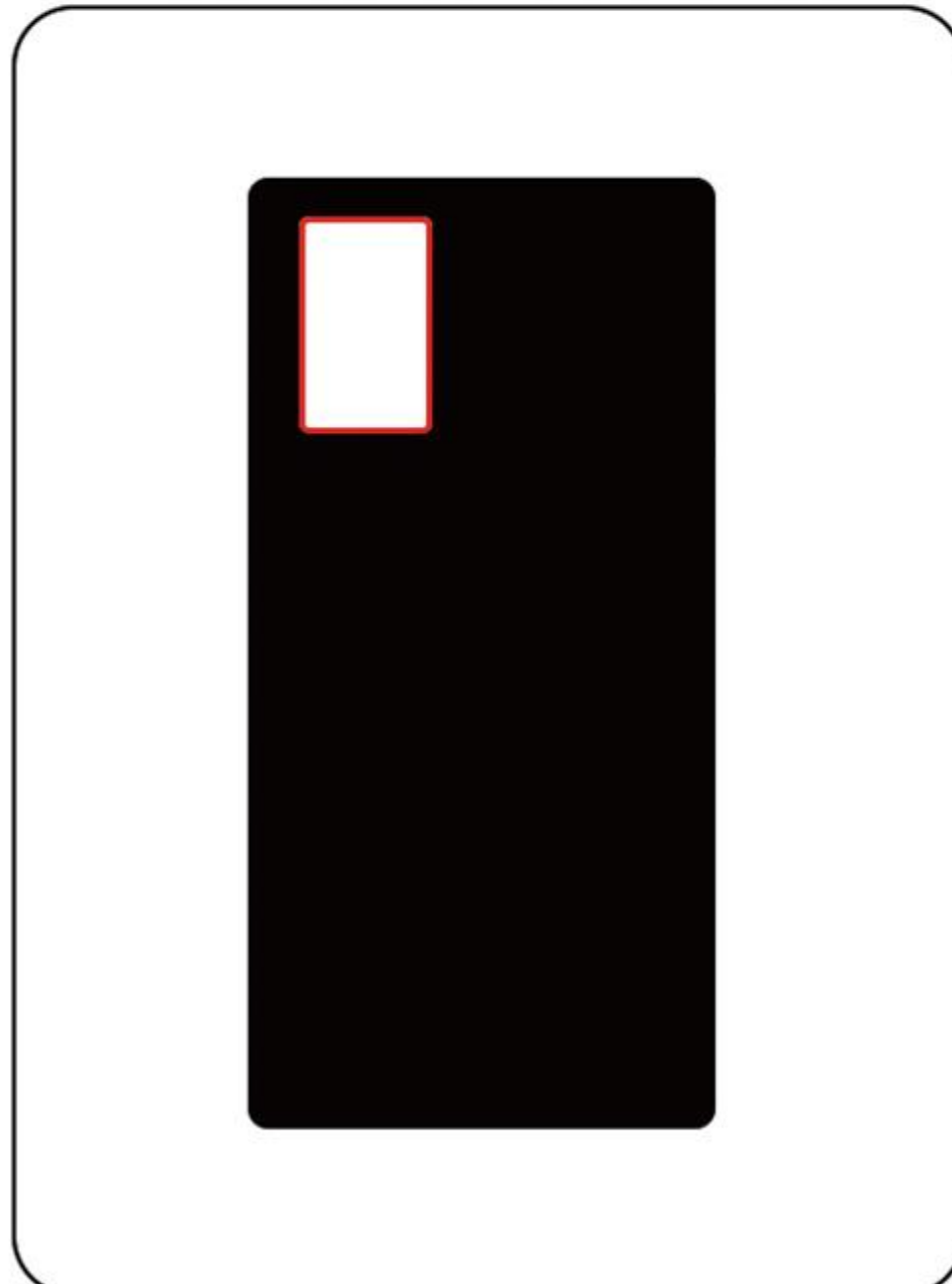
OK品

OK products



尺寸检测

Dimension inspection



尺寸检测

Dimension inspection

案例运用-产品定位

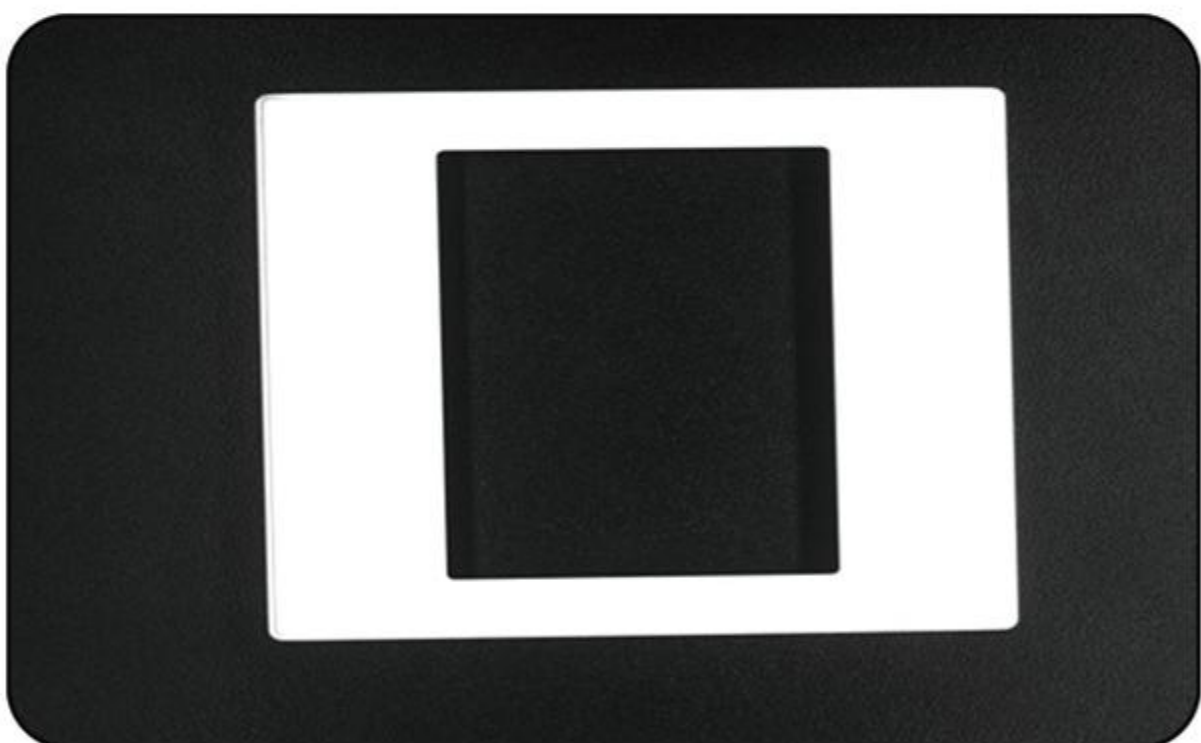
Case application - product positioning

五金行业-面板插座检测

Hardware industry - panel socket detection

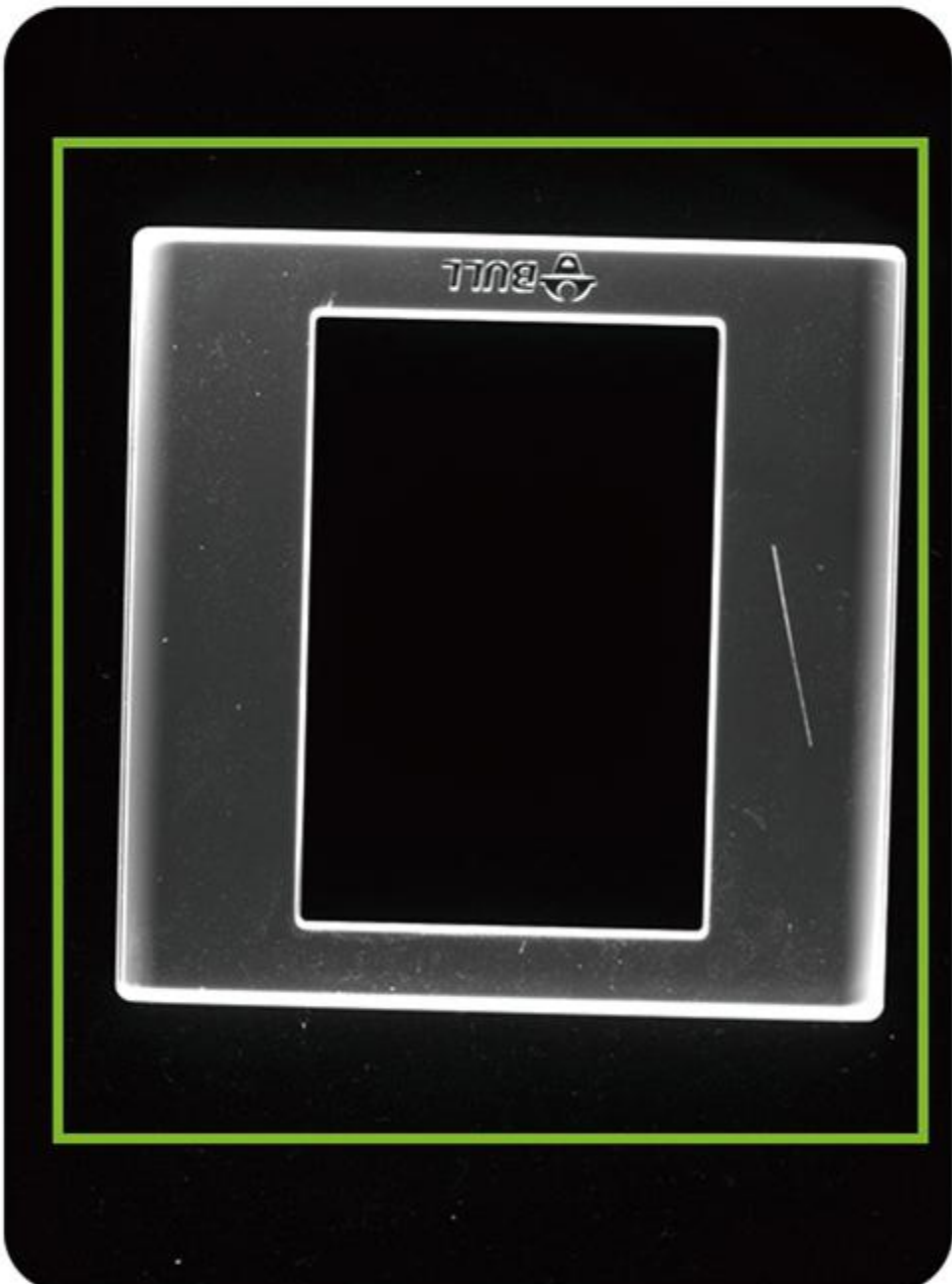
客户检测需求
Customer detection requirements

①产品定位; ②缺陷检测
① Product positioning; ② defect detection



检测物品 Test items

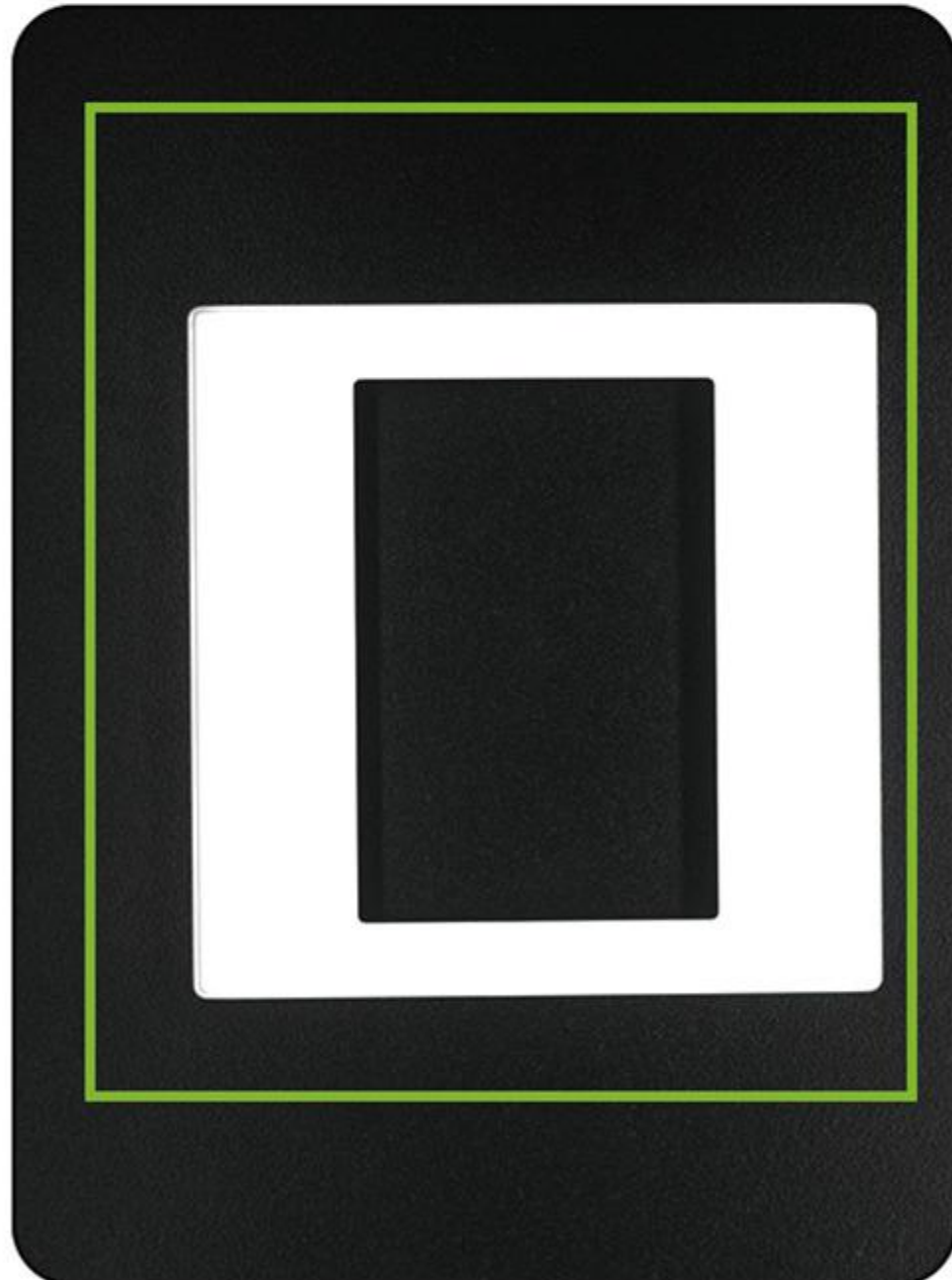
检测图 (Inspection chart)



定位 Fixed position



定位 Fixed position



定位 Fixed position

五金行业-金属螺口引导定位

Hardware industry - metal screw guide positioning

客户检测需求
Customer detection requirements

产品定位
Product positioning

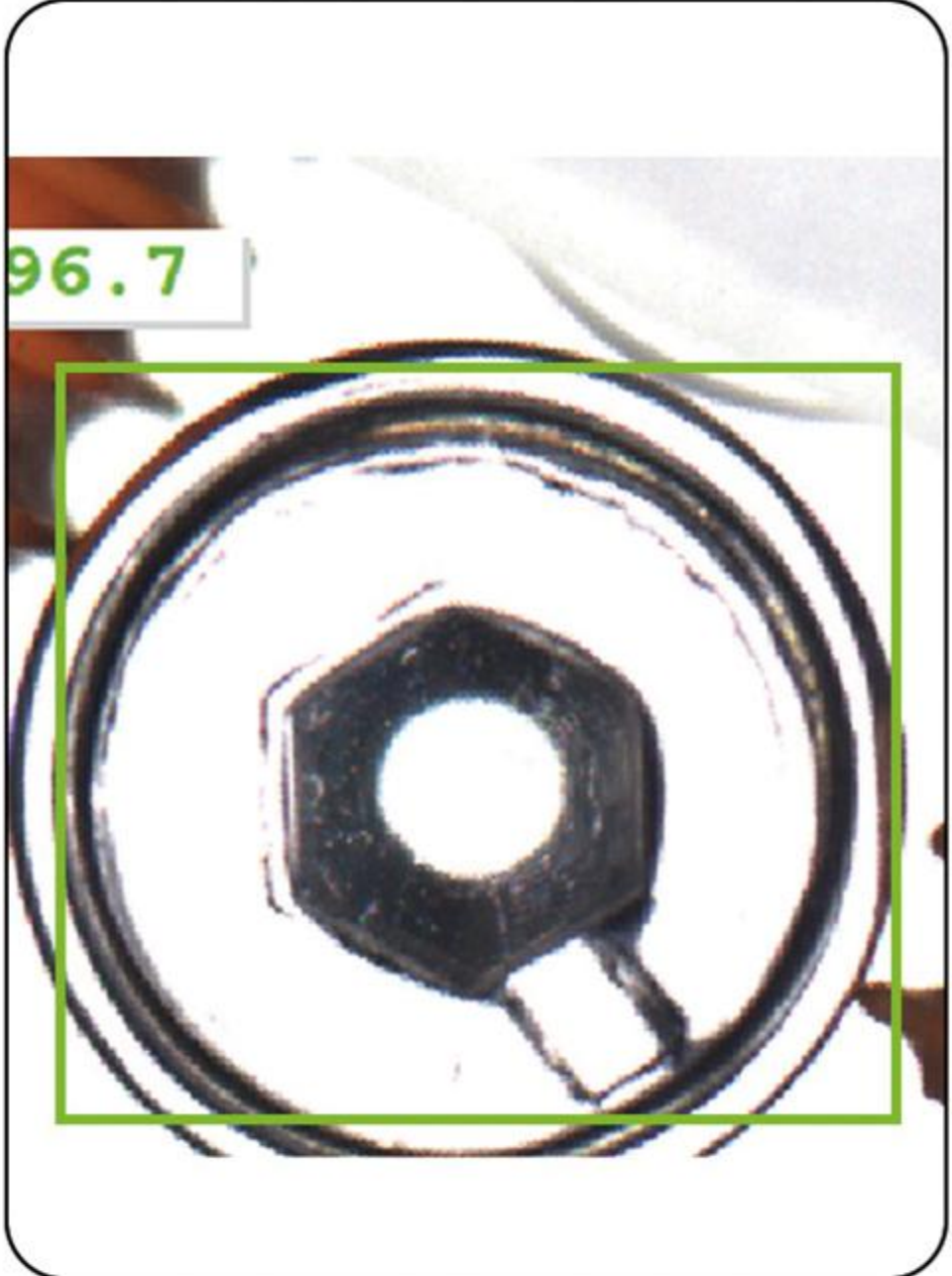


检测物品 Test items

检测图 (Inspection chart)



定位 Fixed position



定位 Fixed position



定位 Fixed position

五金行业-金属配件定位

Hardware industry - metal parts positioning

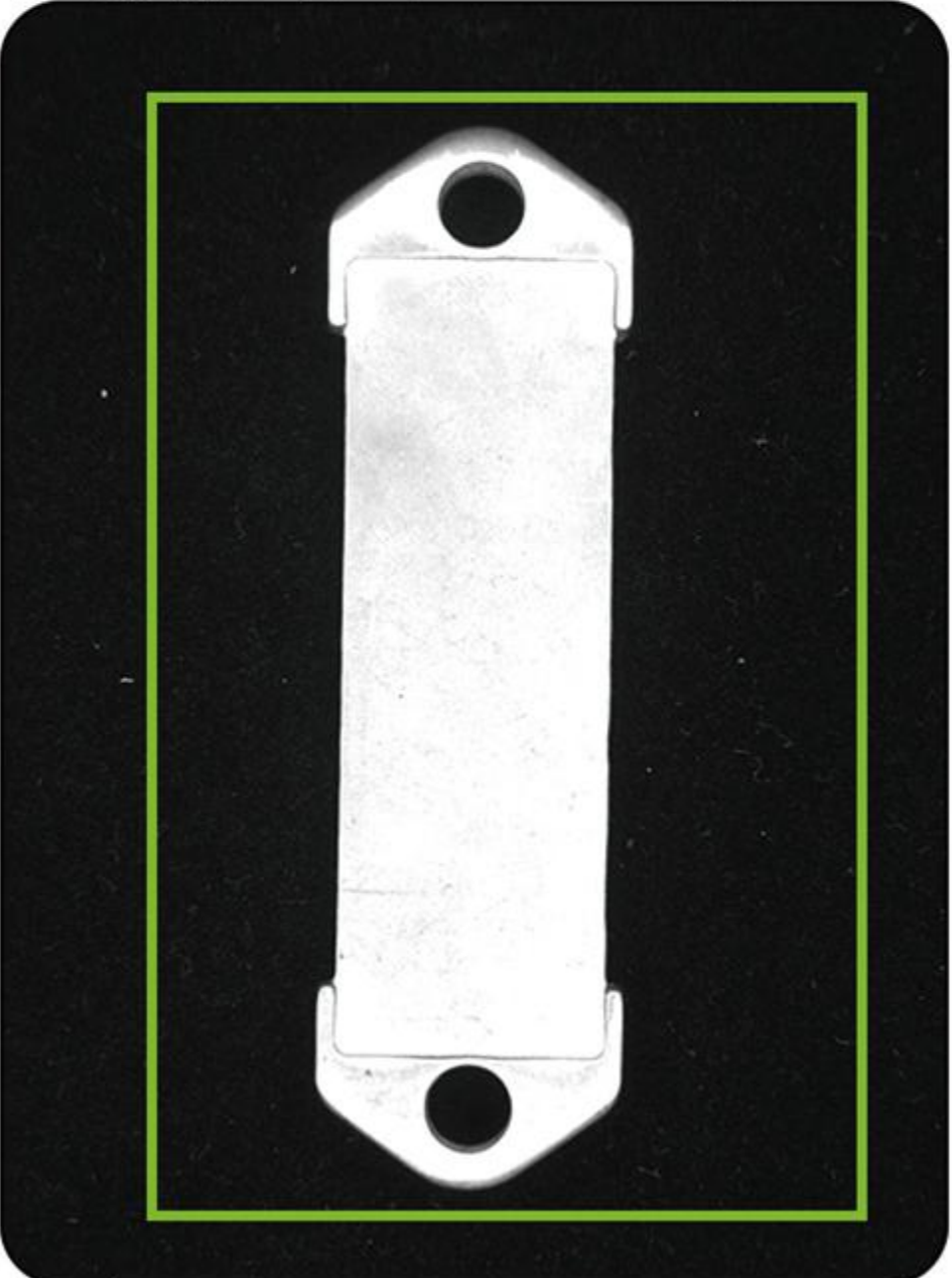
客户检测需求
Customer detection requirements

产品定位
Product positioning

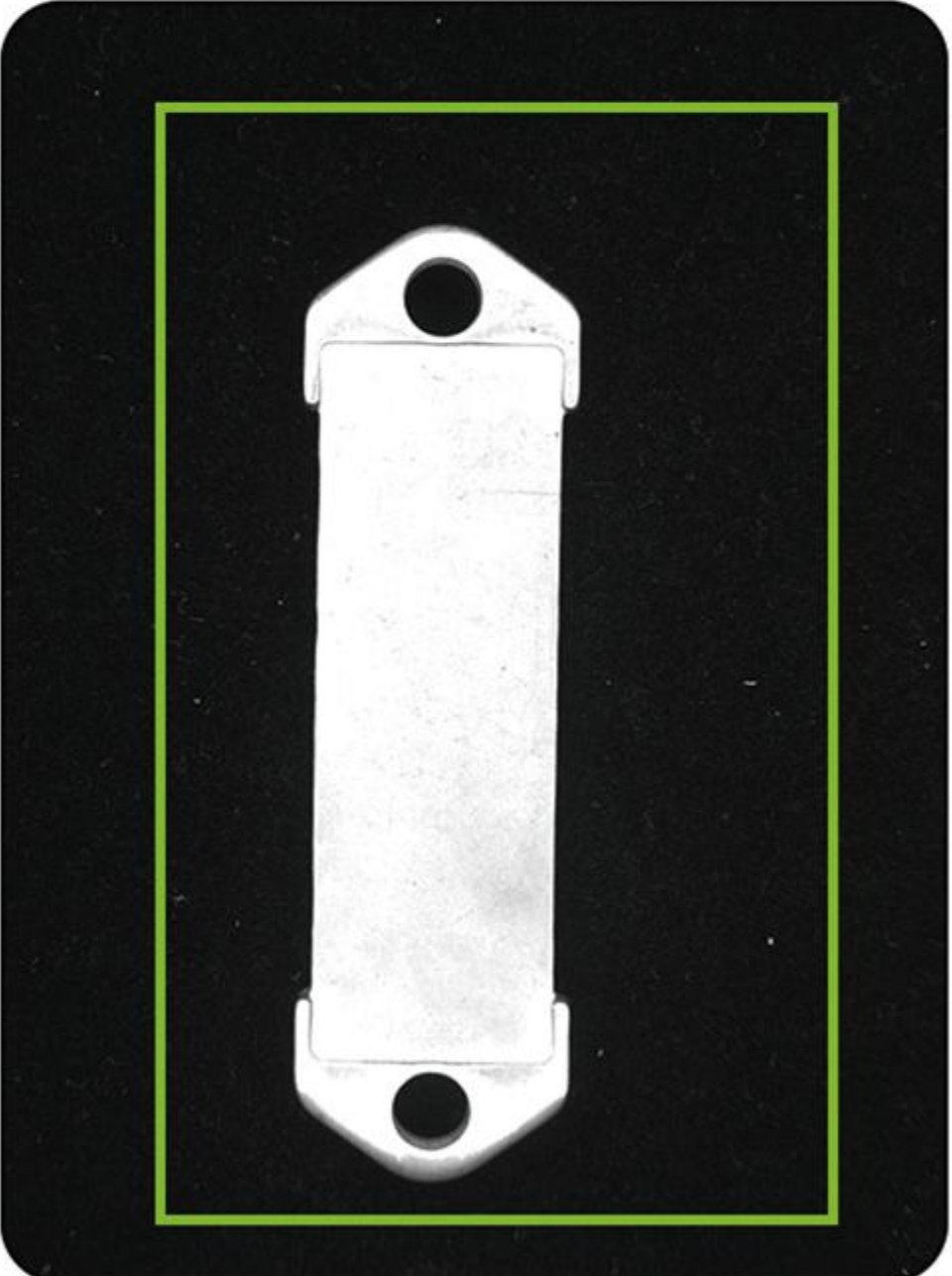


检测物品 Test items

检测图 (Inspection chart)



定位 Fixed position



定位 Fixed position



定位 Fixed position

案例运用-外观检测

Case Application - Appearance Inspection

3C行业-二极管外观检测

3C Industry - Diode Appearance Inspection

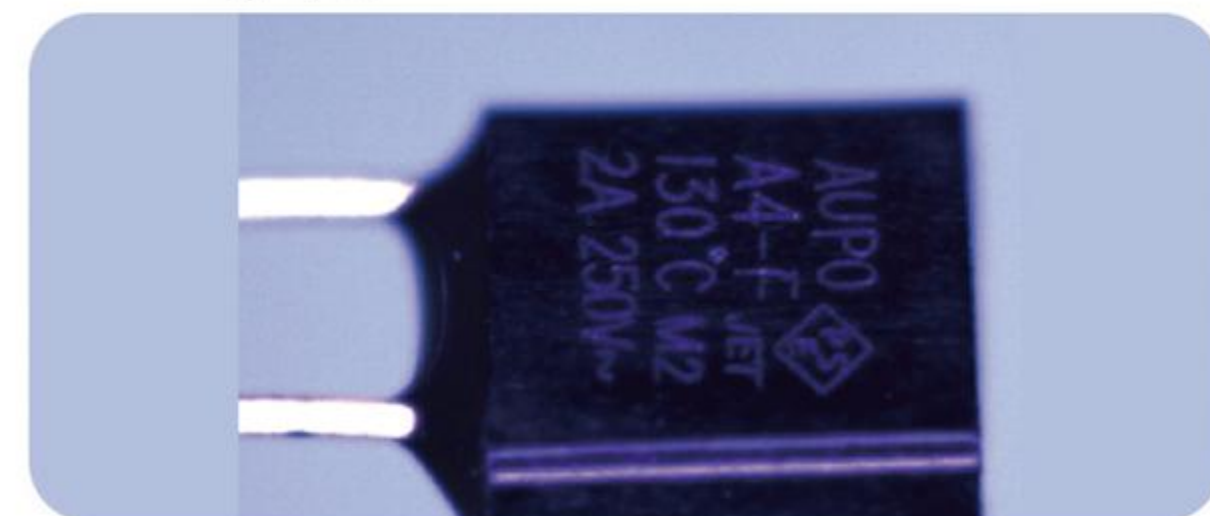
客户检测需求

Customer testing requirements

- ①间距近; ②特脂; ③缺角; ④混规格
⑤划伤; ⑥封口树脂高度不良; ⑦流淌树脂

- ① Close spacing; ② Extra fat; ③ Missing corner; ④

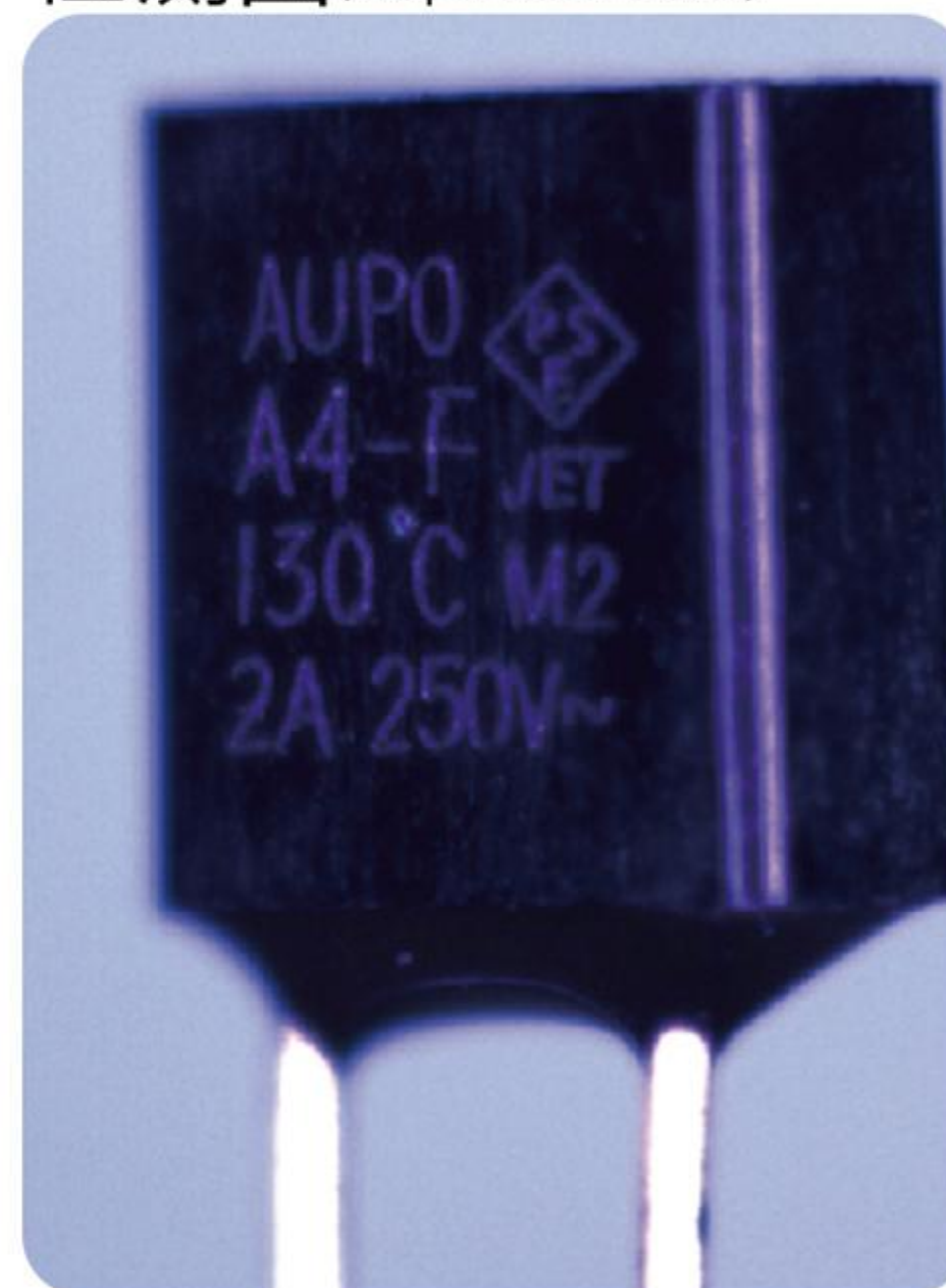
Mixed specification⑤ Scratches; ⑥ Poor sealing resin height; ⑦ flow



检测物品

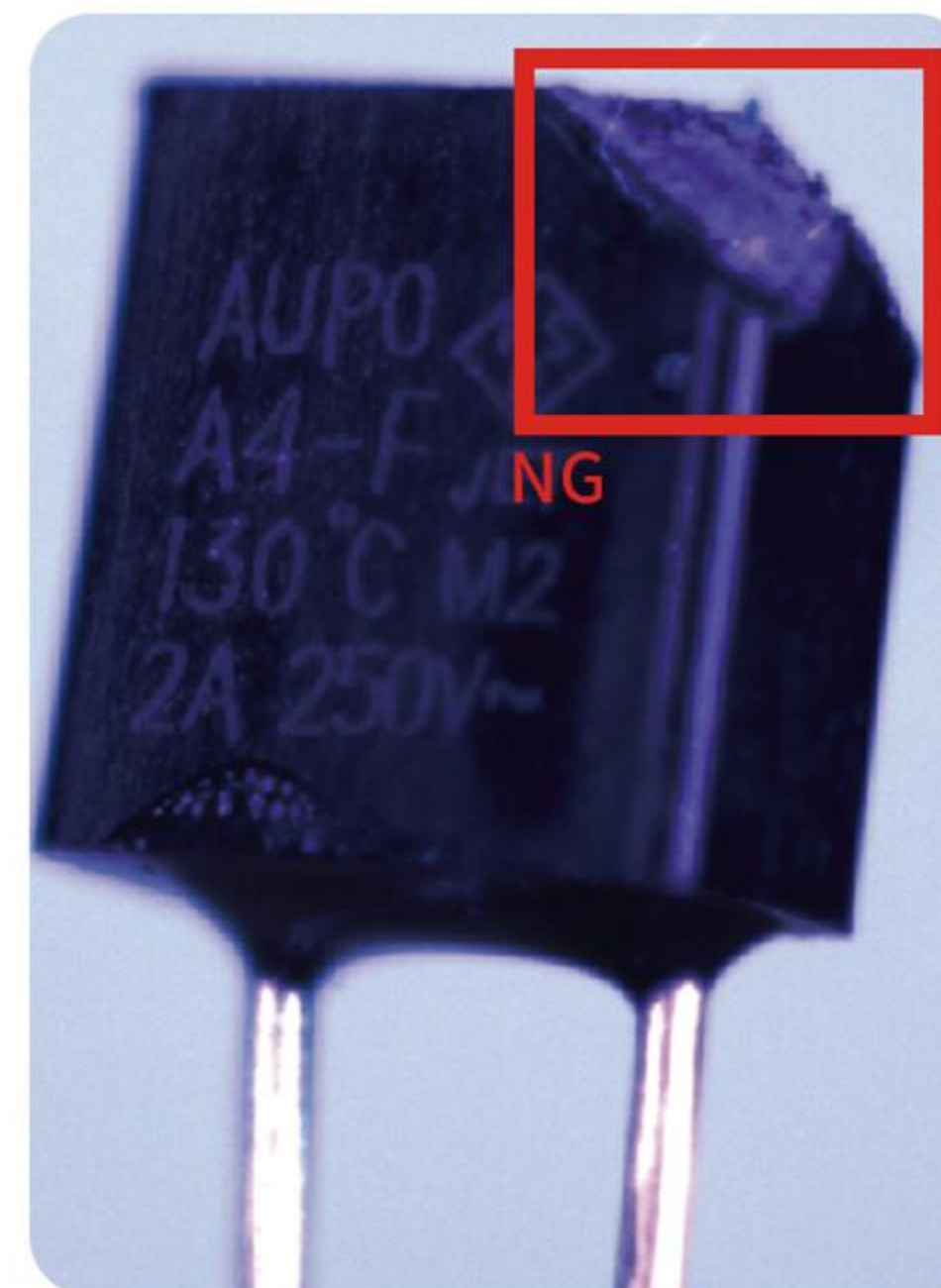
Test items

检测图(Inspection chart)



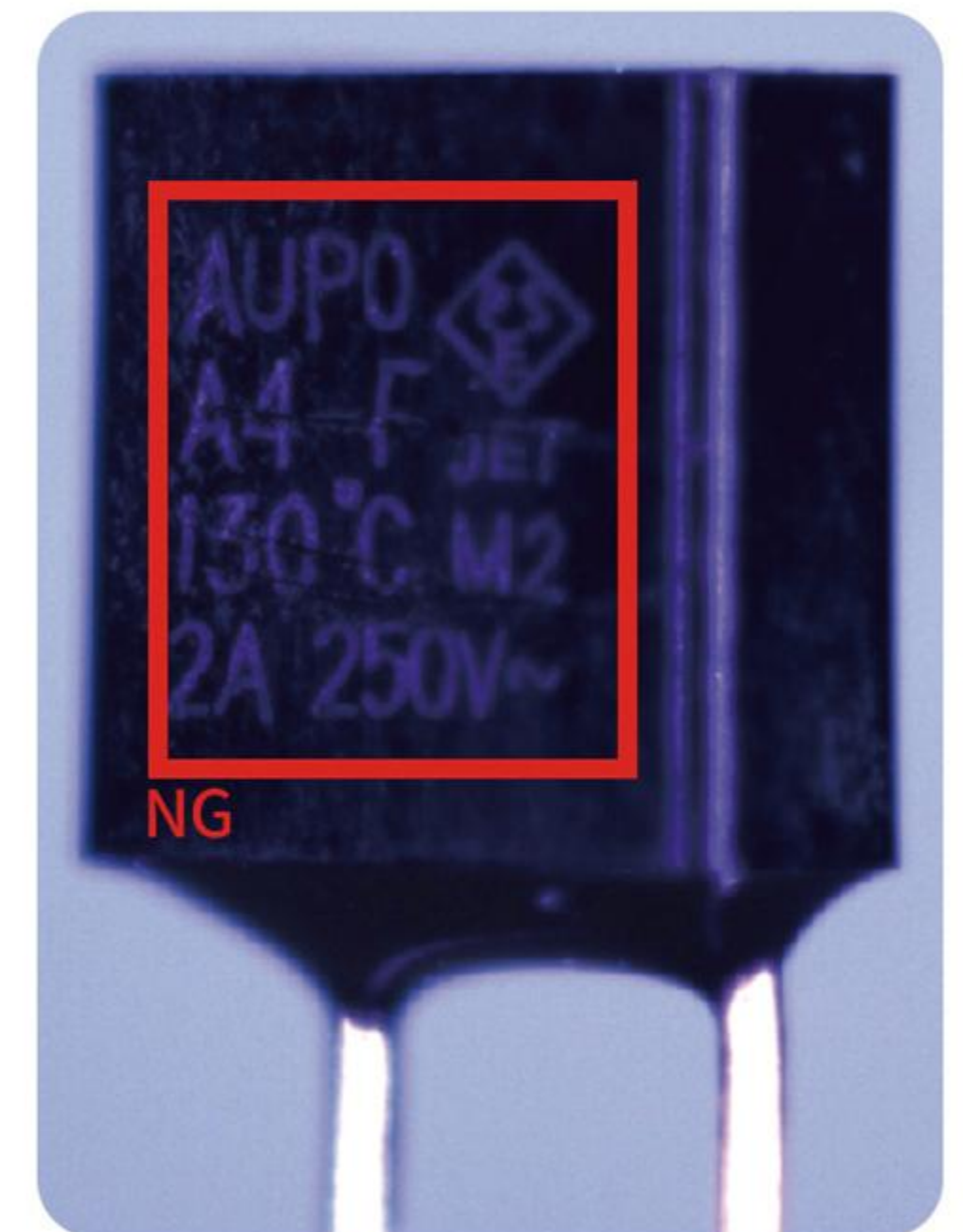
OK品

OK products



缺角

Unfilled corner



划伤

Scratches

医疗行业-注射器外观检测

Medical Industry - Injector Appearance Testing

客户检测需求

Customer testing requirements

- ①针头、胶塞与芯杆有无; ②刻度清晰;
③异物、脏污、毛发检测; ④胶塞缺陷检测;

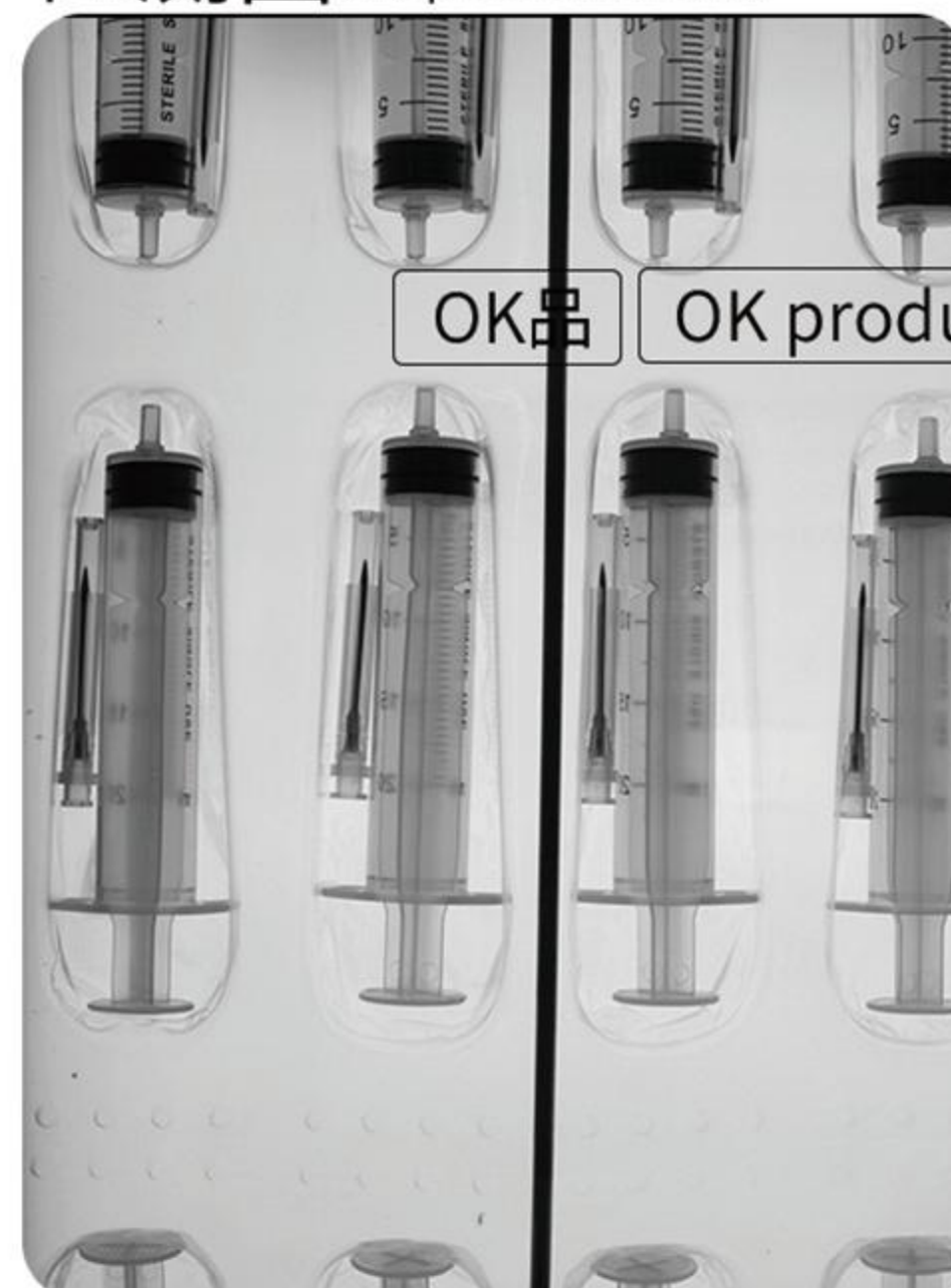
- ① Whether there are needles, rubber plugs, and core rods; ② Clear scale;③ Detection of foreign matters, dirt, and hair; ④ Rubber plug defect testing;



检测物品

Test items

检测图(Inspection chart)



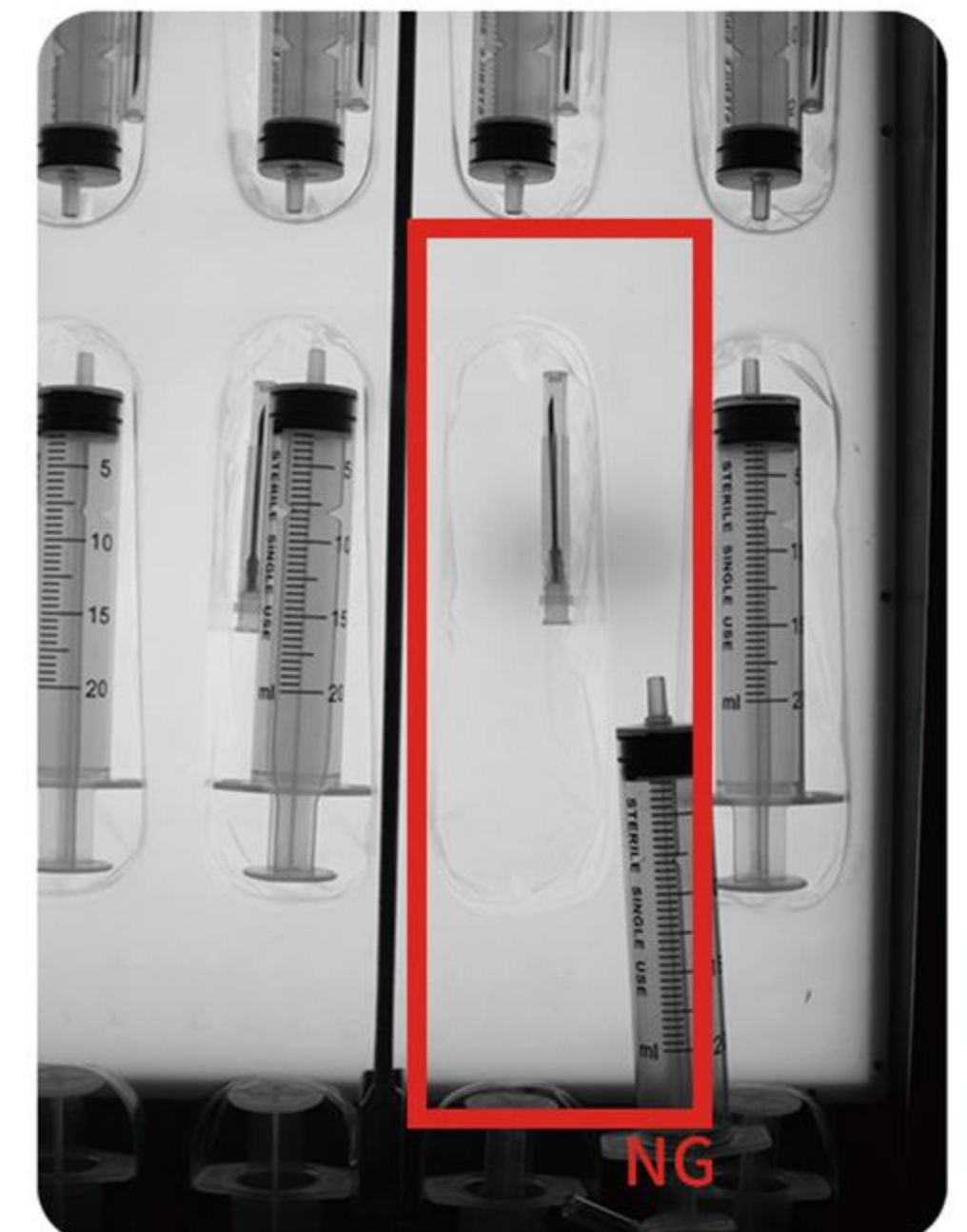
OK品

OK products



注射头

Injection head



脱落

Drop

五金行业-钥匙外观检测

Hardware Industry - Key Appearance Inspection

客户检测需求

Customer testing requirements

- ①测量产品鼻头尺寸; ②测量外径尺寸;
③测量平行度; ④检测产品外观缺陷

- ① Measure the product nose size; ② Measure the outer diameter dimension;③ Measure parallelism;
④ Detect product appearance defects



检测物品

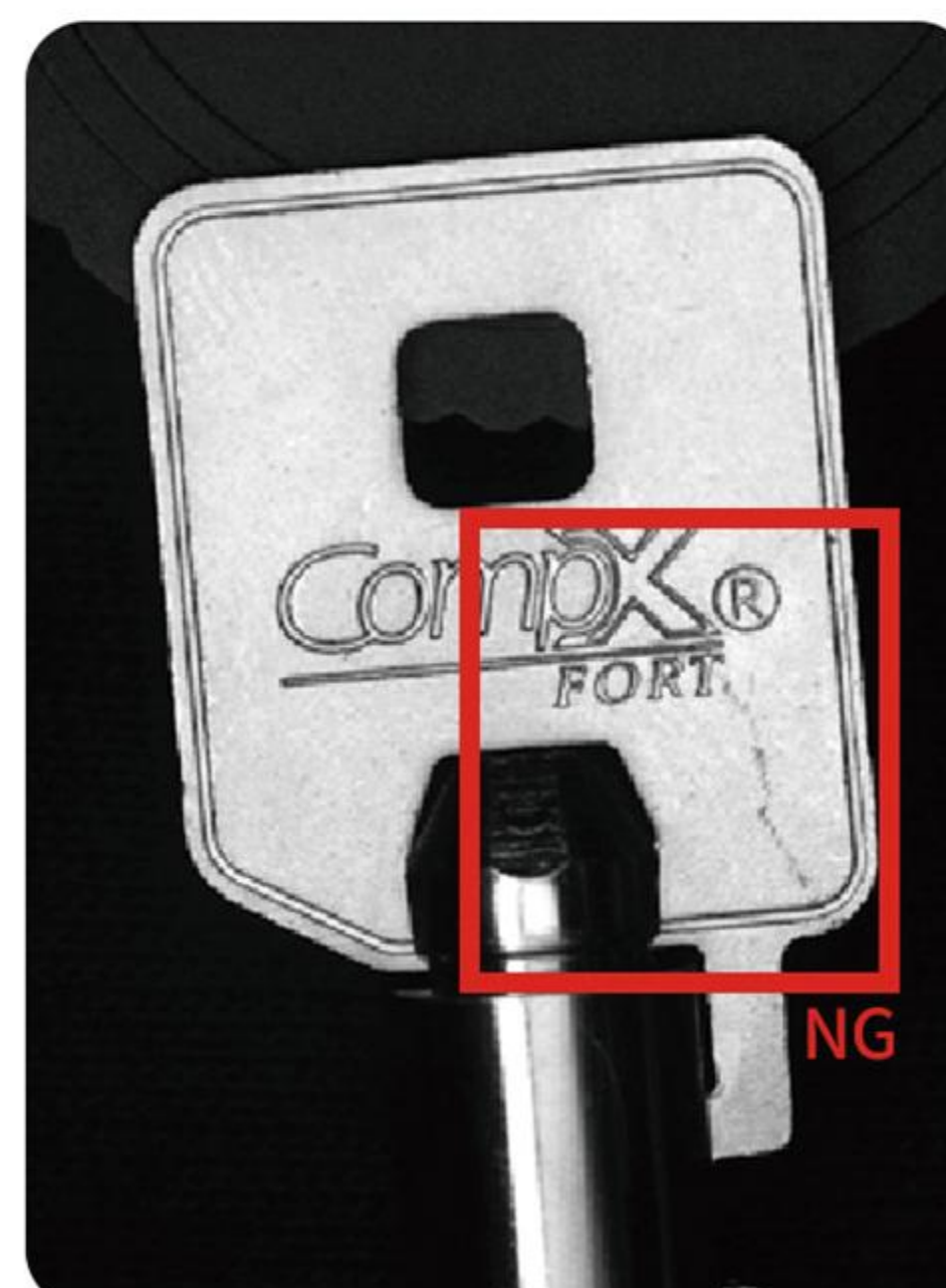
Test items

检测图(Inspection chart)



OK品

OK products



露铜

Exposed copper



压伤

Crush injury

