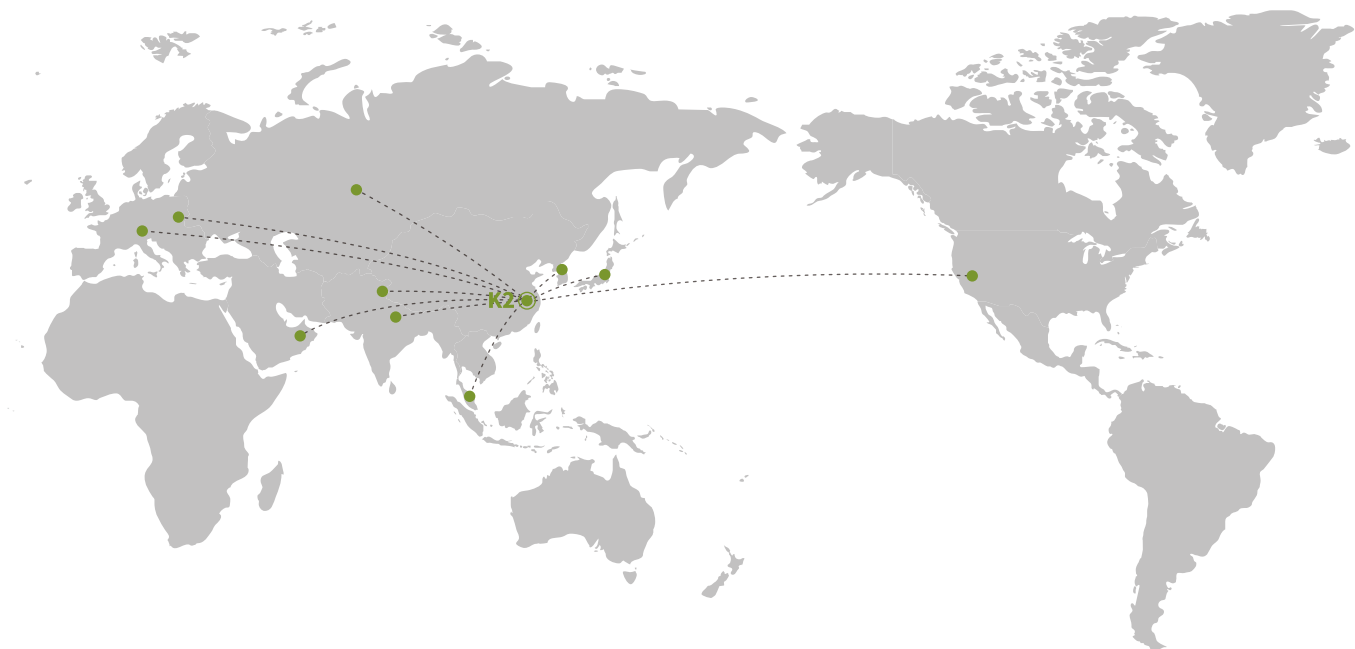


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机器视觉·新能源·机器人

PRODUCT MANUAL
乔戈里科技产品册



COMPANY PROFILE

企业简介

乔戈里（Qogori），又名K2，世界第二高峰但却是世界最难攀登的山峰。

乔戈里科技，2009年创立于杭州，专注机器视觉、人工智能及机器人技术的研究与应用，业务涵盖新能源、汽车零部件、轴承、消费品及智能农业等领域。乔戈里科技以持续创新为驱动，深耕全球市场，致力于成为细分领域领军企业；坚守创造改变生活的使命，构筑智若人心的未来。

公司曾承担国家创新基金项目并设有省级机器视觉研发中心；2017年荣获科技部中国创新创业大赛先进制造领域国家第二名和浙江省第一名；2019年乔戈里创始人入选国家“万人计划”；2020年获科技部“科技助力经济2020”重点专项立项；2021年设立全资子公司—洛子机器人（苏州）有限公司；2022年入选“专精特新”中小企业。

Qogori (K2) is the second highest peak in the world but the most difficult mountain in the world to climb.

Founded in Hangzhou in 2009, K2 Tech focuses on the research and application of machine vision, artificial intelligence and robotics, covering new energy, auto parts, bearings, consumer goods and intelligent agriculture. Driven by continuous innovation, K2 Tech is deeply cultivated in the global market and is committed to becoming a leader in the segment, adhering to the mission of creating life-changing lives and building a future where the machines are as intelligent as human.

CORE ABILITY

核心能力

ARTIFICIAL INTELLIGENCE 人工智能

基于深度学习的AI智能视觉软件，通过工业相机的图像采集，集标注、训练、模型调优为一体，可解决复杂缺陷检测、分类、定位等问题。

Based on deep learning,through the image acquisition of industrial camera, AI vision software integrates annotation, machine training and model optimization, and is used to solve the problems of complex defect inspection, classification and positioning.

MACHINE VISION 机器视觉

利用相机和电脑代替人眼对目标进行识别、跟踪和测量等技术，并进一步做图形处理，用电脑处理成为更适合人眼观察或传送给仪器检测的图像。

Using camera and computer instead of eyes to recognize, track and measure the target, and further do graphics processing, computer processing becomes more suitable for eyes to observe or transmit to the instrument inspection image.

ROBOT CONTROL 机器人控制

根据真实环境，可自动生成机械臂运动路径，在运动中实现障碍物躲避和防碰撞功能，适配国内外主流机械臂。

According to the real environment, the robot arm motion path can be automatically generated, and the obstacle avoidance functions can be realized in the movement, which is suitable for the mainstream robot arm at home and abroad.

HARDWARE DESIGN & MANUFACTURE 硬件研发制造能力

定制化的光机电系统设计，实现上下料及流转机构流程控制，独立工厂提供一站式解决方案。

Customized optical mechanical and electrical system design realizes loading and circulation mechanism system workflow control and independent factory provides one-stop solution.

COMPANY HONOR

公司荣誉

14

发明专利14项



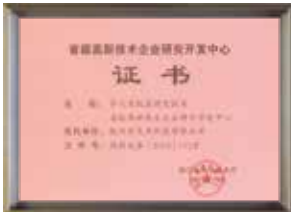
3

3项国际专利 (PCT)



48

实用新型专利48项



43

软件著作权43项



国家重点支持高新技术企业
National key high-tech enterprise

国家“万人计划”
Ten-thousand talents program

省级研发中心
Provincial R&D center

中国创业创新大赛亚军
China innovation entrepreneurship
competition second prize

软件企业
National software enterprise

ISO9001体系认证
ISO9001 Certification

国家创新基金项目
National invention fund project

省重点研发计划项目
Major projects in Zhejiang province

欧盟CE产品认证
CE Certification

CUSTOMER REFERENCE

合作伙伴



PRODUCT INTRODUCTION

产品介绍

产品—新能源

圆柱锂电池视觉检测包装线
Cylindrical Lithium Battery Vision
Inspection & Packing Line

圆柱锂电池视觉检测包装线工序

Cylindrical Lithium Battery Vision Inspection & Packing Line Process

自动上料、喷码、静电除尘、外观检测（电池正极、负极、侧面壳体）、电池扫码、自动装盒、CCD 复核、内纸盒贴标、条码绑定、自动包装。

Process: Automatic feeding, coding, electrostatic dust removal, appearance detection (positive battery, negative battery, the side shell), battery scanning, automatic packaging, CCD review, carton labeling, bar code binding, automatic packaging.

圆柱锂电池视觉检测包装线特点

Features of Cylindrical Lithium Battery Inspection & Packaging Line

18650电池、21700电池、4680电池等圆柱锂电池检测及包装。

自主研发检测软件：实现圆柱锂电池正负极以及圆柱面的压痕、刻痕、异物、污染、腐蚀等缺陷检测，搭配AI深度学习技术，提高检测准确率。

多重上料方式：根据客户要求对各个模块进行个性化定制，对接不同工厂电池生产末端流程，解决了场地、物流、存储等不同难以适应的问题。

检测效率高：200PPM高速检测线，单线可节省20人左右，工件无需翻转即可完成各端面的检测。

降低生产成本：替代传统检测，减少人工误判，极大提高工厂的生产效率以及产品质量。

Applicable to 18650, 21700,46800 models

Self-development Software:It can realize the detection of indentation, scoring, foreign matter, pollution, corrosion and other defects on the end face and cylindrical surface of the workpieces, improving the accuracy of detection.

Multiple Loading Method:Personalized customization of each module according to the requirements of customers solves the problems during tail flow of manufacturing, such as the coordination between different methods of site, logistics, storage and so on.

High Inspection Efficiency:200PPM high-speed detection line, a single line can save about 20 people, the workpiece does not need to turn over to complete the detection of each end face.

Lower Production Cost:By supplanting the traditional inspection, the misjudgement of manual inspection is reduced, improving the production efficiency and product quality.



技术指标/Technical Specifications			
检测项目 Inspection Item	压痕、刻痕、异物、污染、腐蚀等外观缺陷 Defects such as indentation, nicks, foreign matter, contamination, corrosion		
检测范围 Inspection Range	18650,21700,4680圆柱锂电池/18650,21700,4680 Batteries		
光学分辨率 Optical Resolution	0.02mm	检测精度 Precision	0.1mm
运行速度 Speed	200PPM	相机数量 Cam Number	8
功率 Power	14KW	电源电压 Voltage	220V,50HZ
尺寸/重量 Size/Weight	12000(L)*2500(W)*2000(H)mm/5000Kg	设备气源 Air Power	0.5 MPa ~ 0.6MPa
系统工作环境 System Working Environment	湿度： 5℃-30℃；相对湿度： <70RH 5℃-30℃； Humidity<70RH		
其他特性 Other Features	1、实时显示检测状态及不合格品警报； 2、设备软件具有远程技术支持功能； 3、可扩展连接后端包装线； 4、结构简单，支持一键换型。 1. Real-time display of detection status and NG quantity alarm; 2. The equipment software has remote technical support function; 3. The rear end packaging line body can be extended; 4. The structure is more simple, support one-key transformation.		

电池正极 Cathode



缺失垫片
Missing gasket



多放垫片
Excessive gasket



凹坑
Pit



破套
Broken set



覆盖不良
Poor coverage



凹坑
Pit



划痕
Scratch



生锈
Rust



污渍
Stain



焊接不良
Poor welding

电池负极 Anode

电池外圆面 Cylindrical surface



异物
Foreign matter



破套
Broken set



褶皱
Fold



凹坑
Pit



光圈
Aperture



污渍
Stain



粘连
Adhesion



污渍
Stain



波浪
Wave

条码 Barcode

PRODUCT INTRODUCTION

产品介绍

产品—智能农业

智能采摘机器人

Intelligent Harvesting Robot



指标/Index	
覆盖范围 Coverage area	1500mm
最高工作效率 Max efficiency	3s/pcs
采摘准确率 Precision rate	90%
识别成功率 Recognition rate	≥ 95%
果实损伤率 Fruit damage rate	≤ 5%
适用坡度 Applicable slope range	0-15°
类型 Type	锂电池 Lithium battery
电压 Voltage	48V
尺寸 Dimension	1139x754x2081mm
自重 Dead weight	120Kg

在大田/温室/果园等应用场景下，利用多种传感器对农作物和周围环境进行感知和分析，实现高速实时传输数据，无缝驱动机械臂，可广泛应用于解决多种蔬果采摘需求。

In field / greenhouse / orchard and other application scenarios, a variety of sensors are used to perceive and analyze crops and the surrounding environment,realizing high-speed real-time data transmission, and smooth manipulator driving, which can be widely used to meet the needs of a variety of fruits and vegetables picking.

MUTIPLE FUNCTION
多种功能拓展



- 智能分选
Intelligent
Sorting

高速动态条件下的精准分级
Accurate classification under high-speed dynamic conditions
- 精准打药
Accurate
Dosing

精准打药不压苗、喷洒均匀、定时定量
Accurate spraying without hurting the crops and with even spraying according to certain time and quantitative
- 水果套袋
Fruit Bagging

改善外观品质和减少农药残留
Enhance appearance of fruit and reduce pesticide residues
- 资产盘点
Asset
Inventory

产量估计、生长信息监测
Yield estimation and growth information monitoring
- 精准除草
Precise
Weeding

减少燃料成本和灌溉需求
Lower fuel cost and irrigation volume
- 疏花疏果
Thinning
Flower&Fruit

科学合理提升水果品质
Scientific and reasonable improvement of fruit quality
- 精准授粉
Precise
Pollination

精准定位花朵位置并对靶授粉，确保授粉成功
Precise location of flowers and target the place to pollinate successfully

FUNCTION

功能特点

可更换末端执行机构

通过替换夹爪/吸盘等多类执行机构

- 1.可适应不同形态的蔬果采摘需求
- 2.可适应不同园艺作业需求, 例如采摘、套袋、授粉等

REPLACEABLE END ACTUATOR

By replacing multiple types of actuators such as grippers/suction cups

- 1.It can meet the requirement of different forms of fruit and vegetable picking
- 2.It can meet the needs of different gardening operations, such as picking, bagging, pollination,etc.

多种行走和驱动形式

支持履带式/轮式等多种驱动底盘

可适应果园、大棚、田地等多类地形

MULTIPLE WALKING AND DRIVING FORMS

Support multiple drive chassis such as crawler type/wheel type

It can adapt to orchard, greenhouse,-farmland and other types of terrain

人工智能
深度学习技术
Artificial Intelligent
Deep Learning Technology

利用成像系统对周围环境进行感知，“看到”水果作物，并实时了解果实状态以及是否成熟、计算水果数量。
The imaging system is used to perceive the surrounding environment,“see” fruit crops, understand the fruit situation and maturity in real time and calculate the number of fruits.

自主定位导航
Autonomous positioning
and navigation

搭载乔戈里智能控制系统，双目视觉与RTK导航相结合，智能规划行驶路线，实现全自动化作业。
Equipped with K2 intelligent control system, combined with binocular vision and RTK navigation,the vehicle enables to intelligently plan the driving route and realize fully automated operation.

多传感器融合技术
Multi-senso
Fusion Technology

通过算法加以自动分析和综合，获取果实机器人实时定位，防撞信息及果实信息。
Through the automatic analysis and synthesis of the algorithm, robot real-time positioning, collision avoidance information, and fruit information is obtained.

机械臂控制技术
Manipulator Control
Technology

基于视觉系统反馈的果实与环境信息，机械臂实时规划运动路径，引导末端执行机构到达果实的实际位置。
Based on the fruit and environment information fed back by the visual system, the robot arm plans the motion path in real time to guide the end effector to the actual position of the fruit.

PRODUCT INTRODUCTION

产品介绍

产品—智能农业

无人运输车
Agricultural
unmanned vehicle

技术指标Technical Specification	
设备尺寸 Dimension	L160xW80xH80cm
防护等级 Robustness	IP56



无人运输车，是一款全自主导航的农产品运输车，独创核心技术可实现田间重物搬运、农产品运送等功能。
It is a fully autonomous navigation of agricultural products transport vehicle with original core technology accessible to heavy handling, agricultural products transport and other functions.

自主定位导航
Autonomous positioning
and navigation

搭载乔戈里智能控制系统，可根据场景分别选择视觉/RTK/激光导航或组合，智能规划行驶路线，实现全自动化作业。
Equipped with the K2 intelligent control system, visual/RTK/laser navigation or combination can be selected according to the scene, intelligently planning the driving route, and achieving fully automatic operation.

智能感知避障
Intelligent Perception
Obstacle Avoidance

前置超声避障，准确感知前方障碍物，辅助急停按钮，实现安全可靠运动控制。
With front ultrasonic obstacle avoidance to accurate perception of obstacles in front, installed with a auxiliary emergency stop button, the vehicle achieves safe and reliable motion control.

便捷操作
Convenient Operation

智能化显示行驶路线及运行状态，实现双手操控，一键操作。
The vehicle Intelligently displays the driving route and running status, and realizes two hand control and one key operation.

拓展功能
Function Expansion

运输物资，喷洒作业，自主巡检，农业设备牵引，整地割草等。
Transportation of materials, spraying operations, self inspection, agricultural equipment traction, land preparation and grass cutting, etc.

PRODUCT INTRODUCTION

产品介绍

产品—轴承

滚子外观缺陷光学自动检测设备

AOI Machine for
Roller Appearance Defects

滚子外观缺陷光学自动检测设备,专业用于检测滚子外圆和两端、倒角、凹穴等外观缺陷，成功突破了360度全检和检测速度之间的矛盾，实现了滚子外圆360度快速检测，适配，速度达到1.2万件每小时，可在各种环境下进行7*24小时不间断工作。

该设备拥有专利证书、软件著作权，依托于各项技术的研发，获得浙江省国内首台（套）重大技术装备及关键部件产品认定。先进的检测技术使检测功能更齐全，友好的人机界面使人工操作更便捷，涵盖数十亿粒滚子缺陷的数据库使得检测数据更准确，设备整体已达到国际领先水平。

Automatic Optical Inspection Machine for Roller Appearance Defects is a professional inspection machine for outer ring and both ends of rollers, which successfully broke through the dilemma between inspection angel and inspecting speed, achieving 360 degree comprehensive detection. In addition, new chamfer detection, dent detection, multi-model configuration and other functions are added. Inspecting speed reaches 12,000pcs per hour, 7*24 hours uninterrupted operation under a variety of environments.

The equipment has patent certificate and software copyright. Relying on the research and development of various technologies, it has been recognized as the first major technical equipment and key components product. Advanced detection technology makes the detection function more complete, friendly man-machine interface makes the manual operation more convenient. What’s more, the database covering hundreds of millions of roller defects makes the detection data more accurate. Now our detection technology has reached the international leading level.



滚动面磨伤
Grinding Marks
on Raceway



滚动面欠磨
Under-Polishing
on Raceway



滚动面裂纹
Crack on
Raceway



滚动面废料
Scrap on
Raceway



锈斑
Rusty Spot



端面不圆
Out of Roundness



压伤
Breaking Marks



欠磨
Under-Grinding



磨伤
Grinding Marks



过磨
Over-grinding



凹穴多肉
Excessive Shots
in Recession



凸头
Raising



冷墩伤
Cold Forming
Marks



基面缺料
Short Shots



挤伤
Extruding Marks



检测项目 Inspection Items			
滚道面外观缺陷 Raceway Appearance Defects	欠磨、磨伤、过磨、缺料、压伤、锈斑、擦伤、划伤、磕碰伤等外观缺陷。 Under-grinding, grinding marks, over-grinding, excessive shots in recession, raising overhangs, cold forming marks, short shots, breaking marks, rust, spots, out of roundness of ends, etc.		
两端面及倒角外观缺陷 Both Ends & Chamfers Appearance Defects	端面磨伤、欠磨、裂纹、废料，倒角、凹坑、缺料磕碰等缺陷。 Defects such as end face abrasion, underwear, cracks, scrap, chamfers dents, missing materials, and collisions.		
检测范围 Inspection Range	Ø 5-25mm, L 5-50mm (Quick Model Change)（一键换型）		
检测要求 Requirements	工件表面干净，无油污 Clean surface, no grease		
检测速度 Inspection Speed	7,200-12,000pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm
光学分辨率 Optical Resolution	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.5m*1.7 m*2.5 m / 500kg		
系统工作环境 Work Environment	温度： 5°C~ 30°C 相对湿度： <70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警。 2、设备软件具有远程技术支持功能。 1. It displays real-time detection status and alarm the quantity of NG products. 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品一轴承

大滚子外观缺陷光学自动检测机器人

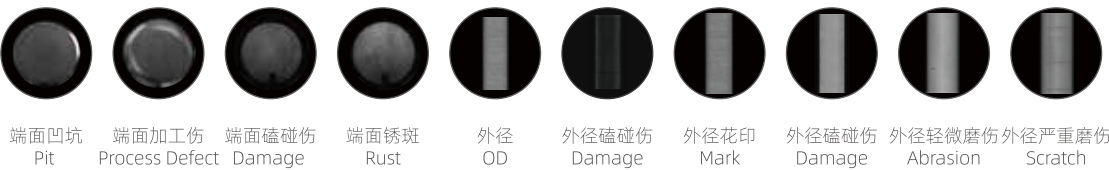
AOI Robot for Big Roller
Appearance Defects

大滚子外观缺陷光学自动检测机器人是专业检测中大型滚子外圆、两端、凹穴和倒角的外观缺陷的检测设备。使用机器人控制滚子移动，成功避免了大滚子的二次损伤。该设备实现了滚子外圆360度全面无死角检测，且单台设备兼容尺寸范围大，增加了多型号配置和一键换型功能；速度达到2000件每小时，可在各种环境下进行7*24小时不间断工作。

先进的检测技术使检测功能更齐全，友好的人机界面使人工操作更便捷，涵盖数亿粒滚子缺陷的数据库使得检测数据更准确，检测技术已达到国际领先水平。

Automatic Optical Inspection Robot for Big Roller Appearance Defects is a professional inspection machine for medium and big rollers, it can detect the defects on the diameter/ex-circle, dent, chamfer and both face/ends. Using robot to move the rollers, it successfully avoids the second damage. It achieves 360 degree comprehensive detection, and one machine can enable to detect large size range of rollers, equipped with multi-model configuration and one-button tooling function.The inspecting speed reaches 2,000pcs per hour, and it can operate 7*24 hours uninterrupted.

Each machine is designed scientifically; the world- leading detection technology, user-friendly interface, and database of hundreds of millions roller defects ensure the system running accurate, stably and in the long run.Now our detection technology has reached the international leading level.



滚道面外观缺陷 Raceway Appearance Defects	欠磨、磨伤、过磨、缺料、压伤、锈斑、擦伤、划伤、磕碰伤等缺陷。 Less Grinded, Grinding Marks, Excess Grinding, Smashed, Rust, Scratch, Crack and etc.		
两端面及倒角外观缺陷 Both Ends & Chamfers Appearance Defects	端面磨伤、欠磨、裂纹、废料，倒角、凹坑、缺料磕碰等缺陷。 Defects such as end face abrasion, underwear, cracks, scrap, chamfers dents, missing materials, and collisions.		
检测范围 Inspection Range	Ø 20-80mm, L 20-120mm (Quick Model Change) (一键换型)		
检测要求 Requirements	工件表面干净，无油污 Clean surface, no grease		
检测速度 Inspection Speed	1000-2000pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm
光学分辨率 Optical Resolution	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.5m*1.7 m*2.5 m / 500kg		
系统工作环境 Work Environment	温度： 5℃~ 30℃ 相对湿度： <70%Rh Temperature: 5℃~30℃ Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警。 2、设备软件具有远程技术支持功能。 1. It displays real-time detection status and alarm the quantity of NG products. 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品一轴承

风电滚子外观缺陷光学自动检测机器人

AOI Robot for Wind Power
Roller Appearance Defects

风电滚子外观缺陷光学自动检测机器人是专业检测风电滚子外圆、两端、凹穴和倒角的外观缺陷的检测设备。使用机器人控制滚子移动，成功避免了大滚子的二次损伤。该设备实现了滚子外圆360度全面无死角检测，且单台设备兼容尺寸范围大，增加了多型号配置和一键换型功能；速度达到120件每小时，可在各种环境下进行7*24小时不间断工作。

先进的检测技术使检测功能更齐全，友好的人机界面使人工操作更便捷，涵盖数十亿粒滚子缺陷的数据库使得检测数据更准确，整体设备已达到国际领先水平。

Automatic Optical Inspection Robot for Wind Power Roller Appearance Defects is a professional inspection machine for medium and big rollers, it can detect the defects on the diameter/-excircle, dent, chamfer and both face/ends. Using robot to move the rollers, it successfully avoids the second damage. It achieves 360 degree comprehensive detection, and one machine can enable to detect large size range of rollers, equipped with multi-model configuration and one-button tooling function.The inspecting speed reaches 120pcs per hour, and it can operate 7*24 hours uninterrupted.

Each machine is designed scientifically; the world- leading detection technology, user-friendly interface, and database of hundreds of millions roller defects ensure the system running accurate, stably and in the long run.Now our detection technology has reached the international leading level.



检测项目 Inspection Items			
滚道面外观缺陷 Raceway Appearance Defects	欠磨、磨伤、过磨、缺料、压伤、锈斑、擦伤、划伤、磕碰伤等缺陷。 Less Grinded, Grinding Marks, Excess Grinding, Smashed, Rust, Scratch, Crack and etc.		
两端面及倒角外观缺陷 Both Ends & Chamfers Appearance Defects	端面磨伤、欠磨、裂纹、废料，倒角、凹坑、缺料磕碰等缺陷。 Defects such as end face abrasion, underwear, cracks, scrap, chamfers dents, missing materials, and collisions.		
检测范围 Inspection Range	Ø 40-160mm , L 40-300mm (Quick Model Change)（一键换型）		
检测要求 Requirements	工件表面干净，无油污 Clean surface, no grease		
检测速度 Inspection Speed	60-120Pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm
光学分辨率 Optical Resolution	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.5m*1.7 m*2.5 m / 500kg		
系统工作环境 Work Environment	温度： 5℃~ 30℃ 相对湿度： <70%Rh Temperature: 5℃~30℃ Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警。 2、设备软件具有远程技术支持功能。 1. It displays real-time detection status and alarm the quantity of NG products. 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品一轴承

调心滚子外观缺陷光学自动检测设备

AOI Machine for
SRB Roller Appearance Defects

调心滚子外观缺陷光学自动检测设备是专业检测调心滚子外圆和两端外观缺陷的检测设备,成功突破了检测角度和检测速度之间的矛盾，实现了滚子外圆360度全面检测，新增倒角检测、凹穴检测、多型号配置等功能，应用柔性连接，有效避免二次损伤，并可在各种环境下进行7*24小时不间断工作。

先进的检测技术使检测功能更齐全，友好的人机界面使人工操作更便捷，涵盖数十粒滚子缺陷的数据库使得检测数据更准确，整体设备已达到国际领先水平。

AOI Machine for SRB Roller Appearance Defects is a professional inspection machine for OD and both ends of Spherical Roller Bearings. It achieves a 360 degree overall detection of roller. In addition, new chamfer detection, dent detection, multi-model configuration and flexible connections functions are added to avoid secondary damage, and it operates 24/7 under a variety of environments.

Advanced detection technology makes the detection function more complete, user-friendly machine interface makes the manual operation more convenient. What’s more, the database covering hundreds of millions of roller defects makes the detection data more accurate. Now our detection technology has reached the international leading level.



端面擦痕
Scratch



端面加工伤
Process Defect



端面加工伤
Process Defect



端面加工伤
Process Defect



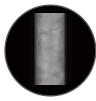
端面磕碰伤
Damage



端面线伤
Linear Defect



外径黑点
Spot



外径花斑
Stain



外径划伤
Scratch



外径磕伤
Damage



外径磨伤
Abrasion



外径磨伤
Abrasion



检测项目 Inspection Items			
滚道面外观缺陷 Raceway Appearance Defects	欠磨、磨伤、过磨、缺料、压伤、锈斑、擦伤、划伤、磕碰伤等缺陷。 Less Grinded, Grinding Marks, Excess Grinding, Smashed, Rust, Scratch, Crack and etc.		
两端面及倒角外观缺陷 Both Ends & Chamfers Appearance Defects	端面磨伤、欠磨、裂纹、废料，倒角、凹坑、缺料磕碰等缺陷。 Defects such as end face abrasion, underwear, cracks, scrap, chamfers dents, missing materials, and collisions.		
检测范围 Inspection Range	Ø 12~60mm, L 12~80mm (Grading Detection)（需分档检测）		
检测要求 Requirements	工件表面干净，无油污 Clean surface, no grease		
检测速度 Inspection Speed	900~1,800pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm
光学分辨率 Optical Resolution	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.5m*1.7 m*2.5 m / 500kg		
系统工作环境 Work Environment	温度：5°C~ 30°C 相对湿度：<70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警。 2、设备软件具有远程技术支持功能。 1. It displays real-time detection status and alarm the quantity of NG products. 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品—轴承



Automatic Roller Inspection Line
全自动滚子检测线



Automatic Roller Feeding Machine
全自动轴承滚子上料机



Automatic Roller Washing Machine
自动轴承滚子清洗机



Automatic Roller Oiling Machine
全自动轴承滚子涂油机

PRODUCT INTRODUCTION

产品介绍

全自动轴承滚子上料机，自动轴承滚子清洗机，滚子外观缺陷光学自动检测机，全自动轴承滚子涂油机
Automatic Roller Feeding Machine, Automatic Roller Washing Machine, Automatic Inspection Machine for Roller Appearance Defects, Automatic Roller Oiling Machine

技术指标 / Technical Specifications	
设备定义 Equipment Definition	针对中小型轴承滚子在线清洗、吹干、外观检测及雾化涂油的自动化检测线。 Automatic Roller Inspection Line for medium and small bearing roller on-line cleaning, drying, detection and atomization oiling.
检测速度 Detection Speed	最快达到12,000件每小时 Up to12,000 pcs per hour
设备功能 Function	滚子在线清洗、吹干、外观检测及雾化涂油全自动检测线（可扩充涡流探伤及自动包装功能）。 Automatic inspection line for medium and large bearing roller on-line cleaning, drying, appearance inspection and atomization coating oil. (It can expand eddy current testing and automatic packaging function).
工艺流程 Process	前道工序（磨加工出料）→清洗、吹干→全自动机器视觉检测→涂油-包装 The front process (grinding process) → cleaning&drying → automatic inspection → oiling-Pack-aging
连线优势 Advantages	缩减中间流通环节，减少滚子在搬运中产生二次损伤，提升生产流通效率，实现无人自动化。 It can reduce the circulation time and avoid the second damage during the circulation, improving production efficiency and achieving fully-automatic factory.
检测项目 Inspection Items	360°外观全检，包括滚动面材料伤、缺角、磨伤、挤伤、垫伤、欠磨、生锈、擦伤/划伤、磕碰伤等缺陷；端面材料伤、缺角、磨伤、欠磨、凸头等外观缺陷；漏倒角、倒角过磨、倒角伤等外观缺陷。 360° inspection of appearance defects, including rolling surface material injury, lack of material, dent, crush, spots, rust, scratches, crack and other defects; Chamfer and End defects including material injury, lack of angle, abrasion, less-grinding, dent, lacking of chamfer, chamfer over grinding, chamfer injury and other appearance defects.

PRODUCT INTRODUCTION

产品介绍

产品一轴承

滚针外观缺陷光学自动检测设备

AOI Machine for Needle Roller/
Quill Roller Appearance Defects

滚针外观缺陷光学自动检测机是用于轴承滚针360°外观缺陷检测，可检外圆滚动面的磨伤、烂点、塌头、刀板印等缺陷以及滚针长度的测量和超差分拣。检测速度可达到60,000件每小时，高速外观检测可适用于连线外观检测。设备同时集成尺寸测量和超差剔除功能，测量精度可达0.02mm，可有效对长度超差进行剔除。设备还可以用于销轴等圆柱体工件，解决人工检测中错检、漏检等一些疑难现象，帮助客户在节约人力成本的同时提高产生的检测质量，增加产品的市场竞争力。

Automatic Optical Inspection Machine for Needle Roller/Quill Roller Appearance Defects realizes all-round 360 degree inspecting of needle roller/quill roller, and catches defects like grinding mark, rust, depressed, knife plate printing, etc., At the same time, it can measure length and size of needle roller/quill roller, the accuracy is 0.02mm, which can be effective on the length difference sorting. Inspecting efficiency achieves as 60,000Pcs/h, and high speed visual inspection could apply to connection detection.

The machine can also be used for/ in the valve guides, cylindrical pin appearance inspection, and solve the problem like fault detection, missed detection in manual inspection. It will be helpful for customers to save labor costs, improve the quality of production and increase the market competitiveness of products.



检测项目 Inspection Items			
主要检测项 Inspection Items	滚动面的磨伤、刀板印、麻点/烂点、塌头、平头、弯料/大磨伤、材料伤/裂纹，长度测量，端面不圆度测量。 Grinding marks on raceway, marks like knives, rusty spots, short shots, flat end, over-grinding, crack, length measurement, out of roundness measurement		
检测范围 Inspection Range	Φ 2-4mm, L 10-30mm		
测量精度 Measurement Precision	0.02mm	检测速度 Inspection Speed	60,000Pcs/h
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.2mm
光学分辨率 Optical Resolution	0.03mm	电源电压 Voltage	220V,50HZ
功率 Power	1000W	设备气源 Air Supply	0.5MPa ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.6m*0.8m*1.7m / 450Kg		
工作环境 Work Environment	温度： 5°C~ 30°C 相对湿度： <70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
可扩展应用 Extensible Application	可以完成不同尺寸滚针的检测。 It is able to accomplish inspecting of different sizes needle rollers./quill rollers.		

PRODUCT INTRODUCTION

产品介绍

产品—轴承

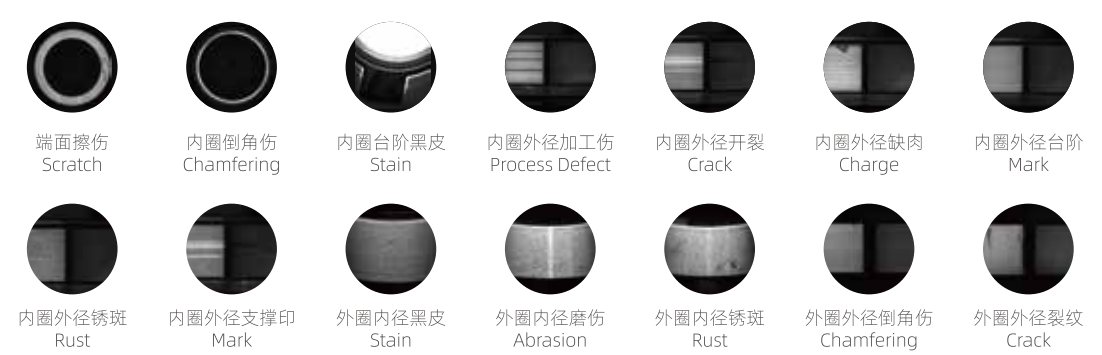
套圈外观缺陷光学自动检测设备
AOI Machine for Bearing Ring
Appearance Defects

轴承套圈外观缺陷光学自动检测设备是专业检测套圈两端面、挡边和内外圆面外观缺陷的设备，实现了套圈无死角快速准确的检测。

该设备拥有专利证书、软件著作权，依托于各项技术的研发，先进的检测技术使检测功能更齐全，友好的人机界面使人工操作更便捷，有效提高了一线厂商套圈外观检测的品质和效率。

Automatic Optical Inspection Machine for Bearing Ring Appearance Defects is a professional inspection machine for inner and outer diameter and both ends of bearing rings, which successfully achieves 360 degree comprehensive detection.

The equipment has patent certificate and software copyright. Relying on the research and development of various technologies, the advanced detection technology makes the detection function more complete, and the user-friendly machine interface makes the manual operation more convenient, which effectively improves the quality and efficiency of ring appearance detection of first-line manufacturers.



技术指标/ Technical Specifications			
检测项目 Inspection Items	字符、锈蚀、错漏加工、刀纹、磨伤、擦伤、垫伤、混料、材料缺陷、车刀丝、振纹、漏超精、超精不良等外观缺陷 Character, Rust, Grinding Marks, Pitting, Scratch, Mix up, Roughness Turning tool thread, chatter mark, leakage of superfinishing, and defective superfinishing,etc		
检测范围 Inspection Range	Ø 10~160mm, H5~50mm (Grading Detection) (需分档检测)		
检测要求 Requirements	工件表面干净，无油污 Clean surface, no grease		
检测速度 Inspection Speed	900~7,200pcs/h	检测精度 Precision	0.3mm
光学分辨率 Optical Resolution	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.2 m*1.2 m*1.75 m / 200kg		
系统工作环境 Work Environment	温度：5°C~ 30°C 相对湿度：<70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警。 2、设备软件具有远程技术支持功能。 1. It displays real-time detection status and alarm the quantity of NG products. 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

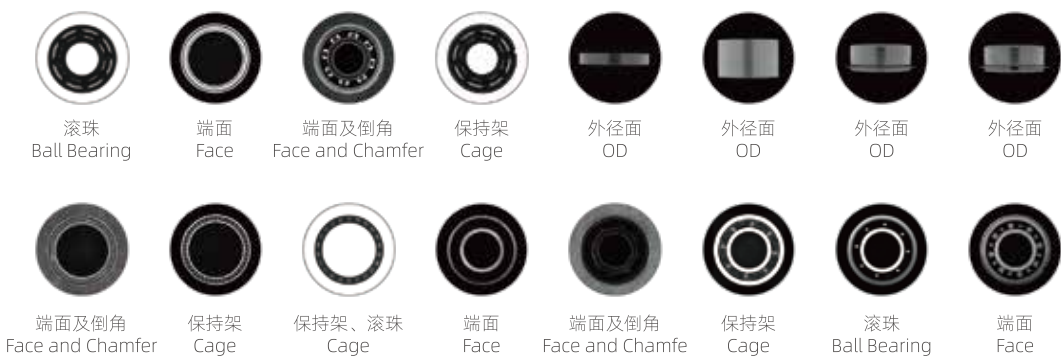
产品—轴承

成品轴承外观缺陷光学自动检测设备

AOI Machine for Bearing
Appearance Defects

成品轴承外观缺陷光学自动检测设备是专业检测成品轴承端面、内外圆面外观缺陷及轴承零部件缺失、损伤的检测设备，先进的检测技术使检测功能更齐全，兼容多种产品和尺寸，适用性强，检测速度达到720-5,000件每小时，可7*24小时不间断连续检测，同时友好的人机界面简单易学，人工操作更便捷。

Automatic Optical Inspection Machine for Bearing Appearance Defects is a professional inspection machine for bearing defects, it can detect the defects on the missing and damaged end faces, inner and outer diameter surfaces and bearing parts of finished bearings. It achieves 360 degree comprehensive detection, and one machine can enable to detect large size range of bearings. Advanced detection technology makes the detection function more complete, User-friendly interface makes operation more convenient. The machine improves the product inspection quality and efficiency, the inspecting speed reaches 720-5,000 Pcs/h, and it can operate 7*24 hours uninterrupted.



技术指标Technical Specification			
检测项目 Inspection Item	检测轴承上下端面；检测外径表面；检测丢失的零件（球、保持架、铆钉）；检测金属和聚合物保持架缺陷，塑料保持架两边的缺陷。 Inspect top and bottom face of bearing；detect OD surface defects；detect missing components（balls, cages, rivets）；detect defects on cages.		
检测要求 Requirements	工件表面干净，无油污。 Clean surface, no grease		
检测范围 Inspection Range	Ø 20 - 200 mm		
检测速度 Inspection Speed	720-5,000 Pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm
光学分辨率 Optical Resolution	0.05 mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 MPa ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.2m*1.2 m*1.9 m / 300kg		
系统工作环境 Work Environment	温度：5℃~ 30℃ 相对湿度：<70%Rh Temperature: 5℃~30℃ Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警； 2、设备软件具有远程技术支持功能。 1. It displays the real-time detecting status and alarms of NG products; 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品—消费品

硬胶囊外观缺陷光学自动检测设备
AOI Machine for Hard Capsule
Appearance Defects



- 1.可实现透明胶囊、半透明胶囊、有色胶囊、植物胶囊等检测。

2.检测效率高，检测极值可达14万粒/小时。

3.可实现360度全检,包括胶囊两头,无盲区，准确率高。

4.可实现检测标准分级，客户自行选择胶囊缺陷检测标准以适应不同质量要求。

5.操作界面采用工业触摸屏，操作简易。

6.采用最新嵌入式无风扇工业计算机，体积小，消除因环境因素造成的计算机死机故障；

7.影像系统和传动系统电气隔离，并采取电气双保险，以保证精密元器件不受损坏；

8.能够24小时连续生产。
- 1.Fit for transparent capsules, semi-transparent capsules, color capsules, and plant capsules.

2.High inspecting efficiency, the maximum value of inspecting speed reaches to 140,000pcs per hour.

3.Inspect by 360 degree all-round, covering both ends of capsule, no blind area and high accuracy.

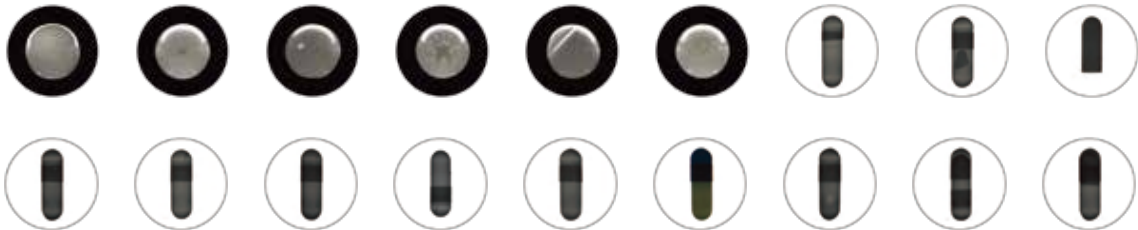
4.Changeable inspection standards to meet customers’ customized needs.

5.User-friendly industrial touch screen interface is adopted for easy operation.

6.Adopting the latest embedded no-fan industrial computer with small volume avoids computer crash caused by environmental factors.

7.Separate image system and drive system, with double layers of electrical protection, protects precise components from broken.

8.Enable to run 7*24 hours continuously.



技术指标/Technical Specifications			
检测项目 Inspection Items	黑斑、气泡、破口、破洞、裂缝、切丝、双套、帽短、帽长、短体、长体、异物、厚薄不均、单片、生胶、混料、皱皮、梅花头、顶凹、变形、混色等。 Black spots, bubble, nick, holes, crack, shred, double caps, short cap, long cap, short body, long body, foreign bodies, uneven surface, single piece, crude rubber, mixed-up material, wrinkled coat, wobbler, dents on the top, deformation, mixed-up colors, etc.		
设备功能 Function	实现多种型号胶囊的外观缺陷检测 Enable to accomplish inspecting for different size capsule of appearance defects.		
检测规格 Detection Specifications	00#、0#、1#、2#、3#、4#		
检测速度 Inspection Speed	≥140,000pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.2mm
检测精度 Minimum Defects Size	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.6m*0.8 m*1.6 m / 300kg		
系统工作环境 Work Environment	温度： 5℃~ 30℃ 相对湿度： <70%Rh Temperature: 5℃~30℃ Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示胶囊外观质量和检测状态 2、设备故障、缺料自动报警 3、支持远程调试 1. Real-time display of detection status 2. Warning of failure and lack of materials automatically; 3. Support remote debugging.		

PRODUCT INTRODUCTION

产品介绍

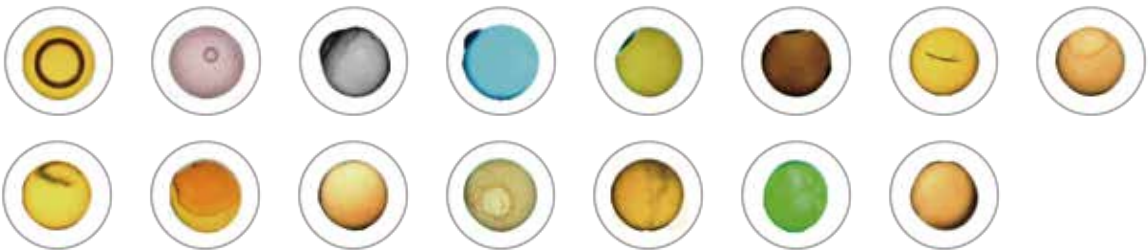
产品—消费品

高速滴丸外观缺陷光学自动检测设备

High-Speed AOI Machine for
Seamless Capsule Appearance Defects

- 1.专用于滴丸外观缺陷检测，常见缺陷包括气泡、空丸、实心、斑点、偏大、偏小、混料、黑点、圆度不饱满、拖尾、混色等。
- 2.采用多角度检测，确保检测准确性。
- 3.新增机械旋转工艺，实现了360度全面检测。
- 4.采用多通道并行检测，有效提升了检测速度，检测极值可达80万粒/小时，已达到国际检测水平。
- 5.可扩展机械筛选功能，防止异形的滴丸扰乱后道工序的检测环境。
- 6.自动上料、排序、拍照和NG品分拣。
- 7.操作界面采用工业触摸屏，操作简易。
- 8.能够7*24小时连续生产。

- 1.Commonly used for appearance defects detection of dropping pills, whose common defects includes bubble, empty capsule, solid, rust, oil leakage, large size, smaller size, mixed up, black spots and out of roundness, mixed-up colors etc.
- 2.Multi angle detection is adopted to ensure the accuracy of detection.
- 3.Adding a new industrial hand mechanism achieves 360-degree comprehensive testing.
- 4.Adopting multi-channel parallel detection effectively improves inspection speed and maximum detection rate is up to 800,000pcs/h.
- 5.Mechanical sorting function can be extended to prevent the deformation capsule from disturbing the testing environment of afterwards procedure.
- 6.Automatically loading, sorting, photograph and NG sorting.
- 7.User friendly industrial touch screen interface is adopted for easy operation.
- 8.Enable to run 7*24 hours uninterrupted.



技术指标/Technical Specifications			
检测项目 Inspection Items	气泡、带帽丸、空丸、实心、斑点、拖尾、小洞、偏大、偏小、混料、黑点、破洞、圆度不饱满、混色等外观缺陷。 bubble, double capsule, empty capsule, solid capsule, spots, deformation, tiny pore, large size, smaller size, mixed up, black spots, holes, out of roundness, mixed-up colors, etc.		
检测范围 Inspection Range	Φ 2-4mm （需分档/need to grade）		
检测精度 Precision	0.2mm		
检测速度 Inspection Speed	≥800,000pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H		
分辨率 Resolution	0.03mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.3 m*0.9 m*1.6 m / 300kg		
系统工作环境 Work Environment	温度： 5℃~ 30℃ 相对湿度： <70%Rh Temperature: 5℃~30℃ Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时统计滴丸尺寸且采用正态分布图直观显示 2、实时显示检测状态及NG品数量报警 3、软件具有远程技术支持功能。 1. Real-time display the dropping pills size with normal distribution map; 2. Real-time display status of detection and alarm the quantity of NG products; 3. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品—消费品

烟用爆珠尺寸形态测试仪

Capsule Optical
Measurement Instrument

用于烟用爆珠的高精度直径测量，并依此计算烟用爆珠圆度。采用非接触测量方式，有效消除传统接触式测量方法的机械误差。采用多维旋转测量技术，确保烟用爆珠无死角圆度测量。可扩展烟用爆珠如气泡、拖尾等外观缺陷检测功能，满足多种检测需求。可同时兼容直径2~4mm尺寸爆珠测量，无相需更换工装。该设备配备打印机，可随时打印关测量数据。采用最新嵌入式无风扇工业计算机，体积小，使用寿命长。操作界面简易，降低了对工人文化水平的要求。具有数据实时统计功能，便于针对性分析产品质量。能够7*24小时连续生产。

It can measure diameter of the capsule with high precision and figure out the circularity. The non-contact measurement method is used to effectively eliminate the mechanical error of the traditional contact measurement method. Adopt multi-dimensional rotation measurement technology to ensure the roundness measurement of capsule without dead angle. It can expand the detection function of appearance defects of capsule, such as bubbles and trailing tails, to meet various detection needs.

It can be compatible with a diameter of 2-4mm at the same time, without tooling changing. The device is equipped with a printer, which can print related measurement data at any time. It uses the latest embedded no-fan industrial computer with small volume and long life. The user-friendly industrial touch screen interface is adopted for easy operation. Real-time display of detection status and alarm of NG product quantity. It is able to run 7*24 hours continuously.



技术指标Technical Specification			
检测项目 Inspection Item	爆珠直径、圆度测量，气泡、空丸、实心、斑点、拖尾、混料、黑点、破洞、圆度不饱满等外观缺陷检测。 Capsule diameter and roundness measurement, detection of appearance defects such as bubbles, empty pills, solids, spots, smearing, mixing, black spots, holes, and roundness.		
检测范围 Inspection Range	Φ 2-4mm		
检测速度 Inspection Speed	2秒/粒 2 Second/ One Pcs		
检测要求 Requirements	工件表面干净，无油污 Clean surface, no grease.		
分辨率 Resolution	0.01mm	电源电压 Voltage	220V,50HZ
功率 Power	1000W	检测精度 Precision	0.02mm
尺寸/重量 Dimension/Weight	0.5 m*0.5 m*0.6m / 40kg		
系统工作环境 Work Environment	温度：5°C~ 30°C 相对湿度：<70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示爆珠尺寸检测状态 2、支持远程调试 1. It supports real-time display of detection status 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

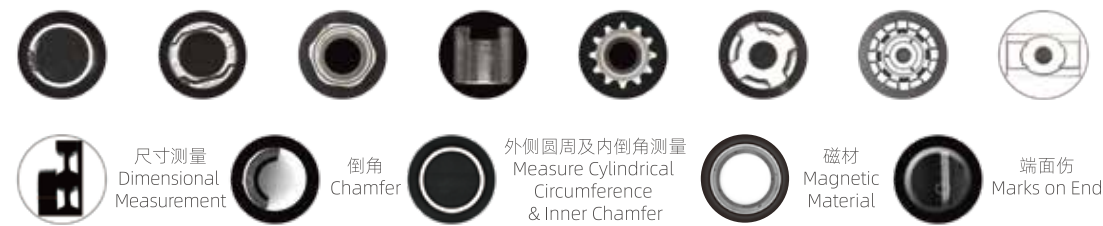
产品—汽车制造

汽车零部件外观缺陷光学自动检测设备

AOI Machine for Auto Parts
Appearance Defects

汽车零部件外观缺陷光学自动检测设备主要用于检测汽车发动机、变速箱及传动系统中核心零部件；可360度全方位检测工件各部位全类别外观缺陷。检测速度达到国内领先水平，最快检测速度可达2万件/小时，相当于2至4名熟练人工目检人员同时工作；可适用于各类金属加工件，粉末冶金件、磁材、精密陶瓷、电子元器件、小五金、紧固件等行业。

Automatic Optical Inspection Equipment for Auto Parts Appearance Defects is mainly used to detect the core parts of automobile engine, gearbox and transmission system; It can achieve 360° detection of all kinds of appearance defects in the workpiece. The detection speed has reached the domestic leading level, and the fastest detection speed can reach 20,000 Pcs/hour, which is equivalent to 2-4 skilled manual visual inspectors working at the same time; It can be applied to various metal processing parts, powder metallurgy parts, magnetic materials, precision ceramics, electronic components, hardware, fasteners and other industries.



技术指标 Technical Specification			
检测项目 Inspection Item	崩损、端面伤、错位、裂纹、划伤、磨伤、侧面裂纹、压伤等外观缺陷。 Chipping, marks on ends, incorrect position, crack, Scratches , abrasions,lateral crack, breaking marks, etc.		
检测要求 Requirements	工件表面干净，无油污。 Clean surface, no grease		
检测范围 Inspection Range	Ø 5-50mm		
检测速度 Inspection Speed	玻璃圆盘——20,000件/小时，传输带——7,200工件/小时。 Glass Disk—20,000pcs/h, Transmission Belt—7,200pcs/h.		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm,裂纹 > 0.1*1mm 0.3mm,Crack > 0.1 * 1mm
光学分辨率 Optical Resolution	0.03mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 MPa ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.0m*1.0m*1.8m / 200kg		
工作环境 Work Environment	温度： 5°C~ 30°C 相对湿度： <70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警； 2、设备软件具有远程技术支持功能。 1. It displays the real-time detecting status and alarms of NG products; 2. It supports remote debugging.		

PRODUCT INTRODUCTION

产品介绍

产品—汽车制造

外观缺陷检测机器人

Inspecting Robot for
Appearance Defects

外观缺陷检测机器人主要用于检测汽车零部件、铸造件、精密陶瓷件、电子元器件、缸套、活塞等中大型尺寸工业零配件。主要检测缺陷包括崩损、少齿、气孔、沙眼、裂纹等，可识别英文字符和阿拉伯数字。

新增工业机械手机构，主要特点一是精准定位，避免由于定位失误造成漏检、二次损伤等现象；二是实现工件360度多角检测，解决了传统机构无法完成工件正反面检测的难点。另外，该设备具有优异的灵活性及适应性，相对于传统的检测设备可检测多型号工件，并针对客户实际需求增加检测工位。

Materials, precision ceramic parts, electronic components and other large-medium-size industrial parts, such as sprockets, gears, stators, rotators can be inspected.Primary defect including chipping less teeth, spots, roughness, crack, cylinder liner and piston and so on is detectable. English characters and Arabic numerals can be identified.

By adding a new industrial hand mechanism, it realizes: 1. Precise positioning, avoiding the phenomenon of missing inspection and secondary damage caused by positioning error; 2. The 360 degree multi-angle detection and lateral angle detection of the tooth part can solve the problem that traditional mechanisms cannot complete the difficulty of lateral detection. In addition, the equipment has excellent flexibility and adaptability, comparing with the traditional testing equipment, which can detect multi-type workpiece, and the new inspection stations can be added in accordance with customers' actual demands.



漏淬火
Non- quenching



混料
Mixed Up



表面凹坑
Dents on Face



混料
Mixed Up



裂纹
Crack



崩损
Chipping



缺齿
Less Tooth



齿顶
Top of The Tooth



技术指标Technical Specification			
检测项目 Inspection Item	崩损、少齿、气孔、沙眼、裂纹、字符等外观缺陷。 Chipping, less teeth, pore, cell, fissure, characters and other appearance defects.		
检测要求 Requirements	工件表面干净，无油污。 Clean surface, no grease		
检测范围 Inspection Range	Ø 50-120, H 5~40mm		
检测速度 Inspection Speed	360~600pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm, 裂纹 >0.1x1mm 0.3mm, Crack>0.1x1mm
光学分辨率 Optical Resolution	0.05 mm	电源电压 Voltage	220V,50HZ
功率 Power	4000W	设备气源 Air Supply	0.5 MPa ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.2m*1.2 m*1.8 m / 300kg		
工作环境 Work Environment	温度：5°C~ 30°C 相对湿度：<70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警； 2、设备软件具有远程技术支持功能。 1. It displays the real-time detecting status and alarms of NG products; 2. It supports remote debugging/technical support.		

PRODUCT INTRODUCTION

产品介绍

产品—汽车制造

VVT/VCT 零部件外观缺陷光学自动检测设备

AOI Machine for VVT/VCT Parts
Appearance Defects

VVT / VCT零部件外观缺陷光学自动检测设备用于检测直径为50~110mm的VVT/VCT零部件，检测崩损、磕碰、划伤、沙孔、碎裂，漏工序等字符或标记识别、漏加工等缺陷。

设备主要特点：一是机构设计优异合理，不但有效避免工件的二次损伤，而且可以完成不同角度的照片拍摄，同时采用高精度线扫描相机，保证外侧面检测效果；二是检测速度快，检测精度高，检测性能稳定，可7*24小时连续工作；三是数据统计功能完善，实时显示检测数量及各类缺陷数量，有利于厂家及时发现问题，降低客户投诉率。

Automate Optical Inspection Equipment for VVT Parts Appearance Defects is used to detect VVT parts whose diameter is 50~110mm. It can detect crack, bump, scratch, sand hole, fragmentation, missing process or mark recognition, missing processing and other defects.

Main features: Firstly, excellent mechanical design, it can not only avoid the secondary damage of the workpiece, but also complete photography by different angels. It uses high-precision linear scan camera to ensure the effect of outer and lateral inspection; Secondly, fast inspecting speed, high inspecting precision, stable inspecting performance and 7*24 hours uninterrupted operation; Thirdly, data statistics function can display the real-time inspection quantity of defects, which contributes to finding problems for manufacturers and lower the rate of complaints.



技术指标Technical Specification			
检测项目 Inspection Item	可检测：崩损、磕碰、划伤、沙孔、碎裂，漏工序等字符或标记识别、漏加工等缺陷。 It can detect crack, bump, scratch, sand hole, fragmentation, missing process or mark recognition, missing processing and other defects.		
检测要求 Requirements	工件表面干净，无油污。 Clean surface, no grease		
检测范围 Inspection Range	Ø 50~110mm, H 15~30mm		
检测精度 Precision	崩损、缺齿：0.3mm；裂纹：>0.1*1mm Chipping and lee teeth: 0.3mm; Fissure: >0.1*1mm		
平均无故障时间 Mean Time Between Failure	10,000H	检测速度 Inspection Speed	600~900pcs/h
光学分辨率 Optical Resolution	0.05 mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 MPa ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.2m*1.2 m*1.8 m / 300kg		
工作环境 Work Environment	温度：5°C~ 30°C 相对湿度：<70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警； 2、设备具有检测数量统计、缺陷类型统计功能，检测数据可导出； 3、软件具有远程技术支持功能。 1. It displays the real-time detecting status and alarms of NG products. 2. It has statistic function and the data can be exported. 3. It supports remote debugging/technical support.		

PRODUCT INTRODUCTION

产品介绍

产品—汽车制造

全自动机器视觉在线检测设备
Automatic Online Inspection Equipment
for Machine Vision

全自动机器视觉在线检测设备是用于在线检测粉末冶金件、精密陶瓷件、精密冲压件、电子元器件、汽车零部件等中大型尺寸工件的外观缺陷检测设备，常见工件如链轮、齿圈、离合器压盘、行星齿轮、阀座、圆盘等。

该设备的突出特点是检测量程大，适合直径为50~300mm的多型号工件，一台设备可满足多种类工件的检测，以漏加工、识别字符、混料等检测需求为主；缺料自动报警功能及实时显示被测工件的外观缺陷及检测状态是该设备的又一大新增功能；此外，该设备具有良好的扩展性及适应性，可以根据客户实际需求扩展至双工位或多工位检测。

Automatic Online Inspection Equipment for Machine Vision is an inspection machine for appearance defects, which is used to detect medium-large size workpieces, such as powder metallurgy parts, precision ceramic parts, precision stampings, electronic components, auto parts and so on. And common workpieces are like sprockets,, gear ring, clutch pressure plate, planet gear, valve seat and disk.

The main feature of this equipment is its large measuring range, and suitable for multi-type workpiece which diameter is 50mm ~ 300mm. And one equipment can fulfill missing-process detection, mixed-material detection and character identification of various workpiece; And the new function of the equipment includes auto-alarm for lacking of material and real-time display of workpiece appearance defects and detection status. In addition, the equipment has good expansibility and adaptability, and can be extended to double station or multi station detection according to the actual needs of customers.



技术指标Technical Specification			
检测项目 Inspection Item	缺料、崩损、凹坑、划痕、压伤、磕碰、标识不清、磨削不均、错位、漏序、孔内多料、废料、生锈等外观缺陷。 Short shots, chipping, dents, scratch, breaking marks, grinding marks, unclear recognition, uneven grinding, incorrect position, missing procedure, more material in pore, scrap, rust, etc.		
检测要求 Requirements	工件表面干净，无油污。 Clean surface, no grease		
检测范围 Inspection Range	Ø 50-300mm, H 5~30mm		
检测速度 Inspection Speed	3600~7200 pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm, 裂纹 >0.1x1mm 0.3mm, Crack>0.1x1mm
光学分辨率 Optical Resolution	0.05mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 MPa ~ 0.8MPa
尺寸/重量 Dimension/Weight	1.2m*0.9m*1.8m / 200kg		
工作环境 Work Environment	温度： 5°C~ 30°C 相对湿度： <70%Rh Temperature: 5°C~30°C Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警； 2、设备软件具有远程技术支持功能。 1. It displays the real-time detecting status and alarms of NG products; 2. It supports remote debugging.		
拓展应用 Extensible Application	1、检测螺纹有无； 2、SIM卡的卡托尺寸测量。 1. It can check thread; 2. It can measure the size of SIM card's base.		

PRODUCT INTRODUCTION

产品介绍

产品—汽车制造

齿轮外观缺陷光学自动检测设备
AOI Machine for
Gear Appearance Defects

齿轮外观缺陷光学自动检测设备专用于检测直径为5-30mm的齿轮，如电机齿轮、斜齿等工件，不仅可以检测外观缺陷还可进行尺寸测量。该设备自动化程度高，性能可靠，并经过客户多年的使用验证。

设备主要特点一是检测效率高，检测速度达3,000-15,000件/每小时；二是操作便捷，操作人员只需将待测齿轮放入振动盘内，系统即可自行分拣，且可根据客户要求增加储料仓，储存大批量工件；三是智能下料，当振动盘缺料时，储料仓会自动下料到一定位置，以减少工件的加料频率，防止二次损伤；四是新增报警功能，可实时显示监控检测状态及不良品数量。

Automatic Optical Inspection Machine for Gear Appearance Defects is specially used to detect gears with diameter of 5-30mm, such as small gears, helical gear and so on. It not only can detect appearance defects but also measure size. The machine is with high-degree automation and reliable performance, which approved by customers’ years of use.

Main features: Firstly, high efficiency, detection speed up to 3000-15,000 Pcs/hour; Secondly, easy to operate. Operators only need to place undetected gears into the vibrating disk, the system will sort automatically. What’s more, adding a storage bin is feasible on the basis of customers’ requirements. Thirdly, intelligently feeding, when lacking of material in the vibrating disk, then the storage bin will automatically reduce the feeding frequency to prevent secondary damage; Fourthly, adding warning function enables to display monitoring status and the quantity of rejects.



粘粉
Sticky powder

毛刺
Burr

崩损
Chipping

裂纹
Fissure



技术指标/Technical Specifications			
检测项目 Inspection Items	裂缝、崩角、缺齿、毛刺、粘粉、尺寸测量等外观缺陷。 Crack, chipping, less teeth, burr, sticky powder, size measurement etc.		
检测范围 Inspection Diameter	Ø 5-30mm , H 3-15mm		
检测要求 Requirements	工件表面干净，无油污。 Clean surface, no grease.		
检测速度 Inspection Speed	3,000-15,000 Pcs/h		
平均无故障时间 Mean Time Between Failure	10,000H	检测精度 Precision	0.3mm
光学分辨率 Optics Resolution	0.03mm	电源电压 Voltage	220V,50HZ
功率 Power	2000W	设备气源 Air Supply	0.5 ~ 0.8MPa
尺寸/重量 Dimension/Weight	2m*0.8m*1.7m / 150kg		
系统工作环境 Work Environment	温度： 5℃~ 30℃ 相对湿度： <70%Rh Temperature: 5℃~30℃ Relative Humidity: <70%Rh.		
其它特性 Other Characteristics	1、实时显示检测状态及NG品数量报警； 2、缺料报警； 3、支持远程调试。 1. It displays the real-time detecting status and alarms of NG products; 2. It alarms automatically when lacking of material 3. It supports remote debugging.		

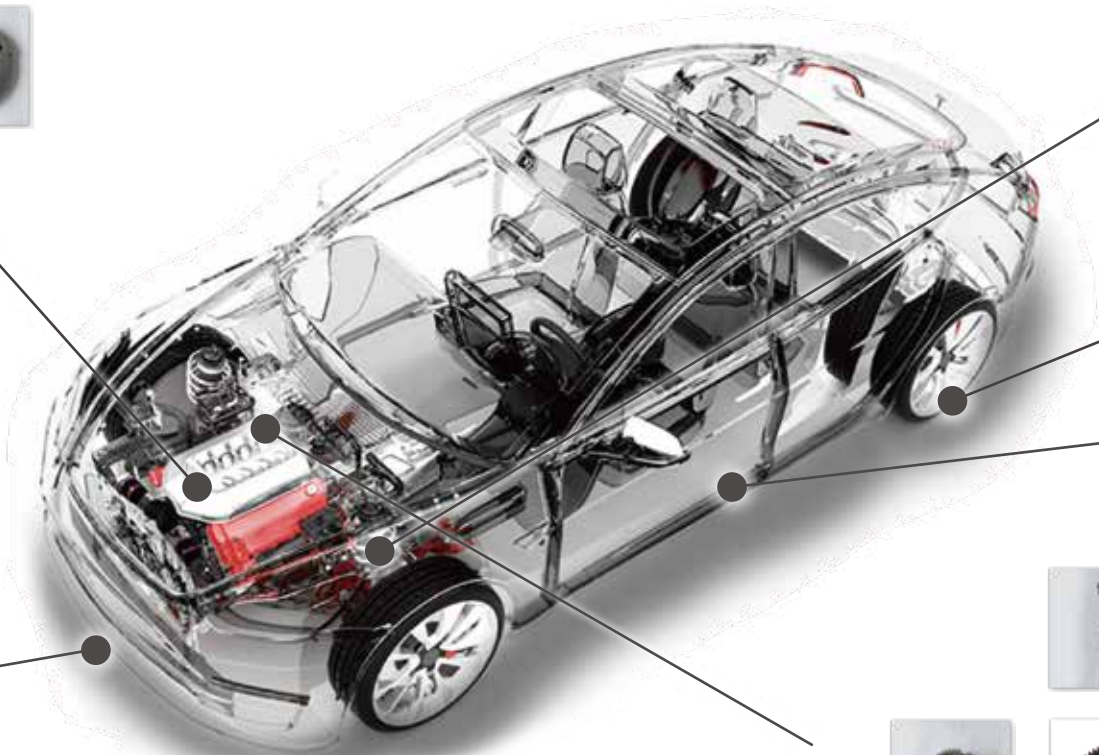
AUTOMOBILE INDUSTRY

汽车行业

vt发动机
vt Engine



底盘
chassis



离合器
Clutch



刹车系统
Brake system



差速器
Differential



变速箱
Gearbox



BEARING INDUSTRY

轴承行业



CONSUMER INDUSTRY

消费品行业

