Industrial AI 3D Machine Vision
Hardware & Software Products
Total Solutions

汉振
HANCHINE

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HANCHIE

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3D

Vision to Think. Intelligence to Act

COMPANY PROFILE

Zhejiang Hanchine AI Technology Co, Ltd.(HANCHINE) (HANCHINE) is a high-tech enterprise specializing in artificial intelligence and 3D machine vision technologies. It provides hardware and software products as well as total solutions for 2D/3D vision inspection, measurement, positioning, and robotic random bin picking.

Founded in 2017 by a PhD team from Zhejiang University, the company has an R&D team of over 30 members, with more than 70% holding master's or doctoral degrees. Its 3D cameras, random bin picking systems, and 2D/3D fusion solutions have been mass-applied in industries including general semiconductors, 3C electronics, plastics and chemicals, and bearings.

Headquartered in Hangzhou, the company has a complete R&D and manufacturing system, certified with ISO9001:2015, and owns more than 40 domestic and international patents. Based on self-developed algorithms and AI technologies, it has launched multiple innovative solutions in robotic grasping, depalletizing & palletizing, and high-precision appearance inspection.

30%+
R&D Team

70%+
Postgraduates (Master/PhD)

40+
Patents

CORE ADVANTAGES

Self-developed Software

- Full-stack self-developed underlying vision algorithms
- Deeply integrated 2D & 3D vision inspection
- Industry-specific self-developed AI models

Self-developed hardware

- Proprietary brand serialized industrial-grade 3D cameras
- Adaptable to full scenarios of industrial inspection,measurement,and recognition

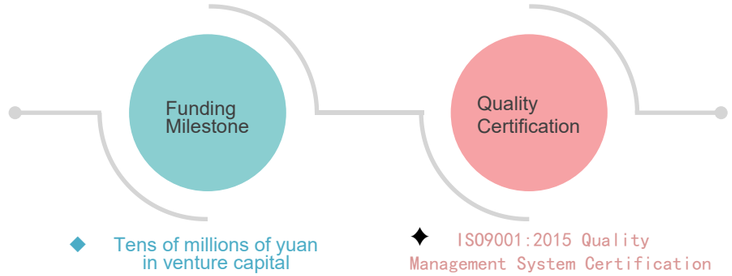
R&D team

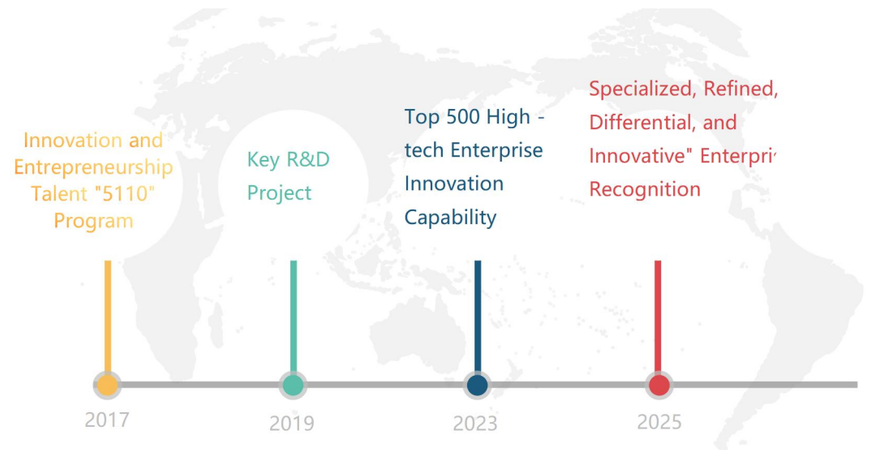
- Core technical team with master/doctor degrees mainly from Zhejiang University
- 30+ R&D team

Patented Technology

- Over 40 patents obtained (including 13 invention patents)
- Hosted provincial/municipal key R&D projects

DEVELOPMENT HISTORY





Small Roller Visual Inspection

Fully automatic optical inspection machine, capable of 360° dead-angle-free detection of surface defects on rollers (chamfers, end faces, outer diameter surfaces, dimples). Compatible with cylindrical, conical, and self-aligning rollers (5-30mm). The industry-leading line scan solution can identify even minute defects. Speed: 9600 pieces/hour (line scan), 13000 pieces/hour (area scan), operating stably 24

⦿Model List

Model	Roller Diameter (mm)	Roller Length (mm)	Speed (pcs/min)	Camera Mode	Feeding Method	Compatible Products	Power	Inspection Items	Equipment Air Source	Power Supply Voltage
0510	5-10	⩽30	150-220	Area scan or Line scan	Vibratory bowl or feeder	Cylindrical, Conical, Self-aligning roller	1000W	Material waste; Rust; Black skin; Pitting; Knocking damage; Scratches; Dimple size; End face size; Chamfer dimension;	0.3-0.8 MPa	220V 50HZ
0715	7-15	⩽40	150-220	Area scan or Line scan	Vibratory bowl or feeder	Cylindrical, Conical, Self-aligning roller	1000W	Same as above.	0.3-0.8 MPa	220V 50HZ
0920	9-20	⩽40	150-220	Area scan or Line scan	Vibratory bowl or feeder	Cylindrical, Conical, Self-aligning roller	1000W	Same as above.	0.3-0.8 MPa	220V 50HZ
1226	12-26	⩽70	150-220	Area scan or Line scan	Vibratory bowl or feeder	Cylindrical, Conical, Self-aligning roller	1000W	Same as above.	0.3-0.8 MPa	220V 50HZ

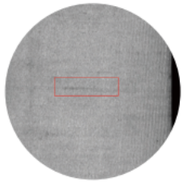
Mod.0510

Mod.0715

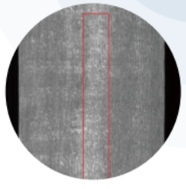
Mod.0920

Mod.1226

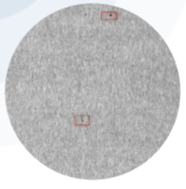
Detectable Defects



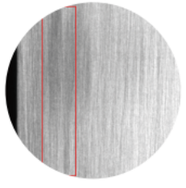
Knurling



Grayscale Inspection



Cluster of Dents



Outer Ring Black Spot

Application Case

• Project Background

・Full inspection (100%) for 9-20mm rollers

・High error rate in manual inspection

・Need for automated inspection

• Core Challenges

·Inspection accuracy of 160 pcs/minute

·Misjudgment between air bubble noise and defects

• Solutions

·8 sets of cameras (2 sets of line scan) 160 pcs /minute, 0.01mm defect detection

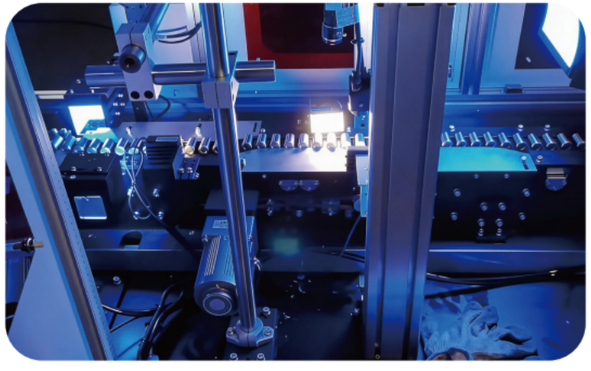
·AI function to reduce misjudgment

Vibratory bowl feeding + Data traceability, qualified rate increased by 5%

应用价值

AI

Replace manual labor with AI vision to achieve high-speed, high-precision automated full inspection of roller appearance, significantly improving inspection efficiency and accuracy.

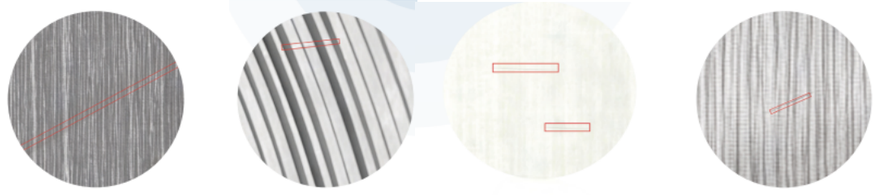


Large Roller Visual Inspection

Technical Parameters

Model	Roller Diameter(mm)	Roller length (mm)	Speed (pcs/ min)	Camera Mode	Loading Method	Compatible Products	Power	Inspection Items
3080	30-80	≤120	20-50	Line scan	Mechanical arm loading	Cylindrical, Tapered, Self-aligning rollers	2000W	Material waste; Rust; Black skin; Pitting; Knocking damage; Dimple size; Chamfer dimension; Corner size; Electrical damage; Point indentation; Cold punching injury; Size measurement; Multi-spec handling.

Detectable Defects



Application Case·

• Project Background

·Wind power spindle large rollers
·High precision inspection required
· Traditional methods are inefficient and have blind spots
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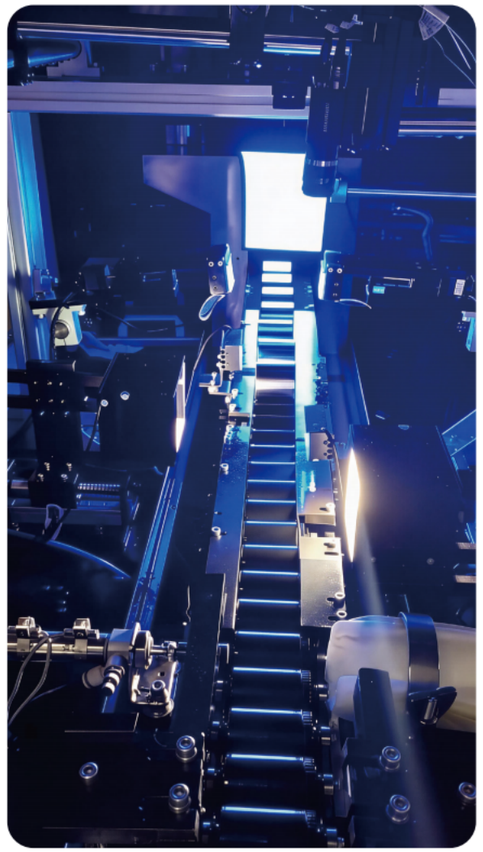
• Core Challenges

·Rollers are heavy, prone to secondary damage
· Low precision in blind spots outside the ring (due to oil/dirt)
· Oil stains and defects are easily confused

• Solutions

Intelligent system
Multi-angle imaging
AI calibration
Robot non-destructive loading/unloading
Precision flawdetection

Application Value



High-speed and high-precision inspection
Ensuring the quality of large rollers

Bearing Appearance Inspection Machine

Integrating 2D/3D vision technology, self-developed 3D cameras and inspection algorithms, it detects surface defects of bearings (chamfers, raceways, outer diameter, dust covers, inner holes) with 360° no-dead-angle coverage. It is compatible with dust covers, retaining rings, snap rings, etc. Size range: 15-60mm, speed: 2-3.55 pcs/s, stable operation 7x24h.

Model List

Mode No.	Bearing Bore Diameter (mm)	Bearing Thickness (mm)	Speed (pcs/s)	Camera Mode	Inspection Product	Inspection Method	Power	Air Source	Power Supply
0515	5-15	≤20	2.0	Line Scan	Rubber-capped, Iron-capped, Open-type	Multi-station On-line Inspection	1000W	0.3-0.8 MPa	220V 50Hz
1530	15-30	≤30	2.0						
3060	30-60	≤60	3.0						

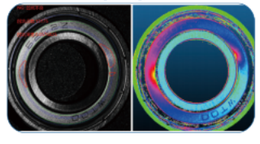
Mod. 0515

Mod. 1530

Mod. 3060

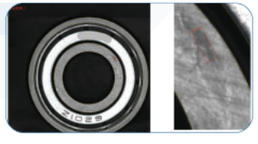
Detectable Defects

Inspection Items:Rust spots, black skin, chipping, scratches, characters (splashes, repeated prints), large chamfer angles, misaligned chamfers, uncentered seals, mixed seals, misaligned crimping, tilted inner seals, tilted outer seals, skewed seals, cover deformation, cover bulging, cover lifting

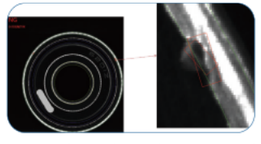


Pit deformation

Inner ring material defects



Inner ring rust spots



Outer ring chamfer anomaly

Application Case

• Project Background

• Stringent quality requirements for automotive bearings and home appliance high-speed bearings

• Surface quality directly affects equipment precision and service life· · High-end equipment has extremely strict requirements for appearance defect inspection

• Core Challenges

• Diverse product types: rubber-capped, iron-capped, non-capped

·Poor versatility of traditional equipment

• Insufficient recognition capability for subtle deformations (pits, collapse), leading to high false rejection rates

• Solution

• Flexible software platform: configurable and compatible with multiple types

• 3D visual inspection (captures subtle deformations/pits in bearings) to solve precision issues in slow deformation inspection

Application Value

Through a flexible visual platform and 3D inspection technology, it achieves high-precision rapid identification of subtle surface defects on various types of bearings, significantly improving quality inspection efficiency and accuracy.