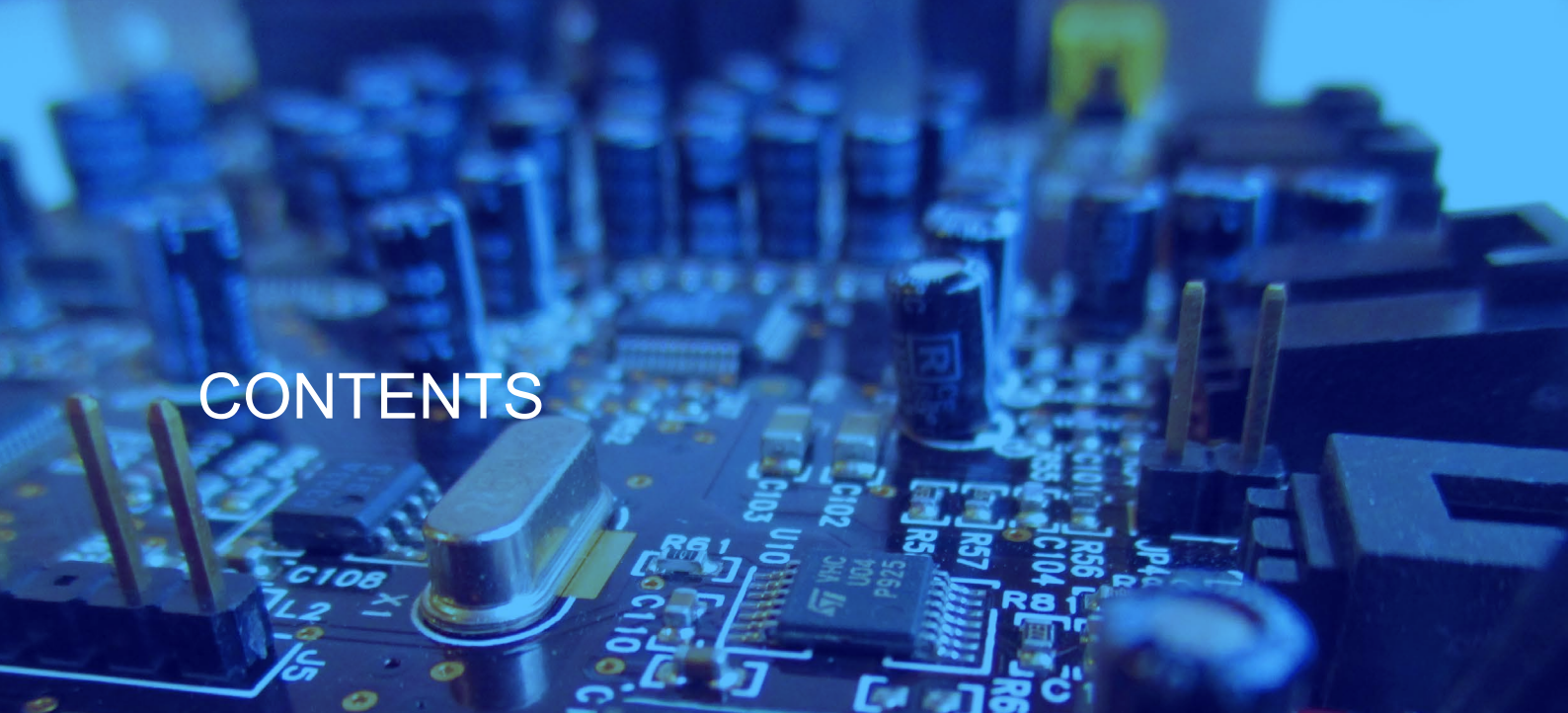




Beijing WAZMICRO Technology Co., Ltd.

Quality Inspection Solutions for Printing Industry



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COMPANY PROFILE



Beijing WAZMICRO Technology Co., Ltd. is located in the Science and Technology Industrial Park of South 2nd Ring Road, Beijing. As an integrated technology company integrating R&D, sales, production, and after-sales service, most team members have over 10 years of experience in the machine vision industry. The company was recognized as a High-tech Enterprise in Beijing in 2024.

The company is mainly engaged in integration of machine vision products and development of intelligent inspection equipment, and provides services to the traditional manufacturing industry. Currently, it has developed visual inspection products for the printing industry, such as print sampling machine, online printing quality inspection system, rewinding inspection machine, printing vision register system, as well as variable information data management system and standalone MES system. It has obtained many software copyrights and patents.

With revitalizing China's intelligent manufacturing as its mission, the company remains steadfastly committed to driving industrial upgrading and relentlessly strives for the ascendancy of Chinese intelligent manufacturing.



Overall Inspection Solution for Printing Quality

Perfect Quality Control System

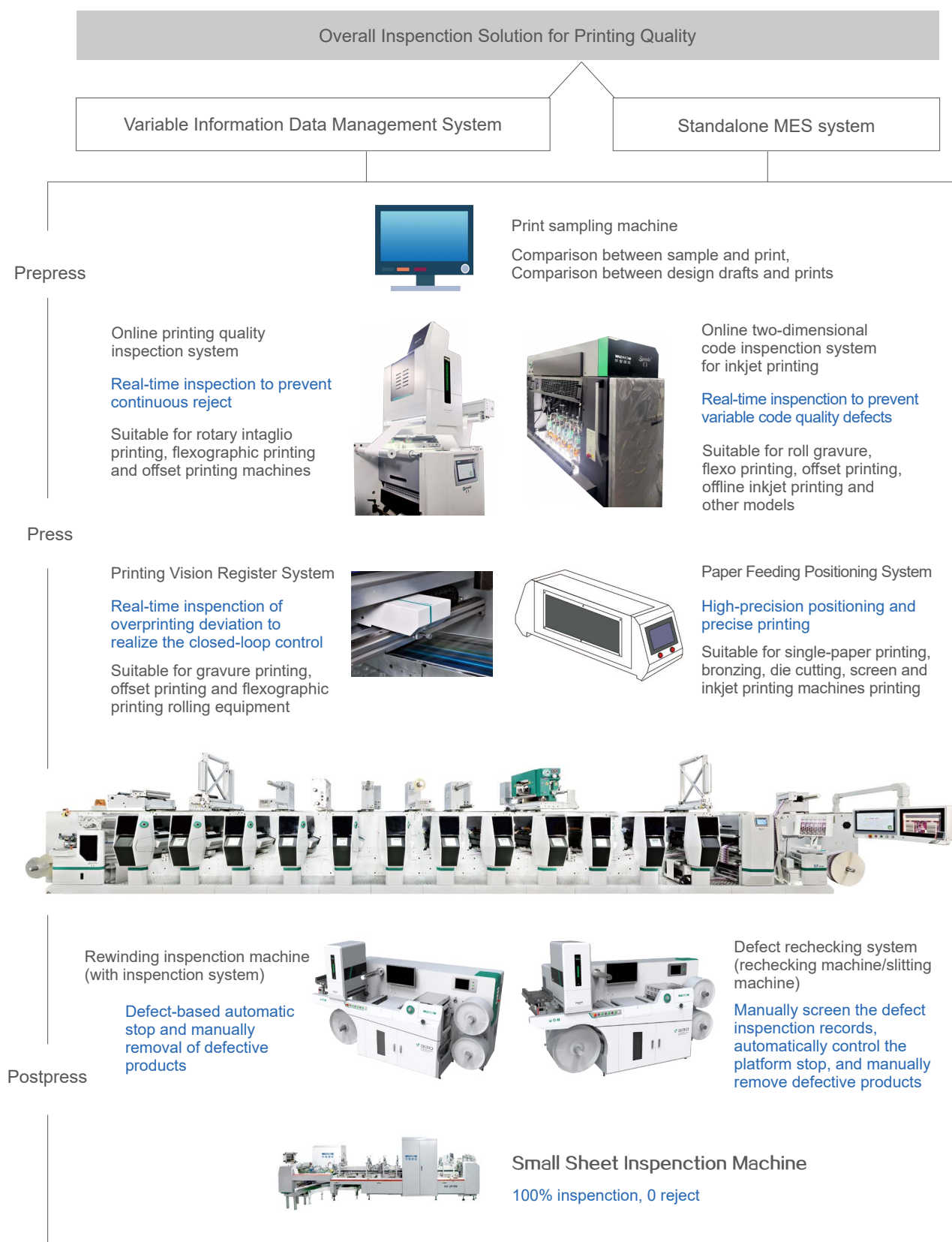
The printing quality inspection is mainly centralized in prepress (comparison of products with samples), press (online printing machine inspection system), and postpress rechecking (defective product removal) stages. In the practice of in-depth research on characteristics of printing process and procedures before and after printing, Beijing WAZMICRO Technology Co., Ltd. has formed a complete solution for online printing quality inspection and printing quality defect management. The company provides users with a production quality control solution that combines production process control, detected defect removal, and printing defect management.

[The production process control refers](#) to real-time inspection of print quality and real-time product quality process control with the purpose of real-time identification of production quality issues and elimination of continuous reject. Once a defect is identified, the inspection system will send real-time sound and light alarms to remind operators to adjust the printing equipment so as to avoid a large amount of reject.

[The detected defect removal refers](#) to removal of the defective products to avoid nonconforming products leaving the factory.

[The printing defect management refers](#) to that the printing quality inspection system can provide detailed and comprehensive defect inspection records and analysis reports, provide defect classification statistical statements, assist the quality control personnel in identifying key control issues in production, conduct post quality analysis, tracking and defect data statistics, and assist the quality control and production management.

Overall Inspection Solution for Printing Quality



Our Products

The laws of natural development tell us that to achieve sustainable economic and social development, we should achieve harmonious coexistence between humans and nature during the development and utilization of nature. An important element is to achieve harmonious coexistence between humans and animals.



Chameleon Series



Chameleon's eyes are conical without eyelids. There is a small hole for pupil with proper size in the conical structure. Chameleon has a 360° vision. It can simultaneously see two different objects by rotating and focusing the eyeball. Therefore, chameleon can observe two different places simultaneously and focus until it finds a prey. This vision advantage makes it easier for them to find targets and capture insects in flight.

The products in this series include: online printing quality inspection system, rewinding inspection machine, small sheet inspection machine and variable data inspection system.

Online Printing Quality Inspection System



The online printing quality inspection system is a distributed machine vision inspection system independently developed by WAZMICRO and is a solution for process control and quality assurance. It is suitable for 100% inspection of roll printing base materials, such as white paperboards, art papers, gold and silver paperboards, laser paperboards, adhesive labels, transparent/semi-transparent materials and films. The inspection system realizes the real-time inspection of printing quality. Once a printing defect is identified, the inspection system will send a real-time sound and light alarm to remind production personnel to adjust the printing equipment, avoiding a large amount of reject, in order to achieve production process control. In addition, the inspection system can provide detailed defect inspection records and statistical analysis reports to assist quality control and production management with a view to providing quality assurance.

Product features:

- ◆ Real-time inspection of continuous defects of image and text detects, color difference, overprinting deviation and omission, as well as real-time sound and light alarm to remind timely manual adjustment so as to reduce the reject rate and production costs;
- ◆ Max. inspection speed 300m/min, and real-time monitoring of production state;
- ◆ Rapid modeling to improve production efficiency;
- ◆ Display and record the defect information in real time for subsequent screening and removal of defective products;
- ◆ The defect inspection records are stored in the database and can be browsed and queried in the defect management system. Data statistics can be performed on defect information, and defect inspection statistical statements can be exported to provide data support for quality management.

Product advantages:

- ◆ It is intelligently linked with MES system, records the outputs in real time and saves the inspection results to cloud to master the production progress at any time and any place;
- ◆ The brand new imaging solution can identify all defects, track the defects in a more convenient way and automatically capture all continuous defects;
- ◆ 2min intelligent modeling realizes the automatic product extraction, automatic positioning, automatic text extraction and automatic two-dimensional code extraction;
- ◆ 0.10mm ink drawing inspection and text inspection algorithm;
- ◆ More user-friendly operation modes: defect view at multiple magnification, visual modeling and flat interactive interface.

Performance parameters

Applicable machines	Various production equipment, such as flexographic printing, gravure printing machine, bronzing machine, slitting machine, rewinding machine and MFP.
Applicable inspection materials	White paperboards, art papers, gold and silver paperboards, laser paperboards, plastic films, labels, soft packages, transparent and semi-transparent materials
Types of detectable defects	Printing defects: such as image and text defects, color difference, overprinting deviation, omission, dirty spots, knife line, misting, pasting and foreign matters.
Max. inspection speed	300m/min
Inspection width	330 450 550 650 820 1020 1200 1600mm (customized)
Min. spot defect size	0.10mm ² (contrast ≥ 20DN)
Min. linear defect size	Width ≥ 0.10mm, length ≥ 5.0mm (contrast ≥ 20DN)
Color difference inspection	$\Delta E \geq 3$
Overprinting deviation inspection	±0.10mm
Defect handling method	Sound and light alarm
	Real-time display of defect images
	Real-time record of defect information to database and generation of defect inspection record statements
	Statistics, query and export of defect inspection records by the defect management software

Rewinding Inspection Machine



Applicable scope

- ◆ Suitable for 100% automatic inspection of printing quality of roll printing base materials, such as adhesive labels, transparent/semi-transparent materials and films in pharmaceutical, food, daily chemical, electronic, anti-counterfeiting and other industries.
- ◆ Suitable for 100% automatic inspection of printing quality of web lower than 80g/m².

Product features:

- ◆ Servo drive, PLC control, max. speed up to 200m/min, stable operation and simple operation;
- ◆ The standard configuration includes double correction device, double winding device, slitting device and closed-loop tension control. It can meet the requirements for production with high performance;
- ◆ High-speed inspection: max. inspection speed up to 200m/min, high production efficiency;
- ◆ Error-based stop function: quick stop plan; compared with traditional slow stop, the stop speed is increased by 20%; the stop accuracy is up to $\pm 2\text{cm}$;
- ◆ Support non-stop inspection. After inspection, remove the defects on the rechecking machine to improve production efficiency.

Performance parameters

Item	Name	Parameter range
Performance parameters of inspection system	Max. inspection speed	200m/min
	Max. inspection width	330 370 450mm
	Types of detectable defects	Printing defects: such as image and text defects, color difference, overprinting deviation, omission, dirty spots, knife line, misting, pasting and foreign matters.
	Variable information inspection	Variable information reading comparison; inspection of data quality defects, such as repeated codes, error code and no code.
	Types of variable information	Numeric numbers One-dimensional bar codes: common codes, such as Code128, ITF25, EAN13, Code39, EAN8, UPCA, UPCE and UCC/EAN-128 Two-dimensional codes: QR, DM, PDF417, etc.
	Min. spot defect size	0.10mm ² (contrast $\geq$ 20DN)
	Min. linear defect size	Width $\geq$ 0.1mm, length $\geq$ 5.0mm (contrast $\geq$ 20DN)
	Color difference inspection	$\Delta E \geq 3$
	Overprinting deviation inspection	± 0.10 mm
	Defect handling	Sound and light alarm reminders; real-time display of defect images; automatic stop
Parameters of equipment platform	Max. slitting speed	200m/min
	Detectable materials	Adhesive labels, plastic films and 40-250g/m ² web printed products
	Max. paper feeding width	330 370 450mm
	Max. unwinding diameter	700mm
	Max. winding diameter	700mm
	Internal diameter of unwinding and winding cylinder	3 6 inch (customized)
	Atmospheric pressure	0.4 ~ 0.6MPa
	Dimension of machine	3020 (length) $\times$ 1250 (width) $\times$ 1500 (height) mm
	Weight of machine	2000kg
	Installed power	5.5kW

Rewinding Inspection Machine



Applicable scope:

- ◆ Suitable for single-paper prints after die cutting and suitable for inspection of printing quality defects of paper packages, such as packages of tobacco, medicine, electronic products and chemical products for daily use as well as color boxes.

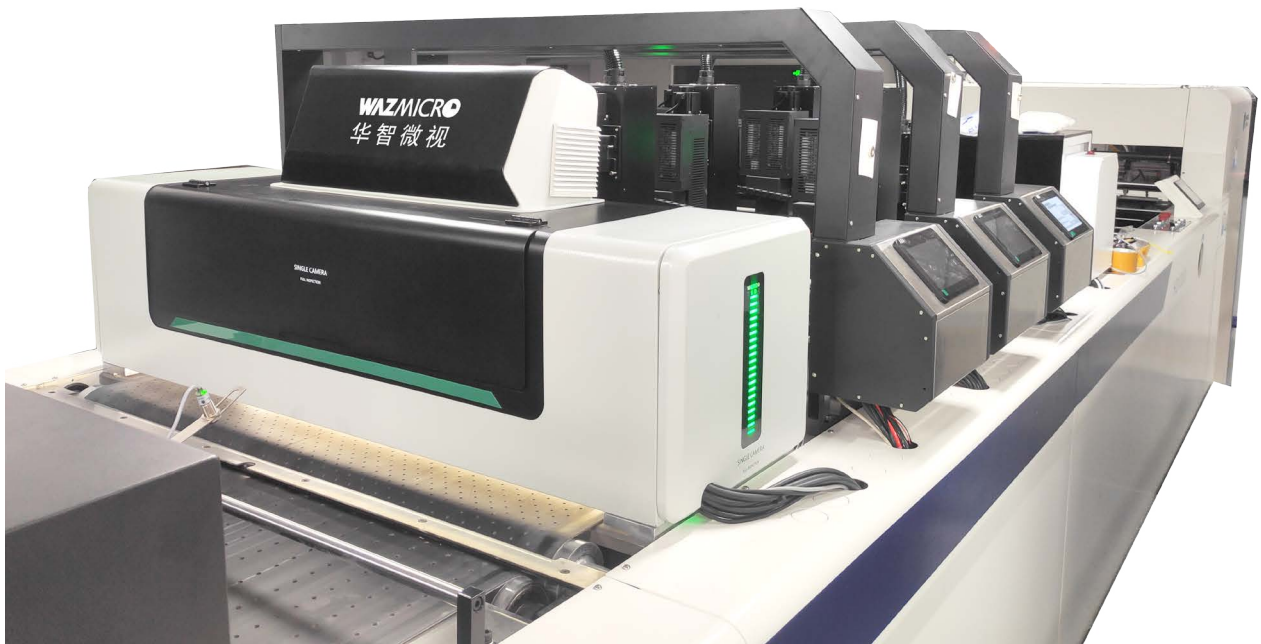
Product features:

- ◆ Stable paper feeding and full suction for inspection part, which reduces the machine adjustment time.
- ◆ Stable inspection ability and comprehensive inspection types, avoiding defective products leaving the factory;
- ◆ Fast guided modeling function, which greatly shortens the modeling time, ensures the fast mastering of modeling process and makes the templates more accurate and unified;
- ◆ Statistical analysis of defect data: make the statistics of defect quantity and types by classification, output the PDF inspection report and assist in analyzing and identifying the causes of defects to improve the quality management level.

Performance parameters

Name	Parameter range	
	(model 420)	(model 520)
Max. size of detectable products	420 × 500mm	550 × 500mm
Min. size of detectable products	90 mm × 90mm	
Paper weight range	90 ~ 350 g/m ²	
Max. linear speed of platform	280m/min	
Max. inspection speed	110,000 pieces/h (based on min. size)	
Types of detectable defects	Suitable for inspection of common printing and bronzing defects, such as image and text defects, dirty spots, omission, knife lines, misting, scratching, pasting, foreign matters, overprinting deviation, bronzing missing and bronzing deviation. Staying wire/cutting wire, gloss varnishing deviation, embossing overprinting deviation (optional) Dirty spots, misting, mosquitoes, foreign matters on the back of the product (optional)	
Min. spot defect inspection accuracy	0.1mm ² (gray value ≥ 20DN)	
Min. linear defect inspection size	Width ≥ 0.1mm, length ≥ 2mm (gray value ≥ 20DN)	
Overprinting deviation inspection	±0.1mm ±0.2mm	
Finished product delivery mode	Fish-scale style delivery and directly delivery	
Reject delivery mode	Fish-scale style delivery and side delivery	
Required atmospheric pressure	0.7MPa, 0.6m ³ /min	
Overall dimension of machine	7300 × 1160 × 1880mm (length × width × height)	
Gross weight of machine	3000kg	
Installed power	18kW	

Variable Data Inspection System



Applicable scope::

- ◆ The variable data inspection system can monitor the printing status of the inkjet printing system in real time, i.e. inspection of quality data defects such as repeated code, no code, error code, bad code and nonconforming code, as well as inspection of printing quality.

Product features:

- ◆ It can be installed on the inkjet printing platforms, such as offset printing machine, gravure printing machine, bronzing machine, flat sheet inkjet printing machine, drum-type large sheet inkjet printing machine and online or offline inspection platform;
- ◆ Real-time sound and light alarms. Many handling modes can be adopted according to the features of equipment, such as reject removal, feeder stop, real-time spraying waste and labeling;
- ◆ It has the functions of real-time screen display of error images, code checking data statistics, and code scanning verification;
- ◆ It can export the correct code, repeated code and error code data and support uploading the data from the third-party system.

Performance parameters

Name	Parameter range
System configuration	Configure 8K high-speed line scan camera or configure multi-channel area scan camera
Max. inspection speed	250m/min
Max. detectable product width	820mm (customized)
Image acquisition resolution	0.05×0.05mm
Applicable inspection materials	White paperboards, art papers, gold and silver paperboards, laser paperboards, labels, plastic films transparent and semi-transparent materials.
Variable data inspection types	① Numeric numbers and English letters ② One-dimensional bar code: common codes, such as Code128, ITF25, EAN13, Code39, EAN8, UPCA, UPCE and UCC/EAN-128 ③ Drug electronic supervision code: Code128C+OCR code ④ Two-dimensional code: QR, DM, PDF417, etc.
Variable data inspection defect types	Real-time reading inspection of variable data. Compare with source code file to detect the repeated code, missed code, error code and unrecognized code. Variable data printing quality defects: such as white line, white spot, ink leakage and overprinting deviation.
Min. spot defect size	0.10mm ² (contrast ≥ 20DN)
Min. linear defect size	Width ≥ 0.10mm, length ≥ 5mm (contrast ≥ 20DN)
Overprinting deviation inspection	±0.10mm
Defect handling method	Sound and light alarm Real-time display of defect images Record of defect information to database and generation of defect inspection record statements
Power supply / power	AC220V50Hz, 5kW

Eagle Series

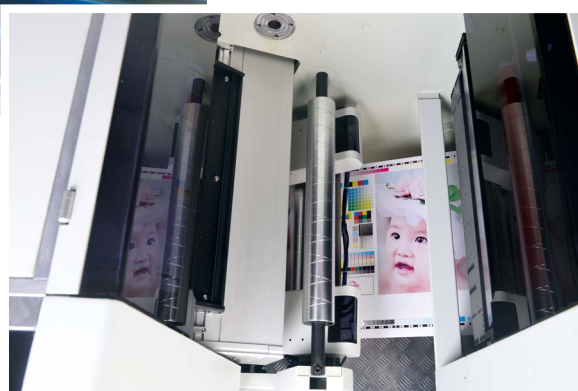
Visual cells of an eagle gather in an area called the "macula". Eagles have five times more cells in their macula than humans. That's why eagles have good eyesight. In addition, every eagle has two maculas, so its visual distance is 4-8 times longer than that of humans. The eagle's eyes are covered with substance similar to oil droplets. Dokler Stavenga and colleagues from the University of Groningen discovered that oil droplets can act like microscopes, helping the eyes filter out light.



The products in this series include printing vision register system and single-paper feeding positioning system.



Printing Vision Register System



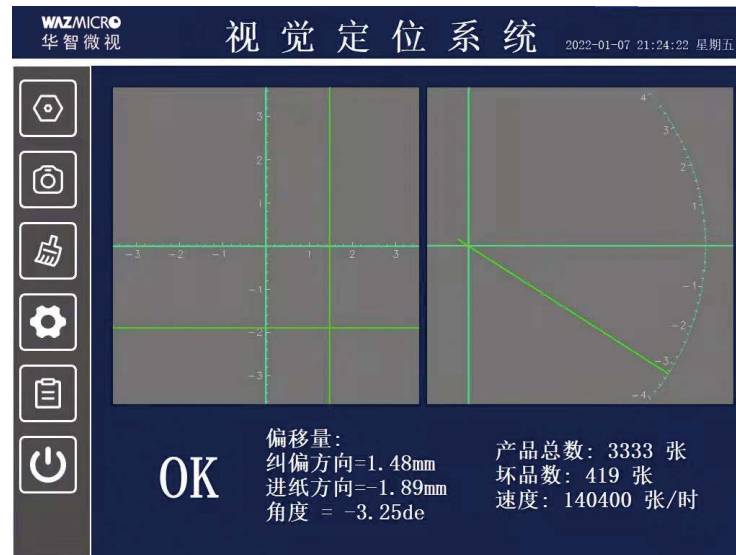
Product advantages:

- ◆ Improve the accuracy of printing equipment register and the stability of pressure;
- ◆ Reduce the dependence of overprinting operations and pressure regulation on personnel;
- ◆ Automatically identify printing overprinting and pressure, and automatically adjust, which shortens machine adjustment time and reduce reject rate;
- ◆ Easily replace the product. No precise adjustment is required for precise operation;
- ◆ Lower the requirements for operators and reduce the investment in training for personnel.

Product features:

- ◆ Max. production speed supported: 200m/min;
- ◆ Overprinting inspection accuracy: $\pm 0.05\text{mm}$;
- ◆ Permissible deviation range for overprinting: $\pm 4\text{mm}$;
- ◆ Inspection materials: white paper, film, bright silver and dull silver.

Paper Feeding Positioning System



Applicable scope:

- ◆ Although the single-paper feeding equipment is equipped with the correction mechanism, the insufficient correction may cause waste of raw materials. The single-paper feeding positioning system can detect whether the product is sufficiently corrected. If it is insufficient, the system will send a stop signal to stop feeding the paper so as to reduce the reject rate;
- ◆ It can detect the offset in paper feeding direction and width direction, as well as the rotation angle;
- ◆ It can transmit the above offset data to machines for real-time adjustment, thereby improving the accuracy of paper feeding;
- ◆ It can detect whether the paper is in reversed face and reversed end and whether the type (mixing) of paper is wrong.
- ◆ Lower the requirements for operators and reduce the investment in training for personnel.

Product features:

- ◆ Max. production speed supported: 130,000 pieces/h;
- ◆ Inspection accuracy: $\pm 0.05\text{mm}$;
- ◆ Touch-screen HMI mode, easy operation and stable performance.

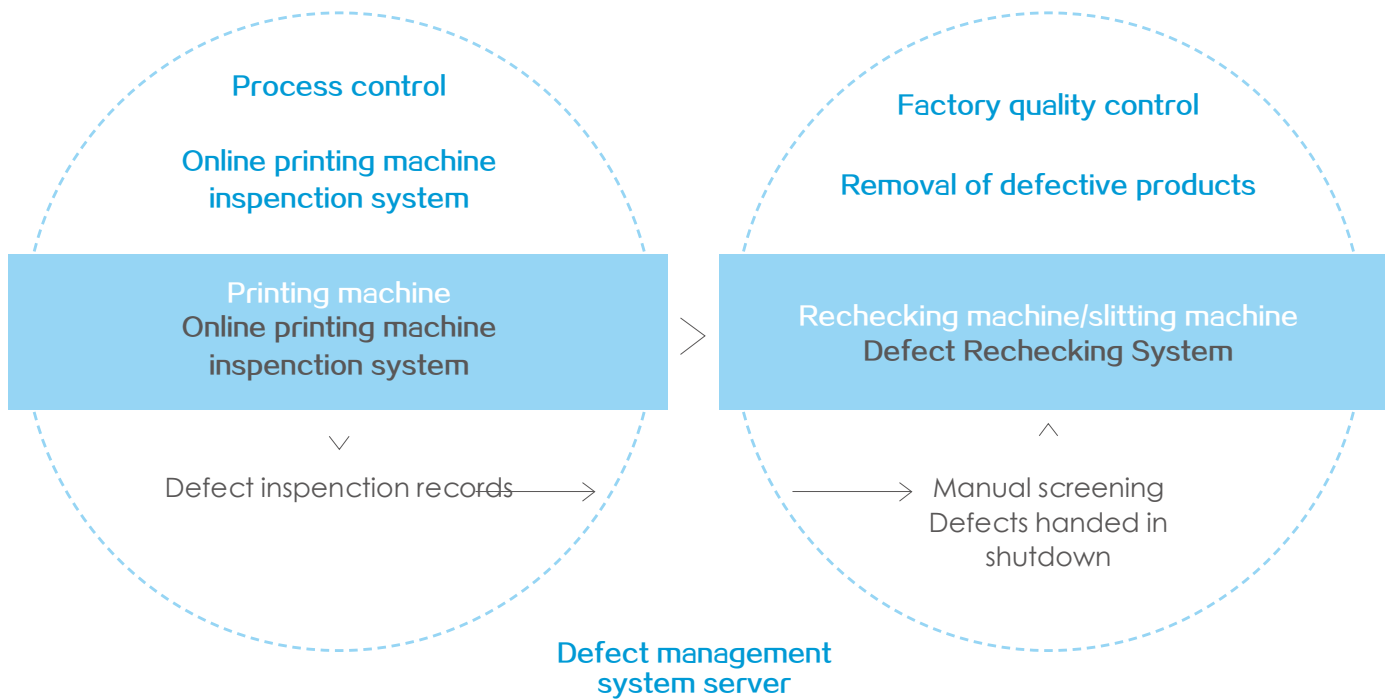
Chimpanzee Series

Chimpanzees can learn and execute organized thinking tasks. They have better memory than any other animals. They even defeated university students in memory tests. They can be taught to use computers to solve digital problems and quickly adapt to communicating with humans by sign language. Chimpanzees have a common sense about advanced practical tools, including making harpoons to take food out of tree holes, using branches to attract and capture preys, smashing nuts with stones, and using sponges to absorb water.



The products in this series include defect rechecking system and variable information data management system

Defect Rechecking System



The online printing quality inspection system can automatically upload defect inspection records to the defect management system server. Manually screen the defects to be removed and form a new defect inspection record. The defect rechecking system can read the record of this defect and automatically control the stop of rechecking machine/slitting machine. Manually remove the defective products.

Product features:

- ◆ It fully utilizes the defect inspection record of online printing quality inspection system, reducing the costs of installing a secondary inspection system on the rechecking machine/slitting machine;
- ◆ High-speed stop supported: the max. operating speed of rechecking machine/slitting machine is 300m/min, with a stop accuracy of $\pm 10\text{cm}$;
- ◆ Quick stop plan: compared with traditional slow stop, the stop speed is increased by 20%; the production efficiency is high.

Variable Information Data Management System





Applicable scope:

It is suitable for full process management of variable information data in printing enterprises. It realizes the full process management ranging from data entry, inkjet printing inspection, coding inspection, warehousing to delivery management. It forms a variable information data control system at factory level.

System functions:

- ◆ Import the original code package file and check the repeated code and error code to ensure that there are no repeated or error codes with the same batch and historical data;
 - ◆ Assign production tasks to inkjet printing equipment and issue inkjet printing files. After the inkjet printing is completed, the inkjet printing equipment can upload the completion file to the data management center server for rechecking repeated code and error code;
 - ◆ The coding equipment realizes the matching of coding package file with each reel of products for convenient subsequent outbound and delivery management;
 - ◆ The outbound and delivery management is based on code package file generated by the coding equipment, which guarantees matching the delivered products with submitted data files.
-

Data security assurance:

- ◆ The system has a strict data verification mechanism and a rigorous data flow logic. Therefore, it meets the requirements of printing factories for production management of variable data;
- ◆ The repeated code and error code inspection in several times can eliminate the repeated code and error code;
- ◆ All variable data is uniformly stored and managed by the data management center server to ensure the security and uniqueness of data. The storage period is over 2 years.
- ◆ Data is automatically transmitted within LAN, reducing losses caused by manual operation errors;
- ◆ Operation permission management enables traceability of all operations.

National Customer Distribution Map



武汉红金龙印务股份有限公司
武汉虹之彩包装印刷有限公司
武汉艾特纸塑包装有限公司
深圳市劲嘉彩印集团股份有限公司
广东泰金智能包装有限公司
上海齐达印包装科技有限公司
上海超级标贴系统有限公司
上海正伟印刷有限公司
上海恒泽印务有限公司
景昌（上海）企业发展有限公司
上海祥港实业有限公司
增和包装股份有限公司
浙江捷成印刷有限公司
浙江美浓世纪集团有限公司
嘉兴市豪能包装有限公司
苏州工业园区天杰印务有限公司
苏州雅利印刷有限公司

江苏诚科印刷科技有限公司
江苏展印印刷有限公司
如皋尊典包装制品有限公司
无锡市海谊工艺雕刻有限公司
常德金鹏印务有限公司
河南华福包装科技有限公司
河南金宏印业有限公司
河南中维印务有限公司
陕西烟印包装科技有限责任公司
西安永吉包装印刷有限公司
曲靖福牌彩印有限公司
宁夏弘德包装材料有限公司
厦门鑫叶印务有限公司
龙岩鑫达彩印有限公司
重庆巨龙实业有限公司
石家庄燕兴条码不干胶印刷有限公司

A full-page background image of a mountain range. The mountains are layered, with the closest ones in the foreground showing more detail and the ones further away becoming increasingly hazy and blue-toned. The sky is a clear, pale blue. The text is centered in the upper half of the image.

Strive for intelligent manufacturing in China





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