MTC-OS2400XPRO-AI

Intelligent Belt Color AI Sorter Machine

General specifications

Camera System	18 high-resolution CCD cameras, 5400/8600 pixels each.
Machine Structure Material	SUS201 / SUS304 / SUS316 stainless steel optional
Machine Weight	Approx. 1600 kg
Number of spray valves	63*4
Power supply voltage	180～240V, 1 Phase, 50HZ
Operating temperature	0~45 (°C)
Belt Speed	220m/min
Throughout Capacity	2000-5000kg per hour (Depending on the size and cleanliness of the product)
Total Power	5.1KW
Air Consumption	2.6m³/min
IP level	IP54/IP66 optional
3800×2100×2200	3800×2100×2200
Spray valve life	＞20 billion times
Light source life	＞150000 h

Key Features of High-End AI Color Sorting Machines

- This is the latest and most advanced technology on the market, capable of detecting and removing hair attached to products. Hair is one of the most common and most difficult contaminants for conventional sorting machines to detect and remove.
- The machine can remove almost all common small contaminants visible to cameras during production, such as: nylon strings, threads, leaves, plastic fragments, glove pieces, cockroach legs, rubber, ceramics, metal, glass, paper, cigarette butts, packaging strings, shell fragments, fish bones, etc.
- Product sorting by size, shape, and quality.
- Sorting discolored, moldy, burnt, insect-damaged, or defective products and kernels.

Applications

- Cashew nuts, almonds, coffee beans, pepper, rice, and mixed nuts.
- Dried jackfruit, tea, and beans.
- Dried fruits and dried vegetables.
- Seafood and IQF frozen fruits.
- Confectionery, herbal products, and grains.
- Plastic pellets, minerals, and industrial recycling materials.

Benefits

- Reduce 30–70% of manual inspection labor costs.
- Improve product consistency for export quality.
- Reduce the risk of shipment rejection and international customer claims.
- Increase product value by upgrading final product quality.
- Store defect images and inspection data automatically.
- For the highest food safety level, the system should also be combined with an X-ray inspection machine to detect difficult metal and non-metal contaminants located inside products that cameras cannot see.

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Core System Configuration	
Vision Configuration	Customized dual-view full-spectrum imaging system
AI Recognition Algorithm	Advanced RGB/HSV/Color AI algorithm analyzes product trajectory, orientation, spatial position, speed, 3D force center, and edge features to optimize sorting precision
Industrial Solenoid Valve	Military-grade valve system with customized 2×4 and 8-hole structure for high-speed response, easy maintenance, and individual repair points
LED Lighting System	High-brightness cold LED light source with intelligent adaptive control, excellent penetration capability, stable BIN value, long lifetime, and enhanced performance for dark or light-absorbing materials
Industrial Computer	Customized industrial PC with Windows 10 OS and high-performance graphics card, supporting distributed processing, strong anti-interference capability, and long-term stable operation
Standard Component Configuration	
High-Speed Nozzle System	Optimized nozzle spacing of 5.0 mm with 4.3 mm opening width for highly accurate ejecting performance, reduced material carry-over, and ultra-low false rejection rate
Ash Cleaning Cylinders	Premium Japanese SMC rod-less cylinder with stable movement, smooth dust-cleaning operation, and high wear resistance for long-term industrial use
Filter	High-precision multi-stage filtration system with: 0.01 μm particle filtration accuracy, oil/water filtering precision up to 0.001 ppm, particle purification level 0, and oil purification grade ≥1
Protective Viewing Window	Industrial acrylic safety window replacing traditional glass design to eliminate potential food safety risks caused by broken glass contamination
Core Technology	
AI Algorithm	The AI system analyzes product trajectory, orientation, spatial position, speed, 3D center of gravity, edge characteristics, and other critical data to determine the optimal reject timing and accuracy. The customized defect classification system allows different defect categories to operate independently without interference. Product sorting modes can be switched instantly with a single click.
Deep tagging function	The system continuously improves sorting performance through intelligent expansion of reject sample databases using: • biological feature tagging, • morphology tagging, • associated and non-associated feature analysis. This creates a simplified and user-friendly operation experience while allowing customized sorting standards for different products within the same production line.
Oversized model technology & multi-model training	The platform supports complex image recognition and classification tasks through a cloud-based big data modeling system. With an open-source-style AI data chain, the system continuously optimizes device performance, enabling: • more accurate complex sorting, • easier implementation of advanced applications, • and more efficient feature recognition through multi-model AI collaboration.
Intelligent configuration function	
Smart Protection System	Equipped with automatic drainage, spray valve monitoring, airflow network alarms, filter status alerts, spray valve cycle counting, automatic self-diagnosis, and cylinder position monitoring to ensure stable and reliable operation.
Gentle Product Handling Technology	Special anti-breakage structure designed for fragile and delicate materials, minimizing product damage and maximizing final product integrity and yield.
Advanced Conveying System	High-speed synchronized conveying structure with precision tracking, intelligent deviation correction, stable transmission, and smooth material flow during operation.
Optimized Mechanical Structure	Special airflow circulation and dust-removal design suitable for high-dust, high-impurity, and large-size material sorting environments, ensuring continuous and stable operation.
Intelligent Lighting Control	High-brightness adaptive lighting system with automatic dimming and intelligent environmental adjustment, enhancing detection capability for dark-colored, low-contrast,
Intelligent interaction	
Information Alarm	Information push alarm PC terminal
Remote control	Yes
Human-machine interaction	One Click Switch Start
Software Upgrade	Yes
Remote training/service	Yes
Program Backup	Yes

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