Automatic Spray Painting Production Line

1. Working Process

The automatic spray painting production line is an integrated coating equipment specially developed for mass-volume, continuous spray painting processes. It features customized design, which can flexibly plan the layout according to customer site conditions, workpiece specifications, and production rhythm. It adopts a closed-loop continuous operation mode, integrating multiple coating processes into one. It achieves full process automated handling of workpieces from pretreatment to finished products, completely solving the inefficiency problems of scattered coating operations, and is suitable for large-scale industrial coating production.

Core Process Flow: Select conveying form according to workpiece specifications. Small and medium-sized workpieces prioritize the hanging conveying method, while large or regular workpieces can use roller conveying. Workpieces are conveyed through hanging conveyor chains, rollers and other conveying devices, operating continuously or intermittently, and sequentially pass through pretreatment equipment to complete surface degreasing, rust removal, dust removal and other pretreatments processes. Then they enter the spray booth to complete automatic or manual spraying operations. After spraying, they enter the leveling room for standing and leveling, to avoid coating sagging and ensure coating uniformity. Then they are sent to the drying room to complete coating curing and drying. The entire process is equipped with loading and unloading platform trucks and electric hoists to complete workpiece loading and unloading transfer. The electronic control system uniformly controls the entire line operation rhythm, temperature, speed and other parameters. The entire production line operates in a closed loop, completing the full set of coating processes seamlessly without the need for multiple workpiece transfers, achieving efficient mass production coating.

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2. Core Parameters

Equipment Series: Coating Line Series Automatic Spray Painting Production Line

Workpiece Conveying Form: Hanging type (mainly for small and medium-sized workpieces), roller type, customizable according to needs

Operation Mode: Continuous operation, intermittent operation, adapting to different production rhythms

Core Components: Pretreatment equipment, coating spray unit, powder coating system, spray painting equipment, curing oven, heat source system, electronic control system, hanging conveyor chain, auxiliary transfer equipment - nine core parts

Supporting Facilities: Spray booth, leveling room, drying room, loading and unloading platform trucks, automatic lifting electric hoist

Processing Technology: Workpiece surface spray painting, powder coating treatment

Design Method: Non-standard customization, space layout optimized according to customer site actual conditions

Applicable Workpieces: Single piece, small batch and mass production of small and medium-sized workpieces, suitable for various regular and irregular workpieces

3. User Guide

1. Startup Preparation: Check the operating status of conveyor chains, rollers and other conveying devices in advance. Confirm that the spray booth, leveling room, drying

room and pretreatment equipment are free of faults and debris. Calibrate electronic control system parameters and set conveying speed, drying temperature, leveling time, etc. Check that coating materials and heat source supply are sufficient, and platform trucks and electric hoists are operating normally. Complete pre-startup debugging.

2. Online Operation: Through loading and unloading platform trucks and electric lifting electric hoists, stably hang the workpieces to be processed onto the hanging conveyor chain, or place them on the roller conveyor line. Ensure workpieces are firmly fixed with uniform spacing to avoid collision and falling during operation. Then start the full line operation program and enter automated coating operations.

3. Operation Monitoring: During operation, monitor the entire line operating status in real-time through the electronic control system. Check conveying speed, drying temperature, spraying pressure, leveling time and other key parameters to ensure smooth connection between all processes. Observe the coating forming effect and promptly fine-tune spraying parameters. If conveying jams or temperature abnormalities occur, immediately stop the machine to troubleshoot and restart operation after eliminating faults.

4. Daily Maintenance: Regularly check hanging conveyor chains, rollers and other transmission parts, and perform good lubrication and maintenance; regularly clean paint residue from spray booth and residual coating impurities from drying room. Replace wearing parts of spraying equipment; regularly inspect heat source systems and electronic control systems to ensure circuits and components are intact. After daily operation is completed, clean residual coating materials and debris from equipment surface to keep the equipment clean and extend service life.

5. Safety Precautions: During equipment operation, it is strictly prohibited for personnel to approach the conveying track, spray booth and drying room danger zones, and it is prohibited to arbitrarily touch electronic control switches. Spraying operations must take good fire prevention and explosion prevention measures, and it is strictly prohibited to have open flames near the coating area. When stopping the machine, follow the sequence of first stopping spraying, then stopping drying, and finally stopping conveying, and perform cleaning and maintenance operations only after the entire line has completely stopped.

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4. Product Advantages

1. Extremely High Production Efficiency: Achieves continuous, automated closed-loop operations. Workpieces do not need multiple transfers, and complete the full process of pretreatment, spraying, leveling, and drying in one go. Compared to scattered manual coating, production efficiency is greatly improved. Perfectly suitable for mass-volume, large-scale coating production, effectively shortening the production cycle.

2. High Degree of Customization: Adopts non-standard on-site design and canflexibly plan the layout and conveying form according to customer workshop site size, workpiece specifications, and production volume. Fully utilizes the space above the workshop without occupying a large amount of floor area. Space design is economical and reasonable, suitable for various workshop site conditions.

3. Environmental and Economical, Reducing Investment: The production line integrated design,comes with supporting spray painting and purification related structures. No need to additionally build expensive independent environmental protection equipment to meet environmental production requirements, reducing early-stage infrastructure and environmental protection equipment investment costs. At the same time, mass production operations dilute single-piece production costs, with outstanding cost performance.

4. Simple Operation and Maintenance: The entire equipment is uniformly controlled by the electronic control system, with a single interface controlling all line parameters, simple and easy to operate without requiring a large number of personnel on duty. Equipment structure is organized, and wearing parts are few. Daily maintenance mainly includes cleaning, lubrication, and wearing part replacement, with low operation difficulty and small workload. Long-term operation is stable and reliable.

5. Strong Adaptability, Wide Application: Supports various conveying forms such as hanging and roller, accommodating single-piece, small batch and mass production workpieces. Can perform both spray painting treatment and powder coating process, with flexible operation with various conveying machinery. Coating quality is

5. Applicable Industries

Widely applicable to various industries that require large-scale and standardized surface coating, **covering hardware products, automotive parts, engineering machinery parts,**

furniture, steel structures, home appliance casings, plastic products, electronic accessories, molds, metal crafts and other fields. It is mainly used for surface painting and spray treatment of small and medium-sized workpieces, single or small batch workpieces, especially suitable for large-scale continuous coating production workshops with high production efficiency and space utilization requirements. It is the core equipment for industrial coating scale upgrading.

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