AMTEK

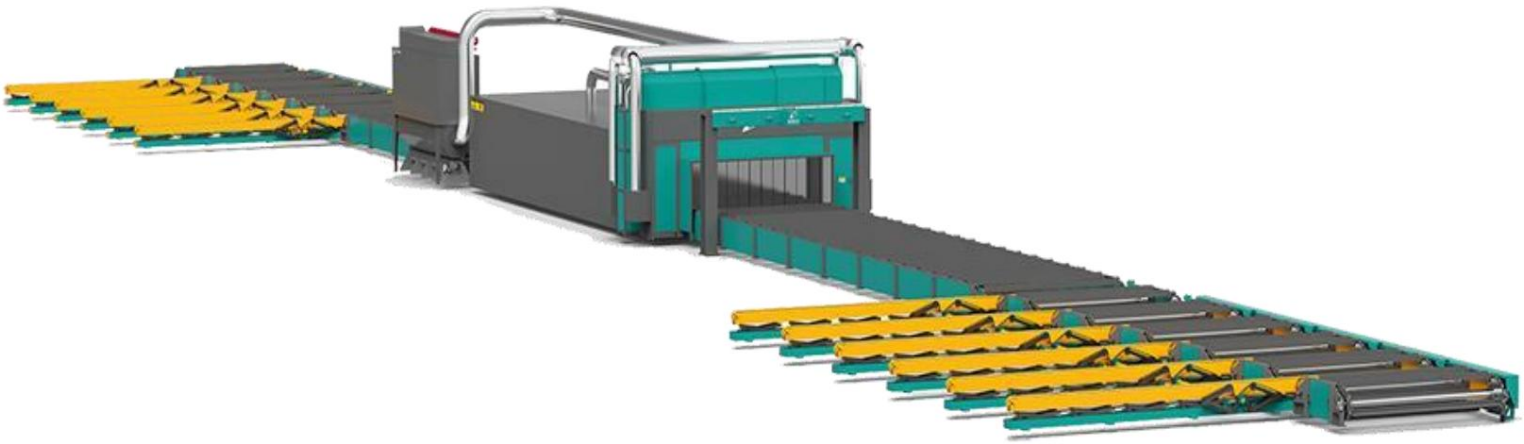
STRUCTURAL STEEL ROBOTIC AUTOMATION

PRODUCTION LINE INSTRUCTIONS

AUTOMATIC/MANUAL PAINT SPRAYING

CONG – PTA 3007L

[Documentary subtitles]



Contents 1.

1. Introduction to the intelligent automatic spray production line

The intelligent spray painting production line is a fully automated system developed by Yide Technology specifically for painting large-scale components.
This system overcomes common problems in manual spray painting processes such as high labor intensity, low efficiency, the need for a large workforce, and poor coating quality. Unstable, poor uniformity, and wasteful of paint.

1.1 Advantages of the production line's structure:

1) Smart scanning: Scans in a specific direction to record the 3D structure of the component. Items intended to prepare for the spray painting process;

Intelligent spray painting: Based on scan data, the system automatically controls the spray gun to perform comprehensive 3D spraying, ensuring a uniform coating and saving material. The spray gun is activated and stopped intelligently according to the 3D scan results, using the optimal spray path to maximize material efficiency and cost savings.

T-shaped chain conveyor: Minimizes contact points, ensuring a perfect surface finish (Surface Group 3).

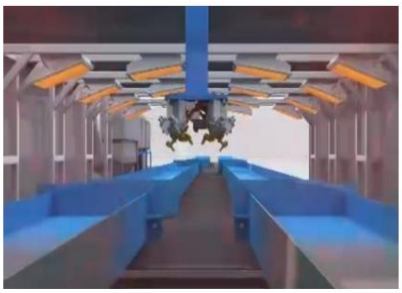
Automatic drying: After the spray painting process, the components are passed through a drying system.

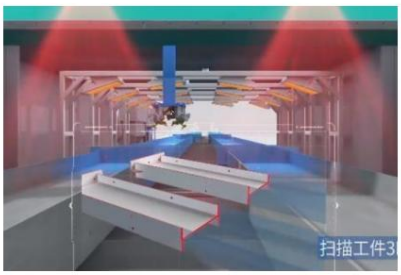
4) Closed-loop infrared;

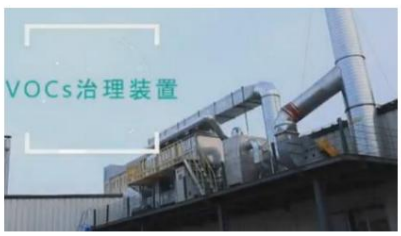
5) Paint dust treatment: Equipped with a paint dust treatment system, the equipment helps to solve pollution problems arising during the paint spraying process;

Smart spray painting production lines offer numerous benefits such as reduced labor requirements, high efficiency, superior quality, uniform coating, and material savings.
By balancing quality, output, and cost efficiency, this system is an advanced solution for the large-scale component coating industry.

1.2 Advantages of production lines in the coatings industry:







1) Using a low amount of paint yields good results.
Optimal spraying.
Two movable spray arms are used to position the spray gun; the automatic painting process adjusts based on speed. feeding.
The optimized airflow mechanism from both sides ensures a uniform paint finish;
Intelligent start/stop feature and optimized spraying process.

2) Low production cost and high quality: The spray gun applies the coating to parts using an airless spraying method; continuous paint circulation in
the system prevents pipe clogging; the automatic height adjustment feature of the suspended spray gun
thanks to 3D scanning technology ensures an optimal coating process and cost savings; 3) Exhaust gas treatment process in the spray booth meets
standards.

Standardize and prevent occupational health problems.

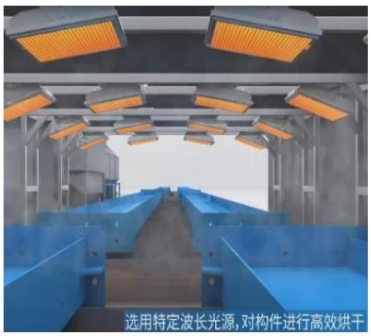
Job description: Ensure continuous airflow inside the spray chamber;

Negative pressure spray booths minimize the amount of paint particles dispersed during spraying; negative pressure paint mixing rooms fully meet comprehensive standards for pollutant emissions; and the specific occupational health risks of the paint industry are completely eliminated.

4) Easy-to-clean spray chamber:
The spray chamber is coated with a non-stick protective layer and has a design with no dead corners, making cleaning easy; the chamber floor is covered with a replaceable membrane to prevent contamination.

5) User-friendly operation: Displays dynamic parameters and fault information via intuitive graphics; provides good visibility and clear troubleshooting solutions when errors occur; 6) Recirculating system supporting multi-layer and multi-color spraying:

The dual-circulation system can be activated via a switch on the HMI interface;
The multi-pass spraying process allows for thicker coatings as well as smooth transitions between different layers and colors;
7) Components that ensure optimal spraying results:
High-pressure pump assembly, high-pressure paint hose, high-pressure spray gun and high-precision nozzle; paint container with mechanism.
Stir continuously;
Continuous flow heaters help control the temperature.
Stable; accurate two-component dosing unit with ratio flexible;
The automatic pump cleaning system enables smarter and cleaner operation;
The system automatically alerts you when the paint level in the can is low.



8) Optimized drying lamp system: Low compressed air consumption;
Adjustable temperature range; infrared wavelength specifically selected for steel structures;
The number of operating curing lamps is automatically adjusted based on the paint formula; the main specifications of the wire.

Smart spray painting production line.

2. Overview of the intelligent automatic spray production line

The spray coating line is designed for surface coating of steel structural components, steel plates, or steel profiles. Detailed information on the structure, function, operating process, and technical specifications of the system is presented below: 2.1 Structure of the spray coating production line

The equipment uses a T-shaped chain conveyor system driven by a motor.

servo. The preheating process is carried out using a natural gas burner with a servo mechanism.

thermal circulation, while the 3D profile inspection system allows for automatic programming.

for the scanning process. The spraying process is carried out with an intelligent control system.

clarity and real-time monitoring capabilities of the spray guns. Finally, the system monitors

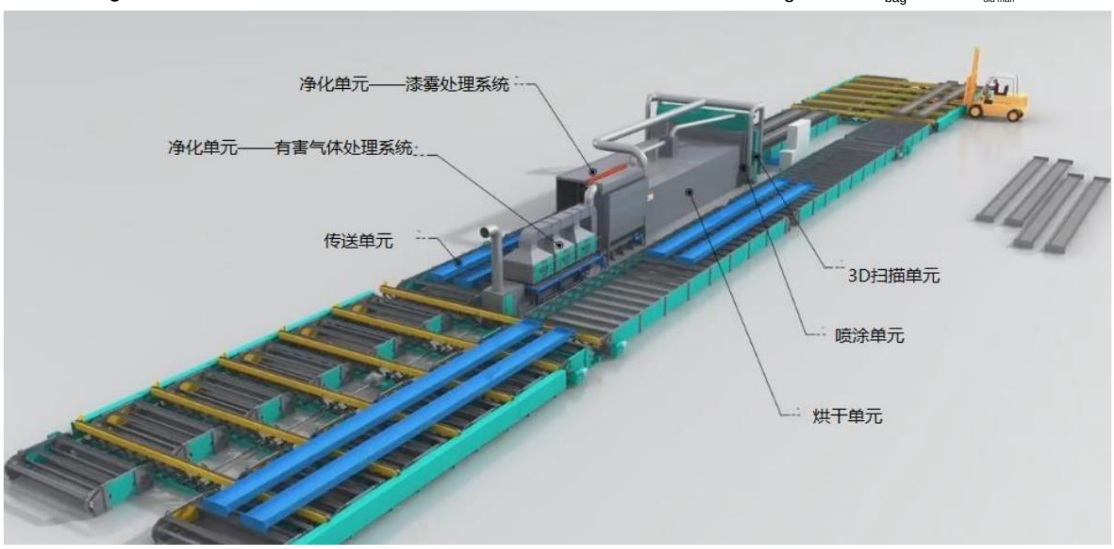
The hot air circulation system maintains a stable temperature to dry the paint film surface.

Automated conveyor systems using chains ensure that the cargo handling process is safe.

Convenient and efficient.

This production line includes a 3D scanning unit, spraying unit, drying unit, chain conveyor system, cleaning unit, and other components; please refer to the details below.

Image 1 to know dad intelligence design bag old man body.



2.2. Functions of individual modules

2.2.1. Function of the 3D scanning unit

The 3D scanning unit primarily provides collision protection for the spray gun assembly during equipment operation and adjusts the spray disc height based on the data.

The 3D profile of the components on the conveyor system.

2.2.2. Function of the paint spraying unit

The spray unit performs even, multi-angle spraying on multiple parts arranged side-by-side within the spray area (conveyor belt width approximately 3m); it allows for fully automated spraying functions—such as switching between single-component and two-component spraying—via the spray unit's pumping system.

2.2.3. Function of the surface drying unit

The drying unit uses circulating hot air and a drying method that maintains a stable temperature to quickly dry the surface of the newly applied paint layer.

2.2.4. Function of the chain conveyor

The conveyor system supports high-efficiency component transport—via one or two conveyor lines—using horizontal loading/unloading and vertical transport mechanisms.

2.2.5. Function of the air cleaning/treatment unit

This unit creates a clean environment for the painting process; it maintains the cleanliness of the paint booth and ensures coating quality by using a suitable air supply and exhaust system along with a paint dust filtration/dry dust removal system, connected to the customer's VOC treatment system.

2.3. Technological process of the paint production line

Loading ÿ Transporting ÿ Scanning ÿ Spray painting ÿ Drying ÿ Second spray painting ÿ Second drying ÿ Quick unloading ÿ Removal of paint dust/dust (during spraying and drying) ÿ VOC treatment (at the customer's side).

2.4. Key technical specifications of the production line

2.4.1. Area occupied by the production line:

Device dimensions: Length × Width = 104 m × 8.9 m

2.4.2. Products are processed on the production line:

Maximum detail length: 14 m;

Minimum part length: 4.5 m (with flange), 4.0 m (without flange); maximum part width: 3 m;

Minimum web plate thickness: 10 mm;

Detailed height: 650 mm above and 250 mm below the reference plane of the T-chain; maximum load: 500 kg/m;

The components must have only a single overhang on the underside, with a height not exceeding 250 mm; the distance between adjacent components (in width) must be greater than half the height of the largest adjacent base plate; the longitudinal distance between components during operation must be at least 1.5 m;

The height difference within the same row must not exceed 50 mm (otherwise, the spraying quality will be affected); the UPS backup power supply for the main control cabinet must be maintained for up to 4 hours;

This equipment is designed solely for spraying steel structural components that can be safely transported on a conveyor belt. 2.4.3 Power supply:

Power supply voltage ---------- 380V ±5% / 50Hz

Control cabinet voltage ---------- 220V AC and 24V DC

Main power supply cabinet current: Maximum current 274A; Maximum power consumption 105.7 kW/h

Industrial PC (IPC) voltage ---- 220V AC and 24V DC

2.4.4 Production line transport parameters:

3. Structure of each unit in the smart spray production line

3.1 Structure of the 3D scanning unit

3.1.1 Sensor Mounting Structure This device consists of an LMS511 and three LMS4121 sensors, along with a mounting bracket. attach

The installation structure is shown in Figures 1 and 2. Among them, three LMSs are installed on the same plane, 4.15 meters away from the spraying area. Used for 3D scanning of steel structures, installation, and calibration affect future data quality, requiring calibration and coupling. A standalone LMS is installed 0.3 meters away from the three LMS planes, as shown in the figure below. [Image caption: Security] Safety features for spraying, data segmentation, and real-time status monitoring.

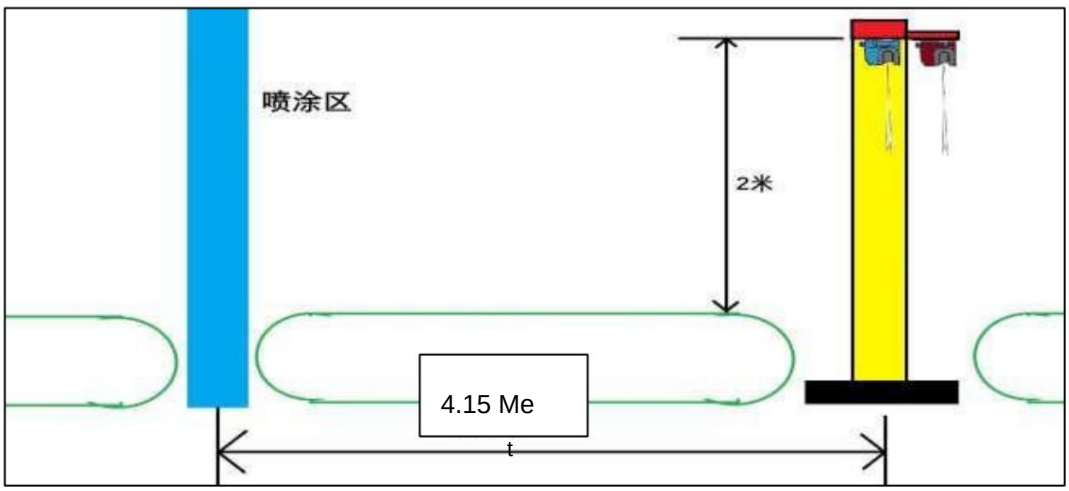


Figure 1: Conveyor belt installation diagram

All four sensors must be used simultaneously; once installed, they must not be disassembled. or move them. At the same time, during use, the cross-sectional area The four scanning heads on the transmission line must not be affected by external objects. Furthermore, this can lead to misidentification and affect performance.

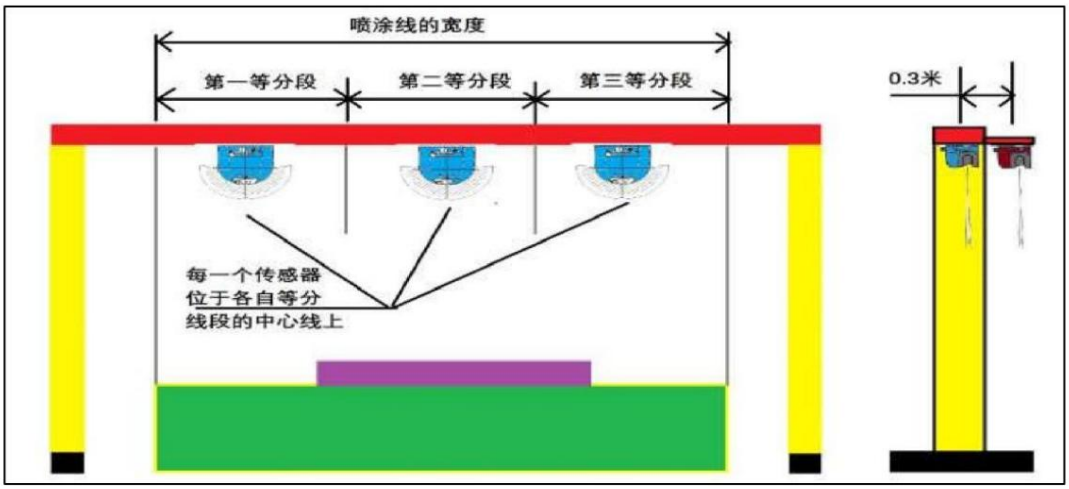


Figure 2: Installation diagram of scanning and monitoring surfaces.

3.1.2 Key technical specifications of the sensor

TIM561 2D LIDAR Sensor

Voltage 24VDC;

Power source:
Pepper 4Wy

recipient
Scanning angle: 270°

p; False diagram i 0.33 Both Angle table:

Milk 15Hzÿ both p;

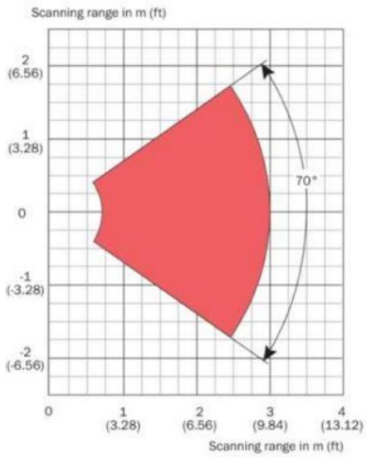
sweep:
Scanning area: 8 meters

t

LMS4xxx Indoor
扫描角度：70 度
扫描距离：0.7~3m
角分辨率：0.0833 度（最小）
编码器输入：2（相位 A、相位 B）
工作温度：-10 度---50 度
防护等级：IP67

Scan/frame rate	504,600 measurement points/second
Response time	≥ 4.8 ms
Detectable object shape	Almost any
Systematic error (typ.) [1]	LMS4x11: ± 1.5 mm LMS4x21: ± 1 mm
Statistical error (1 σ) [1]	**LMS4x11:** 1.25 mm (@ ≥ 90% 0.7 m ... 3 m) 2.5 mm (@ 40% 0.7 m ... 3 m) 6.5 mm (@ 6.5% < 1 m & > 2.5 m) 5 mm (@ 6.5% 1 m ... 2.5 m) 14 mm (@ 3.5% < 1 m & > 2.5 m) 10 mm (@ 3.5% 1 m ... 2.5 m) **LMS4x21:** 0.75 mm (@ ≥ 90% 0.7 m ... 3 m) 1.5 mm (@ 40% 0.7 m ... 3 m) 4.5 mm (@ 6.5% < 1 m & > 2.5 m) 3.5 mm (@ 6.5% 1 m ... 2.5 m) 12 mm (@ 3 % < 1 m & > 2.5 m) 9 mm (@ 2% 1 m ... 2.5 m)
Temperature drift (systematic)	0.03 mm/K
Angle error	0.05°
Integrated application	Data output

LMS4000核心传感器产品性能图



LMS4000工作区域图表

3.2 Paint Unit Structure

The spraying unit consists of a tracked spray vehicle, a spray pump, a spray booth, and a mixing chamber. paint.

3.2.1 Structure of chain-driven trolleys

The chain spray trolley includes a side conveyor device, a lifting device, and two

The spray disc system. The tracked spray trolley is precisely controlled via a motion control system, which can control the spray nozzle to perform the desired movement.

High-quality start-stop motion based on the trajectory of the scanned component.

This results in a uniform coating thickness and minimal paint consumption, leading to a streamlined process.

High-quality spraying.

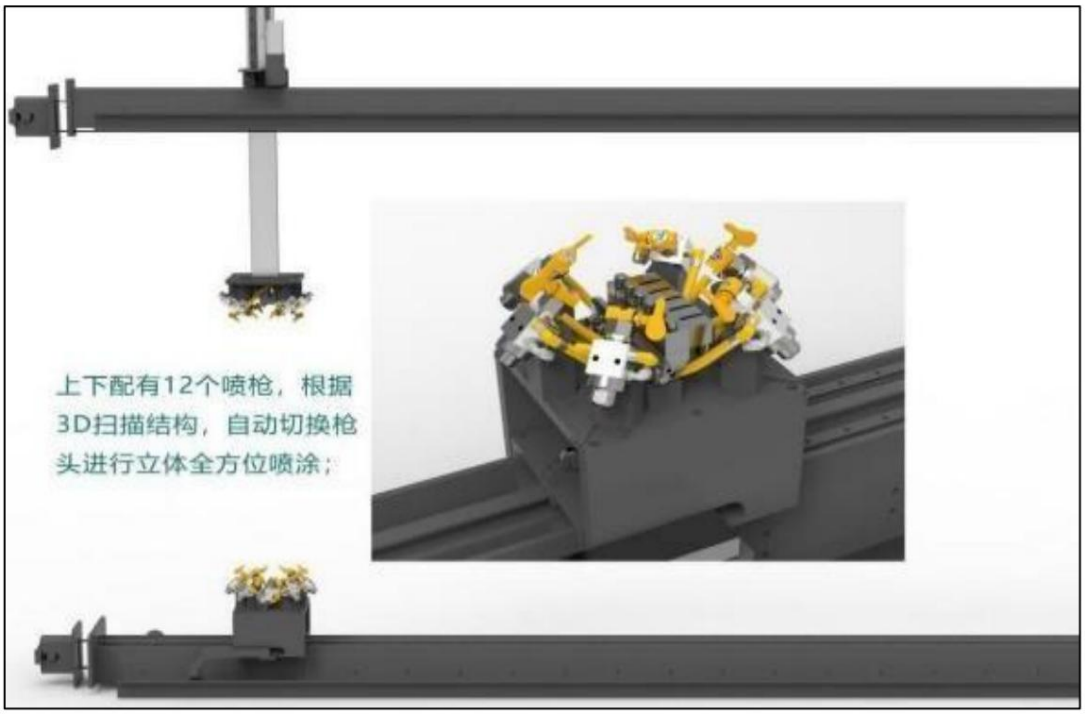
The horizontal movement mechanism consists of left and right spray-painted motors — driven by 2kW servo motors and geared motors.

The upper and lower spray tray trolleys perform a back-and-forth horizontal movement.

The lifting device is a spray lifting motor — a 1KW servo motor and a reduction motor.

The speed control of the upper spray plate trolley is used to perform the lifting motion.

It can move up and down depending on the height of the component, thereby achieving the optimal spray gun height.



The upper and lower spray discs are connected by a synchronous belt and controlled by servo motors to move horizontally and vertically along linear guide rails. Spray disc

The upper spray nozzle sprays downwards towards the upper half of the workpiece; the lower spray disc sprays upwards towards the lower half. embryo.

Each spray disc set consists of six vacuum spray guns with different postures and positions.

Each vacuum spray gun set includes an Ionishi spray gun, standard nozzle, and tubing.

high-pressure spraying, etc.

The intermediate nozzle is 13Z35, with a thickness of 30~50ÿm at a pressure of 0.2-0.3MPa; Head is 16Z35 , thickness 50~70ÿm at 0.2-0.3MPa; Intermediate spray nozzle

The intermediate is 19Z35, with a nozzle thickness of 70~90ÿm at air pressure.

0.2-0.3MPa;

The central nozzle typically follows the principle of a small tip and a large bottom tip, because of the spray pattern.

The liquid falls from the top nozzle onto the surface above, while the liquid falls from the bottom nozzle to the ground. If both nozzles...

The spray patterns are similar, but the top nozzle will be thicker and the bottom one thinner, while the side nozzle...

It will be similar to a small flow nozzle. Top and bottom nozzles.

Large flat flange deviations are controlled within the range of 10~20ÿm.

3.2.2 Spray Pump Model The T3235

pneumatic spray pump has a pressure ratio of 32:1, with typical pressure adjustment ranges from 0.375~0.5Mpa

Key features and scope of application:

High flow, medium to high pressure, primers and topcoats can be sprayed, suitable for a wide variety of surfaces.

---- Inorganic zinc spraying, epoxy-rich zinc coating, water-based coating, and many other common coating types.

Typical applications:

---- Construction of various anti-corrosion projects such as steel pretreatment spray lines, sluice gates, bridges and steel structures

3.2.3, Mechanical Room

A paint booth provides a clean, enclosed space for painting activities and can

Prevent leakage of organic solvents.

The paint booth is a sturdy welded steel frame structure, with an interior shell made from soundproof and heat-insulating panels.

The spray room consists of the operating room body, the air supply system, and the exhaust system.

The side walls and ceiling of the operating room were completely covered with protective film.

Non-stick coating, making it easy to clean after spraying; Soft plastic curtain is replaceable.

It is installed at the conveyor belt entrance to prevent paint from spilling.

The upper and lower spray disc conveyor belts are equipped with an internal air supply system. It consists of a 1.5kW fan and ducts, blowing air out in real time to

Prevent paint from seeping into the protective film and contaminating the tracks.

There are two air intakes on each side of the spray booth, connected to the spray mist treatment system. to form an exhaust system. During the spraying process, floating dust particles are propelled out in real time through the suction pipe, discharged into the spray chamber, and maintain a continuous airflow inside. in.

3.2.4 Paint Mixing Room Structure

Dimensions: Provided by the customer (L×W×H).

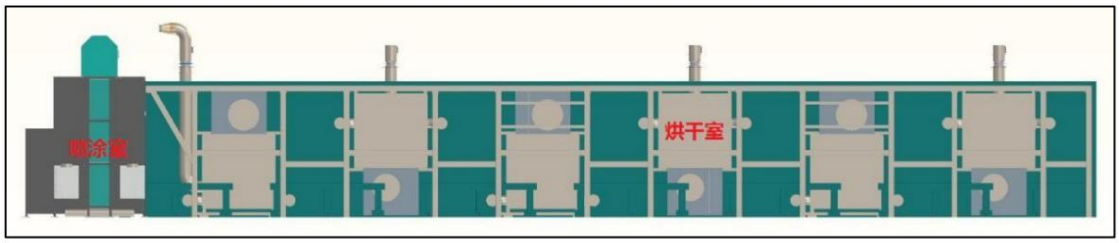
The paint mixing room uses a profile frame structure combined with colored steel sheets to creating an enclosed space;

To ensure that volatile organic solvents are removed promptly during the paint mixing process, the upper section is connected to the paint treatment system, passing through a dust removal box with a branch air duct, and the exhaust gas is filtered with activated carbon before being discharged.

The paint, solvent, and spray pump are all distributed inside the paint mixing chamber. The mixing and spraying process is performed in real time in a negative pressure environment. Meets national standards for controlling toxic gases.

3.3 Structure of the surface drying unit

The surface drying unit includes a drying chamber, a natural gas-fired heating system, and a heating system. The system circulates hot air, exhaust gases, dehumidifiers, and other components.



3.3.1, Both ovarian cysts

Main dimensions of the casing: Customer-customizable (L×W×H).

The drying chamber cabinet utilizes a vertical structure with a profile frame, with all surrounding insulated wall panels assembled using insert plate technology. Frame

The support is entirely made from sections of steel bars, with the frame welded together.

together; the roof and side walls are made of 100mm thick stone.

Made from cotton-colored steel sandwich panels, it has extremely low heat loss.

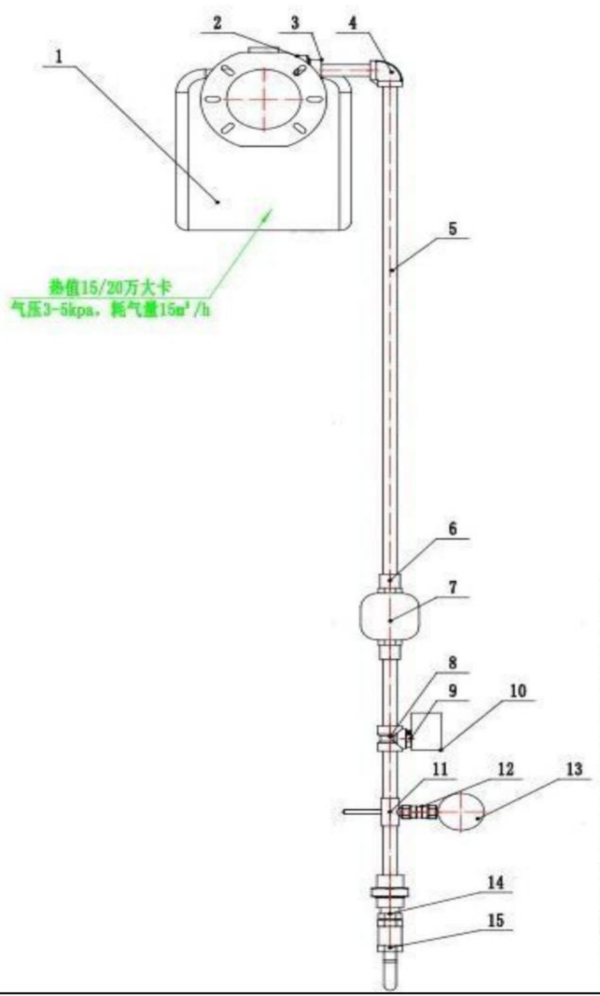
3.3.2 Natural Gas Piping System: Hot Air Recirculation Dehumidification System using Natural Gas

Key specifications:

Required pressure for auxiliary natural gas pipeline: 3~5Kpa; Range

Natural gas pressure gauge: 50 kPa;

Explosion-proof shut-off valve for main natural gas circuit: normally closed 24V DC; Required pressure in the natural gas auxiliary pipeline: 30 kPa;
The air temperature inside the box is 50~80°C; the air structure distribution diagram of the heating system is shown below:



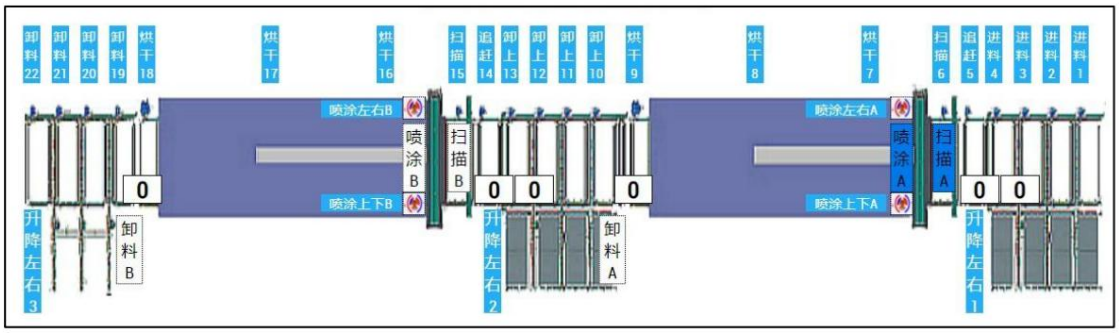
15	01.15.27.0003	铜球阀1寸	1
14	01.15.15.0002	铜对丝1寸	1
13	27.02.02.0033	天然气压力表50KPa（1/2接口）	1
12	01.15.27.0002	铜球阀1/2寸	1
11	01.15.38.0008	外螺纹三通转换接头DN25×R1/2	1
10	07.02.02.0023	冬斯天然气气压检测开关GW-10A (2-10mbar)	1
9	01.15.01.0027	铜变径对丝1寸-1/4寸	1
8	01.15.38.0003	内螺纹三通转换接头DN25×Rp1	1
7	07.02.02.0020	天然气常闭防爆电磁阀DN25	1
6	01.15.38.0004	外螺纹转换接头DN25×R1	2
5	01.15.38.0001	不锈钢管材DN25	2
4	01.15.38.0007	A型90度弯头DN25	1
3	01.15.38.0009	内螺纹活接DN25×R1	2
2	01.15.01.0007	铜变径对丝1寸-1/2寸	1
1	27.02.02.0141	燃烧器BS3/M-MVDLE205/5(15万大卡，比例调节)	1

3.3.3 and recirculation + The end ventilation em

On the side of the drying chamber, six 4kW circulation fans are installed, each fan enclosing... The entire drying chamber is covered with pipes. Hot air circulates in one direction. The air flows over the top and bottom surfaces of the component, while the exhaust gases are drawn into the unit. VOC treatment is combined with airflow. This involves a combination of rapid air recirculation and a small amount of heat ensures efficient drying of newly painted parts. spray paint. Four sets of moisture exhaust pipes are installed above the drying chamber to Ensuring the humidity inside the drying chamber meets drying requirements speeds up the drying process. and save gas

3.4 Chain Conveyor Unit Structure

The chain conveyor unit consists of a raw material feeding device, a conveyor It moves and lifts materials horizontally, along with a vertical chain conveyor.



The device was struck.

raw materials

The zero-point platform supports raw material storage.

The height detection device is responsible for checking the raw materials.

Does it meet safety requirements? Horizontal transfer and lifting equipment is

Lift the left and right sides 1 is responsible for feeding.

Lift left and right 2. When both spray A and B are activated simultaneously, it

Not operational; When only spray A is used, it is used for material production;

When only B is used for spraying, it is used for feeding; the lifting sensor device is subject to

Responsibilities include quickly locating and positioning lifting and hoisting mechanisms;

Conveyor collision avoidance devices are responsible for risk assessment.

Excess in horizontal transport sections; Vertical chain conveyor equipment is

Feeding unit (levels 1-4, pursuit 5)

Scanning-spraying conveyor unit (scanning 6, spraying left and right A, spraying on top)

and under A), Drying conveyor unit (dryer 7, dryer 8, dryer 9),

A sprayer and B sprayer share the same transport unit (unloading 10, unloading 11, unloading 12).

Unloading 13), B. Conveyor unit for spraying and sweeping (tracking 14, sweeping 15, side spraying)

left and right B, spray up and down B),

B. Spray drying conveyor unit (drying 16, drying 17, drying 18), discharge conveyor unit (unloading)

19, unload 20, unload 21, unload 22).

The base sensor is responsible for all mechanical base positioning and synchronization functions of the conveyor motor;

The material detection device is responsible for detecting materials on the equipment and

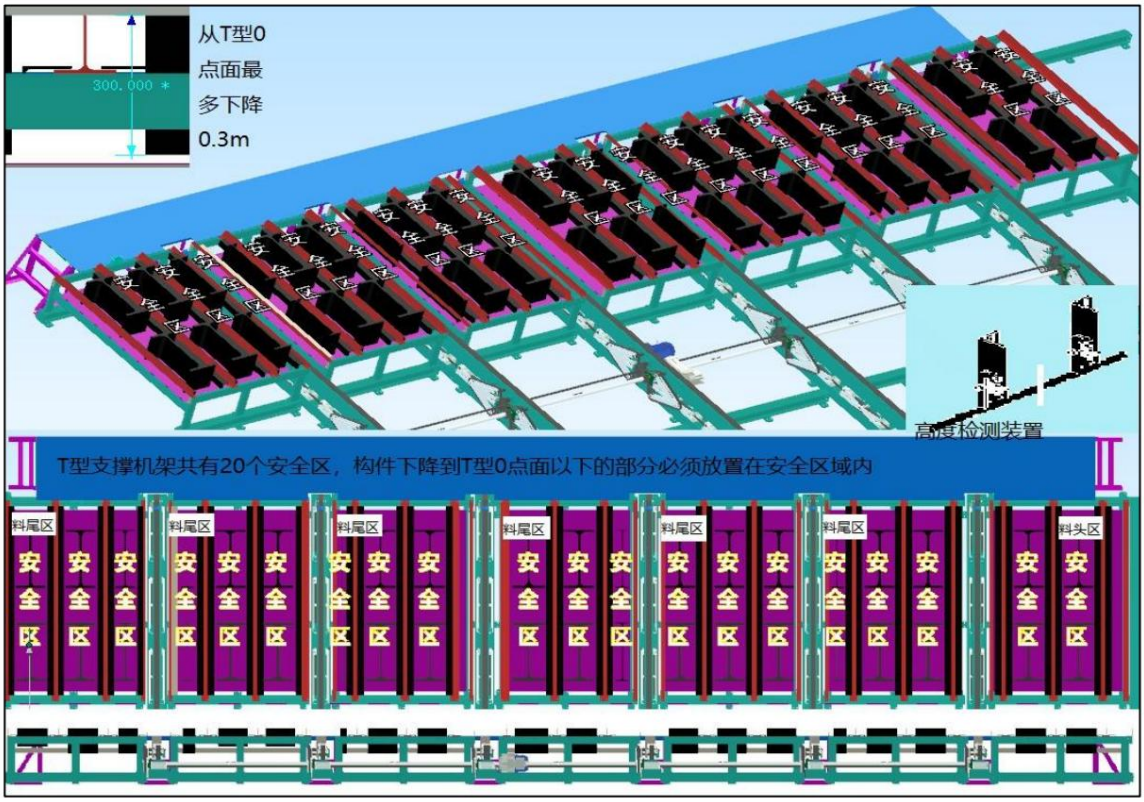
It provides counting and statistical functions, and also serves as a condition for switching between

injection speed and acceleration speed.

3.4.1 Raw Material Handling Equipment Raw

material handling equipment is a device for arranging prepared materials, including a frame.

T-shaped support, height detection device, and feed support platform.



The T-shaped support frame is supported by 125×125×6×9 T-beams and

It is divided into 20 safety zones. Only parts within 0.7m of the T-zero point and 0.3m below the

T-zero point are permitted. Parts of the components are lowered.

The area below the T-zero point must be within the safe zone; otherwise, an accident may occur.

serious mechanical

The height detection device consists of a rotating rod and a proximity switch.

Its primary function is to detect that the lower part of the T-shaped zero surface is not exceeded.

over 0.3m; otherwise, the machine will stop and sound an alarm.

The feeding support platform is a convenient platform for operators to walk on, with a height equal to that of a conveyor belt balancing vehicle.

Note: When positioning the component group for a single horizontal spray line, it should be placed at the far left end of the component group in the material tail area.

3.4.2 Horizontal Fuel Lifting Equipment There

are 4 sets of horizontal material handling equipment; each set includes a unit

material handling capacity, a lifting device, a lifting support device, a

a lifting sensor device and a transport collision avoidance device

The material handling unit uses a 3kW servo motor reducer.

The power unit, in conjunction with the drive shaft, controls the four chain drives that move left and right.

Yes, at a maximum speed of 28 m/min, it moves components from the raw material rack to

location

Location of T-type chain conveyor unit

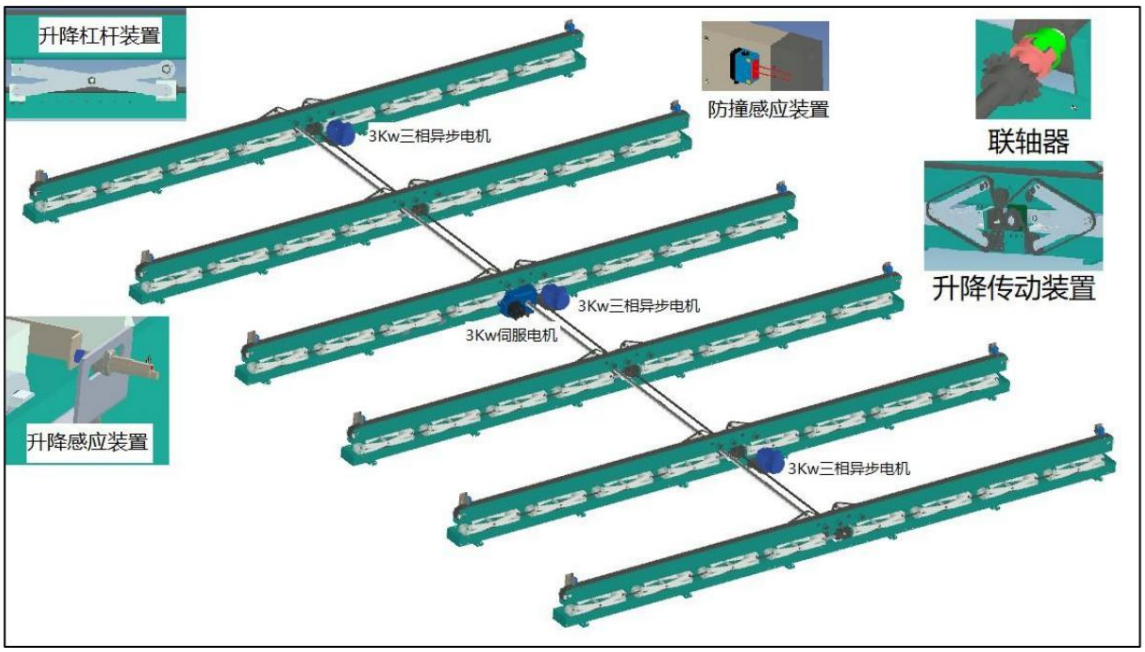
Each horizontal conveyor belt is equipped with a collision avoidance sensor switch.

To prevent overload, the lifting power transmission system consists of two triple asynchronous motors.

A 3kW motor serves as the lifting mechanism, 32 lifting arms form the mechanical components, and there is a joint.

An elastic link connects these two sets via a lifting transmission device, achieving the process.

stable and rapid lifting



Each lifting device is equipped with a lifting sensor responsible for raising to the highest point and lowering to the lowest point.

Combined with a PLC system for time adjustment and soft control, rapid lifting and precise positioning are achieved.

3.4.3 Vertical Chain Conveyor Equipment

The vertical chain conveyor equipment includes a feeding unit and a conveying unit.
a scan-spray unit, an accelerated discharge unit, an origin sensor, and a
material detection device

The mechanical structure of this type of vertical chain includes a T-shaped support chain and belt gears.
FV90 load, FV90 chain, gearbox, and servo motor

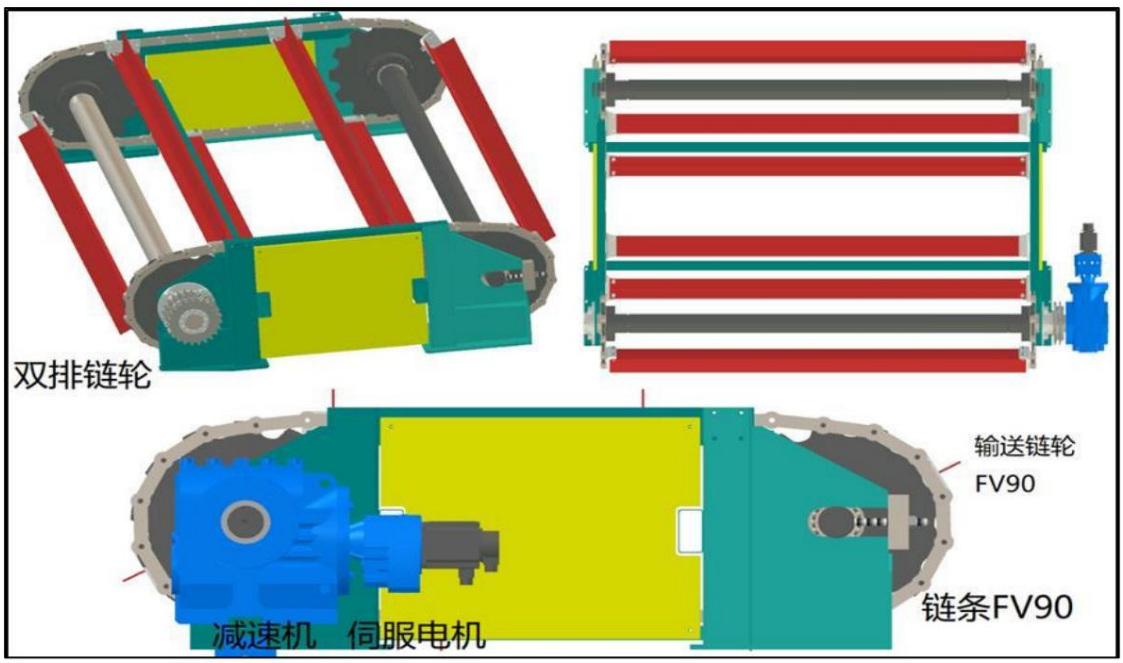
Vertical chain conveyor systems are classified according to their structure into multi-section chain structures and partially redundant chain structures.

Multi-section chain structures connect multiple short-section chain transmission devices in series via gears
and double-row chains; single-section long chain structures are...
longer T-shaped chain

The mechanical units of a vertical chain conveyor are divided into:

Feeding unit (levels 1-4, pursuit 5)

Scanning-spraying conveyor unit (scanning 6, spraying left and right A, spraying on top)
and under A), Drying conveyor unit (dryer 7, dryer 8, dryer 9),
Sprayers A and B share the same transport unit (unloading 10, unloading 11, unloading 12, unloading 13).



Levels 1, 2, 3, and 4: 1kW servo motor and gearbox, each drive unit.
It operates on a single chain, with a total length of 13,000mm and a maximum speed of 2.7m/min;

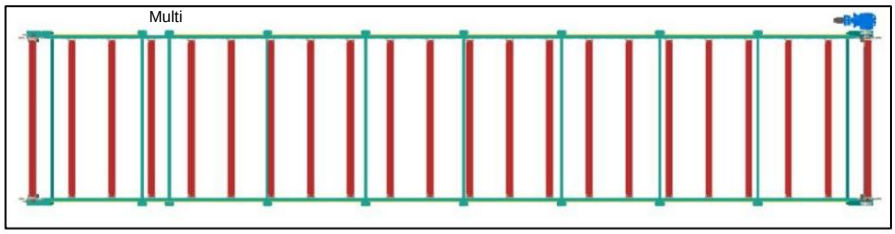
Chasing 5 uses a 1kW servo motor and a common drive gearbox.

A chain conveyor belt, with a total length of 3250mm and a maximum speed of 2.7m/min.

Scan 6 is powered by a 1kW servo motor and a gearbox, driving a partial long-chain conveyor belt system, in total.

Length 4750mm, Lifting speed 1.5m/minute;

To be Multi



Drying 7 is operated by a 1kW servo motor and a gearbox, driving the belt.

The chain load is a long section with a total length of 3250mm and a maximum speed of 1.5m/min;

Drying 8 is a single-section long chain conveyor powered by a motor.

1kW servo and gearbox, with a total length of 15,000mm and a maximum speed of 1.5m/min;

Drying 9 is a long-chain conveyor belt system partially operated by servo motors.

1kW motor and gearbox, with a total length of 12,000mm and a maximum speed of 1.5m/min;

Unloading 1, Unloading 2, Unloading 3, Unloading 4 are sequential chain conveyor devices that are operated.

Powered by four 1kW servo motors and a gearbox, with a total length of 13,000mm and speed.

Maximum speed 6m/min; Spraying equipment part B is the same as above.

The electrical units of a vertical chain conveyor are divided into:

The base sensor is responsible for the base positioning and synchronization functions of all conveyor motors, and is installed on every motorized conveyor.

The material detection device is responsible for detecting the material present on the device or

No, counting and statistical functions are also conditions.

to switch between injection speed and acceleration speed. Functionally, they are divided

Input material inspection process: 1. Inspect input materials 2. Detect discharge

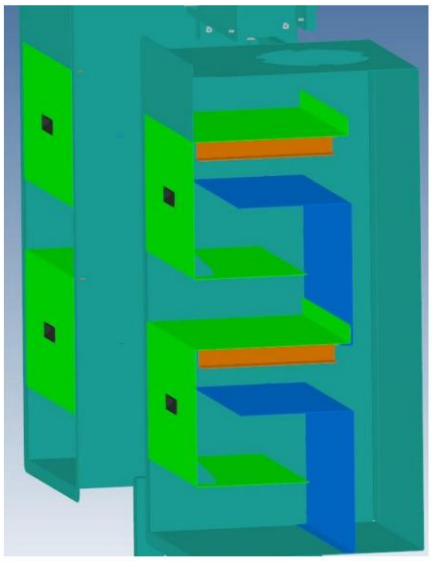
1. Discharge detection switch and limit switch

3.5 Filtration Unit Structure The

filtration unit is primarily connected by a labyrinth filtration zone, a paint mist treatment unit, and volatile VOC pipelines within the drying chamber.

Layout.

3.5.1 Labyrinth Filter Area The



labyrinth filter box uses a baffle plate structure.
to force the airflow to change direction multiple times.
Paint particles in the air adhere to the wall.
In the frame or falling out, some will stick to the cotton.
filter to limit ingress
Dust content in VOC systems

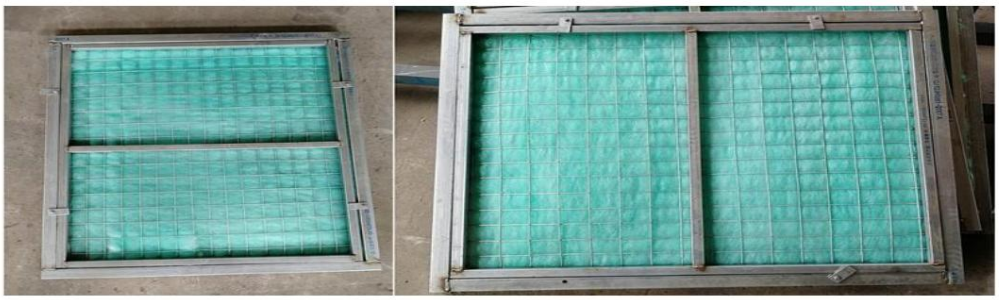
3.5.2 Paint mist treatment equipment

Paint spray treatment equipment includes a filtration system.
Drying, pipes, fans, etc.

Dry filtration system: includes filter housing, filter media, etc.

ÿ The dry filter employs a three-stage filtration design.

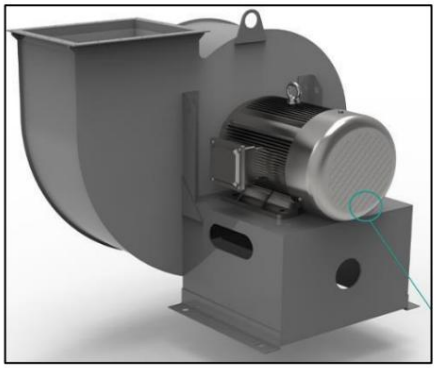
ÿ The dry filter housing is made from 2mm thick Q235 carbon steel plate, ensuring durability.
The overall structure of the stand is sturdy.



ÿ The filter material uses fiberglass mesh. This type of dry filter material is
It is specially developed based on the characteristics of the paint filtration process. It is made from multiple layers.
Fiberglass, with density increasing as thickness increases, and a layer of different materials are used.
Used for support. The product has high performance, large capacity, and low operating costs.
and fire resistance.

ÿ Ensuring high efficiency in refining paint mist and meeting national emission standards, the dry filter uses a three-stage filtration method, with the addition of
Two more stages for the first-stage filter cotton. After three stages of filtration, the cleaning rate...
The misty mountains are even higher.

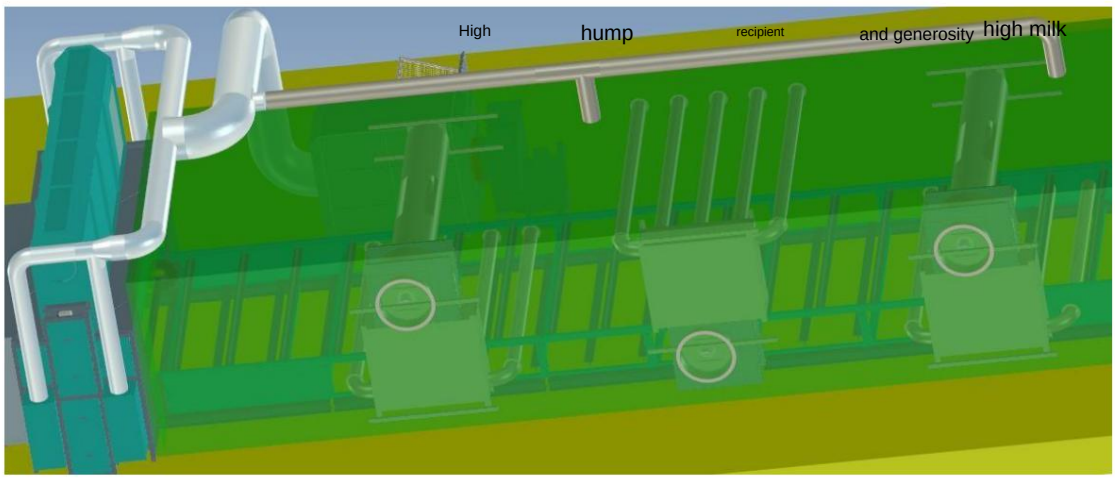
3.5.3 Pipelines connecting **volatile VOCs** in the drying chamber



The spray booth, paint booth, and drying room are all subjected to negative pressure, and then... efficient processing of VOCs. The system includes a centrifuge for Mainly used for high milk ventilation and centrifugal force.

Air conditioning in restrooms, Emergency Room And the vaporizers in VOCs are pumped.

spray paint diarrhea The shop has already done a 150 bridge the point, there's a 7.5kW generator, used to serve as a dust collector. This thing... are regulated at 10,000 m³/hour. the code is Plastics Its advantage is that it's compatible . pressure, no structure, no consumption. ,Language No large salary Filial piety



High hump recipient and generosity high milk

Good flexibility and strong exhaust gas filtration capabilities not only strongly support the normal operation of the dust collector but also significantly reduce operating costs for the user.

use.

4. Operating Instructions for Each Unit of the Smart Injection Molding Production Line 4.1

Operating Instructions for the 3D Scanning

Equipment **4.1.1.** Handover and Interface

mother copperprefer

??"System Start" button: Starts the entire system; it's already running by default.

??"Restart System" button: Restarts the system, default setting

The function is locked; unlock it using the "Locked" button. When the function is activated, it

Wait 30 seconds, then all system data is erased and the system restarts.

Again. You can also restart the system via command.

??"Close System" button: Closes the entire system, defaulting to the default function.

It can be locked and unlocked using the "Locked" button. When activated, it waits 30 seconds before clearing.

write the data, then shut down the system after writing the data. You can also restart the system.

by command

??The "Save PCD Image" button: saves the image and point cloud data from the intermediate process

for debugging purposes. By default, it is locked and can be unlocked by pressing the "Lock" button. When

activated, data and images from the scanning and processing process are saved.

The most recent calculation will be saved.

??"Lock/Unlock" button: Locks/unlocks other function buttons to prevent accidental activation.
If pressed

When the key is pressed, the text will switch between "Lock" and "Unlock." As shown.

In the two images below, the interface displays the values.

Real-time height: The highest real-time height of the scanned cross-section.

Dynamic records: Total length currently being collected and used.

Encoder Value: The encoder value currently stored in the LMS Object

State: 1 if present, 0 if absent

Heart rate The left side displays the time interval between sending heart rate signals to the PLC, and the right side displays the debugging value.

Synchronization: The current X-coordinate value in use

Debugging the values

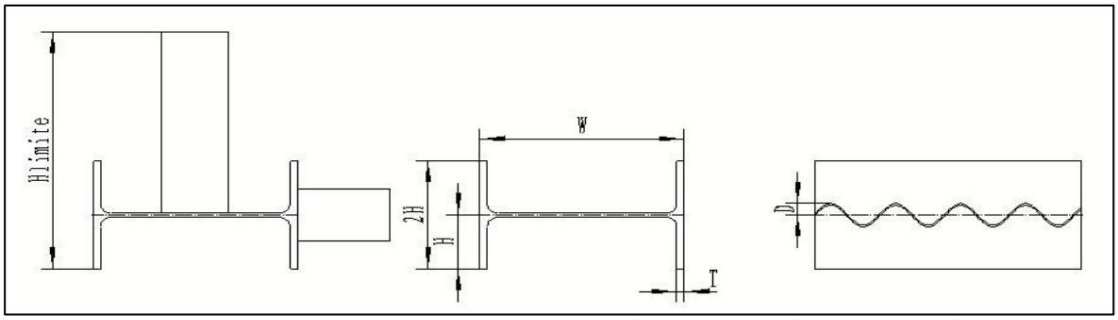
4.1.2 Types of scannable components 1) Flat mesh plate: This is a flat plate of H-beam steel mesh;

2) Same height: The height difference of flange plates of the transport components in from the same batch, smaller than or equal to 40mm;

3ÿ Height difference: The difference in height of the flange plates of the transport components in the same batch larger than 40mm;

4) Bolt fasteners: These are parts with a row of bolts on one side of the faceplate. flange. This flange plate is not painted, but only one can be spray-painted at a time. time;

5) Simple flat profile: using a back-and-forth spraying method, it has the following capabilities Spray nozzles of various sizes: round, square, flat, angled, etc. A sample with a certain height. If larger than 50mm and the length equals the total length, it must be placed to the side to ensure The detection switch can be monitored.



H-beam (unit: mm).		H	2H	IN	T	hlimite
Plate flat stomach	Value at least 70		140	200	6	
	Value maximum	400	800	1500	40	800
Wave belly	Value minimum 80		160	200	6	
	Value maximum	400	800	1500	40	800

Note: When the steel structure has Hlimite (or 2H) < 140mm (flat mesh) or Hlimite (yellow).

2H) < 160mm (waveform), using a simple flat plate spraying process for application.

Trajectory plan; The peak-valley D value of the wave network is a fixed value of 30mm; if higher than this, spray as a vertical plate.

4.1.3 Guidance on positioning special types

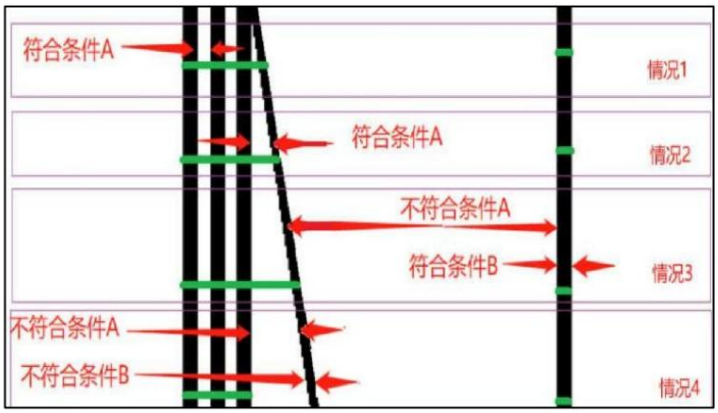
On the same cross-section, the closest distance between two objects must be less than 100mm; otherwise, they are considered a single entity.

If the cross-sectional width is less than 50mm, objects at that location will be ignored.

Here's an example, as shown in the image below.

From left to right, the tubes are tubes 1, 2, 3, 4, and 5, with the green line indicating the way.

Spray on a case-by-case basis.



Scenario 1: Condition A is met

If it can be sprayed, then

Pipes 1 and 2 can spray continuously.

with adhesion

Scenario 2: Condition A is met

If spraying is possible, then use pipe 3 and

4. Can be sprayed continuously with good adhesion.

Case 3: If condition A is not met but condition B is

It responds, it can spray. Then it can spray with nozzle number 5, but nozzles number 4 and 5...

then it is not continuous

Case 4: Conditions A and B are not met, therefore spraying is not possible.

No. 4 pipe cannot spray.

The interruption between tubes 3 and 4

4.1.4 Requirements for structural steel materials

The surfaces to be coated in steel structures must meet the following characteristics:

?? -reflective surface

?? Non-porous surface structure

?? The thickness of the vertical plate should be greater than 10mm.

4.1.5 Instructions for spraying the I-shaped jet

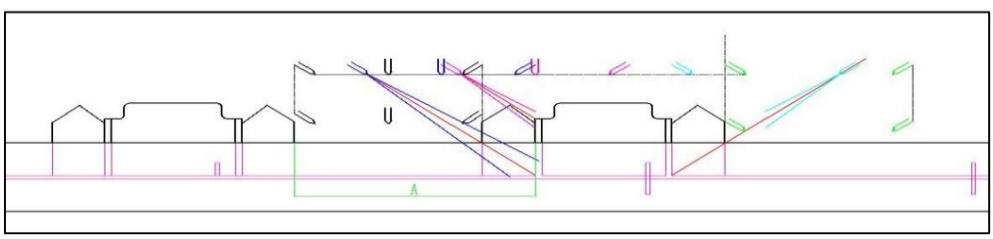
(a) During equipment operation, the system provides protection.

The system features a collision detection system for the spray gun group and can be adjusted to various levels.

The 3D contour information of the workpiece is used to adjust the height position of the spray gun group.

However, during the spraying process, the height of the spray gun group is not

mid-way adjustment



bÿ The system can perform the following operations simultaneously after the spraying process.

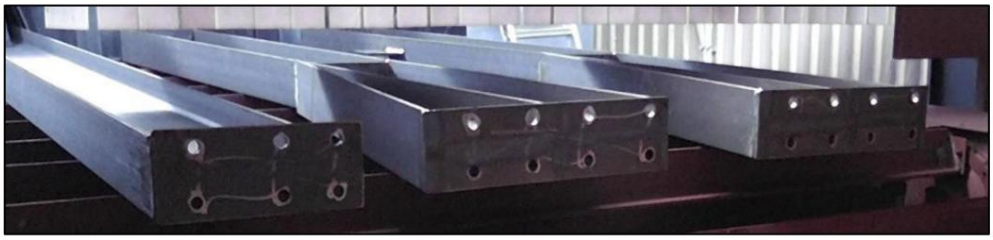
on many details placed next to each other in the spraying area (conveyor belt width approximately

3m). The spraying principle saves paint while ensuring a uniform coating thickness.

Therefore, during each reciprocating spray cycle, the opening and closing of the spray gun must be checked.

Real-time inspection based on the positional relationship between adjacent details and dimensions.

and the shielding position of the modules within the same part.



cÿ The system comprises two spray gun systems: one system located above the conveyor belt and workpiece, responsible for spraying downwards onto the workpiece; the other

The remaining spray system is located below the conveyor belt, spraying onto the lower half of the workpiece.

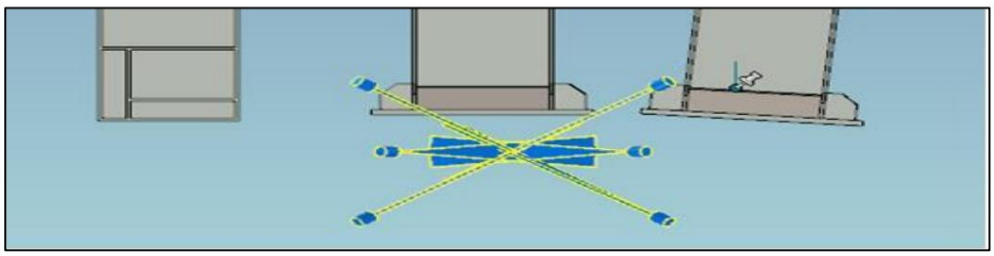
Each spray gun system consists of six guns with different postures and positions. In each back-and-forth

spraying process, the spray is applied to different surfaces of different workpieces, and all

The spray guns must be controlled independently. The lower spray gun group does not have one.

Vertical motion control; spray gun switching method is perfectly suitable.

with the spray gun group above



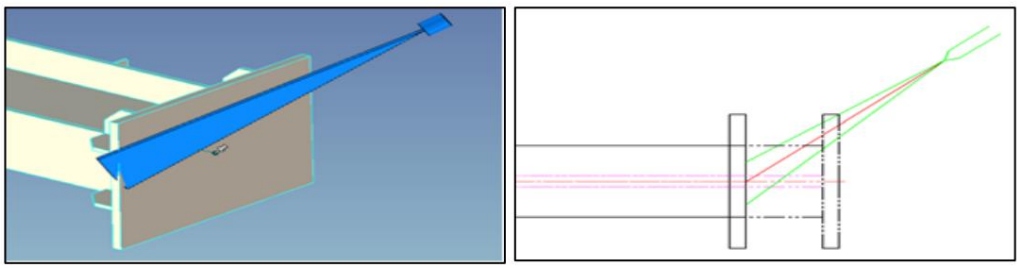
dÿ According to the requirements of the injection molding process, for cross plates on the workpiece, including

front and back surfaces, or the middle side of the workpiece, as illustrated in the figure below,

The front end is a diagonal plate that needs to be sprayed multiple times. The system has a stop function.

Spray the pesticide, allowing for stop spraying and spraying on both sides of the diagonal sheet. Strategy

Specific spray patterns need to be validated and optimized during the testing process.



and) To save paint, the distance between adjacent pieces is calculated.

The calculations are done in real time, and if the distance exceeds a certain threshold,

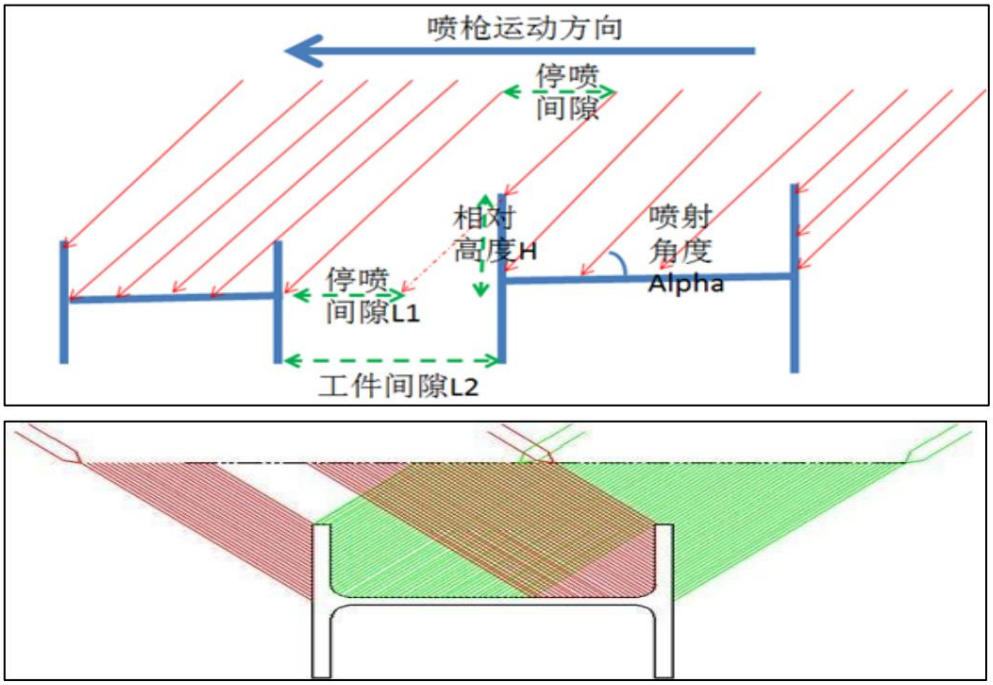
(This value needs to be determined during testing.) This area needs to stop.

Spraying. Spray stop gap L1 between parts, actual distance L2 between parts.

and details, the relative height of the centerline between detail 1 and detail 2, and the angle of incidence.

The spray gun must meet a certain geometric relationship, as shown

in the image below:



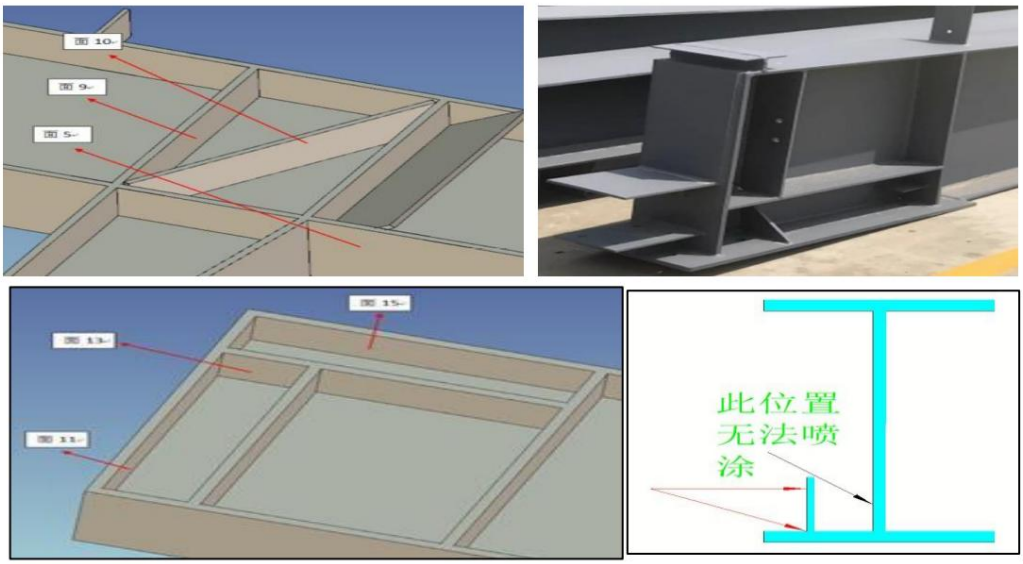
fÿ To ensure uniform paint thickness and save paint, multiple spray passes should be avoided between the inner surfaces of the same part while still being able to hit the surface.

blind spots of the workpiece. For example, as shown below, the green area indicates the spraying point.

From left to right, the green spray gun has blind spots; when spraying from left to right,

If the spray gun is in areas that have been sprayed in a previous operation, the spray gun should be closed;

when approaching a previously sprayed blind spot, the spray gun should be opened.



Special note:

For blind spots that the scanning device or spray gun cannot reach, Party B may need to arrange for manual repainting after

spraying is complete. **4.1.6** Software control of the scanner hardware

To turn the scanning hardware on/off: Use the knob switch on the control panel.

Use the scanner controls to turn it on or off.

aÿ Click on "Spraying process," as shown in Figure (1);

bÿ Click on "Spray formula settings" as shown in Figure (2) under item "Spray parameters";

c) The "Spray Parameter Login Interface" will appear; enter your password. "111111" and press "Log in";

dÿ Go to the "Injection Parameters Interface," where you can adjust the parameters.

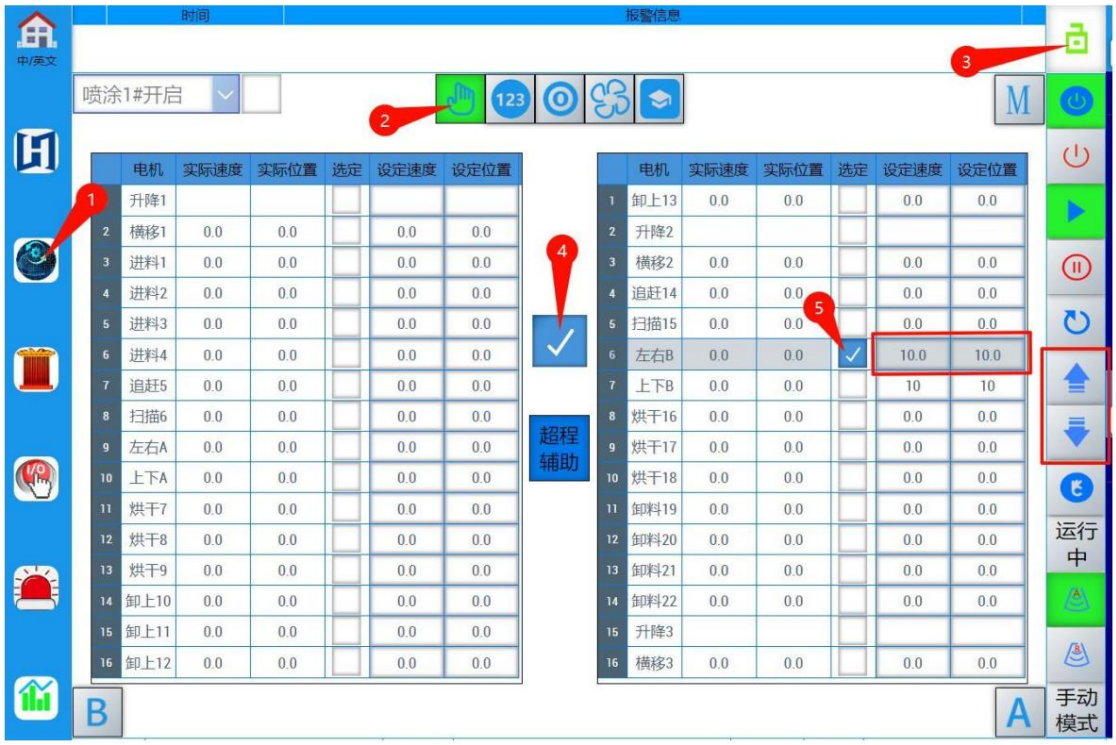
Spray. The hardware needs to wait 30 seconds before booting up. During this time, the scanning software needs to be activated.

Turn it off. When the hardware light is still green, start the scanning software.

4.2 Operating Instructions for the Spraying

Unit **4.2.1** Operating Instructions for the Chain-Driven

Trolley 4.2.1.1 "Manual" Mode for Operating the Chain-Driven Trolley



The steps are as follows:

The horizontal moving conveyor belt is controlled by "spraying left and right 6"

aÿ Example (1); Click to switch to the "Conveyor Line Control" interface,

bÿ For example, (2) the operating mode is "Manual Mode"; pressing "Manual Interface" turns it green;

cÿ For example, (3) unlock buttons are marked in green, and the buttons With "Control On" and "Start" enabled below, there are no alarm notifications;

dÿ For example (4), check the trigger button. Make sure all motors are at The "gray" state is not activated, then select Left and Right Spray A, activate only. "Spray Left and Right A";

f) After activating "Spray Left and Right A", use the right button to move;

g) Speed unit: mm/s, input range: "0~1400";

(h) The position unit is mm, and the input range is "0~3900";

i) Always monitor the actual position of engine 6 before deciding on the operating position.
operation. If you are not operating button A for left and right spraying, turn off the status.
that attitude

The advanced device is "Spray Up and Down A".

aÿ a) As in (1); Press to switch to the "Control" interface
Conveyor belt

bÿ For example, (2) the operating mode is "Manual Mode"; pressing "Manual
Interface" turns it green;

cÿ For example, (3) unlock buttons are marked in green, and the buttons
With "Control On" and "Start" enabled below, there are no alarm notifications;

dÿ For example (4), check the trigger button. Make sure all motors are at
The "gray" state is not activated, then check Upper and Lower Spray A, only activate
activates "Spray Upper and Lower A";

f) After activating "Spray Up and Down A", operate the right button to move

g) The speed unit is mm/s, and the input value range is "0~1400";

(h) The position unit is mm, and the input range is "0~3900";

i) Always monitor the actual position of the upper and lower sprayers A, then decide
locate their operating positions. If the sprayers A are not operating
Above and below, the activation state will be disabled.

4.2.2 Operating the injection process interface

Serial number 10 in the image above: Press "ÿ" to change the scan type, select formula and background frame height. The buttons to select the box from left to right include: Unlock, Activate. Formula, Spray parameters, Spray path

Serial number 1 in the image above: Interface displaying the current formula parameters;

In the image above, number 2: "Select scan type". For details, see "4.1.2. Types" "Scanable components." After selecting and activating, the button turns pink and Display "Current";

In sequence 3 in the image above: Select the "Choose Formula" dropdown box, then select the formula. select the recipe you want to use, and after confirming, click "Activate Recipe." The parameters shown in Figure (1) will be displayed as formula parameters. It is currently being activated;

Figure 4 above: Selecting the base frame height

Click on "Spray Parameters" to open the "Spray Parameter Login Interface" with the password. The command "111111". Press login to access the "Injection Parameter Interface." For details, See "4.2.4";

Click on "Spray on the trail" to open the "Trail Login Interface".

Log in to access the "Spraying Interface" with the password "222222". Click login to enter the "Spraying Interface".

Medicine." For details, see "4.2.5";

Numbers 5 and 6 in the diagram: Pump cleaning button

In the figure, serial numbers 7 and 8: "Spray plate operating interface"; for details, see "4.2.1.2";

Figure 9 above: From top to bottom, they are "Cancel air pressure alarm," "Cancel fan alarm," and "Control damping."

"Cancel the weighing alarm." A shielded alarm can be selected if needed. a) Air pressure

Normal: If the air pressure is too low, the alarm will stop the machine. Pressure value

The lowest possible setting can be made on the detection switch;

4.2.3, Injection parameter interface

Figure (1): "Scanner Parameter Module" sets the internal parameters for the machine.

Scan; editing is strictly prohibited and can only be viewed; Figure (2): "Turn Off Alarm"

"Special Dynamics" are used during the device debugging process; customers can

Turn off as needed;

Figure (3): "Spray recipe settings module" allows saving, editing, activating, deleting and adjusting the spraying methods for the formula, etc.

a) Steps to edit a formula: Select the formula ÿ update NewValue ÿ update Enter the selected formula ÿ and store them as recipes;

bÿ Steps to create a formula: Select the formula ÿ edit the formula name New ÿ Save new formula ÿ Edit NewValue ÿ Update formula Select ÿ Save as formula;

(c) Steps to delete a formula: Select the formula ÿ delete the selected formula.

The formula's parameters are introduced as follows:

1) The X-axis speed of the conveyor belt, in millimeters per second, is a maximum of 21.66.

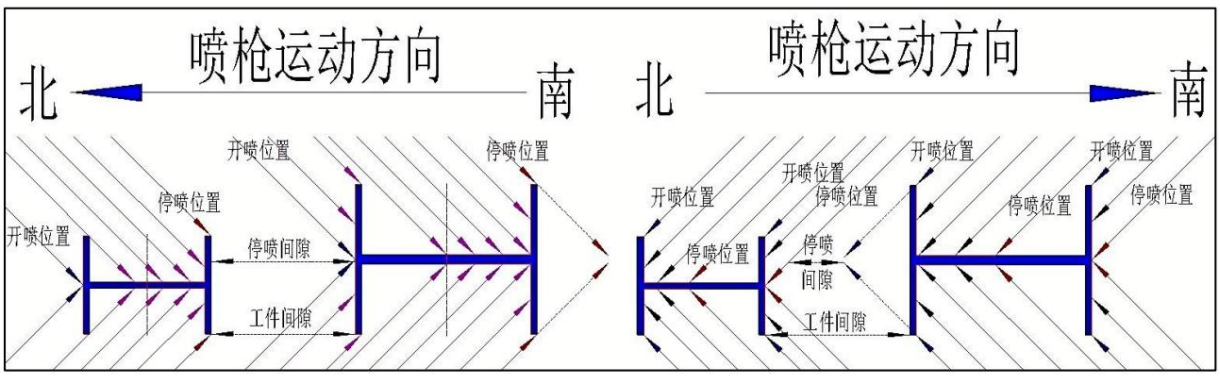
2) Spray disc Y-axis movement speed, unit: millimeters/second, maximum 1400;

3) Discharge waiting time, format: "T# number + unit s"; 4) For H-shaped spray calibration from south to north, the unit is mm. If position If the actual spraying is done earlier, this value should decrease; if the actual spraying is done later, the value should decrease. This should be increased.

5) Stop spraying with H-rays and calculate from south to north, in mm; If the stopping position If the actual spraying starts earlier, this value should be reduced; if the actual spraying stops later, This value should be increased;

6) For H-shaped spray calibration from north to south, the unit is mm. If position If the actual spraying starts earlier, this value should be increased; if it starts later, the price This treatment should be reduced;

7) For H-beam spraying, stop and calibrate from north to south, units in mm; If the actual stop position is earlier, this value should be increased; if the stop position is later... Furthermore, this value should decrease;



8ÿ For special types, the spray calibration runs from south to north, unit

mm. If the actual injection position is earlier, this value should be reduced; if later, this value should be reduced.

should increase

9ÿ For special steel sections, the injection stop calibration is performed from south to north.

north, in mm; If the actual spray stop position is earlier, this value should be reduced; if the position

If the actual spraying stops later, this value should be increased;

10ÿ For special types, the spray calibration runs from north to south, single

mm position. If the actual spraying start position is earlier, this value should be increased; if starting

Later on, this value should be reduced.

11ÿ For special steel sections, the injection stop calibration is performed from north to south.

male, unit mm; If the actual spraying stop position is earlier, this value will increase; if stopped

In reality, later on, this value will decrease;

12ÿ Maximum spray gun dwell time, in units. This refers to

If the spray gun remains in an inactive state for an extended period during spraying, it may be damaged.

Clogged pores develop after a while. To prevent this problem, spraying is done regularly.

period.

13ÿ The rapid spraying time of the spray gun, in milliseconds, combined with parameters.

No. 18), spray once, usually every 100ms;

14ÿ Lateral spray is calibrated from south to north, in millimeters. If the position

If the actual spraying is done earlier, this value should decrease; if the actual spraying is done later, the value should decrease.

This should be increased.

15ÿ Stop spraying to the side and measure from south to north, in millimeters; If the stop position is actual

If the actual event occurs earlier, this value should decrease; if the actual event occurs later, this value should increase.

increase;

16ÿ Lateral spray is calibrated from north to south, in millimeters; if position

If the actual spraying is done earlier, this value should be increased.

If the actual spraying start location is relatively late, this value should be reduced;

17ÿ Stop spraying sideways and from north to south, in mm; If the stop position

If the timing is earlier, this value should be increased; if the timing is later, the value

This should be reduced;

18ÿ The spray gun's trigger delay value, in millimeters. This is approximately...

How to set the delay in the spraying cycle during automatic spraying, usually to 0.

19) Number of side spray shots (2/3): adjustable as needed individuals;

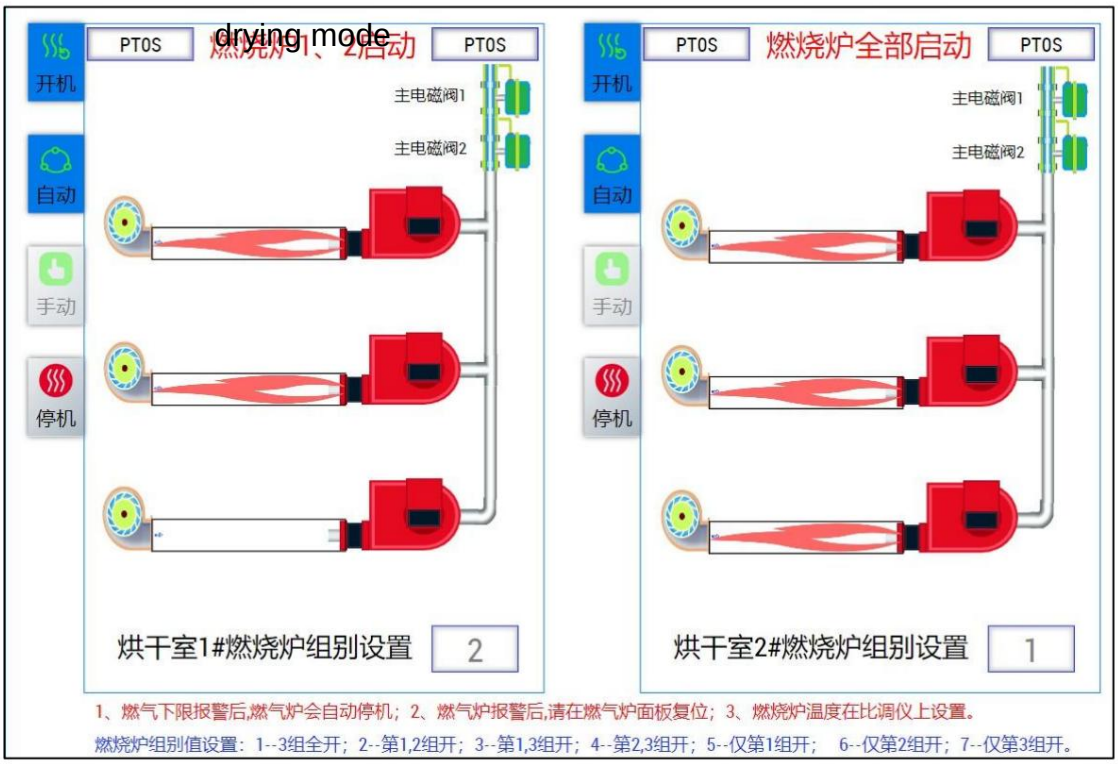
20ÿ Front spray distance of side spray gun (mm): Side spray gun has The distance from the X-axis of the vertical plate can be fine-tuned.

21ÿ Left-right movement motor: 1 speed (mm/s); 22) Motor Left-right movement: 2 speeds (mm/s);

23ÿ Preheating fan start-up time (minutes): The fan can be started before the furnace starts;

24ÿ Delayed shut-off time of the dryer fan (minutes): After drying stops, the fan needs Run it for a while to draw the exhaust gases out of the drying chamber;

4.3 Instructions for operating the surface drying equipment **4.3.1.** Automatic drying mode



To activate the dryer in automatic mode: Start ÿ Automatic; To stop the machine, simply press "Stop";

The operating sequence in automatic mode is: fan starts, after the set time, the valve activates. The main solenoid is switched on, then the pre-set furnace is started. Furnace group setting: Code 1-- 3. Fully on; 2. Groups 1 and 2 on; 3. Groups 1 and 3 on; 4. Groups 2 and 3 on; 5. -Only the first group is on; 6--Only the second group is on; 7--Only the third group

It is currently on; when switched off, each group of solenoid valves closes and the burner closes, and the fan continues to operate.

The gas is released over a period of time, which is the formula setting time.

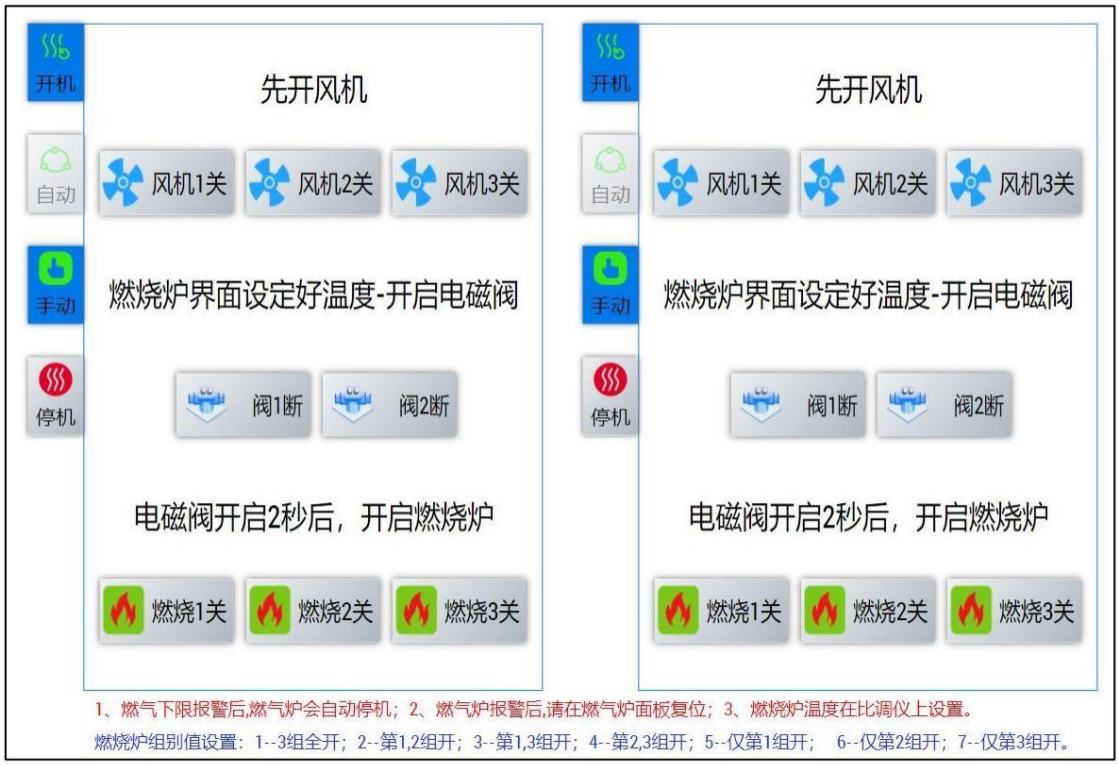
After the set time is up, the fan will be turned off.

4.3.2 Manual Drying Mode The

operating steps are as follows: Turn on ÿ manual ÿ select the switch to turn on as needed.

Individual switchÿ. If not manually switched on, keep the fan off, turn off the solenoid valve halfway, and turn off the stove.

Gas 1/2/3, turn on, and turn on when closed with a blue color like gray.



4.3.3. Both the room Interface

and the sensor. discovery

This interface shows whether the concentration of outdoor drying pipe exceeds the concentration limit.

Check for combustion gases and leaks; Is the gas stove burning?

Warning; Check if the air pressure on each branch pipe is at the low limit; Alarm if the fan overheats.

4.4 Chain Drive Operating Instructions **4.4.1**

Operating Instructions for the Load Panel Interface

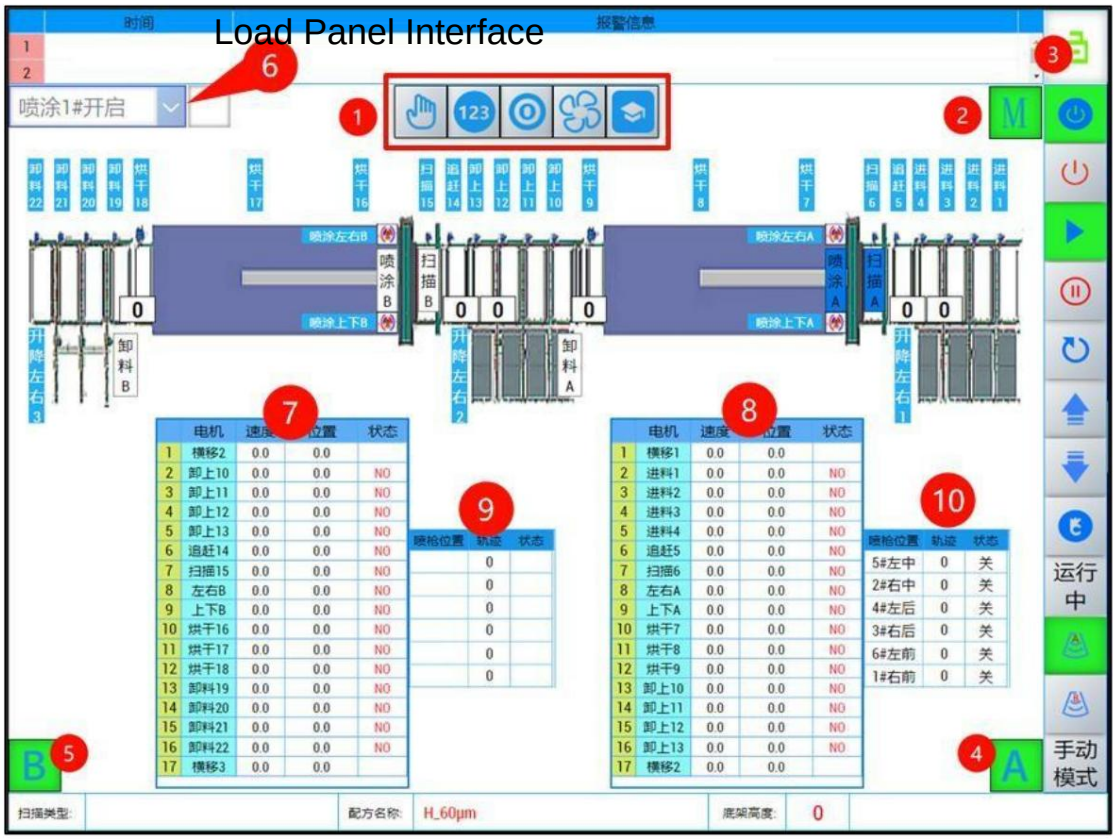


Figure 2 in the image: Button that controls whether or not to display the engine serial number.

Image number 3 above: The buttons, from top to bottom, are presented as follows:

"Enable operation"; After clicking, it will turn green and unlock, and you can operate the button below.

"Control On" and "Control Off": Controls the servo motor to turn on or off;

"Start" and "Stop": Control the start and stop of the production line;

"Reset": After the production line alarm is resolved and the alarm information is cleared, the motor will restart and the alarm will be cleared;

"Jog +" "Jog -": Forward/reverse motor; this button is used with the manual interface;

"Feeding": Maintains real-time operational status; If you don't want

To store material only in the feeding area during spray transport, you can choose to turn off the feed switch first, then raise and lower the unit into the feeding area.

"Running": This is the indicator light. When the remote control is paused, it will show this.

The message says "Remotely Pause." Both the remote startup and the server can be restarted. If The server is paused, and the remote control will not be able to start; when the scanner triggers an alarm, "Paused" will be displayed;

"Scanner A" and "Scanner B": These are the indicator lights that turn green when the scanner is started.

"Manual Mode": This indicator shows the status of the manual auto-switch.

Numbers 4 and 5 in the image above control whether or not to display the engine position data, and numbers 7, 8, 9 and
The table in Figure 10 shows the current status of each engine and the number of injection lines.

Figure 6 above: Used to select which spray chamber to open. You can choose to open A or B. separately, or open both A and B at the same time.

The function of the button in diagram number 1 is described as follows:

"Manual control interface": Displays the manual operation interface; see item

4.4.2 for details. "Count Reset Interface": Displays the count reset interface;

See section 4.4.3 for details.

"Return to Origin Interface": The return to origin interface will appear; see Section 4.4.4 for details.

"Dust removal fan interface": Displays the dust removal fan control interface; see Details in Section 4.4.5

"Expert Mode Interface": The expert mode login screen will appear. Click to log in, and the following image will appear:

"Spray transport": In automatic mode, after transport begins, depending on the selection

As previously selected, #1 and #2 can run simultaneously or separately, and the production line

The corresponding output will start running.

"Spray Stop": In automatic mode, "Spray Stop" can be used to stop the movement of the transport motor.

"Clean Flat Spray": In manual/automatic mode, all flat spray lines in Spray Chamber 1 can be cleaned;

"Clear Side Spray": In manual/automatic mode, it can clean all sides.

The spray lines inside the spray chamber correspond to the spray lines. If not cleaned, they must be reset.

This button is a self-locking button;

"Achieving the trajectory": Manually determine the spray trajectory corresponding to the spray chamber;

"Default feeding": When material is detected in the feeding area, it automatically

It turns green. It is considered material that is descending and needs to be transported back.

Up front, the feed motor should start running.

"Orbit 1#" "Orbit #2": Controls whether or not the trajectory is achieved; two values

The black area on the right indicates the spraying start position; manual spray gun operation is only possible with this device.

Use when "Orbit 1/2# is off"

4.4.2 Manual Interface Operation Guide

labour

Click on the manual interface to switch from the running interface to the manual interface.

First, check the box in the middle to activate the operating interface.

To activate the engine, use the two right-hand arrow buttons: "Jog +"

and "Jog -" to operate;

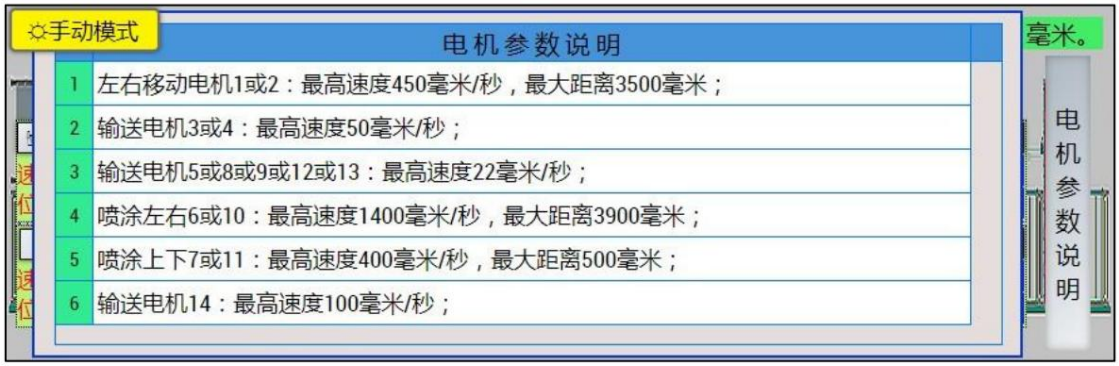
"Over-range assistance" button: This button locks itself and is used to reset the over-range alarm.

Limits for the left, right, top, and bottom motors in the paint booth. After motor fine-tuning.

Basically, you can cancel the selected engine and support exceeding the limit and return to the starting point.

broadcast.

The limiting parameters for each engine are as follows:



Engine 3/4 of the items are processed quickly at 3m/minute;

download release it

Conveyor motor: 5/8/9/12/13, maximum speed 22mm/s;

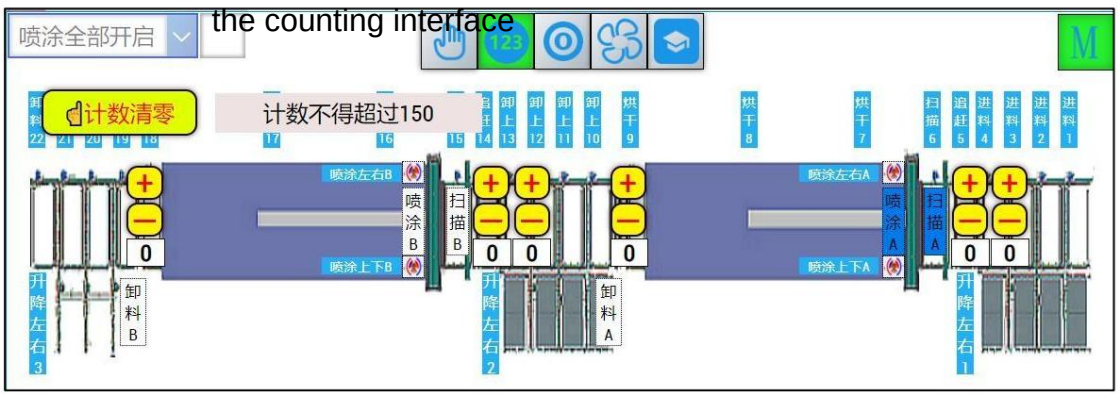
Spraying to the left and right 6/10, maximum speed 84 m/min, maximum position

3.9m; Up and down spray 7/11, maximum speed 24m/min, maximum position

0.5m; Conveyor motor 14, maximum speed 6m/min; Left half

and on the right, maximum speed 28 m/min;

4.4.3. **Instructions** for operating the counting interface



The "Counting Interface" is used in conjunction with the "Flowing

Interface";

"ÿReset Counter": Resets all counters with a single click;

The "+" counter manually adds 1; the "-" counter manually subtracts 1;

If the "Counting Screen" is not working, please turn off the "ÿRecount Mode" setting.

4.4.4 Instructions for using the reference interface

When the conveyor belt runs out of material, manually return each motor to its mechanical starting position. Please check if the main switch is functioning normally. If it is abnormal or too far from the T-shaped design, it will automatically emit a warning.

"Select Return to Original": Only selected engines are allowed to return to Original; "Return All to Original"

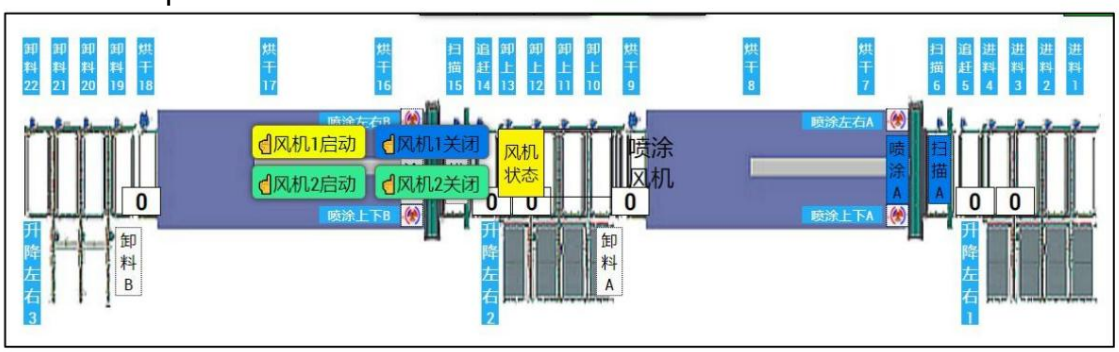
"Origin": All engines return to the origin;

After the engine returns to its starting position, the "Status" column is set to "OK"; otherwise, it is not.

If it is at the origin point, it will display "NO"; After the engine returns to the origin point ÿ activate

Activate expert mode ÿ press to enter "Reset position to 0";

4.4.5 Instructions for operating the spray fan startup interface



If the spray fan does not start and the spray gun cannot start, an alarm will sound.

Report that the spray fan is not switched on; Application of the fan

It allows the spray disc to move up and down inside the chamber, creating positive pressure and reducing paint mist from entering the chamber and damaging the track.

4.4.6 Instructions for operating the position zeroing interface

Click the small hand icon for expert mode to enter the expert mode interface, then select "Log in to the Reset interface": password", "Log in ÿÿ to the reset interfaceÿ activation pageÿÿ "Reset all" or select Reset engine ÿ After deletion (2)

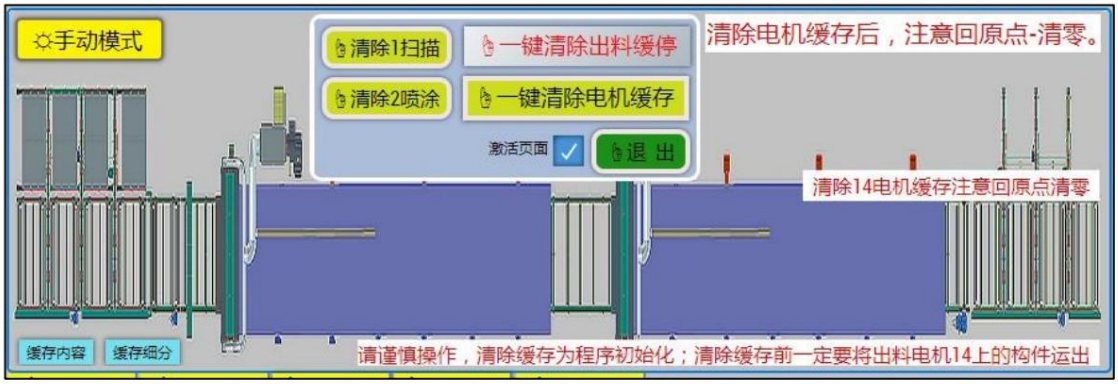
All motors are now at 0 ÿ turn off activation state ÿ ÿ press exit. After the motor

The engine is wiped clean, and the cache is cleared. You must ensure the engine is in its original position.

If there are components under the scanner or unfinished components in the paint booth,

Do not delete engines 6 and 15.

4.4.7 Instructions for clearing the cache interface



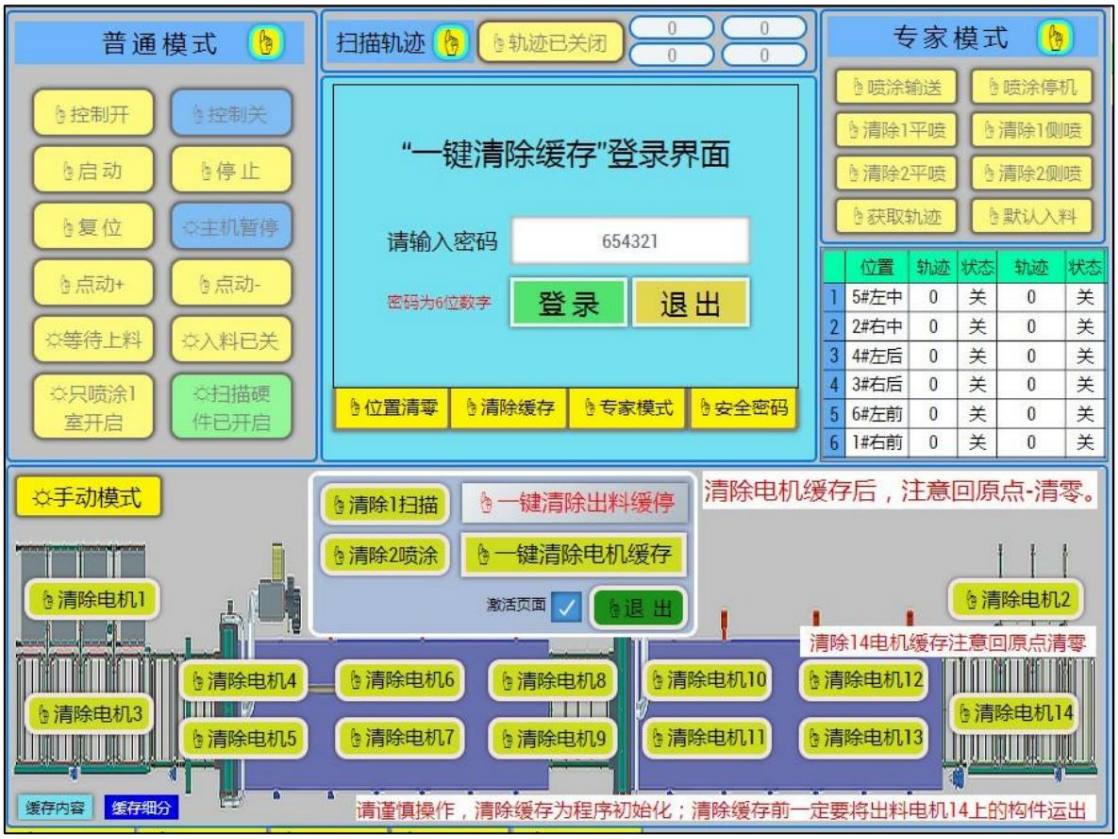
This function is used when a malfunction or power outage prevents the restoration of the motor or current injection line.

"Clear login screen cache": Password "######" ÿ log in ÿ enter

Clear cache interface ÿ Activate page ÿ;

"Clear Scan": When spraying is not needed, the scan buffer can be cleared;

"Clear cache with one click": Clears the entire cache and initializes all programs;



"Cache partition" ÿ Cache partition log ÿ password "654321" ÿ

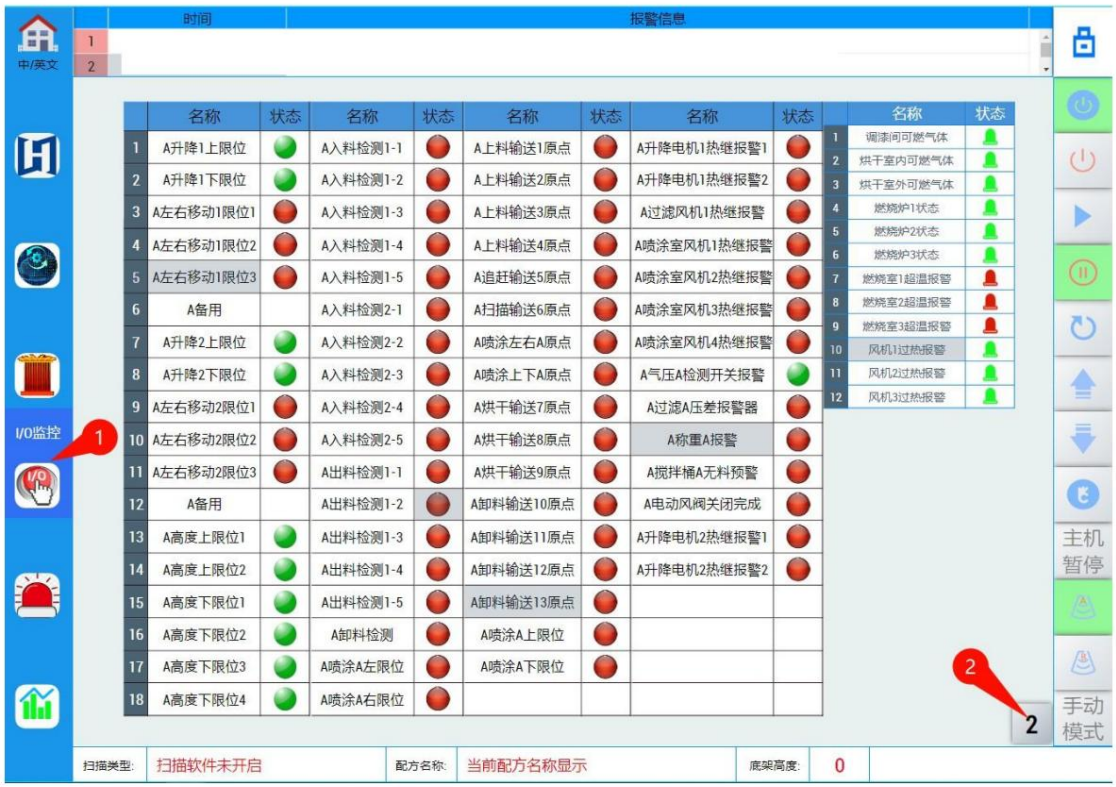
Go to the cache partition interface ÿ where you can select to delete the engine: for example, scene Reporting the height of the raw material area will clear Engine 1; Engine 3 will trigger a height warning.

Location to clear the buffer memory of motor 1 and motor 3. After unloading ÿ manually return.

Root ÿ Reset Cache ÿ

After completing the operation ÿ turn off the status ÿ ÿ press exit.

4.5 IO Monitoring Interface



	名称	状态	名称	状态	名称	状态	名称	状态
1	A升降1上限位		A入料检测1-1		A上料输送1原点		A升降电机1热继报警1	
2	A升降1下限位		A入料检测1-2		A上料输送2原点		A升降电机1热继报警2	
3	A左右移动1限位1		A入料检测1-3		A上料输送3原点		A过滤风机1热继报警	
4	A左右移动1限位2		A入料检测1-4		A上料输送4原点		A喷涂室风机1热继报警	
5	A左右移动1限位3		A入料检测1-5		A追赶输送5原点		A喷涂室风机2热继报警	
6	A备用		A入料检测2-1		A扫描输送6原点		A喷涂室风机3热继报警	
7	A升降2上限位		A入料检测2-2		A喷涂左右A原点		A喷涂室风机4热继报警	
8	A升降2下限位		A入料检测2-3		A喷涂上下A原点		A气压A检测开关报警	
9	A左右移动2限位1		A入料检测2-4		A烘干输送7原点		A过滤A压差报警器	
10	A左右移动2限位2		A入料检测2-5		A烘干输送8原点		A称重A报警	
11	A左右移动2限位3		A出料检测1-1		A烘干输送9原点		A搅拌桶A无料预警	
12	A备用		A出料检测1-2		A卸料输送10原点		A电动风阀关闭完成	
13	A高度上限位1		A出料检测1-3		A卸料输送11原点		A升降电机2热继报警1	
14	A高度上限位2		A出料检测1-4		A卸料输送12原点		A升降电机2热继报警2	
15	A高度下限位1		A出料检测1-5		A卸料输送13原点			
16	A高度下限位2		A卸料检测		A喷涂A上限位			
17	A高度下限位3		A喷涂A左限位		A喷涂A下限位			
18	A高度下限位4		A喷涂A右限位					

	名称	状态
1	调漆间可燃气体	
2	烘干室内可燃气体	
3	烘干室外可燃气体	
4	燃烧炉1状态	
5	燃烧炉2状态	
6	燃烧炉3状态	
7	燃烧室1超温报警	
8	燃烧室2超温报警	
9	燃烧室3超温报警	
10	风机1过热报警	
11	风机2过热报警	
12	风机3过热报警	

This interface allows you to view the status of all input and output (IO) points. Click the bottom right corner to switch to the second page.

4.6 Production Statistics Interface

This interface allows you to view monthly production status for this year.

On the second page, you can view the production status for the specified year.

The steps are: Select year -> Show file

-> Select the CSV file -> Click on Read Data

	年份	月份	开机时间	运行时间	批次	长度(米)	1#室作业时间	1#用漆量
1								
2								
3								
4								
5	2025	04	1468.6					
6								
7								
8								

	年份	开机时间	运行时间	批次	长度(米)	1#室作业时间	1#用漆量
1	2025	1468.6	0.0	0.0	0.0	0.0	0.0

Click on the "Summary Page" to view the total production output for the year, as shown in the image above.

	选定	油漆牌号	折算系数
1	✓		0
2			0
3			0
4			0
5			0
6			0
7			0
8			0
9			0
10			0
11			0
12			0
13			0
14			0

1.9

首 页

Press the "Conversion Factor" button to enter the conversion factor settings interface, where you can set different settings depending on the paint model.

5. Capable of performing maintenance spraying on all equipment on the production line. The spray production line is an assembly

line, with continuous equipment; any malfunction

Any action in any department will affect the entire factory workforce.

Downtime causes delivery delays; Spray lines have strict environmental requirements, but their production process is a polluting process that greatly affects equipment and products; Regular, orderly, scientific, planned, comprehensive, and professional maintenance of production line equipment is possible.

Effectively reducing equipment failure rates, improving equipment utilization efficiency, extending equipment lifespan, reducing maintenance costs, and thereby enhancing the company's competitiveness!

Note: Inspection schedules may be arranged at the company's discretion.

I; the following content is for reference only.

5.1 3D Scanner Maintenance

Fertilizer type	Check the content	Care methods
Check Between daily	1. Check if the scanner's indicator lights are working normally; 2. Check if the scanner image is normal;	If the indicator light is malfunctioning, please restart the hardware and contact service. after-sales service; If the image is abnormal, first check if the screws and brackets are loose. If it still doesn't work properly, please contact after-sales service.
Check health check Strong weekly	1. Check if the scanner lens is clean. Use a	lens cleaning cloth or pet hair to wipe that area clean;
Monthly	1. Inspect the scanner's appearance. If the	surface is damaged, please check for any dents or scratches; perform daily and weekly inspections.

Check Between	2ÿ Check the price of the expansion screw. Is the scanner stand loose? 3ÿ Check the installation angle. Is the scanner misaligned? 4ÿ Check the installation location 3. Is the scanner misaligned? 5ÿ Check the 3D direction 4. The X/Y/Z axis of the scanner stand is precisely corpse 6. Check the scanner temperature. Is this normal? 7ÿ Check if the scanner has Does not vibrate or make noise; 8. Check the screws that attach the scanner to Is it loose? 9. Check if the scanner base is misaligned; 10. Check and tighten immediately. If the scanner service immediately;	Check again and contact after-sales service immediately if There is a problem; 2. If the bracket screws are loose, tighten them. Chop quickly and measure the X/Y/Z dimensions of Is the stand functioning normally? If the scanner's installation position or angle is incorrect... If there is a discrepancy, please adjust it promptly. If the 3D X/Y/Z orientation of the bracket is not Accurately, please measure and adjust promptly. 6. If the temperature upon touch is not normal For general inquiries, please contact after-sales service. 7. If there is any noise, please contact service. After-sales service; 8. If the mounting screws are loose, tighten them. Be quick and pay attention to position and angle. the scanner. 9ÿ If the stand is misaligned, please adjust it. plug and cable are not properly positioned, contact after-sales 10. If the plug cable is damaged, replace it with a new accessory immediately;

5.2 Maintenance of the spray system

Fertilizer type	Check the content	Care methods

Check Between daily	1. Check if the nozzle is clogged. Blockage; 2ÿ for leaks at each line in clean pressure in the nozzle tubing. The gas is within the required value of 2. Are not; 3ÿ Check if the injector pump is Is it functioning normally? 4. Trying? When changing the paint, clean drum 3. Mix and check inside for cleanliness and Are not; Check if all 5. troubleshooting. 4. are working correctly; 6. there is any easily absorbed material. coating inside the spray chamber? If any pressure gauge is not normal, replace the Quickly clean up any flammable materials to prevent fires.	1ÿ After spraying, do this immediately. Clean the nozzle with a brush and maintain it. Check solvent to prevent paint from clogging and check the Check if the air compressor is working. Is that correct? If there is a gas leak, please... quickly malfunctioning and fix the problem. Find the cause based on the situation. defects. For details, please refer to... Inspection of spray machine malfunctions and troubleshooting instructions. Quickly clean up the pieces. Check for debris inside the mixing drum and see if Are the pipes clogged? Are there any fires or substances reacting with the parts immediately. 5. If not, replace the parts immediately.
Weekly health check-ups	1. Check if the air filter needs replacing;	1. Replace the air filter; 2. Immediately clean the mixer with a fine cloth; if that still doesn't work,
	2. Check if the mixer is clogged. Clean thoroughly and replace any parts that are blocked. No; 3. Check the cleanliness of 3. Clean the paint layer inside the spray booth; the inner wall of the spray chamber; 4. Check the windshield and scrape off any 4ÿ Remove the windshield, use a tool. the air vents; check for any paint residue paint residue on the windshield, and clean the inside of inside the air vents;	

Check Between monthly	1ÿ Check the tightness of the nuts. Press on the sealing ring of the measuring valve; Check the connection between motor 2, the compressor, and the coating pump. Check the threads on the top of the engine and paint pump; ensure the bolts are tightened. 3ÿ Check that the nuts make up step 4. A and B to ensure it is loose; Are not; 4ÿ Check the solder fluid. the piston pump's piston neck, Are the oil cup and neck tube full? 5ÿ Check for oil mist Is the suction system clogged with oil? 6ÿ paint-filled pipes between the spray reducer is leaking oil, Is it cut yet? Check if timing belt 7 is damaged; 8ÿ Check if the engine is running smoothly, add more lubricant, or have it repaired immediately. Move up, down, left, and right to spray instantly. Is it normal and is there any oil leak? 9ÿ Check if the piston lubrication is excessive; repair or replace it if necessary. Smooth at the piston position; 10. Inspect the grooves and ends. (12), check for excessively cold or humid air, as the gap in the piston joint may cause frost buildup in the exhaust pipe. You can add a water filter or a directional air dryer, and check if the sliding is smooth before deactivated; 11. Check the muffler pipe. compressed air enters the injector and is properly cup with 'antifreeze for automotive radiators". Additionally, you can replace the lubricating oil in the oil injector	If the nut is loose, tighten it quickly. 2ÿ If the nut is not tightened properly, Repair immediately to ensure proper alignment. 3ÿ Tighten the nut quickly; Fill the sealing solution immediately on measuring valves 5. Open the control valve on the oil misting device and add 20# or 10# engine oil is sufficient; in 6ÿ Connect and tighten the pipes; 7ÿ Replace the timing belt in a timely manner. 8ÿ Check if the motor has gears. Loose, misaligned synchronizer belt, or check that the disc and the plate are fully connected and tightened. If the Please fix it immediately; 9ÿ If the machine malfunctions, please... 10. If the distance between the reversing device and components immediately; 11. If the high-pressure hose is abnormal, please replace it immediately; of the slider in the reversing device. When oil misting occurs in the intake system

	Does high pressure cause aging? Is it cracked? 12. Check for frost or noise buildup inside and outside the muffler.	

5.3 Surface drying unit maintenance

Check and classification	Check the content.	Care methods
Check daily	1. Check the natural gas pressure. Is this normal?	If the air pressure is abnormal, contact your gas supplier immediately.

	Check the displayed value the thermocouple functioning normally? 2. No; Check the surrounding area 3. If it's normal, replace the accessory. The kitchen was checked for flammable and explosive materials. Are not;	Supervisor; 2. Is If the thermocouple is not functioning correctly... Usually, check if the wires are lawsuit; Please quickly clean up any flammable materials around the stove;
Check normally; and	1, pieces of debris; Check if the stove is covered with 1, 2. Visually inspect the surface Ensure there are no flammable materials on the stovetop; check if the burners are functioning perform weekly cleanings.	Please remove it quickly. any debris that is covered to 2. If the stove burns out unexpectedly, Replace it immediately.
4. Check the monthly.	1ÿ Check if the kitchen rack has Is it liquid? is Check if the burner's power circuit 2 normal; if the drying chamber is not functioning normally, please... 3ÿ Check for any leaks. combustion pipeline for leaks; 5. Check the electrical system; Check the connections at each stage. the air line is loose or leaking. No rust; the burner is damaged;	If there are any loose parts, please repair them immediately; 2ÿ If the burner wire is inside Replace the electrical wires immediately to avoid accidents. If there is a leak, replace line 3 immediately; check if it; If there is an air leak, please 4. Repair 5. Check if If the burner is damaged, please replace it immediately;

5.4 Maintenance of chain drives

Check and content.	Check the classification	Care methods
1. Check for daily;	1. Clean up paint and trash cans. hazards, debris, etc. 2. If the three-phase around the device;	1. Dispose of hazardous waste promptly; voltage is unbalanced, immediately shut down the machine

	2 Check if the three-phase voltage is balanced;	
Check health weekly	1. Clean and spray paint the wheels. teeth at the transport position; Check if the T-beam is present; 2. Is it bent or distorted? 3. Check all sensors and replace them replace it immediately; no;	1. Clean up paint debris as needed. designed to avoid affecting surface quality. If the T-beam is severely distorted, 2. immediately; 3. If the photoelectric sensor is malfunctioning,
Monthly check	oil inside the gearbox; Check the quality of the lubricating 2. Check for unusual noises In gear bearings; Check for loose chains or unusual noises at the location to determine if necessary; 4ÿ Check the motor screws, The wire plug and bearing cover are loose. Are not; 5ÿ Check the ground connection. and the neutral point of the motor and electrical cabinet. Is it good? 6. 6. Is the emergency stop button working correctly? Immediately? electrical cabinet; Check the operation of buttons 7. You can also contact after-sales service; gas; Check if the lifting platform is on a flat surface; 9. Inspect for oil leaks in the reducer, Frequency;	Change the lubricating oil. In winter, Replace the gear oil with one suitable for low temperatures. depending on the ambient temperature; 2ÿ Analyze the causes of the sounds. Should you add lubricant or not? 3. Straighten and tighten the chain; 4ÿ If it's loose, repair and tighten it. Chop immediately; 5ÿ If the ground and neutral connections are abnormal, please repair them promptly; If there is any abnormality, replace it. If the test is inaccurate, you 8. If they are not on top On a flat surface, make timely adjustments; 9. If the gearbox is leaking oil, please check step repair and seal them promptly; 10. If the engine's operating temperature... Too high, check if the chain is overloaded. or if it's stuck, increase the motor's current.

	10. Check the engine temperature. the engine has a higher operating temperature. Is that normal? 11. Check the lubricating oil inside the gearbox; 12. Check the chain tensioner screws. load for looseness or damage; replace	Engine mechanics and repair, along with lubrication mechanisms. Smooth immediately; 11. Add at least 3/4 of 3/4 of oil mirror, and wipe off any oil stains from the outside of the set. Reduce oiliness with cotton fibers; 12. If the chain screw is loose, check the limit and it immediately;

5.5 Filter Maintenance

Check and classification	Check the content.	Care methods
Check 1. daily	Inspect the fan for unusual noises. If the fan starts making unusual noises, please have it repaired immediately.	
Check 1. replace it	Inspect the filter cotton on side 1. If the filter cotton is heavily soiled with dust, clean it immediately; if cleaning is not possible, weekly; if not, replace it immediately; if not, clean it immediately; if not, replace it immediately; if not, clean it weekly; if not, replace it immediately; if not, clean it weekly; if not, replace it immediately;	

Check monthly	1. Check if the fan has 1. Is it clean? 2ÿ Inspect the fan blades for any valve that starts and stops the fan; then Is that normal? 3ÿ Check the carbon powder 2. The dust collector inside the box contains Usually not; Please add immediately; 4. Check the operating condition 4. movement of the belt; 5. Check the cabinet for leaks. Which one is not? 6ÿ is; Check if the mist filter is clean; Check the system screws in the fan lubrication system to right; Check if the 8 bolts are properly painted; check if the fan is loose; 9ÿ Check if the filter element or immediately if it is functioning normally. Are not; 10. Check if the pipe is damaged. No deformation;	Use a wrench to loosen the fixing screws. After spraying, the operator scrapes off the layer of paint. paint residue using a scraper, apply grease to the VOC install the fan and tighten it securely. fixing screws; If the valve is not flexible or is malfunctioning, a container; please replace and repair it promptly. 3ÿ If the ink level in the cartridge is low, If the belt is loose, repair it immediately; if the belt is If it's old or damaged, replace it immediately. That 7. If there is a leak inside the box, please check. Immediately check for problems with the gasket or see if they are loose. 6ÿ Please clean the pre-mist filter. 7ÿ If the fan makes unusual noises lubricant is insufficient; please add more inside the filter box In winter, add more lubricant. Smooth according to local minimum temperature; Please tighten the loose bolts quickly. If the filter element is malfunctioning, please replace it immediately; 10. If the pipe is deformed, replace it immediately;

6. Analysis of errors and troubleshooting for each unit in the smart spray production line 6.1. Errors in the air sprayer Among them, errors in the air sprayer are usually divided into two types: system errors

Air duct and coating system errors,

When a malfunction occurs, do not disassemble blindly. Analyze and troubleshoot the problem step by step according to the table below. Before troubleshooting, release the pressure and close the air valve.

Number sê-ri	Obstacles appeared.	Causes of obstacles	Removal method
1	During too operation, the sprayer encountered problems with weak conversion capability and low flow rate.	Not enough air is coming in.	Check if the air pressure at source 1 meets the requirements. (0.6~0.8MPa); 2ÿ The specifications for the air compressor and the diameter of the air supply pipe are as follows: Does it meet the regulatory requirements? The displacement volume should be ÿ1.6 m³ /minute, the pipe diameter should be ÿ19mm); 3ÿ Are all pipe connections tightened? 4. Is the fill switch turned to the maximum position?
2	The spray machine emits a sliding and pressure on the flat propelled air is direct	1ÿ Severe wear of the bar 1, and the slider inlet is poor Reduce the grinding speed, decrease the piston thrust, and allow for smooth grinding with both hands. Use ink. This is due to insufficient injection pressure. ink, 2. Worn PTFE seals on the concave piston cylinder, causing leaks, do not mean the insufficient. 3. Is the suction filter element blocked? Repeat the grinding method with foreign objects, resulting in insufficient airflow.	1ÿ Remove the air distribution block and sliding noise, the contact surface of the slider, placing metal sandpaper on it causes a buzzing sound, the sealing is poor, a sufficient and dispersed portion of the slide the slider back into the sandpaper, and Red to check for flatness. If both sides The contact surfaces are all uniformly coated with red surface has been smoothed; if gas and air pressure are As described above. After smoothing, the air enters. Apply clean oil #10 to the slider and The inner chamber of the slider. 2ÿ Loosen the bolts connecting the lid. The bottom and cylinder have about 2-3 teeth, open Lightly open the intake ball valve, after the cylinder and cap. The bottom is removed, close the air ball valve.

			Load it. Then completely remove the bolts. Open the cylinder, replace the worn recessed seal. Then apply clean #10 engine oil. the inner wall of the cylinder. 3. Clean or replace the part Suction filter.
3	After the first injection on the ring reversing piston is torn, or does not move, there is a foreign object placed on edge of the guide piston ring. Remove the guide piston ring and the gutter Y- shaped seal, blowing out through the holes. The interchamber air expelled from the piston between the upper and lower chambers of the piston is top or bottom cover is oriented. 2ÿ If the spring in the upper pilot valve is or the underside is broken or there aren't enough birds. In return, the pilot valve core cannot be oriented Reset promptly. 3. Rubber gasket ring 2. Open in the upper or lower pilot valve body is Damaged, deformed, or broken. Note: Do not Ensures sealing function. 4. If the sprayer is not in use and forth for extended periods, allowing it to then stick to the machine.	If the Y-ring washer	1ÿ Remove the valve assembly and top cover. replace the sealing ring. Air will flow towards the damaged The piston is oriented by compressed air, and the Apply clean #10 engine oil to the sides. inside and the seal is Y-shaped. Note: The Y-shaped washer should be assembled. in the opposite direction to the pipe edge. the pilot valve cap and replace the spring. 3ÿ Replace the rubber gasket. scratch or damage the seal during assembly. Remove the top cover and the 4-piece reducer bar, then push the directional piston back move freely. The directional piston will

4	After starting movement jar spray, It Are not Of transfer and There is always a flow. Are not gas It flows out from there The muffler pops out.	1. Or the ventilation holes in the bottom cover are blocked. Blocked. 2. Stop in the middle, right in the middle. 3. The recessed piston ring is damaged. broken.	1) Unclog the ventilation holes in The top or bottom cover is 2ÿ Remove the top cover and the damper. the rod, then push the directional piston. to move it away from the center. 3) Replace the piston ring seal of the cylinder and apply clean #10 oil to the inner walls of the cylinder.
5	During the spraying process, the pressure suddenly drops and the spraying is poor, causing the paint to dry out. The spray comes out in a straight line or even without a coating, while the compressed air pump is malfunctioning due to a broken suction valve or pipe.	1ÿ The paint inlet is clogged. The filter screen in the coating filter is There is foreign matter at each high-pressure valve port. 4ÿ The spring is located above the piston valve body. 5ÿ High-pressure valve mouth spread through the phenomenon of "erosion". The V-shaped seal in the V-shaped body wears out. It will still function depending on the number and direction before being removed.	1. Thoroughly clean the intake port. 2. Clean Or replace the filter. 3. Remove any foreign objects from all holes. High-pressure valve. 4ÿ Replace the spring or guide. 5ÿ Replace the intake valve, piston valve, or drain valve. 6ÿ Replace the V-shaped gasket on the piston valve body. Note: This is a 6-shaped gasket. should be replaced as the piston valve group
6	after it has worn out. damaged. And the steadily.	1. V-shaped sealing ring in the valve body 1. 2. The piston valve, piston valve stem, intake vent valve, or vent valve is spray gun and pneumatic motor continue to move	Replace the V-ring gasket on the piston 2ÿ Replace a faulty piston valve, intake valve, or vent valve.
7	During too the process There was paint in the oil cup on the pump chair.	1. Inner V-ring seal. Replace the worn inner V-ring seal in the pump seat.	Pump seat. Add some engine oil. #10 fits into the oil cup at the bottom of the pump. Note: V-ring seals should be replaced in groups according to number and direction before disassembly.

6.3 Scanner System Errors

Number sê-ri	Alert information	Methods to remove them
1	System communication failed during scanning. Please investigate the cause.	Find The communication link is stable; 2ÿ Check Between see part hard/part soft machine scan with activity (5 meters), an alert Are not; 3ÿ If reflectance range. or color matching. component. If the required PLC coordinate value is less than the machine to check and
2	Unable to capture the outline, communication error, please rescan.	
3	communication is interrupted. Please find the cause and resend the component for rescanning.	
4	Unable to connect to LMS sensor, turn off the machine to check.	
5	If LMS sensor data is accessed, the machine will stop to check.	
6	If the test results are abnormal, stop the machine for inspection.	
7	If the PLC receives a coordinate request that exceeds the agreed-upon dynamic distance will be triggered and the machine will stop for inspection. Between	
8	The PLC requires coordinate values for the required coordinates to be smaller than the The agreed distance (5 meters), but not within the possible range. Please wait a moment for the color of the	
9	minimum value in the real-time measurement, a serious error will occur. Turn off the meet the requirements of the scanner, then restart the production line.	
10	Within the area, one zone is in use but has already been used; entering the next cycle, so an alert is needed. 5. System reset 4. Motors	Warning: If the for example, the Scan reset. If
11	selected range is not within the range of the currently being collected relevant point cloud, starting value is smaller or absent, 5. The engine reset system requires 5 machines.	
12	the global X-coordinate exceeds the set maximum global X-coordinate value, the overall cumulative limit will be exceeded. Stop to check, 5. Engine; System resets engine.	

13	HIGH DATA SECURITY STORAGE BUFFET CAPACITY EXCEEDS 5, OVERSET LIMITS, 5 SYSTEM RESET ENGINE WARNINGS REQUIRE SHUTDOWN, TRAJECTORY DATA IS SECURELY STORED
14	WHEN THE NUMBER OF SETS IS REACHED EXCEEDING THE SET LIMIT, 5. THE SYSTEM RESETS THE MOTOR, machine and wait WAITING TO RECEIVE THE X-COORDINATES OF THE HEIGHT DATA SHOWING A JUMP,
15	OVERSCANNED; EXCEEDING THE SET LIMIT. 5. RESET THE MOTOR TO 0 AND RESTART THE SYSTEM, THEN RESTART THE SCANNING SOFTWARE.
16	X-coordinate of the trajectory data shows a jump, exceeding the set limit value. 5. Engine reset system.
17	RESTART SENSOR, SERIOUS ERROR, SYSTEM SETTING ENGINE 5 AGAIN
18	IF PLC CALIBRATION COORDINATES X EXCEED A RANGE OF VALUES FOR CALIBRATION PURPOSES, PLEASE STOP THE MACHINE TO CHECK AND RESTART THE SCANNING SOFTWARE.
19	PLC CALIBRATION X COORDINATE CALIBRATION BUT DISCONNECT FROM THE NETWORK, SHUT DOWN THE MACHINE TO CHECK AND

RESTART THE SCANNING SOFTWARE 6.4 FAULTS IN TRANSMISSION UNITS AND FILTER UNITS **6.4.1** UNUSUAL POWER OUTAGES OR HARDWARE FAILURE ALARMS

NUMBER SAY-RI	WARNING INFORMATION	DIRECTION LEGAL CATEGORY CANCEL THEY
1	NC Motor 0 Alarm; NC Motor 17 Alarm; Alarm NC Motor 18 Alarm; NC Motor 19 Alarm; NC Motor 20 ALARM; NC MOTOR 21 ALARM;	1ÿ CHECK LOVE TEST MOTOR FAILURE
2	LEFT-RIGHT MOVEMENT ALARM 1; ELECTRIC MOTOR FAILURE LEFT-RIGHT MOVEMENT ALARM 2; ENGINE LEFT-RIGHT MOVEMENT ALARM 3;	OFTEN
3	A/B Spray Alarm Left and Right, A/B Spray Alarm Top AND BELOW;	IN THE SYSTEM SOCIAL
4	An alarm is triggered by a specific conveyor motor.	WIRE;

5	Press the emergency stop button or cut off the power supply; Power supply panel power failure alarm;	2ÿ CHECK CHECK WIRE IS IT TOO MUCH? DOWNLOAD ONLY; 3ÿ CHECK CHECK STOP BUTTON URGENT IT'S DONE PRESS NOT YET; 4 CHECK ELECTRICITY REVIEW POWER
6	Brake warning light A/B on the left and right; Brake warning light A/B above and below;	
7	Electrical cabinet CS1/CS2/CS3/CS4/CS5 air conditioner alarm	
8	Thermal relay alarm for Cabinet CS1 1/2/3/4/5/6/7; Thermal relay alarm for Cabinet CS2 1/2/3;	
	Thermal relay alarm for Cabinet CS3 1/2/3/4/5/6; Thermal relay alarm Cabinet CS4 1/2/3/4; Thermal relay alarm Cabinet CS5 1/2/3;	Check if the machine has any errors;
9	Dust removal frequency converter alarm; Drying chamber fan overheating alarm; Motor fault, erratic operation;	
10	Lost Delivered electricity Machines 1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22 Original switch alarm	

6.4.2 Limit Alarms

Number sê-ri	Alert information	Methods to remove them
1	Material handling motor 1 triggers limit alarm; Material handling motor 2 triggers limit alarm; Material handling motor 3 triggers limit alarm;	1. Newspaper animal kingdom

2	Upper limit warning for material transfer 1; Upper limit warning for material transfer 1; Upper limit warning for material transfer 2; Material transfer 2. Lower limit alarm; Material Transfer 3: Upper limit alarm; Material Transfer 3: Lower limit alarm;	traffic limit often: check for errors at each location
3	Material Shift 1: Left and right limits, alarm 1/2/3; Material Shift 2: Left and right limits, alarm 1/2/3; Material Shift 3: Left and right limits, alarm 1/2/3;	intelligence newspaper movement and fix timely;
4	Left and right A/B limit spray warnings; Top and bottom A/B limit spray warnings;	
5	Detecting a height of 1/2 triggers an alert at half the height.	
6	Evaporative discharge acceleration detected; Warning: Evaporative discharge acceleration detected. Spray room 2 warnings;	
7	Upper limit alarm for main pipe pressure in the drying chamber; Lower limit alarm for main pipe pressure in the drying chamber.	
8	1 pipeline pressure set has reached the lower limit warning; 2 pipeline pressure sets have reached the lower limit warning; 3 pipeline pressure sets have reached the lower limit warning; 4 pipeline pressure sets have reached the lower limit warning;	
9	Gas concentrations exceed standard alarm levels;	
10	The liquid level in paint can A/B reaches the lowest limit; the liquid level in the cleaning paint can reaches the lower limit.	
12	The A/B spray output detection switch detects objects passing through.	

6.4.3 Operational Fault Alarm

Number sê-ri	Alert information	Methods to remove them
1	3. Motor coupling error; 4. Motor coupling error; 5. Motor coupling error; 8. Motor coupling error; 9. Motor coupling error; 10. Motor coupling error; 12. Motor coupling error; 13. Motor coupling error; 14. Motor coupling error; 15. Motor coupling error; 16. Motor coupling error	1. Pause and restart

	Error; 3. Motor movement mode malfunctions at acceleration position; 4. Mode The engine malfunctions during acceleration. 9. Engine movement mode error in acceleration position; 10. Mode error 14. Engine movement in acceleration position; 15. Engine movement mode error in acceleration position; 16. Engine movement mode error in acceleration position;	
2	A certain engine will reverse the alarm.	

6.4.4 Operational Fault Alarm

Number sê-ri	Alert information	Methods to remove them
1	Feed switch not turned on; Pause system failed, automatic control The engine is off;	1. Notch troubleshooting newspaper Motor number 9 motor is bridge synchronization speed is
2	If the program malfunctions, please manually troubleshoot the issue; according to the instructions. Please check if the Q10 output port or the I10 input port on the main control panel is damaged or if the device needs to be restarted due to a malfunction.	
3	movement; a motor 11 moving left and right is running or the material is not installed; fault prohibited from operation.	
4	3. The motor speed is too high, synchronization is impossible; 4. The motor speed is too high, is impossible; 5. The motor speed is too high, the device cannot be synchronized; 8. The motor too high, synchronization is impossible;	
5	If two adjacent parts in the discharge area are too close together, it may damage the equipment; please operate manually; In the auxiliary transport area, if two parts The adjacent parts are too close together, which could damage the equipment; please operate manually.	
6	6. If the motor power source is incorrect, please adjust it manually; 7. If the motor origin point is incorrect, please adjust it manually;	
7	6. Motor exceeds stroke, please reset and re-enter; 7. Motor exceeds stroke, please reset and re-enter; 10. Motor over-stroke, component risk; 16. Motor over-circuit, component risk; 6. Motor over-circuit, check 6 motor faults; 7. Motor over-cycle, check 7 motor faults;	

8	Input material detection error 1, or count value needs adjustment or reset (if all motors are reset and some components are starting, ignore); Feed detection error 2, or count value needs adjustment or clear; Output detection error 1, or count value needs adjustment or clean; Output detection error 2, or count value needs adjustment or clean; Auxiliary conveyor detection error 1, or count value needs adjustment or clean; Auxiliary conveyor detection error 2, or count value needs adjustment or reset to 0; Auxiliary conveyor acceleration detection error 3, or count value needs adjustment or reset (if all motors are reset to 0 and some components are starting, ignore)	
9	14. If the motor cannot switch to a single-line conveyor while running, and there are no components in the auxiliary conveyor, initiate 'Auxiliary Stop' in expert mode. 19. If the motor is running and the conveyor mode switching is incorrect, please ensure there are no components on the auxiliary side before initiating 'Auxiliary Stop'.	
10	If the scanner encoder value exceeds 800,000, the scanner hardware needs to be restarted to ensure no components are on the device; if the scanner encoder value exceeds 1.4 million, the scanner hardware must be restarted and the components must be rescanned.	
11	One-click caching is not disabled; please open the cache clearing interface. Remember to check the situation with a buffer;	
12	Incorrect scan type selected; Scanning hardware/software disabled; please restart the scanning software.	
13	If the air pressure is too low, please check the pressure in the air tank.	

7. Safety Points and Precautions Please pay attention to the following warnings to avoid injury to personnel and equipment.

 This symbol indicates a risk of electric shock. Be sure to cut off the power source.
Electricity during operation or maintenance.

For your safety and the safety of the equipment, please ensure you are properly grounded.

Please note that the device should function properly under the following conditions:

1. Altitude must not exceed 1000 meters

2. Ambient air temperature: 5~40°C

3. Relative humidity should not exceed 90% (25°C).

4. Levels of dust, acids, corrosive gases, or other substances in the surrounding air must not exceed normal levels.

5. Keep away from high-vibration equipment (such as punching machines, forging equipment, etc.) and other sources of vibration.

A strong source of electromagnetic interference is needed to ensure stable operation.

When using the device, please pay attention to the following:

1. This equipment is for use only by trained personnel.

2. Inspect the equipment daily and immediately repair or replace any parts.
Replace old or damaged parts.

3. Comply with all local and national regulations related to fire prevention.

Use electricity safely. To avoid electric shock and equipment damage, the control panel should be maintained.

Electrical control should be performed by professionals.

4. Do not point the spray gun at anyone or any part of the body.

Do not place your hands or fingers on the nozzle, and do not use your hands, body, or gloves.

or cloth to seal cracks or leaks.

5. High-pressure spray paint on the skin may look like a wound, but it is actually a serious injury—see a professional immediately.

6. Do not touch the drive gears, chain, lifting frame, sensors, or components.

Close to or near conductors with dangerous voltage such as electrical cabinets, heating elements, motors, etc.

from any part of the body or objects near them.

7. Do not bring your hands or any objects near a heating lamp or a water sprayer that is running.
run.

8. Do not plug in, unplug, or lose the UPS, cords, circuit breakers, or other components.

other power supplies of the main power cabinet

9. Do not remove or cut the grounding safety wire on the main equipment and electrical control cabinet.
Regularly check the neutral connections.

(Grounding) Check that the safety harness is in good condition.

10. If there is a fuse in the electrical control cabinet, the machine should be turned off and the power supply disconnected.

First, after the electrician identifies the cause, replace it with a fuse of the same type.

Follow the model and specifications. Otherwise, it could cause fires and damage components.

11. Do not arbitrarily adjust the internal components of the electrical control cabinet.

Do not place tools, wires, or other miscellaneous items in the control cabinet.

The electrical power is either on top of the machine frame or on the tracks.

12. Regularly clean up oil stains and dust (dust should be blown away with compressed air).

on electrical components and circuits (such as control cabinets, fans, etc.) to keep them all

The switch contacts are always in good condition. When not in operation, measure the insulation

resistance of each 380V control circuit with a 500V to 100V multimeter.

At 1000V, this device will meet regulatory requirements. Test all low-voltage and signal circuits with a

multimeter in the ×10K resistance range; casing

The frame should not have any leakage current.

13. Do not open the electrical control box door while it is operating with the power on and off.

Avoid touching any electrical components inside to prevent accidents. When ambient temperature

If the temperature exceeds 40°C, air cooling is required on the heating elements.

14. When the power supply voltage exceeds 400V, some components may be damaged due to failure.

choking

15. During the operation of the production line, do not open the protective cover and doors.

electrical cabinet.

16. Lubricating oil must be added immediately to bearings, sliders, slides, bushings,

gears, chains, and other rolling friction parts. The operation of the lubricating oil is not

Proper lubrication is essential; ineffective lubrication is unacceptable. Lubricating oil should be added after

the machine is switched off, and lubrication must be applied to the areas requiring additional oil during operation.

Operating procedure. Do not use lubricating equipment that comes into contact with the operating mechanism; it may be used...

Use oil droppers.

17. If an operator leaves the production line for any reason, they must turn off the machine.

The machine and power supply should be switched off or the controls switched to manual mode. When absent

for an extended period, the power switch and the main power switch should be turned off.

The electrical control cabinet should be locked to prevent accidental operation, and the spray pump must
It must be switched off. Do not keep it under pressure.

18. Carefully read the warnings provided by the paint and solvent manufacturers to ensure safety.
that the coatings and solvents used are suitable for the parts in contact with the equipment.

19. Inspect high-pressure hoses and connections daily, and replace any faulty parts immediately.
The part is damaged, and high-pressure connectors cannot be repaired; you must replace the entire unit.
High-pressure pipe.

20. When the pressure is not reduced and the suction switch is open, do not loosen the connections.
Connecting paint pumps, high-pressure hoses, or spray guns. 21. No open flames are permitted.
Open areas in the spraying work zone. Smoking is prohibited in the spraying work zone.

22. In the water spray area, do not switch any lights on or off during operation.
operating procedures.

23. No objects or equipment are permitted in the spraying area.
Chemical or physical reactions with paint, solvents, ovens, or other materials.
similar materials.

24. During use, you must maintain good grounding. If you notice sparks...
If you experience static electricity or feel an electric shock, stop spraying immediately until you find the cause.
Identify the cause and solve the problem.

25. Always wear safety glasses, gloves, protective clothing, and masks as recommended by paint and
solvent manufacturers.

26. Piston rod and piston valve body, or between the piston rod and connecting pipe and valve body.
The piston must be tightened securely, and the locking nut must also be tightened to prevent jamming.
Loose threads can cause the cylinder head to rotate, which can be dangerous.

27. It is strictly prohibited to use hammers, impact, or drop the spray cylinders. If this occurs...
The current one is damaged and needs replacing. It is recommended to replace the sprayer after a total of...
5,000 hours (or three years) of operation to ensure safety.

28. UPS batteries, driver batteries, and control batteries are replaced periodically according to their age.
service life

29. Personnel are strictly prohibited from passing through the operating area during equipment operation.
This is to avoid collisions between parts and equipment that could be dangerous.
all individuals;

30. If the parts are placed in an unsuitable position during transportation, such as being bumped.
Touching the device, exceeding the device's operating plane, being lifted
or if they are trapped under the chain, they must be stopped for inspection and treatment.
protective measures.

31. Before operating the drying chamber, please ensure that the air pipes are not leaking.
The rust, the grilling lamp is functioning normally, and the solenoid valve and on/off valve are all working correctly.
before starting the preheating and combustion.

32. During combustion, the flame reaches extremely high temperatures. Please do not touch the stove.
or the front part of it, do not disassemble the stove for maintenance, and never enter the area
Kitchen area for maintenance or heating.

33. If not used daily (including after daily shutdown), the main gas valve
It must be closed to avoid the risk of leakage.

34. Do not dry flammable or explosive materials; keep the spray room free of such materials.
Flammable materials (paper, plastic, etc.) will react with the coating, and do not use a baking lamp.
to come into contact with flammable or explosive materials.

35. When a fault alarm occurs in automatic mode, absolutely do not reset the position.
The 5/8/9/12 scale has a soft limit exceeding alarm but no physical limit; fun!
Working with experts

36. If a part malfunctions during transportation, please remove it.
Prompt action is required. Spraying parts that are easily lifted onto this spraying line is strictly prohibited.

8. Equipment transportation and storage

8.1 Regarding transportation

If you require equipment packaging, please contact our company immediately. During transportation...

ÿ1ÿ Avoid strong impacts or drops, as this may damage the components.
or product damage, especially for precision measuring instruments, meters, and other devices.
Electronically controlled and with precision components, they are susceptible to damage.

(2) Attention should be paid to waterproofing, rainproofing, and moisture resistance.
The top of the box should be lined with two layers of petroleum felt or film.
Plastic, with a larger surface area than the top section. The protruding part around it is not less than 100
millimeters, then nailed to the wall panel or frame with pressure plates.

ÿ3ÿ The equipment should be padded and securely clamped inside the shipping container. to prevent the product from moving or shifting during transportation.

8.2 Regarding Storage

This product must not be exposed to the outdoors. The outside of the device should be wrapped in plastic film and stored indoors in a dry place, free from dust, corrosive gases, and explosives.
It is subject to strong impacts and vibrations. Storage time should not exceed six months.

9. Precautions when disassembling, inspecting, and handling equipment

After the device reaches the user, transport the device components to the location.

Installation point. The following precautions should be taken: Check that the packaging box is intact.

Is everything okay? And if you discover any problems, please contact our company.

right away.

By understanding the net and gross weight of the equipment, choose the appropriate lifting equipment. Combine them, and check that the support bars and lifting wires are intact.

When lifting, pay attention to the lifting position and the center of gravity of the packaging box.

When lifting weights, never place any part of your body under the box.

The weight must be lifted, and under no circumstances should it go above the lifting box above the person's head.

When lifting, the packaging box must not be tilted.

During transport, the tip of the nose should extend beyond the appropriate distance from the center of gravity.

When opening the box, absolutely do not let the top lid or any of the four side panels fall off.

They are pressed into a box to prevent damage to the machine parts or electrical components.

After opening the box, first look for the accompanying documents and information to find the packing list, and check that all parts, cables, and documentation are inside each box.

Is it complete or not?

Before assembling all the equipment parts, check for any loose or damaged electrical connections and pins.

10. Warranty Notice 1. Our company is

responsible for guaranteeing the quality and maintenance of this product for one year.

2. The warranty covers products inside the electrical control box and the switching power supply.

3. Items not covered by warranty include: damage caused by vibration, impact, scratches, crushing, or exposure to moisture during transportation or installation; damage due to inadequate power supply, excessively high or low voltage, harsh working environmental conditions, or failure to comply with technical requirements; damage resulting from violation of the requirements of this instruction manual; damage resulting from accidental connection of other electrical loads inside the electrical box; damage resulting from unauthorized expansion of fuse cores or replacement materials; damage resulting from unauthorized repairs or disassembly. Unauthorized or damaged electrical components due to improper storage; Damage Damage caused by loss, fire, flood, or earthquake.

4. Our company is always ready to provide maintenance services and spare parts. There is a fee for users.

5. Under no circumstances should instructions or drawings in this manual be used. It cannot be used as a legal basis for making any requests.

our company.

6. When placing an order, please specify the product name, model, and specifications. Check if there are any wear and tear parts, and include the necessary documentation.