

CL-6000 Powder Center



ADDRESSES

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1. General safety regulations

Installation

Installation work to be done by the customer must be carried out according to local safety regulations

Grounding

Check the booth and the powder center grounding before every start-up. The grounding connections are customer specific, and are fitted on the booth basement, on the cyclone separator and on the powder center housing. The grounding of the work pieces and other plant units must also be checked.

Operating the equipment

In order to be able to operate the equipment safely, it is necessary to be familiar with the safety regulations, the operational characteristics and functioning of the various plant units. For this purpose, read the safety notes, this operating manual and the operating instructions of the CL-6000PZ, before starting up the plant.

To obtain practice in operating the plant it is absolutely essential to start the operation according to the operating instructions. Also later on, they serve as a useful aid on possible malfunctions or uncertainty and will make many inquiries unnecessary. For this reason, the operating manual must always be available at the equipment.

Inspection check

The following points are to be checked at every booth start-up:

- No foreign material in the central suction unit in the booth and in the

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powder suction

- The sieve machine is connected to the cyclone separator (the clamps tightly locked)
- Pneumatic hoses and powder hose are connected to the dense phase conveyor - The filter elements door is closed, the waste container is fitted and pressed on

Repairs

Repairs must be carried out by trained personnel only. Unauthorized conversions and modifications can lead to injuries and damage to the equipment. The COLO guarantee would no longer be valid.

By carrying out repairs, the powder center must be disconnected from the mains, according to the local safety regulations!

2.Function

2. 1 Field of application

The CL-6000 Powder center is conceived for simple and clean handling of the coating powder and enables a quick color change. The coating powder can optionally be processed either from powder containers, as delivered from the powder manufacturer, or from a special fluidized container. The powder center is an essential part of the color change system and is largely responsible for the end product quality. As a part of the process controlled coating plant, it is laid out for fully automatic operation.

The most important characteristics of the powder center are:

- Processing powder from the original container or from the fluidized container
- Functional unit with its own exhaust system
- Integrated electrical and pneumatic control units
- Powder level monitoring through level sensor
- Level controlled raising and lowering station with built-in injectors and fluidizing equipment
- Automatic internal cleaning of the suction tubes, injectors, powder hoses and guns
- Return of the recovered powder through a sieve machine or directly into the powder container
- A built-in exhaust unit prevents the escape of powder particles during the coating process and during cleaning

2. 2 General operating sequence

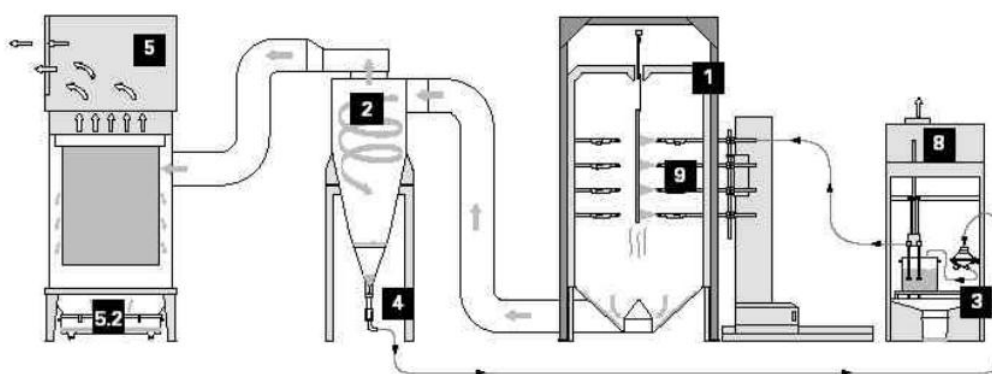
Powder flow

With the typical operation of the powder center (7), the powder container

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is placed on the vibration table. The injectors move downwards into the powder through the level sensor, and fluidizing the area around the suction tubes. The fluidized powder is sucked up by the injectors and fed through the powder hoses to the spray nozzles (8). The powder, which does not adhere to the part, is absorbed by the exhaust air of the booth and separated from the air in the cyclone separator (2).

The separated powder is cleaned passing through the integrated sieve (3) and transported back into the powder container by the powder pump (4), where it can be reused for coating operation.



- | | | |
|-----------------|---------------------|----------------------|
| 1 Spray Booth | 2 Cyclone separator | 3 Sieve machine |
| 4 powder pump | 5 After Filter | 5.2 Refuse container |
| 8 Powder center | 9 Automatic guns | |

Cleaning procedure for color change

If a color change is necessary, the injectors are moved out from the powder container, and the powder container is removed. The cleaning procedure is released now, and the injectors and suction tubes are transported into the cleaning position, i.e. they move onto the blow-off nozzles below the vibration table. The powder in the hose lines is now blown out automatically by the pre-rinsing. The following rinsing procedure at full system pressure cleans the suction tubes, injectors, powder hoses and guns internally. These parts are blown off externally by

hand, in preparation for the next color. The powder, which is still in the recovery system, is caught in a waste container. The powder recovery line from the cyclone is also cleaned by back flushing.

After this cleaning process a new powder container can be used and the coating with the next color can continue. During the first minutes of operation with the new powder, it is recommended to collect the recovered powder in a waste container and not to reuse.

Notice: The booth and the cyclone have also to be cleaned, when a color change takes place.

2. 3 Powder Center

Powder preparation unit

In the powder preparation unit the recovered powder and also the fresh powder are prepared for the transport to the spray guns. The powder box or the powder container, from which the guns are supplied, is positioned on the vibrating table. An additional, local fluidization enables the powder transport.

Powder transport equipment

In this collective term, the injectors with the suction tubes, the powder hoses and powder level regulation with fluidization are included. The complete powder transport equipment is fitted on a pneumatic linear cylinder.

Blow-off equipment

The blow-off equipment enables the automatical cleaning or blowing off of the injector suction tubes, injectors, powder hoses and spray guns. The blow-off nozzles required for this, are fitted below the vibration table. One blow-off nozzle is required for each injector. The cleaning procedure

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must be initiated manually by activating the cleaning key on the powder center. Starting from this time, the cleaning procedure takes place automatically.

Cleaning operation

The booth is stopped on the booth control unit, switched to cleaning operation and the booth doors are closed. The powder container or powder box are removed from the powder center. Now, the activation of the cleaning function can take place on the powder center. The powder transport equipment moves down into the cleaning position. The injector suction tubes, the injectors, the powder hoses and the guns are rinsed in pulses with compressed air. During the cleaning sequence, the powder transport equipment is cleaned manually on the exterior with a compressed air gun.

Detailed information about the commands mentioned in this manual you will find in this operating manual.

3. Technical Data

Electrical data

Input voltage : 3x380V

Frequency : 50/60Hz

Power consumption : 3.5Kw

Pneumatical data

Input pressure : 6-10bar

Compressed air consumption during operation: 25 Nm³/h

Compressed air consumption during cleaning: 150 Nm³/h

Water vapor content in compressed air : max. 1,3 g/m³

Oil content in compressed air : max. 0,1 mg/kg

Dimensions

Base area (width x depth) : 1500 mm x 1830 mm

Overall height: 2100mm

Weight : 700kgs

Exhaust air unit

Air volume : 3000 Nm³/h

Powder transport

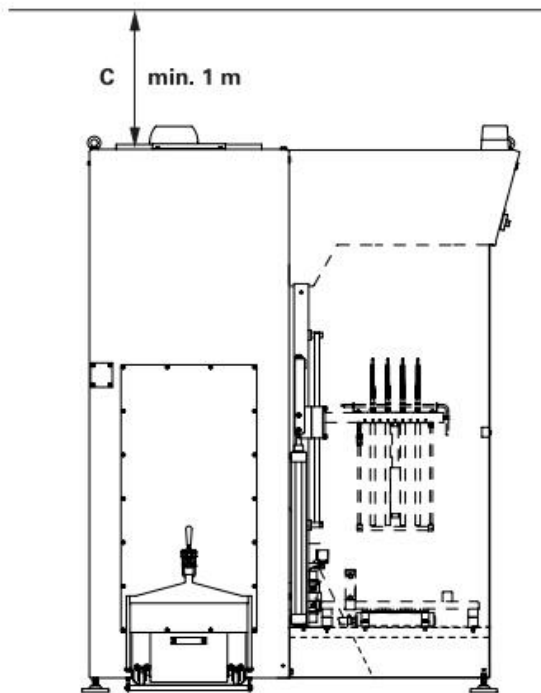
Powder Conveying performance :150 kg/h

4. Start-Up

4.1 Assembly notes

When assembling a PZ Powder center, the following points are to be observed:

- The vibration table must be leveled exactly on assembly
- The powder center must be grounded according to the local regulations
- To avoid disturbing air turbulences at the exhaust air opening, there must be a free space (C) of min. 1 m

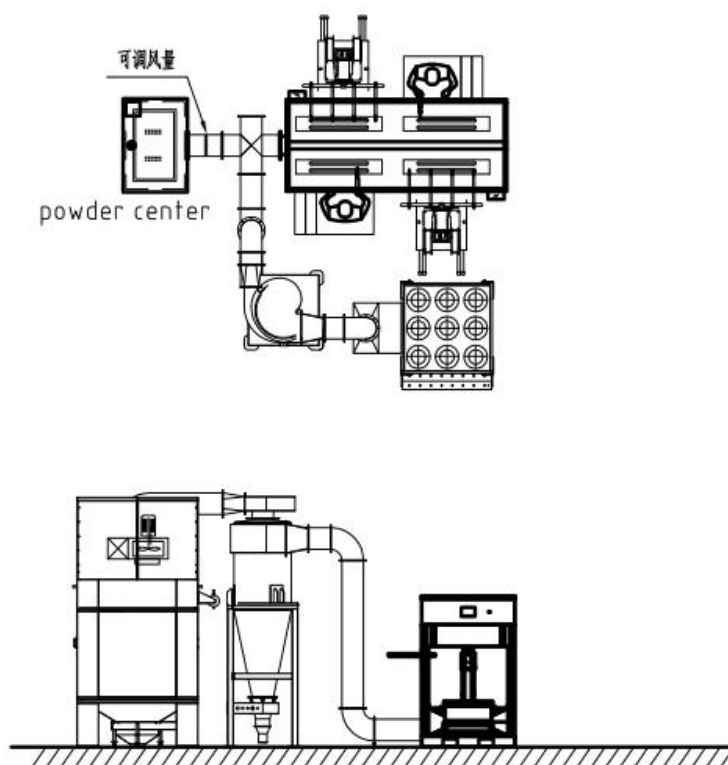


4.2 Hose Connections

When laying out the hose connections, the largest radii as possible (if possible, at least 300 mm) are to be used. This reduces pressure losses in the lines and avoids wear and depositing in the powder hose. A proper

hose layout improves the overview, increases operating safety, and simplifies the search for faults.

See the connection drawing as below:



Use the air pipe connect to the cyclone, then the spilled powder in the powder center will be recovered by the cyclone, then for reusing to the gun.

5. Preparation for start-up

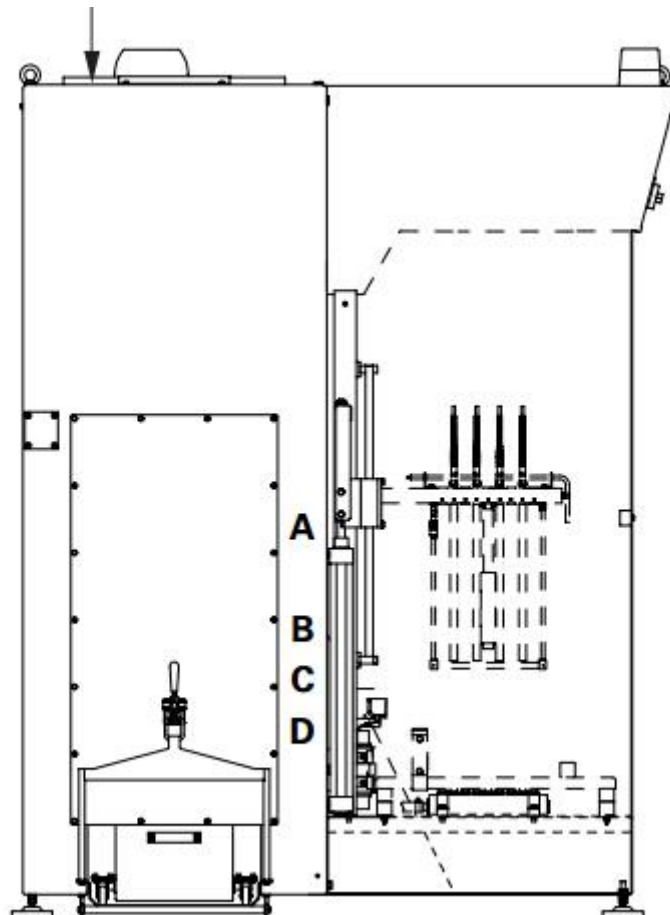
Before switching the powder center on the following points must be observed:

5.1 The powder center must be grounded according to the general, local safety regulations. The grounding of the powder center must be checked

regularly.

5.2 All cable and hose connections must be checked for perfect layout and tight fitting of the connection elements.

5.3 Adjusting the lifting cylinder end switches



On the lifting cylinder, 3 proximity switches are installed for following functions, from top to bottom:

A Working position with automatic fresh powder supply (level sensor in filling position, fresh powder - working position)

B Lowest working position (level sensor in end position, lowest suction level)

C Cleaning position for blowing off the suction tubes

D Cleaning position for blowing off the suction tubes, injectors and powder hoses

Adjusting the proximity switches

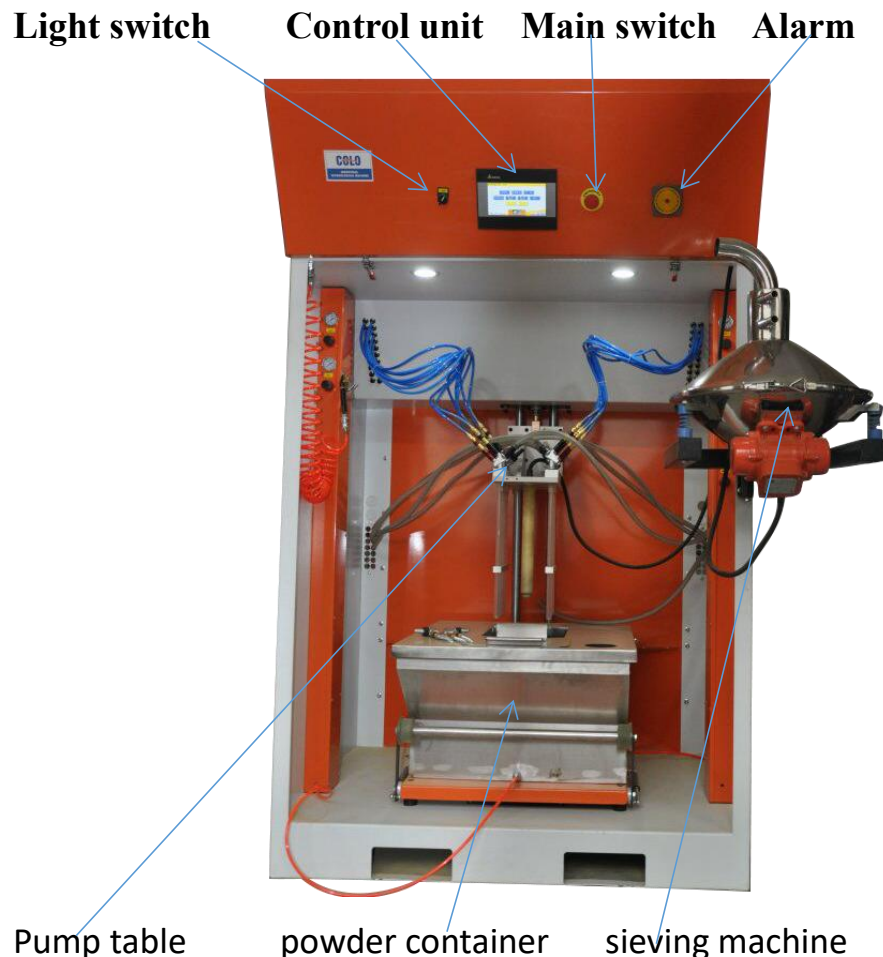
The proximity switches are adjusted in following steps:

1. Install the proximity switch for working position A with automatic fresh powder supply at 330 mm, starting from the upper cylinder end piece
2. Install the proximity switch for the lowest working position B at 440 mm, starting from the upper cylinder end piece
3. Install the proximity switch for blow-off position C at 550 mm, starting from the upper cylinder end piece
4. Install the proximity switch for blow-off position D at 600 mm, starting from the upper cylinder end piece
5. Move the cylinder to the upper end position
6. Move the cylinder to the working position for automatic fresh powder supply
7. Check, if the distance between suction tube and fluid plate of the powder container, resp. floor of the powder box is approximately 100 - 300 mm These settings can be made according to the customer ' s specifications. A greater distance from the floor means a large powder volume to run the plant, gives, however, greater safety with short breaks in the fresh powder supply.

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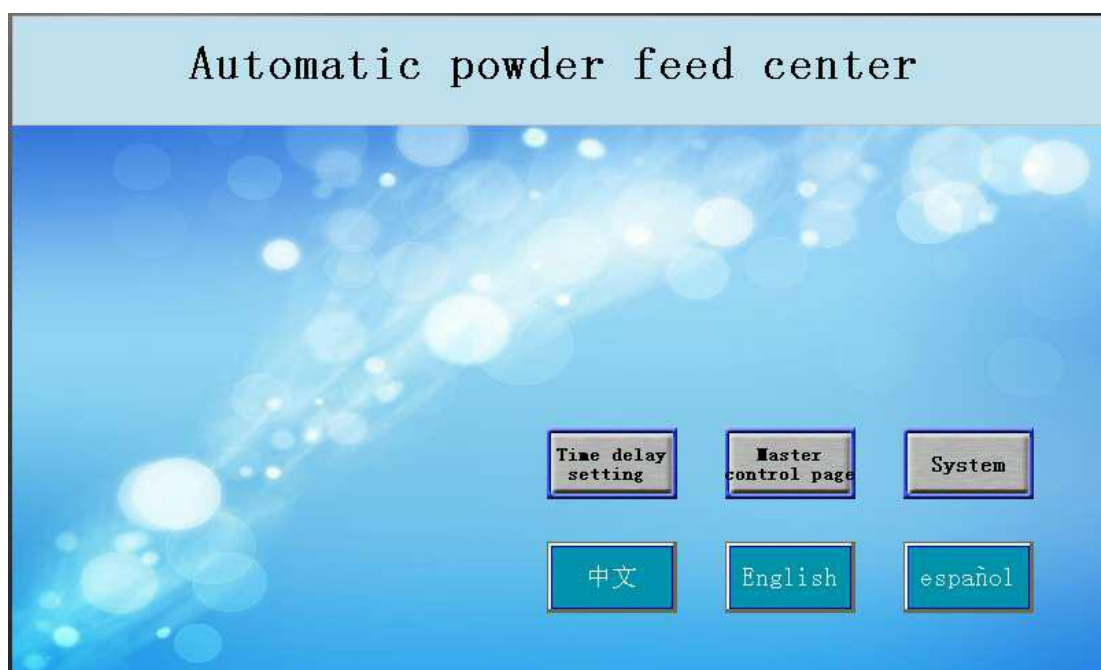
8. Move the cylinder to the blow-off position of the suction tube. Check, if the distance between the suction tubes and nozzles is approximately 20-30 mm. With this distance the blow-off effect of the suction tube is influenced and can be accommodated to the customer 's specifications.
9. Move the cylinder to the blow-off position
10. Check if the end switch 4 is in operation (cylinder is under pressure)

5.4 Instruction



6.Control Unit

Change language (Chinese,English,Spanish be available),see below



7.Coating Operation

7.1 Before switching on the powder center

Before switching the powder center on the following points must be observed:

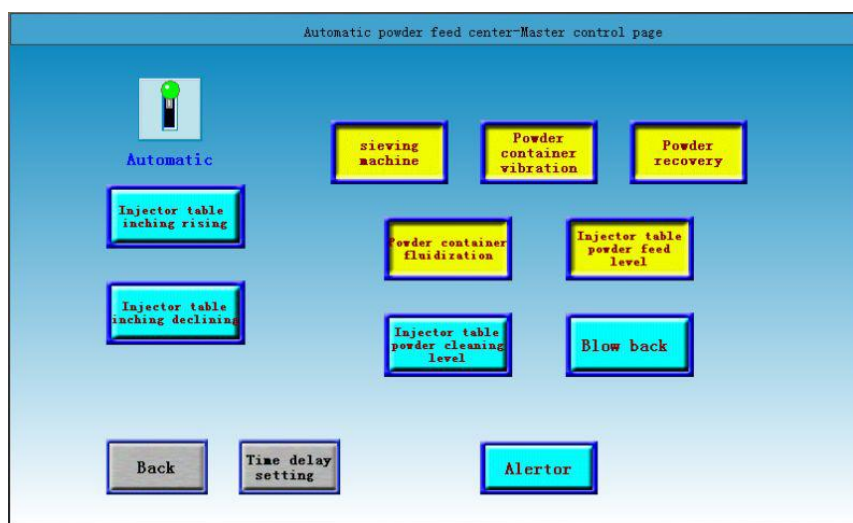
- Observe the safety regulations
- Check the grounding of the powder center, the booth and the other plant units and ensure it, if necessary
- Check the compressed air supply

7.2 Starting up the powder center

Notice:The keys of the input field should only be pressed with fingertips and under no circumstances with fingernails or hard objects!

At the start-up the following steps must be taken:

1. Switch on the booth (For further information, see the separate Booth Operating Instructions)
2. Switch on the powder center main switch



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3 . Place the powder box on the vibration table,make the switch to automatic model,then press these bottom in turn,“powder container fluidization”,’Injector table powder feed level”,open ‘sieving machine’,”powder container’,’powder recovery ‘according to need.

- the injectors move downwards
- the level control is activated
- the vibration table switches on - the powder sieve is started

4. Check the fluidization in the powder container

The powder must „boil “ lightly (setting it with the pressure regulating valve in the back wall of the powder center)

7.3 Starting up the powder center after an emergency stop

1. Switch on the booth (For further information, see the separate Booth Operating Instructions)

2. Switch on the powder center main switch

3,Switch to automatic mode

---The injectors move downwards, returns to its starting position , press these bottom in turn,“powder container fluidization”,’Injector table powder feed level”,open ‘sieving machine’,”powder container’,’powder recovery ‘according to need.

7.4 Switching off the powder center

The following steps must be taken to switch off the powder center:

1. Check if all the workpieces have been coated
2. Switch off the main switch

7.5 Changing the powder during coating

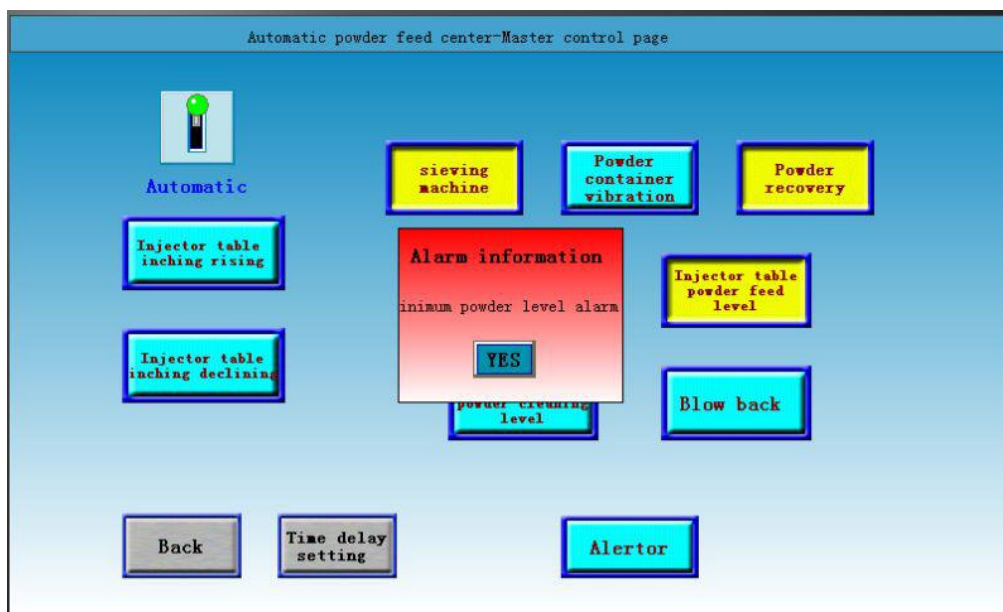
Changing a powder box during the coating process takes place with the following steps:

1. Check if coating can be interrupted
2. Change the mode to manual mode, then switch to automatic mode for reset
3. Change the powder to powder container
4. press these bottom in turn, "powder container fluidization", "Injector table powder feed level", open 'sieving machine', "powder container", 'powder recovery 'according to need.

7.6 Procedure at a fault in the automatic fresh powder supply

If no or only an unsatisfactory fresh powder supply takes place, the controller will appear error message as below:

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1. Press YES, Change the mode to manual mode, then switch to automatic mode for reset
2. When the fresh powder supply is ready to operate, press these buttons in turn, "powder container fluidization", "Injector table powder feed level", open 'sieving machine', 'powder container', 'powder recovery' according to need.

8. Cleaning-color change

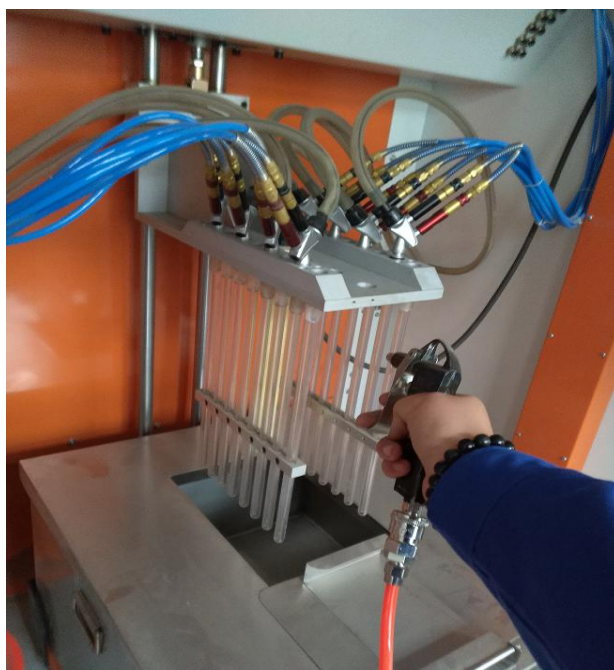
8.1 General information

A prerequisite for a quick and efficient color change is that it is done by 2 people, so that some of these steps can be carried out simultaneously. The color change can begin, when the last workpieces have left the booth. In automatic operation mode, the coating is stopped automatically

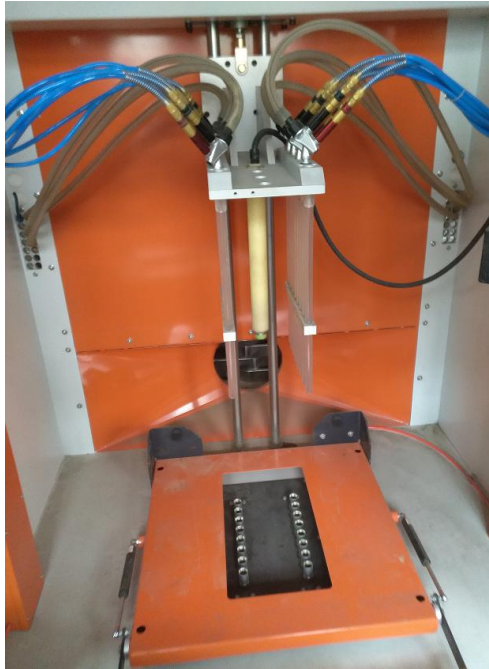
1. Close the booth, and manual coating doors - this prevents the powder from escaping when blowing off/trough the guns
2. Switch the booth to cleaning operation
3. Move the reciprocator
4. Return to the main menu

8.2 Cleaning the gun and hopper

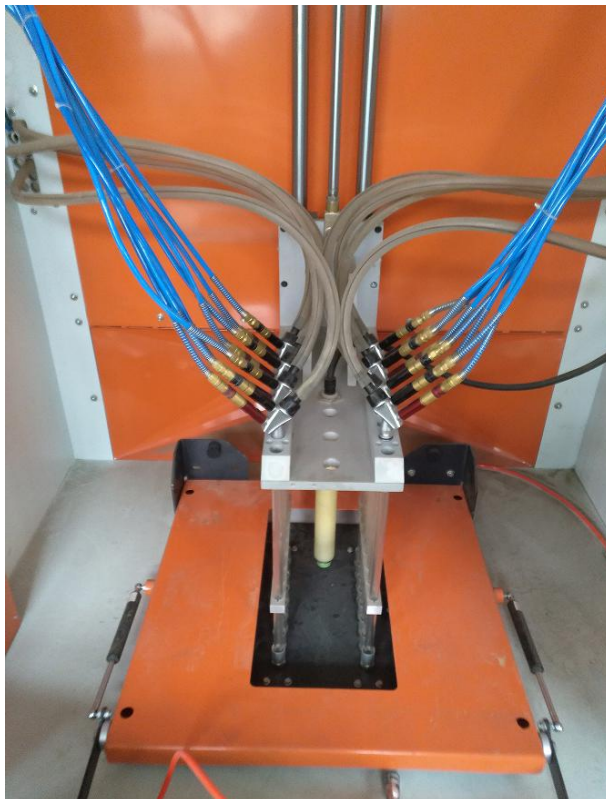
1, turn off the powder container fluidizing, Pump table upwards to the top position, use blow gun cleaning outside of the tubes



2. take away the powder container



3. press “pump table cleaning level” 5 seconds ,make the pump table to the cleaning position.



the blow off nozzles switch on, the suction tubes, injectors, powder hoses and guns are rinsed internally. Could press “powder injector cleaning level” 5 seconds, then press ‘blow back ’

9. Maintenance

9.1 Daily after pauses between working and at the end of the shift

---Coarse cleaning of the booth

---according to section “cleaning”

---Clean (dry) the sensor of the container recognition on the vibration table

---Check the nozzles for wear (see also operating instructions for the guns)

9.2 Check weekly

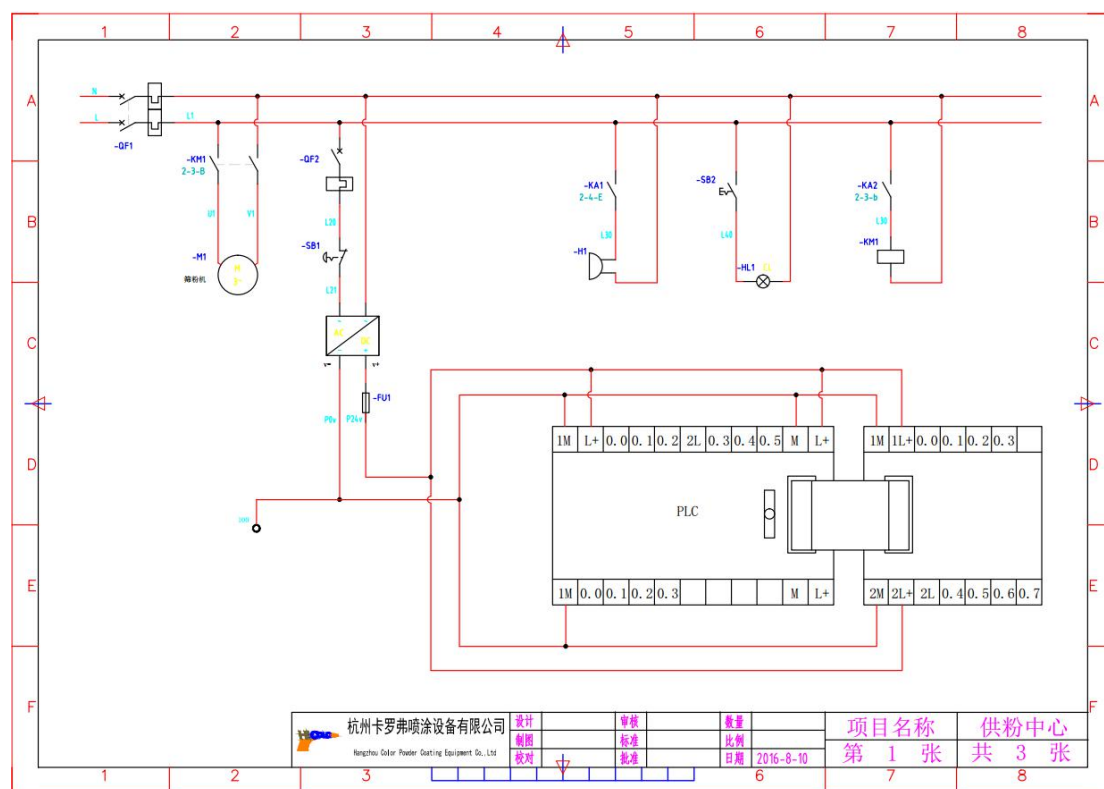
---Clean the powder center completely (no wet cleaning)

---Check the oil separator (if oil is present, the compressed air preparation must be checked)

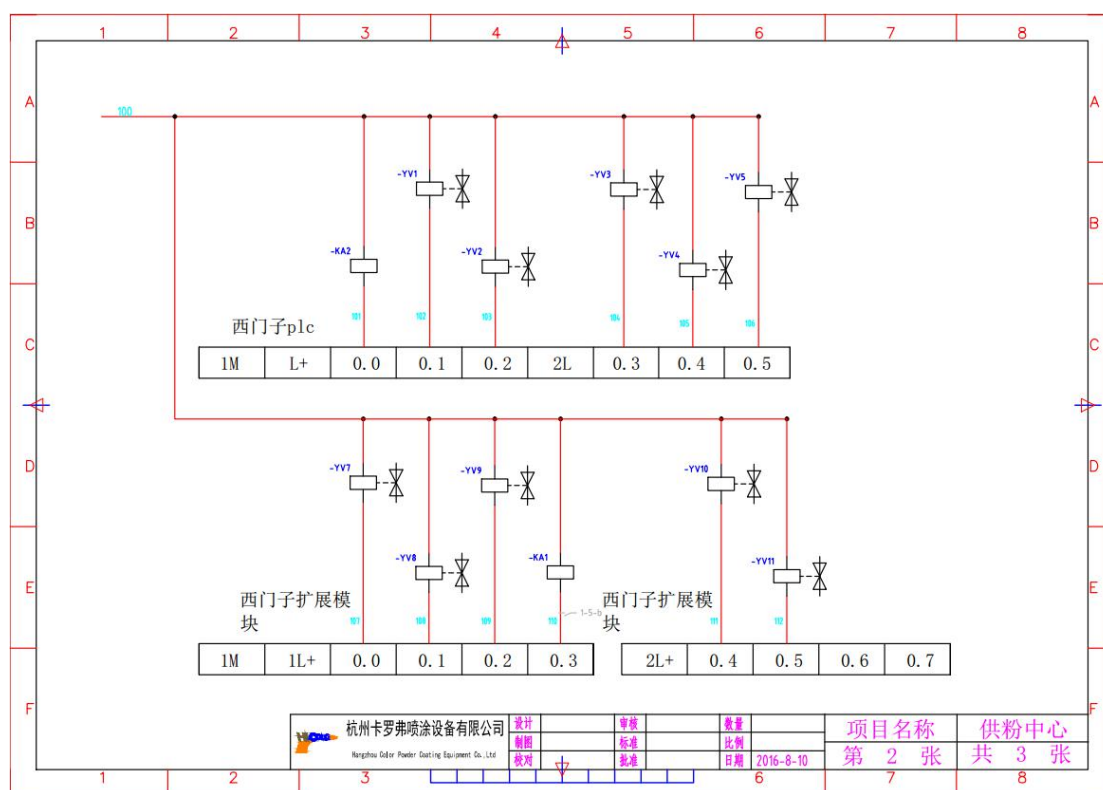
9.3 Check every 6 months

---Disconnect the measuring lines of the manostat on the manometer and blow it off from the manometer to the measuring point (beginning of the line).

10. Circuit diagram

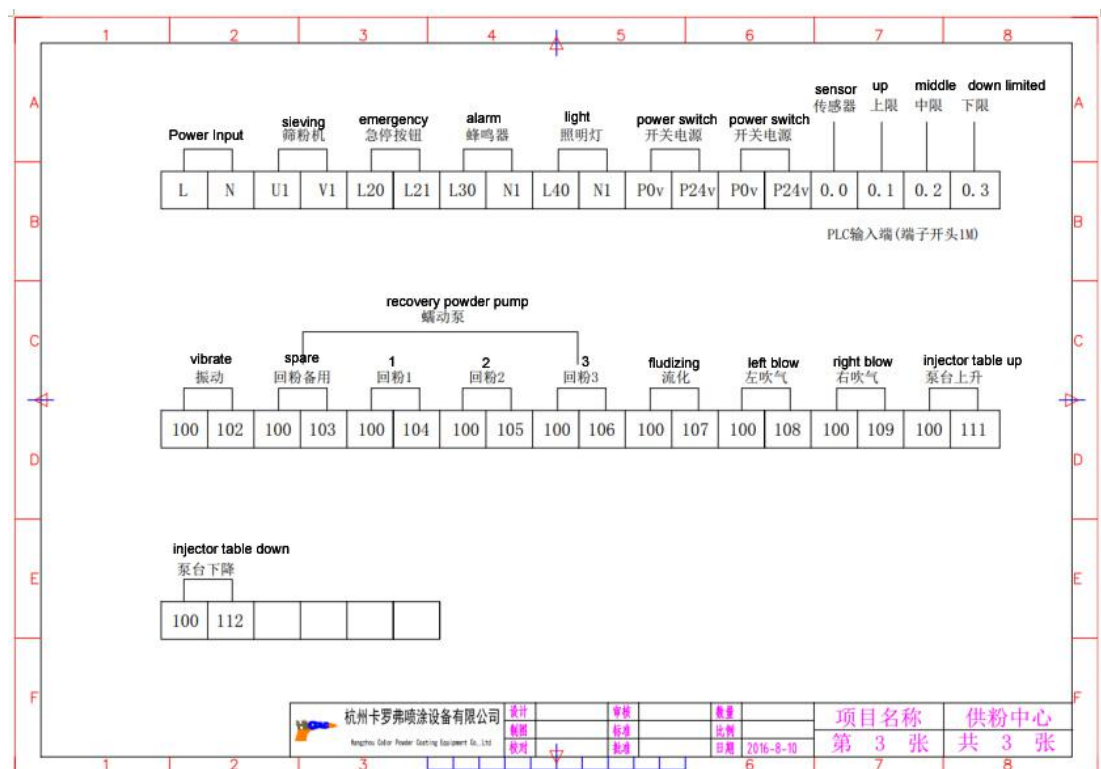


(1)



(2)

Operation Instructions



(3)