

Meet the Needs of the SMT Age

**Please read this user manual carefully before running**



# **S-WS350B PC WAVE SOLDER**

## **USER MANUAL**

PHONE : 0755-83203237  
FAX : 0755-23240492  
ADD : Room 1806,Block 3,Jinyun COFCO,Qianjin 2<sup>nd</sup> Road,Baoan  
District,Shenzhen City, China

## warning:

- ★. Do not operate the machine without maintenance or maintenance personnel or untrained personnel.
- ★. Before powering up, you should confirm again that the power supply voltage matches the working voltage of the equipment.
- ★. This equipment belongs to high temperature heating and transmission equipment, and should pay attention to personal safety during operation.

Note:

1. Please read this manual carefully before using or operating this equipment.
2. Please save this manual for future maintenance, maintenance and overhaul.

In addition to this equipment, the following accessories are available in the shipment. If there is any spare parts are missing, please inform us:

- (1) product certification;
- (2) User Operation and Maintenance Manual
- (3) Time Setting Manual
- (4) Frequency converter Manual
- (5) computer host; display
- (6) Toolbox: include the Phillips screwdriver; wrench; needle nose pliers; M8; M10 sleeve; a 8-10 each open-end wrench; Allen wrench set; ten sets titanium claw chain buckle.

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# 1, Overview

S-WS350B PC Wave Soldering machine, it automates the entire process of soldering PCBs from fluxing, preheating, soldering, and cooling. It is primarily used for the overall soldering of surface mount components and short-push in-line components and their mixed PCBs. The S-WS350B is designed for lead-free soldering.

The whole series adopts 16-bit Mitsubishi programmable controller (PLC) widely used in industrial automation control as the control core, system design of industrial computer control means, high degree of automation, high reliability and excellent performance; adopting international advanced The wave crest technology design allows for high quality welding results.

Main features of this series of devices:

1. new flow linear design, compact structure, beautiful appearance; clamshell tempered glass door, which makes the internal maintenance space increase.
2. The board-in device adopts a structure integrated with the main conveying system to ensure that the PCB board smoothly enters the conveying system.
3. The inclination angle of the substrate conveying guide is adjusted by the screw rod, and the structure is simple and convenient, and the adjustment is convenient.
4. The tin furnace adopts external heating type heating, the volume of the furnace is reduced, the heating body is evenly arranged, and the

temperature balance is improved; the new wave nozzle is suitable for the new generation welding process, the peak is stable and smooth, and the oxidation amount is small.

5. The latest closed-loop control of tin furnace and preheating temperature control system, SSR power adjustment mode, automatic adjustment of output according to temperature to ensure temperature stability.

6. Tin furnace peak adjustment adopts frequency conversion regulation.

7. The exhaust unit is filtered to facilitate environmental protection.

8. The wide and narrow adjustment adopts coaxial and synchronous adjustment, which is precise and accurate.

9. The spray system is moved by a stepper motor for smooth and reliable operation.

10. The new spray device has good atomization effect, uniform fog color and convenient adjustment, so that the flux can be fully utilized and different fluxes can be applied.

11. The flux automatic adding system effectively ensures the supply of flux is sufficient.

12, the control system uses a full computer interface with micro-computer control, with a new generation of high-intelligence control, directly through the computer operation interface to set, monitor, query various technical parameters.

## 2, Technical Specifications

### 2.1, model structure:

Shell system

Transportation system

Double wave peak tin furnace

Colophony spray system

Preheating system

Claw system

Automatic input device

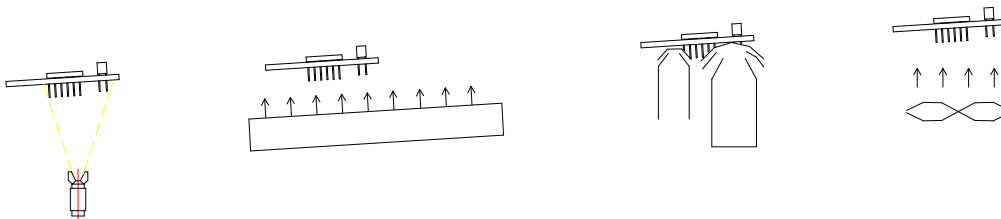
Model	S-WS350 B
<b>1,machine:</b>	
Dimensions	3500 (L) × 1400 (W) × 1650 (H) mm
total power	(usually) 28.5KW
power supply	3φ380V 50Hz
air source	3-7Kgf1100Kg
weight	Approx.1200kg
substrate size	50 ~ 350mm (width / Width)
Production speed	Max. 2400Pcs/8h
<b>2. Transmission system:</b>	
transport motor	(single-phase) AC 220V 90W
transport speed	0~1.8M/Min.(Recommended 1.1~1.4M/Min)
chain claws	Special claws for transport special
<b>3. tin Furnace system:</b>	
Tin heating tube	220V1.5KW×9= 13.5KW
tin capacity	Approx. 320Kg
tin temperature	Max.350°C
temperature control	PID control+SSR
tin heating time	~ 90Min.
Tin constant temperature time	~ 120Min.(250°C set temperature)
wave motor	3 phase 220V 370W×2 stepless frequency conversion speed
<b>4.system:</b>	

Preheating preheater heating tube	3 zone*4.5Kw=13.5Kw
preheater temperature	80°C~150°C (Max .160°C)
preheating heating time	~ 15Min (120 °C set temperature)parameters:
preheating thermostatmode,	PID control the auto power
<b>5. other:</b>	
fluxing type	spray
flux content of	spray6Litres
the fluxpressure	spray4 ~ 7MPa
Flux capacity	Max5 . 2L
Cooling fan	220V 380W
Washing claw motor	220V 10W

### 3, Working procedure

The process flow of the wave soldering device is shown in the following schematic diagram:

(spray type)



Coating flux → preheating → immersion wave soldering → cooling

#### process description:

The PCB circuit board to be soldered and inserted and pasted by components can be automatically and automatically brought into the wave soldering device of the transportation chain by the inlet connecting motor. According to the soldering process, the processes of applying flux, preheating, immersion wave soldering and cooling are automatically completed in sequence. Finally, the soldered PCB board is sent out by the transport chain.

## 4, Installation and Adjustment

### 4.1, Working environment and conditions

The equipment should be placed in a flat, ventilated and dry building; the working environment temperature should be between 5 and 45 °C; use three-phase five-wire (should have grounding wire to ensure good grounding) 380V ( Other voltage levels are optional), stable power supply with rated current; use industrial gas source with stable 4~7MPa.

### 4.2, Equipment installation

Box is opened, the machine will be placed, then raise and adjust the fixed foot cup at the bottom of the rack to make the frame horizontal; install the inlet connection device (the two parts should be divided into left and right).

Adjust the solder angle (see section 4.3 for details). In general, 5° is suitable, but the angle can be adjusted to the required requirements according to the actual design of the PCB board design and soldering requirements.

Adjust the height of the tin furnace and the peak (see section 4.3 for details), generally 5mm~10mm.

Adjust the width of the transport rail (see section 4.3 for details). The chain claw can hold the PCB board to run, but the PCB board cannot be deformed (the PCB board can move freely between the chain claws).

Connect to electricity and gas sources. Adjust the air pressure to the required amount.

Install flux to two-thirds of the rosin stove; load alcohol to four-fifths of



the position of the shampoo box, and adjust the flow rate to a suitable position (Note: Do not open the flow too much to avoid flux or alcohol spillage Cause fire).

### 4.3, Adjustment

Handwheel:

Adjust the inclination of the transport system rail so that the solder angle is adjusted.

Note: When the solder angle is lowered, the tin furnace and the rosin furnace should be lowered first to avoid being damaged by the chain claws.

Adjust the spacing of the transport rails to meet the soldering requirements of PCB boards of different widths. Adjust the width range from 50 to 350mm.

Adjust the screw nut and chain system to adjust the height of the solder pot.

When adjusting the height of the tin furnace, it should be noted that the height of the two sides of the spout should be consistent with the height of the chain claw.

Adjust the handwheel on the tin stove bracket. The tin furnace can be moved into/out of the unit by screw drive adjustment on the bracket. Used to facilitate maintenance, overhaul and add and replace solder.

**Note:** When moving the tin furnace into the device, it is generally moved to the inside of the positioning rail chain claw by the tin furnace nozzle ~ 10mm (from the edge of the tablet) to the limit.

## 5, Operation instructions

### 5.1, Check before power on

Check whether the power supply is the three-phase five-wire power supply rated by the machine;

check whether the equipment is well grounded;

check whether the tin capacity in the tin furnace meets the requirements;

whether the

rosin specific gravity and capacity are suitable;

check the air pressure Whether to adjust to the required value;

check whether the emergency  has been bounced;

whether the whole machine adjustment has been completed;

### 5.2, Interface Operation and Settings

#### 5.2.1, Start

Press the start button, the system is powered on, the system is in the standby state, or the set time system is automatically turned on. After the time system reaches the timed shutdown time, exit the control interface, turn off the computer, and press the stop button to shut down.

If you want to turn on the computer interface automatically next time, the tin furnace heating can not be closed. If you want to turn off the power next time, turn off the main power supply.

#### 5.2.2, Starting the main computer interface

Press the “Power” button on the computer and the computer will start.

The switch on the interface can be used to switch the corresponding item.

Double-click the set value to modify the parameters of the corresponding project.

If there are special reasons, you need to exit the main control program, and then double-click the wave shortcut on the desktop to enter the control program.

### 5.2.3, User Management

There are four submenus in Drop-down menu : user maintenance, permission setting, locking, and unlocking.

User maintenance and permission settings are set at the factory, and the machine operator should not operate.

Locking can fix the setting interface and display only the measured value, which can avoid non-operating personnel from tampering or misoperation.

To adjust the parameters, to unlock, click the unlock submenu in the drop-down menu, or press the unlock icon.

**【User should selection “Guest” , the password is “1” 】**

### 5.2.4, Parameter Management

The third pull-down menu is parameter management. The sub-menu are: temperature correction, related settings, PID, net chain width adjustment, automatic angle adjustment system, parameter maintenance, system parameters.

5.2.4.1, Temperature correction, used for compensation Thermocouple temperature measurement error, please do not arbitrarily move.

5.2.4.2, Related settings: The corresponding parameters of the machine

can be adjusted and adjusted to ensure the optimal operation of the machine.

#### 5.2.4.3, PID

Under normal conditions, please do not change this parameter. The factory adjustment engineer has set this parameter when adjusting the machine. The user should write down this parameter for later use.

In normal operation, the temperature of the tin dissolved in the **tin furnace must be > 230 °C** , so the lower limit temperature should be greater than **230°C**. To ensure that the tin is melted before the peak can be rotated, the jet motor.

#### 5.2.4.4, Width adjustment (none):

#### 5.2.4.5, Automatic angle adjustment system (none)

5.2.4.6, Parameter maintenance: The saved process parameters can be recalled and can be used in this interface. The parameters are modified and saved as a whole.

#### 5.2.4.7 System parameters

Click Modify to modify the corresponding system settings, click Save after modification, and exit.

### 5.2.5, Language Selection

The fifth item of the drop-down menu is for language selection and optional multi-language interface.

### 5.2.6, Document Management

The first drop-down menu is as follows:

Modify to modify the process parameters,

Save to archive the modified process parameters,

Open to open the specified process parameters,

Save as save the process parameters as another document .

### 5.2.7, Curve Test

The temperature curve test can be performed by clicking the first icon above the main interface.

When testing with the test curve, put the tested thermocouple into the K-slot, and then paste the temperature measurement point onto the PCB for transport.

Click Start to display the temperature you want to test.

Click Settings to display the following interface, which can set the number of temperature measurement lines, preheating number, and maximum time.

After the temperature curve test is completed, click End.

Draw horizontal lines, vertical lines, analyze temperature difference and time, and draw a slash to analyze the slope. Clear to clear the line drawn.

Relevant process parameters can be displayed on the interface for reference during analysis.

**! Note:** When the tested thermocouple is not placed in the K-slot, the display temperature is the wrong value and the user should not care.

## 5.3, Special Instructions

Set the distance from the sensor to the nozzle and the distance from the

sensor to the tin furnace. When it is automatic, the PCB board can realize economical spray when passing through the nozzle, and realize the economic peak when passing through the tin furnace.

**Especially when there is solid tin in the tin furnace, forced operation of the tin furnace motor may cause equipment damage.**

### **Fault inspect.**

When the system fails, the three-color red light indicates, the system will notify the user, ask the user to query, and watch the troubleshooting method to eliminate.

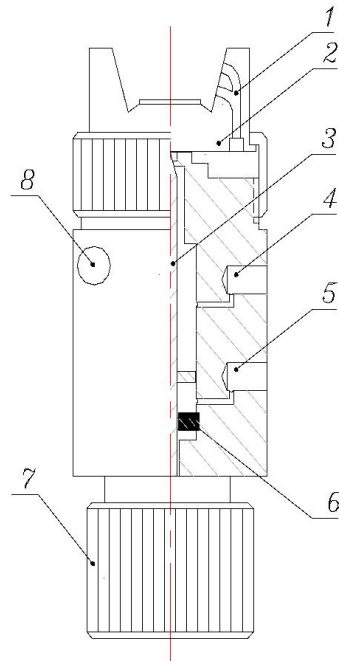
## **5.4, Emergency Handling**

Under operation, when there is an accident or emergency such as the transport chain being jammed, the PCB board being pinched, falling, etc., press “Emergency” immediately. At this time, the red warning light on the device indicates that the automatic heating system of the tin furnace is not controlled, and other functions are prohibited.

## **6, Assembly Description**

### **6.1, Flux System**

#### **6.1.1, Main components and their functions**



- 1-Forming air passage
- 2-nozzle cap
- 3-Needle valve
- 4-Jet air
- 5- needle valve Cylinder air
- 6-piston
- 7- flow adjustment
- 9- Spray width adjustment

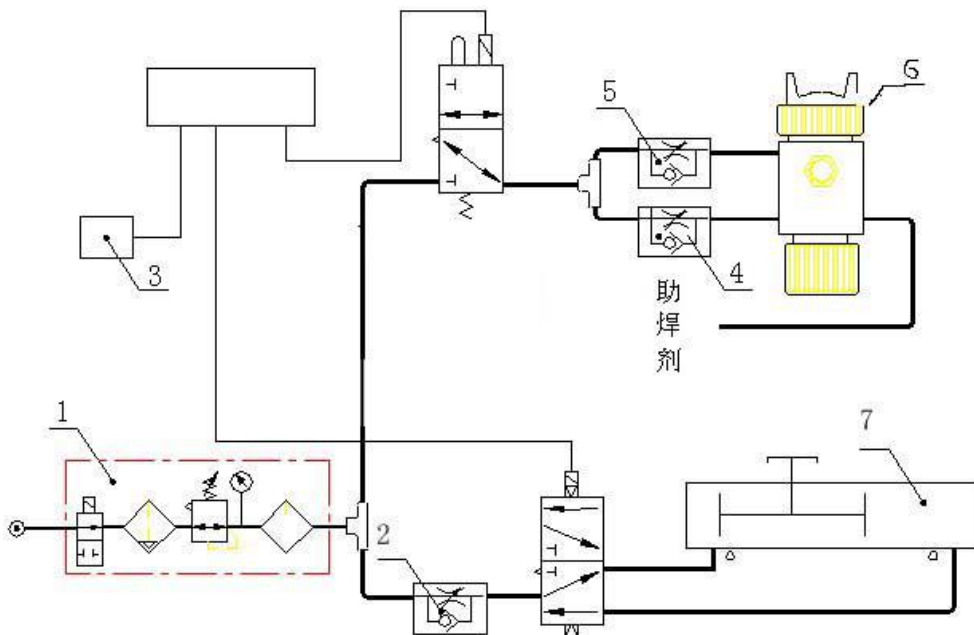
### **Colophony utility**

Colophony helps solder, rosin will produce chemical action when it comes into contact with metal surface It can remove the oxide on the metal surface. When the copper hole and electronic parts of the circuit board are in contact with the air, an oxide layer is formed on the surface. To make the circuit board solder well, the oxide must be removed first. Secondly, after the circuit board is rosin-coated, the copper holes and the component legs will not oxidize during preheating.

### **Spray gun utility**

The spray gun is compressed by air, and the rosin and air are mixed and sprayed out, and the rosin is atomized into a certain shape by forming compressed air, and uniformly sprayed on the bottom of the passed circuit board to form a rosin film of about 0.03 MM thick. When not working, the needle valve is sealed, so that the rosin is isolated from the air, no volatilization, and the rosin specific gravity and composition are stable, and the rosin consumption is greatly reduced. The most important thing is that no-clean flux can be used, the soldering circuit board is clean, and the solder cleaning process can be eliminated.

### 6.1.2, Flux spray system structure



1. Total air valve	5. Spray control valve
2. Motor moving speed adjustment	6. Spray gun
3. Electric eye	7. Stepping motor
4. Injection air regulating valve	

### 6.1.3, Daily maintenance and precautions

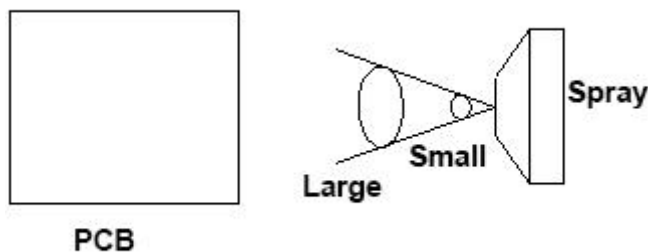
#### Spray adjustment:



Flow regulating valve for controlling spray There are 2 in total, which are concentrated in one control box.

2. The (air-conditioning) injection air valve controls the air pressure of the injection, and also generates an ejector effect on the flux. When the volume is increased, the injection height is increased, and the hourly injection height is lowered. However, the flux is too large to be sprayed onto the circuit board to cause splashing, and it is not easy to get on the circuit board. Too small a small amount of flux is emitted.

3. The spray regulating valve adjusts the flux flow and vice versa. Too much too much flux, large particles, too small flux is too thin.



4. The moving distance of the spray gun can be adjusted according to the width of the PCB board to adjust the proximity proximity switch on the traverse cylinder; the moving speed is adjusted by the traverse cylinder air valve.

### **Matters needing attention:**

1. When machine is working normally, the automatic addition of the flux switch must be turned on. Since the various components in the flux are not volatile, the flux specific gravity must be checked frequently during

production to maintain the optimum specific gravity of 0.83. Achieve the best welding results.

2. Usually all fluxes are replaced within 15 days to 30 days depending on the extent to which the flux has deteriorated.
3. The nozzle must be cleaned frequently to avoid clogging due to too much fouling of the gun; avoid nozzle collision damage when cleaning the nozzle.
4. Always check the electric eye for too much fouling.
5. Do not operate the two flow control valves that control the spray after adjustment. Do not operate the unit without the local operator to avoid spray failure.
6. The drive system of the stepper motor should be cleaned frequently so that the spray gun can move normally to ensure the spray effect.
7. The electric eye in front of the spray gun is used to sense the circuit board. Therefore, the circuit board should be brought in by the chain claws.
8. Do not push and pull by hand to avoid other unrelated debris (such as hands) causing electric eye movement above the electric eye.

Remove water from the air filter.

9. Adjust the spray and check the spray effect with a transparent rubber sheet.
10. The filter should be cleaned 1 or 3 times a day.
11. The wind should be cleaned regularly and the surrounding fluxes are cleaned.

## 6.2, Preheater heating system

### 6.2.1, Main components and their functions

The preheating of the machine adopts a three-stage structure, which is a hot air circulation of the heating wire. The temperature of the board surface is acceptable, and the temperature difference of the heating curve is small, which makes the lead-free preheating process more perfect.

### 6.2.2, System function

The preheater is a heating box made of a high temperature resistant material. The heating wire is placed in a heating box. A temperature sensor is installed on the upper part of the preheater to accurately control the temperature.

The function of the preheater is to rapidly heat the PCB board coated with rosin to activate the flux, remove the contaminants (oxides, oil stains, etc.) on the metal surface and the component feet at the solder joints, so that the flux can be optimized. The welding effect; evaporation of the moisture in the flux, removal of volatile solvents to reduce the generation of bubbles during soldering; at the same time increase the temperature of the PCB board and parts, prevent the PCB from suddenly being heated and deformed during soldering or heat due to components The lift is too fast and damaged.

### 6.2.3, Daily maintenance

Always pay attention to whether the power supply voltage is normal. If

the voltage is too high, the heating wire will be overheated and burned.

When the temperature of the preheater is too high due to abnormality, the control circuit will automatically cut off the pre-heater power supply and give an alarm indication to protect the temperature control and heating components. If the indicated temperature value of the temperature control table fluctuates too much during operation, it may not stabilize. It may be that the alarm temperature limit is set too low and should be appropriately increased; or the solid state has been broken down, or the fuse or the heat pipe Has been blown and should be replaced.

The temperature at the bottom of the PCB substrate is often tested to ensure optimum soldering.

Frequently clean the rosin stains on the first preheating zone to avoid fire.

Check the wires for aging to prevent current interruption.

Always check if the hot air motor is running properly to ensure the best soldering effect.

## **6.3, Tin furnace system**

### **6.3.1, Main components and their functions**

#### **(1) tin furnace furnace structure**

description: the molten tin is agitated by the impeller, shaped and flow along the special shape of the tin furnace liner, through the net filter to separate the solder slag, Flowing out of the crest nozzle creates a unique solder peak that remains free of tin oxide.

## (2) Tin furnace heating pipe

description: Two sets of heating pipes are placed in the soldering furnace, and the heating is input by segmentation and time-sharing, so that the molten tin is fast and uniform.

### 6.3.2, System function

**Description:** The double wave peak tin furnace consists of two jet peaks, which form the front jet tin wave and the rear stationary wave peak. The peak height and parallel moving speed can be adjusted. The main function of the front peak is to wash away the flux behind the components such as mounting due to the "shading effect", so that the solder joints are reliably wetted, and the smooth tin waves in the rear are further trimmed and wetted. Irregularly shaped solder joints make it perfect.

The peak generated by the tin furnace is determined by adjusting the motor speed by the inverter. The rear peak can adjust different peak shapes according to different factors of the PCB board, as shown in the following figure:

Adjusting the guide plate The position can change the nozzle to produce a planar peak, which effectively controls the immersion time and the tinning time of the PCB.

Purity tin material:

in a conventional

Sn /TIN solder:≥99%

In conventional solder, solder impurities should be less than set forth in

the following table:

ELEMENT Elements	HIGHEST CONTENT (%) Highest values (%)
Aluminum Aluminium	0.0005
Antimony Antimony	0.2 /0.5
Arsenic Arsenic	0.03
Bismuth Bismuth	0.1
Copper Copper	0.05
Cadmium Oadmium	0.0005
Gold Gold	0.1
Iron Iron	0.02
Nickel Nickel	0.05
Phosphorus Phosphorus	0.005
Silver Silver	2.0
Sulfur Sulphur	0.001
Zinc Sine	0.001

### 6.3.3, Precautions

#### (1) Routine maintenance:

The tin-plated nozzle is installed at the bottom of the tin furnace to remove the tin liquid from the outside of the tin furnace; the tin surface is often inspected, and its capacity is not less than 10 mm below the furnace surface; the solder temperature is often measured to prevent the temperature

controller from actually The temperature difference is too large, affecting the quality of the solder;

often remove the oxide of the tin furnace,

remove the steel mesh inside the furnace to clean (2-3 times a month),

keep the stainless steel mesh unblocked;

check the purity of the tin regularly to ensure Tin is good;

pay attention to and check the aging of the wire, and the aging wire should be replaced;

when the temperature of the tin furnace is too high due to abnormality, the control circuit will automatically cut off the heating power and alarm indication to protect the temperature control and heating components. .

If the indicated temperature value of the temperature control table fluctuates too much during operation, it may not be stable. It may be that the alarm temperature limit is set too low and should be appropriately increased; or the solid state has been broken down, or the heating tube has been burned. Broken, should be replaced.

Tin liquid will age after prolonged use and must be replaced.

When the daily maintenance needs to remove the tin furnace, the tin furnace should be lowered after the height of the tin furnace is raised or the conveyor chain guide is raised. This prevents the nozzle from colliding with the chain claw when the tin furnace is removed, causing unnecessary damage to the chain claw.

## **(2) Replace the tin furnace heater:**

① Turn off the power supply, remove the cover on both sides of the tin

furnace, take out the insulation cotton; remove the connection from the terminal.

- ② Loosen the heating tube pressure plate and the damaged heating tube and pull out the damaged heating tube.
- ③ Replace with a new heat pipe; restore the connection, press the heat pipe pressure plate, insulation cotton; install the cover.
- ④ Connect the power supply; reboot.

### **(3) Replace the solder:**

- ① Increasing the solder temperature to about 300 ° C, then turn off the power.
- ② Open the tin nozzle and release the tin solution. Note: Do not touch the power supply.
- ③ After the tin is finished, close the tin nozzle switch before the tin has solidified to prevent the tin from flowing.
- ④ Solidified to prevent the tin from flowing.
- ⑤ Put in a new solder and heat it to dissolve.

## **6.4, Transportation System**

The transport system consists of a transport motor, a chain and its control.

### **6.4.1, Function**

The transport system is to smoothly transport the PCB and complete a series of processes for soldering. The control part is composed of a frequency converter, a speed measuring component, etc., to achieve the adjustment of the transport chain speed.

### **6.4.2, Daily maintenance**



Lubricate the bearings of the chain and the gears of each drive.

When the transmission system is in operation, do not put your hands or debris into the chain to affect normal transportation; at the same time, it is harmful to your health.

In the event of an emergency, immediately press "Emergency" to terminate the operation to prevent dangerous accidents.

**Note: Do not open the rail when adjusting the width.**

### **6.4.3, Replacement of the chain claws**

1 Remove the chain guard from the PCB board input unit of the transport rail and transfer the claws to be replaced to this part.

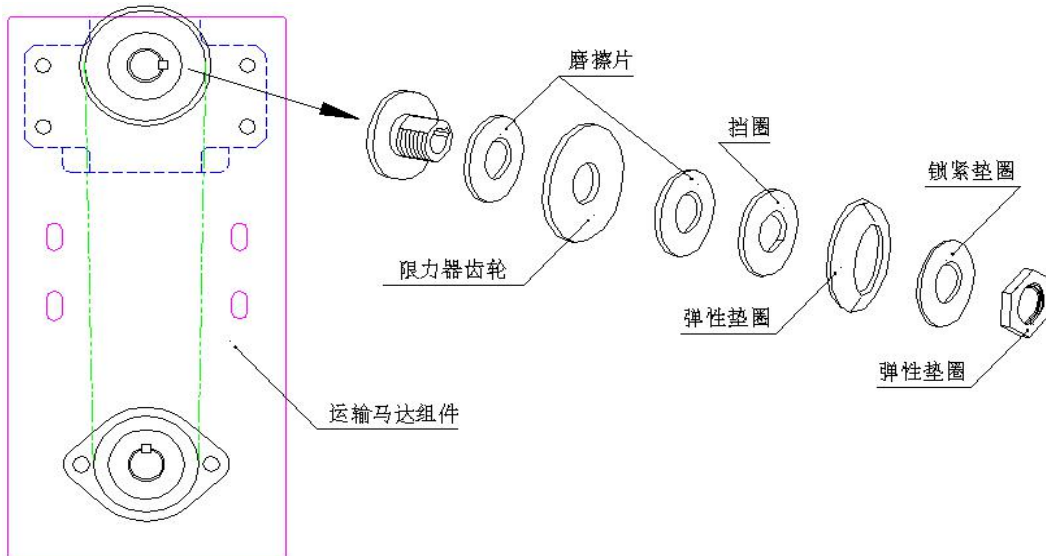
2 Remove the snap ring and washer, remove the replacement claws, and replace with a new one.

3 After reinstalling them in turn, adjust the transport chain.

### **6.4.4, How to replace the transport chain torque protector:**

1 Remove the lock nut from the transport motor shaft, and then remove the washer, friction plate and sprocket;

2 Replace the old friction plate and install a new friction plate; then replace the parts in reverse order.



## 6.5 , Washing device

### 6.5.1, Advantage

The function of the washing device is to clean the flux which may be contaminated on the transport chain claw. The scrubber consists of a water pump, a claw washer and an alcohol or washing machine water tank.

When the washer is opened, the water pump draws the washing machine water into the claw box. When the chain claw passes through the claw box mounted on the transport bracket, the washing brush combination of the washing machine water is adhered to wash the chain claw. The washing machine water in the claw box is returned to the liquid storage tank through the filter net for recycling.

### 6.5.2, Routine maintenance

Always check the washing machine liquid in the claw box. When the amount is small, it should be added to the liquid storage tank to ensure the cleaning of the claw chain. When the brush in the scrubber is worn out after use, it should be replaced in time.

**Note: Do not open the flow of the shampoo too large to prevent the alcohol from flowing back into the tin furnace or preheating box with the guide rail, causing fire and other accidents.**

## 6.6, Inlet connection

The entrance connection is used to smoothly feed the PCB into the transport chain claw.

It has been adjusted before leaving the factory and generally does not need to be adjusted unless it is specifically needed.

## 7 , Problem aspects related to welding and its solution

Solder problem	Cause	Solution
wetting failure	copper foil surface, the foot element oxide	cleaning device oxidized
	Flux proportion not	Redeploy flux
	poor weld ability of tin	to avoid long-term storage element of PCB
	copper foil with a solder chemical reaction	Flux test any problems
	flux deterioration	Replace solder
	Soldering is insufficient	Tin to adjust the wave
	Board warp	and wave adjusting tin
Temperatures tin column	Affect solder oxide flow ability	Check solder
	the PCB in sufficient preheating	adjusting the preheating temperature
	Flux does not the proportion of	Check flux
	Solder Low temperature	adjustment, check solder furnace temperature
	transmission speed is too low,	adjust transmission speed,
	PCB board immersion tin is too deep,	adjust peak height,
	copper foil area, aperture is too large,	improve PCB board design,
	PCB board soldering defect,	avoid PCB board components, long-term storage,

Missed connect	PCB board Short immersion tin time	adjustment wave or transport speed
	PCB board preheating insufficient	adjustment Preheating temperature
	Flux specific gravity is not correct	Inspection of flux
	board design is poor.	PCB board design
Insufficient gloss	. Excessive impurities in solder are	checked. Solder purity
	copper foil surface, component foot oxidation	cleaning device oxidized
	poor soldering	Flux inspection
	solder temperature in appropriate	Adjustment Check Pot
Weld temperature OR have bubble	low temperature solder	adjustment, inspection Pot temperature
	poor soldering	Check the flux
	Transmission too fast	transmission rate to adjust
	the PCB moisture bubbles	board PCB dried
	Copper foil area and aperture are too large to	improve PCB board design
PCB warping	The solder temperature is too high to	adjust, check the tin furnace temperature, the
	transport speed is too slow,	adjust the transfer speed

## 8, Routine maintenance operations

ITEM	OPERATION METHOD	TIME
TRANSPORTATION SYSTEM	TRANSPORTATION CHAIN PLUSHigh temperature oil	once / week
rosin system	with alcohol to aging rosin from the foam tube	once / week
	change rosin liquid	once / month
	clean air filter core	once / month
	adjust the liquid level is stable, fixed in the specified Air pressure	twice / day
	rosin specific gravity 0.83	One time / hour
spray system to	replace the flux	once / month
	clean the air filter core	once / month

	cleaning nozzle	once / day
	cleaning spray filter	once / 4H
	Clean stepper motor drive system	once/month
	clean exhaust system	once/march
preheater	cleanup accumulates preheating stains on the air duct plate in one zone	once/day
	check if the set temperature matches the indicated temperature	once/time
	check the wind motor	once / day
tin furnace	oxidevents clean up	once / week
	to clean furnace steel mesh oxides within	3 times / month
	regular replacement of solder	once / year
	impeller mounts, wheel chocks plus high-temperature oil	once / month
	and down, moving the bearing housing plus When the butter	once a year
	needs to use anti-oxidation oil, the anti-oxidation oil should keep covering the tin surface. When the anti-oxidation oil becomes paste-like, it is necessary to change	pay attention to

The general maintenance time given here. Users can use it according to their own. Make the corresponding adjustments in the actual situation.