

**EGGEMSY**

User's Manual



**HOT AIR SEAM SEALING MACHINE**

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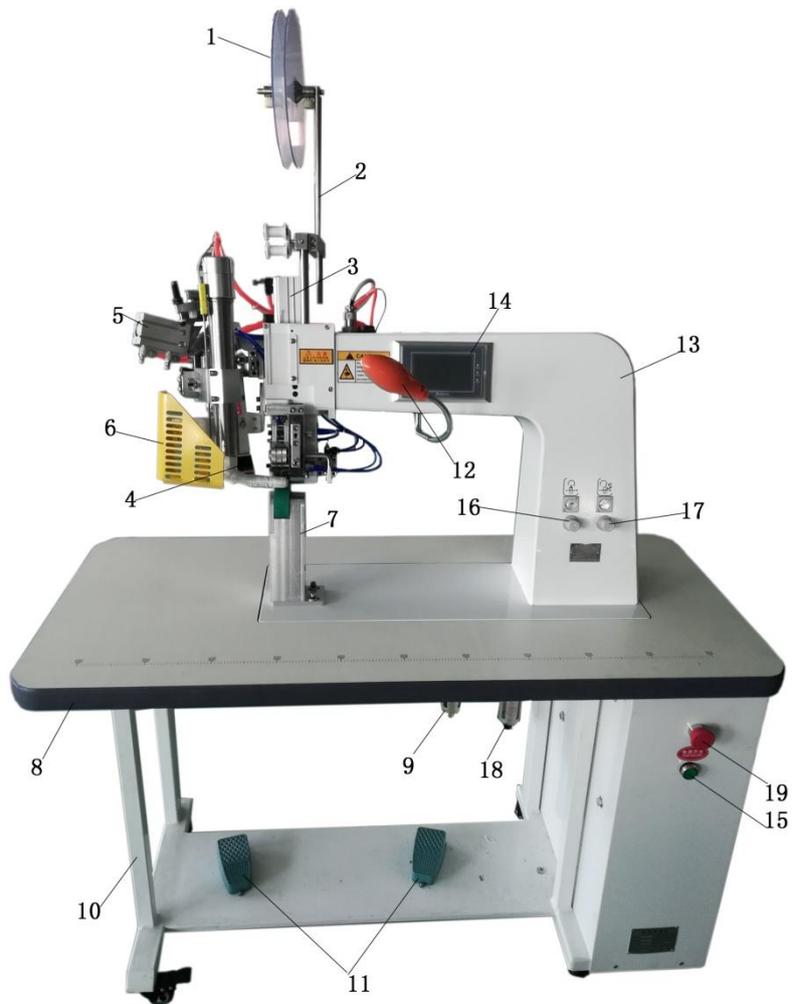
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## I、 Introduction of the machine

This machine is a hot air sealing machine with high speed and high output. It is mainly composed of three parts: electrical part, pneumatic part and mechanical part PLC programmable, man-machine interface touch type digital display operation The upper and lower pressure wheels are driven by two stepper motors respectively, which can realize the differential operation of the upper and lower wheels Automatic micro-return, automatic belt feeding, automatic belt cutting, automatic tail finish.Suitable for any manufacturer of PVC, PU, rubber, three layer fabric waterproof, leakproof clothing or rubber products (such as: protective clothing, raincoat, ski suit, diving suit, space suit, tent, car cover, boat cover, launch balloon, etc.)

Note: before opening the machine, you must read and understand this manual carefully, which introduces the principle, characteristics, performance parameters and operating instructions of the machine, so as to avoid causing unnecessary damage to the operator or the machine.



## 1.THE MACHINE APPEARANCE

1. tape plate    2. tape shelf    3. cylinder of upper column  
 4.hot air tube 5. cylinder of air gun    6.shield  
 7.lower column    8.table    9. Oil-water separator  
 10. Stand    11. pedals    12. lamp  
 13. head    14. touch screen    15. switch  
 16. pressure wheel pressure adjustment knob    17.air gun air pressure adjustment knob  
 18. air Intake regulator    19. emergency stop

## 2.Principle, use, characteristics, performance parameters

### 2.1Principle

Hot air is used to heat the hot sealing tape, and pressure is applied through continuous operation of the pressure roller to perfectly bond the

hot sealing tape to the seam of the waterproof clothing (or other products), so as to achieve the purpose and effect of sealing.

## 2.2 characteristics

a. PLC programmable, man-machine interface digital display control. Can modify the program at any time according to user needs.

b. Automatic temperature control, high stability, temperature fluctuation  $\pm 1^{\circ}\text{C}$ , temperature line alarm design, protection of heating wire.

c. The upper and lower pressure wheels are respectively driven by stepper motor, and the speed difference between the upper and lower pressure wheels can be adjusted to realize differential operation, which can prevent the occurrence of wrinkle and elongation of special fabrics. Automatic compensation of vacancy, automatic micro-return function, reduce the pressure belt blank.

d. According to the human body design foot step control procedures, comfortable operation, not easy to fatigue, suitable for long time operation.

e. Can work continuously 24 hours, high efficiency production.

f. Unique heat pipe structure, heat the gun barrel surface temperature does not hurt the hand, high thermal efficiency, the air into the filter, no water and oil.

g. According to the needs of customers to add automatic loosening device.

h. Automatic tape cutting, tape feeding, automatic tape tail.

i. Lower column unique design, suitable for all kinds of small and large products sealing pressure belt.

### 2.3.performance parameters

a. Product model: max-930 (high pressure)

b.Rated voltage: AC220V;Rated frequency: 50HZ

c. Rated power: 3.1kw, heating power: 2.8kw, according to the heating temperature

d.Maximum temperature of heating tube:  $\leq 700^{\circ}\text{C}$

e.Compressed air: 0.35~ 0.5mpa

f.Pressure of upper column wheel: 0.01~ 0.3mpa (adjustable)

g. Speed: 1 to 24 m/min

h.Double step motor wheel speed differential adjustable.

i.Press wheel width: smooth 25mm standard, other width can be customized according to customer requirements

j.Available tape width: 14-25mm

## II、 MAIN STRUCTURE AND FUNCTION INTRODUCTION

### 1.Mechanical part structure composition

It is composed of stand table component, bottom plate square component, air duct component, cylinder component, air gun and adjustment component, upper column component, lower column component, transmission component and loose belt component.

### 2.Circuit control component

By the control panel part, the power part, the electric control box, the program control part, the heating part.

### 3.Air path control component

It is composed of water filter, oil mist, pressure regulating valve, solenoid valve, muffler, pressure gauge, current limiting device, one-way valve, cylinder, quick connection and air pipe.

### 4.Mechanical part function

#### 4.1.stand table component

Used to support the whole machine parts and electrical box.

4.2.bottom plate square componentUsed for fixing upper column component, lower column component, air gun component and transmission component.

4.3.Air gun components :

Used for connecting high-pressure air source with heating pipe (gun).

4.4.cylinder component :

For up and down sliding of upper column.

4.5.air gun and adjustment component :

Used for fixing and adjusting the hot air gun and swinging in and out.

4.6.upper column componentIt is used for the installation and transmission of the upper pressing wheel and the pressing of hot air glue and cloth.

4.7. transmission component :

Power transmission for upper and lower pressure wheel.

4.8.The basic structure :

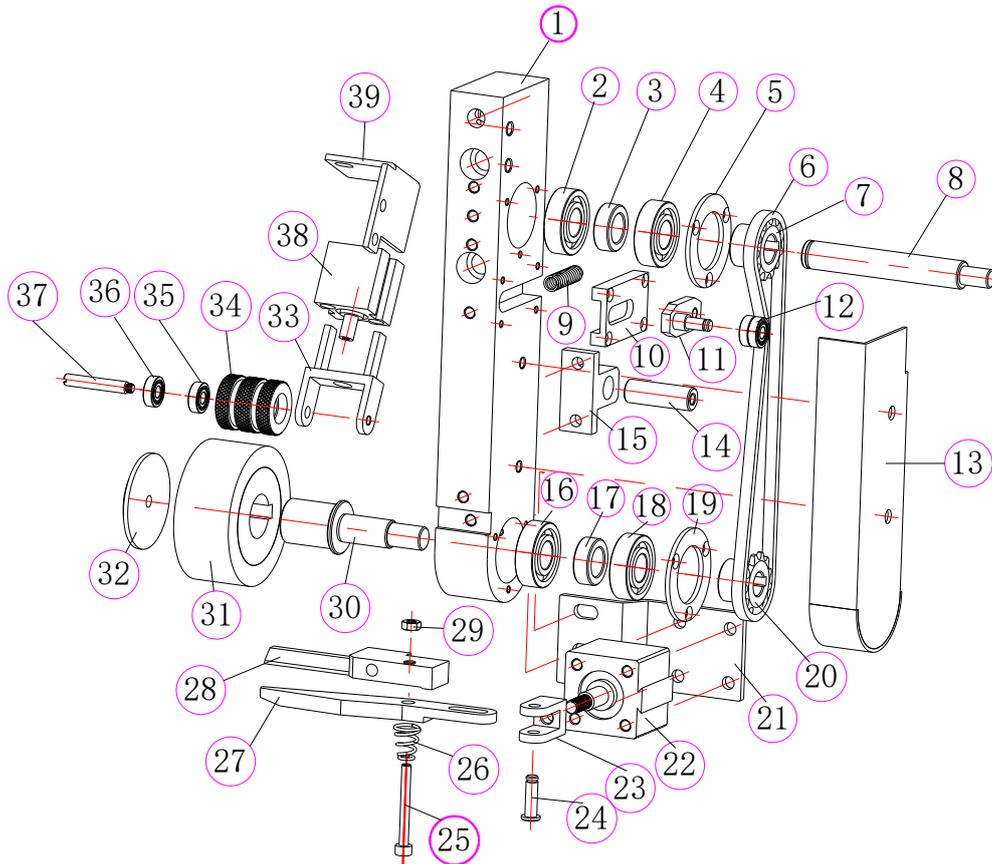
4.8.1. stand、 power box、 table component。

The bottom of the platform is connected to the rack with 4-m6 hexagon bolts.

4.8.2.Bottom plate, square (head) components (including upper and lower transmission parts)

A.upper column part

After installation according to the position shown, install the top pedestal plate with 2 M8 hexagon socket screws.

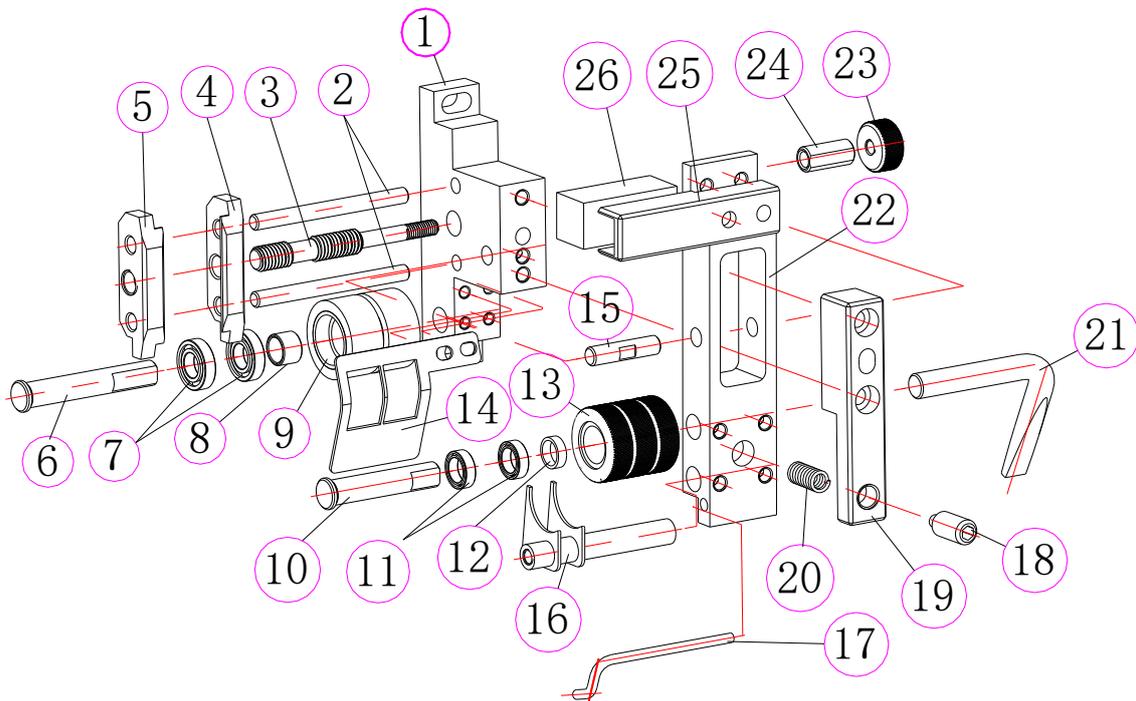


number	Name and specification	number	Name and specification	number	Name and specification
1	upper column	14	Back Blow tube	27	moving cutter
2	6001bearing	15	Back Blow tube pedestal	28	dead cutter
3	spacer	16	6001bearing	29	nut
4	6001bearing	17	spacer	30	upper wheel shaft
5	Bearing cover	18	6001bearing	31	upper wheel
6	chain	19	Bearing cover	32	upper wheel cover
7	Drive sprocket	20	sprocket	33	bridge wheel pedestal
8	shaft	21	cylinder pedestal of cutter	34	bridge wheel
9	tension spring	22	cylinder pedestal of cutter	35	695bearing
10	tension pedestal	23	cutter cylinder	36	695bearing

11	Tension shaft	24	cutter cylinder connector	37	bridge wheel shaft
12	695bearing	25	cutter shaft	38	bridge wheel cylinder
13	Upper column cover	26	cutter adjust spring	39	bridge wheel cylinder pedestal

### B.belt pressure part

After installation according to the position shown, install the top column with 2 M5 hexagon socket screws.



Number	Name and specification	Number	Name and specification	Number	Name and specification
1	pinch wheel pedestal	10	Front pinch wheel shaft	19	Compression spring pedestal
2	Tape adjusting guide rod	11	678bearing	20	Compression spring
3	Tape adjusting screw	12	Cushion covers	21	Compression arm wrench
4	Tape adjustment right plate	13	Front pinch wheel	22	Compression arm
5	Tape adjustment left plate	14	tape baffle	23	Adjusting nut

6	pinch wheel shaft	15	Compression arm bolt	24	copper bush
7	695bearing	16	Front pinch wheel baffle	25	Compression arm back buffer pedestal
8	Cushion covers	17	Copper blow tube	26	Sponge buffer block
9	pinch wheel	18	Spring adjusting nut		

## 5. Electrical control part function

Heating tube: used for blowing the wind pressure of high pressure gas into the heating tube, and then heat transfer to the heat sealing tape and cloth for pasting.

5.1. Motor: used for providing power source to upper and lower pressure wheel by transmission system.

5.2. Small fan: used for pumping air, thus reducing the temperature of the electric box.

5.3 Display screen of control center: used for setting and controlling each action parameter, running speed and temperature of upper and lower wheels.

5.4. Pedal: start the action switch.

5.5. Electrical box: for placing electrical accessories.

5.6. Solid state relay: used to control the current of the heating tube and thus the temperature of the heating tube.

5.7. Power switch: controls the switching off and on of the main power supply.

Note: the electric heating control circuit of the machine adopts the most advanced voltage stabilizer (solid state relay) to prevent the damage of heating tube caused by the unstable voltage in the test machine, and improve the life and temperature accuracy of heating tube.

## 6. Pneumatic control part function

6.1. Cylinder: the main component for action

6.2. Solenoid valve: controls cylinder action

6.3.Pressure gauge: used to show the measured pressure

6.4.Pressure regulating valve: it is used to adjust the air pressure. Pull the handle up and adjust it from left to right. Increase clockwise and decrease counterclockwise.

6.5.Muffler: used for electromagnetic valve exhaust and noise elimination.

6.6.Flow limiting valve: limits the flow of gas

6.7.Elbow quick connection: connection between the air road

6.8.Oil and water separator, main regulating valve: used to filter the water in the air and adjust the total gas pressure of the machine.

Other switching functions:

- A. Left foot stepping switch: control the lifting of the upper column pressure wheel, step down is to control the upper column pressure wheel to drop, release that is to rise.
- B. Right foot switch: controls the swing of the heat gun and the rotation of the press wheel.
  - 1. If you do not step down the left foot, then just press the wheel rotation, hot air gun is not put into, this function can be used to loosen the belt.
  - 2. In the state of automatic tape cutting, first release the left foot step, and then release the right foot, then the automatic tape cutting and after the completion of the automatic tape, then send the tape.

### **III、** Instructions

#### **1.**Operation to prepare

1.1.The operating condition of the machine shall ensure that the power supply used is AC220V with a frequency of 50HZ. The wires used for the input power supply shall ensure that they can withstand the overload load of voltage and current, and check whether the cylinder barometer is at the set value.

1.2.Check the air source to ensure the external total pressure reaches 0.5-0.6mpa, and check whether the main pressure regulating valve on the machine is at the set value (0.4-0.5mpa).

1.3.Before heating the machine, check whether there are inflammable and explosive items in the surrounding environment. If so, clean up the site to ensure safety.

1.4. When the heating gun is heated, clothes, human body or other items shall not be in contact with it.

1.5. During operation, protective gloves should be worn (half of the gloves with 5 fingers exposed) to avoid scalding hands.

## 2. Touch screen operation control

Screen after boot (as shown below)

1. Select Chinese operation interface
2. Select English operation interface

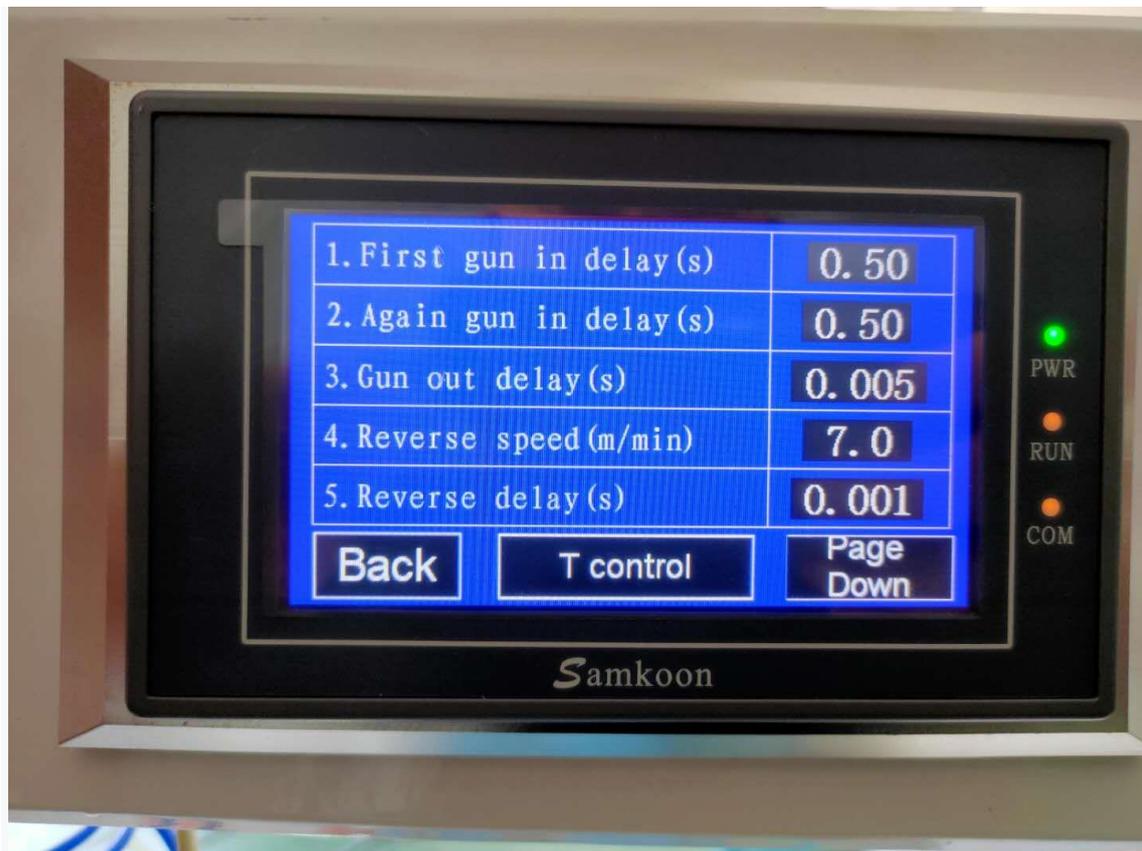


3. Value of motor speed
4. cutter control switch
5. Air gun heating switch
6. Motor reverse switch
7. Enter the parameter setting key

Note: when entering the parameter setting, management personnel or technical personnel are required. General operators are not allowed to enter. Press for more than 2 seconds to turn on or off, enter the password 2.2.2.2 to enter, and display the following a1-a4 page.



1. First gun in delay(s): it refers to the speed of the air gun and the movement time of the upper and lower wheels when the left pedal is down first, then the right pedal is down
  2. Again gun in delay(s): it refers to the speed at which the left foot keeps stepping down and the right foot loosens until the air gun swings into time and the upper and lower wheels move.(the above two functions to cope with hot air gun is fashionable and fluctuation pressure pneumatic passage of time, to achieve heat gun and pressure wheel start simultaneously, such as working in the hot air gun is fashionable burn out stitches, burn out tape, must reduce the numerical, pauses to appear on the cloth cover the blank value increases, the numerical control reference value of 0.30)
  3. Gun out delay(s): its function is the roller stop delay to coordinate with the hot air gun and the press wheel stop synchronization, to reach the hot air gun swing away from the rubber wheel, and the press wheel should stop immediately, such as the work of breaking stitches, burning tape, must increase the value, such as blank to reduce the value, the value of the reference value of the adjustment of 0.01
  4. Reverse speed (m/min): refers to the parameter value of the micro-retreat speed of the pressure wheel when the air gun is placed.
  5. Reverse delay(s): its function is to prevent blank on the cloth surface during the pause, because the two wheels suddenly stop down, the rotation of the pressure wheel has attached to the inertia of the steering, resulting in hot sealing tape and blank on the cloth surface, if the amount of adjustment is too large, will burn off the tape adjustment amount is too small will produce blank, the reference value of numerical adjustment is 0.01
- Temperature control parameters: press this button to display "self-setting screen" when the temperature is not accurate, or after the replacement of the electric heat pipe, first open the heating switch, adjust the air volume (air pressure) of the air gun and then press "self-setting" until the set temperature is within  $\pm 2^{\circ}\text{C}$  of the actual temperature error. There is a digital display on P.I.D. click "self-tuning in" to exit self-tuning and return to the operation interface.



#### A1

6. Forward speed (m/min): it is used to adjust the parameters of the speed of the upper and lower pressure wheels, namely the main speed, with the factory value of 5.0m/min

7. Send tape speed (m/min): used to adjust the speed of tape feeding after the upper cutting

8. Send tape length (mm): refers to the length of tape feeding after the scissors cut the tape when the tape is automatically cut.

9. Press tape length(mm): control the length of sealing end after cutting tape

10. Truck hold delay(s): after cutting and sealing the end, the pressure stop time of the upper rubber wheel is pressed down to make the end sealing more firm.

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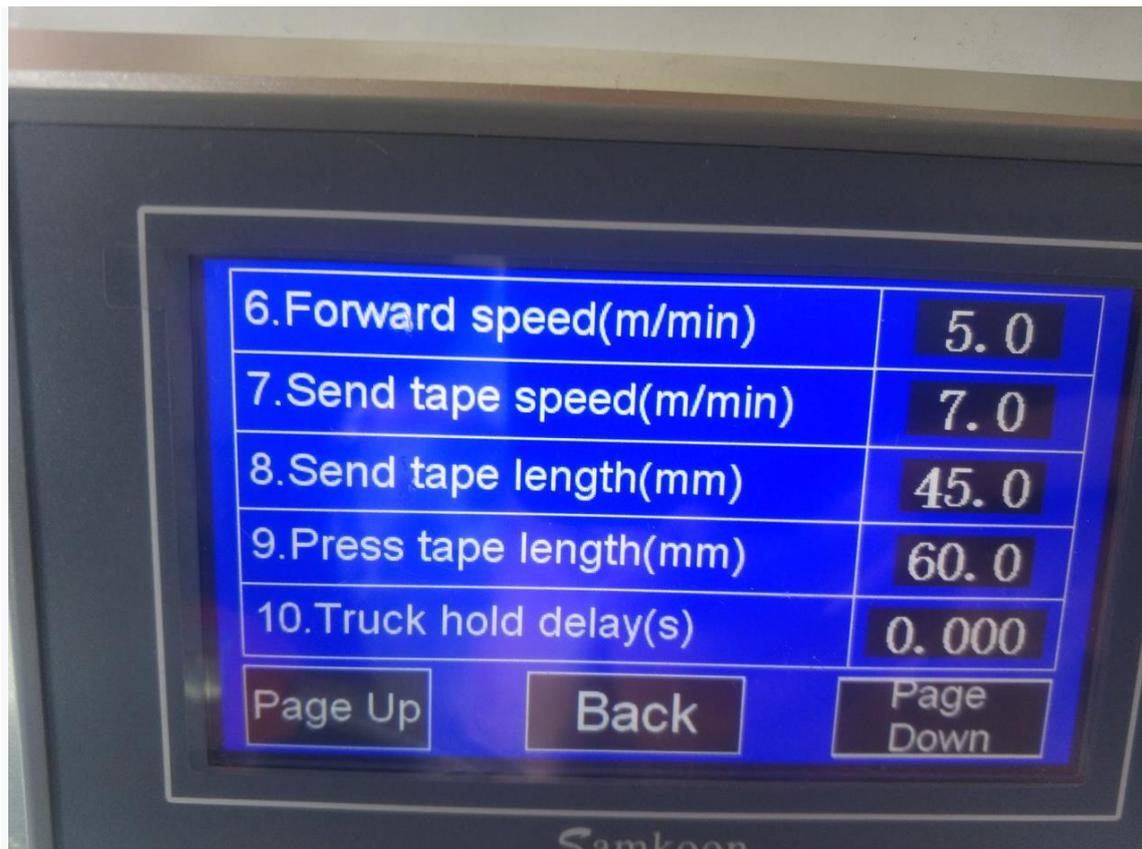
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A2

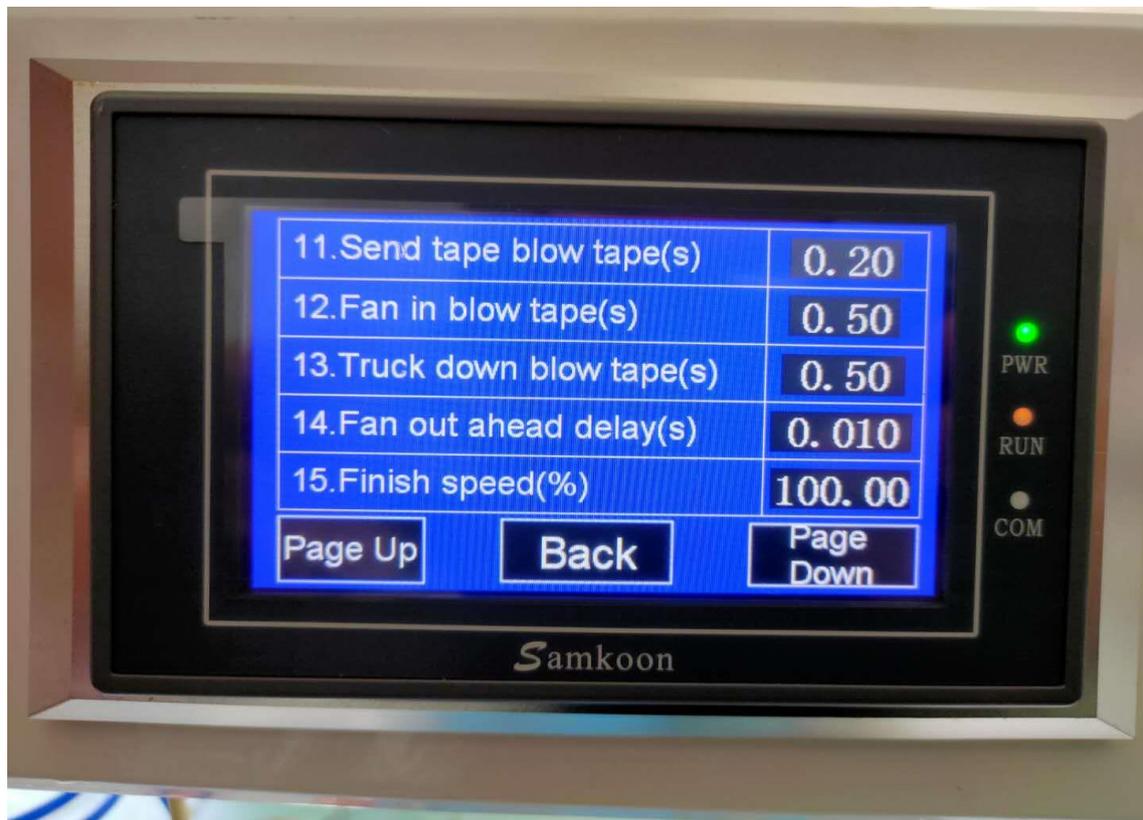
11. Send tape blow tape(s): its function is to use the automatic belt cutting function, to ensure that after the belt cutting, the tail of the belt will be pressed automatically, and the adjustment reference value is 0.20

12. Fan in blow tape(3): refers to the delay time of blowing belt in the air copper pipe after the gun is put in. Its function is to use the automatic strip cutting function, to ensure that the tape cutting and the completion of the tail pressure, automatically send the lead to the upper and lower pressure wheel to set the position, the reference value is 0.48

13. Truck down blow tape(s): it refers to the time of blowing the belt by blowing the copper pipe when stepping on the left foot

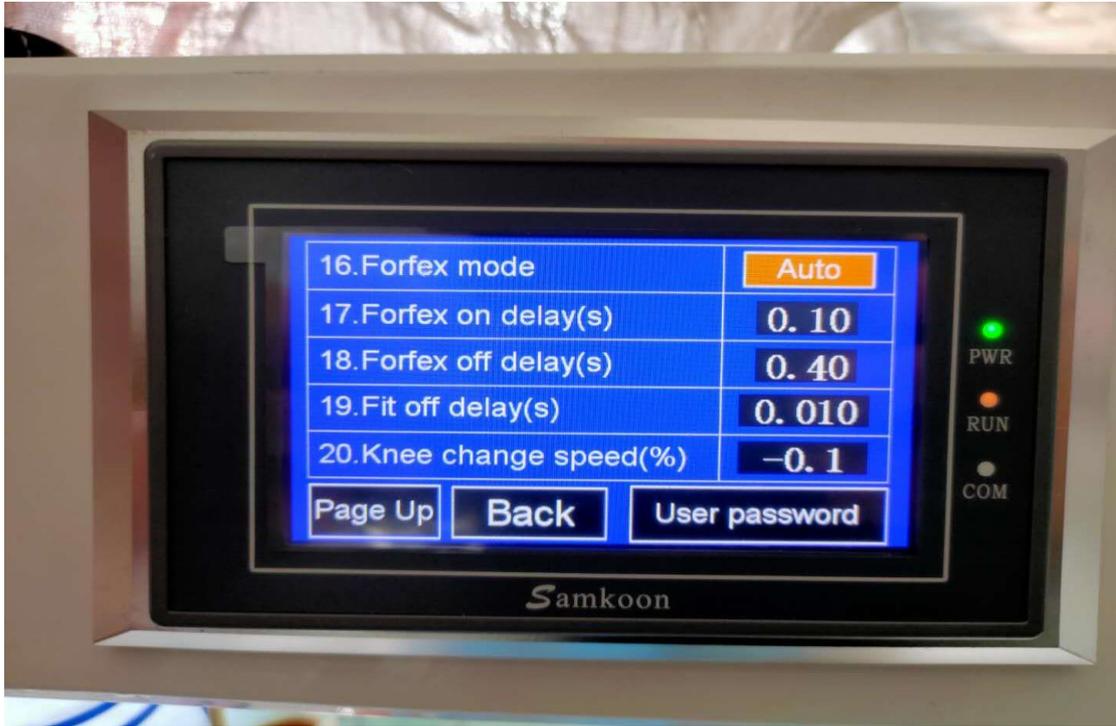
14. Fan out ahead delay(s): refers to the time of blowing the tape after the completion of cutting the tape

15. Finish speed(%): the speed of the motor slows down after belt reduction, which can make the tail pressure more work



A3

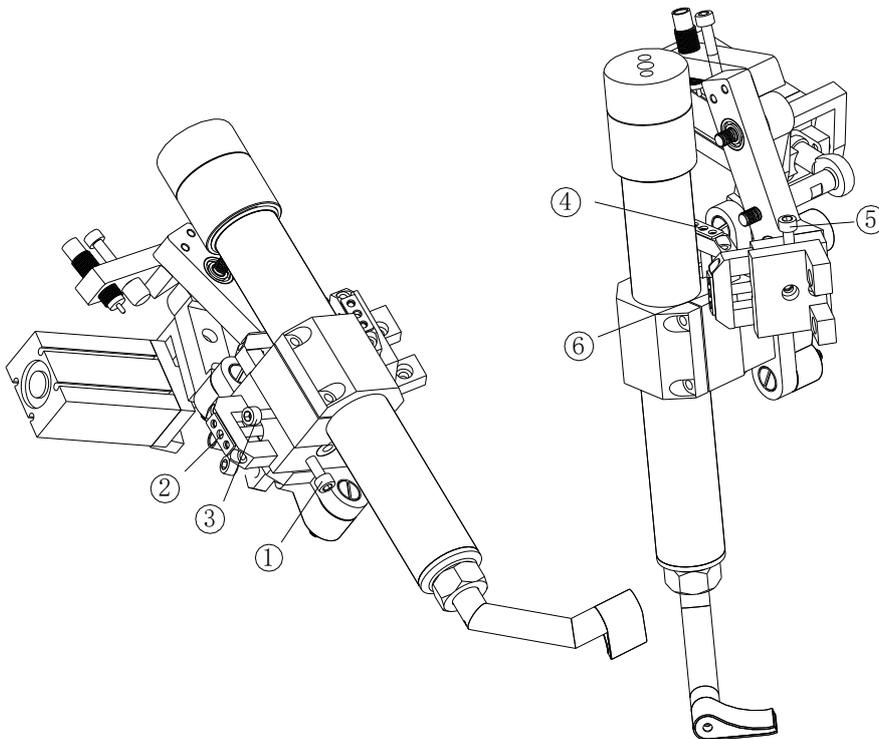
16. Forfex mode: manual mode and automatic mode can be selected
17. Forfex on delay(s): control the closing time of scissor
18. Forfex off delay(s): control the time to blow the copper pipe after the scissor is opened
19. Fit off delay(s): control the speed of entrainment cylinder
20. Knee change speed(%): (made an order)



A4

#### 四 Partial assembly and debugging requirements

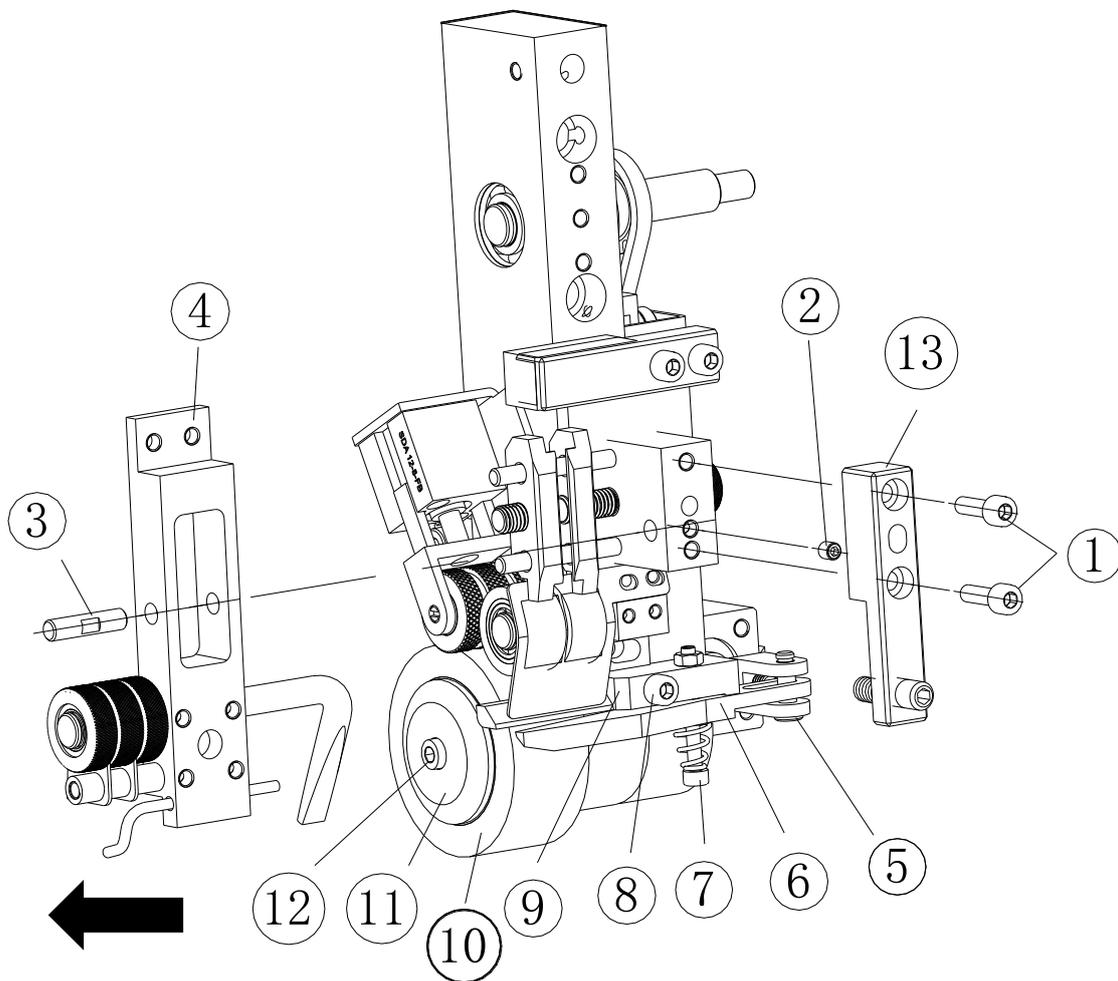
##### 1. Hot air gun position (picture 1)



Picture 1

1. Loosen the fastening screw (1)
2. Turn the adjusting screw (2), move the gun to the right when rotating clockwise and move the gun to the left when rotating counterclockwise.
3. Loosen the fastening screw (3) , rotate the adjusting screw (4) to make the gun move forward and backward; Loosen the fastening screw (5).Rotate the screw (6) to move the gun up and down.

2. Replace the Scissor (Picture 2)



Picture 2

- 1.Screw out the compression spring seat screw (1) remove the compression spring seat (13)
2. Screw out the compression arm screw (2), take out the compression arm shaft (3) ,take out the compression arm assembly
3. Remove the scissor shaft (5)
4. Screw out the scissors fixing screw (8)

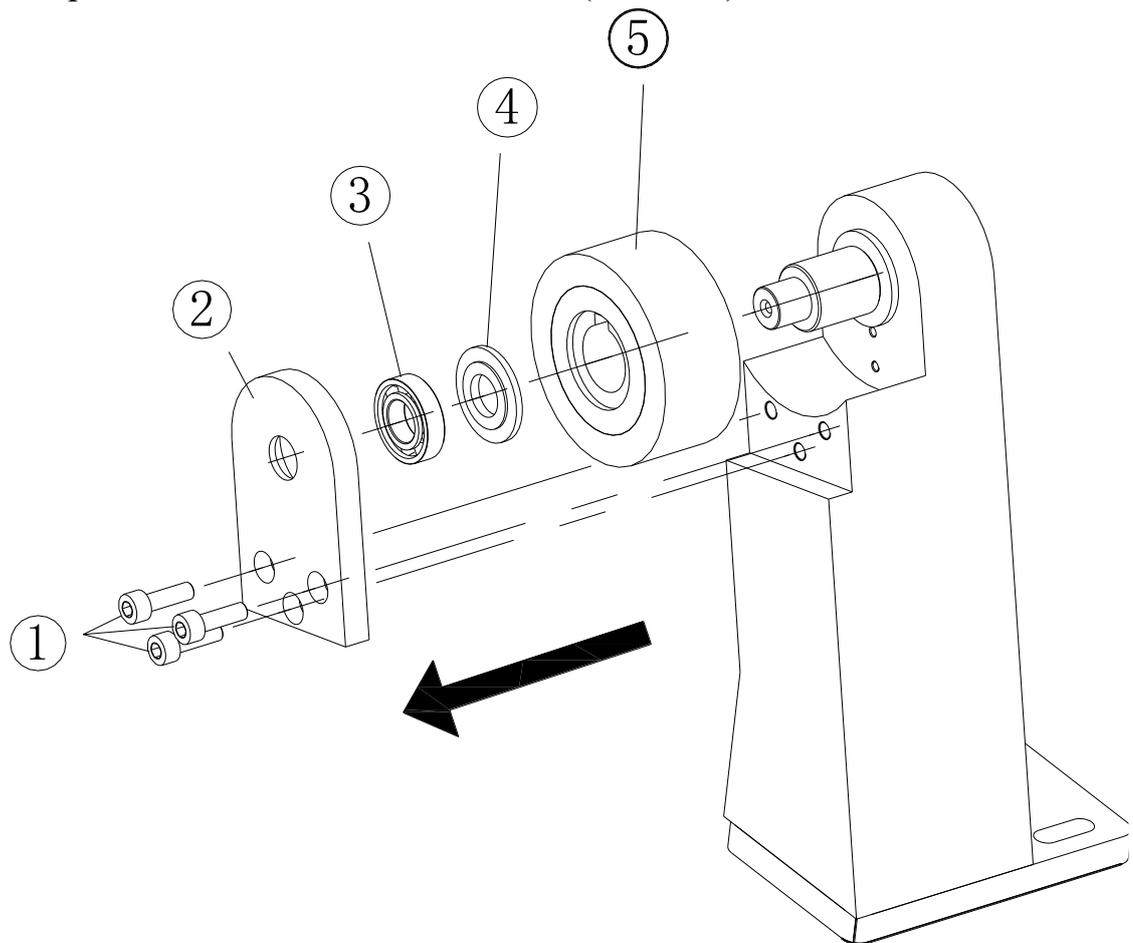
### 5. Remove the scissors

Attention: the tightness between the upper and lower scissor can be adjusted by the scissors adjusting screw (7)

### 3. Replacement of upper column wheel (Picture 2)

- 1) Tighten the screw (12) remove the cover plate of upper roller (11)
- 2) Remove the upper column wheel as shown by the arrow

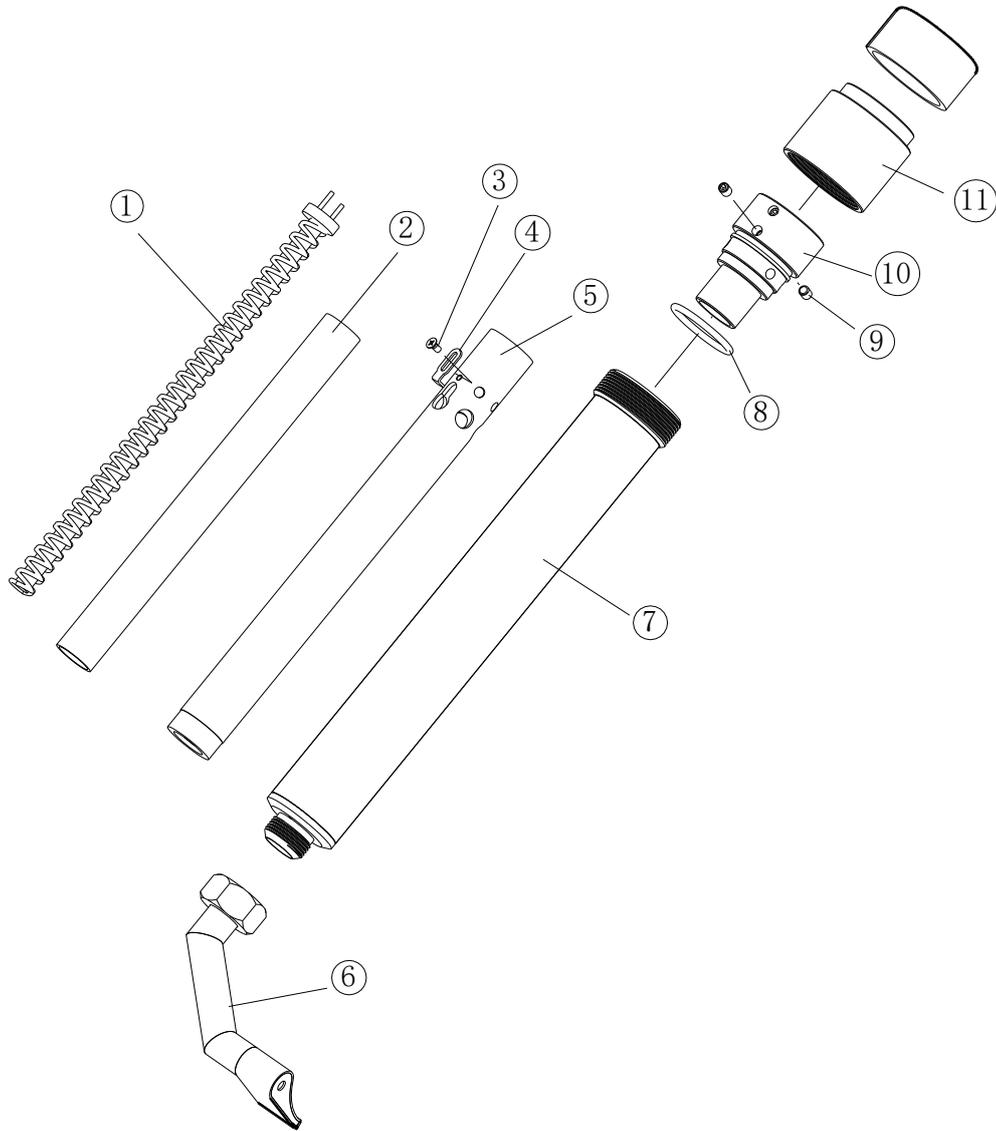
### 4. Replacement of lower column wheel(Picture 3)



Picture 3

1. Screw out three screw (1)
2. Remove side cover plate (2)
3. Take out the spacer sleeve (4)
4. Remove the lower column wheel as shown by the arrow

### 5. Replacement of the heater(Picture 4)



Picture 4

Attention: this must be done when the power is off.

1. Open the heating tube cover
2. Pull out the heating tube
3. Open the screw of the glass tube
4. Take away the heating tube and glass tube
5. Open the heating screw
6. Remove the heating and replace it

## 五. Technical requirements after adjusting

1. The pressure should be between 0.4 and 0.5Mpa
  2. The pressure of upper column roller should be between 0.1 and 0.15mpa
  3. The lifting of the upper wheel should be smooth and free, without major vibration and rapid impact
  4. Micro back requirements  
Step down the left foot, then step down the right foot, after the press wheel operation, release the right foot, observe whether the up and down pressure wheel has a little reversal or micro back, micro back process can't be without in the production, it is the main action to eliminate blank belt
  5. Swing the gun requirements  
Swing the hot air gun should be smooth and natural, the speed is neither slow or quick, it can't hear the sound of rapid impact
  6. Transmission technical requirements  
Check the virtual location should be as small as possible, the belt is easy to produce blank when virtual location is too much, check the whole machine whether the transmission chain is moderately tight, each top chain tooth, sprocket, cross universal joint fastening screw is not loose
  7. The heating inner tube and the heating outer tube should be opposite to the air inlet of the outer tube
  8. Each control air circuit shall be sealed without leakage
  9. The normal hot air nozzle and the upper and lower pressure wheel swing at 20 angles in front of the two wheels, on the tangent line of the pressure wheel pressing and closing 4-6mm adjustment, the nozzle and the upper wheel side of 2-4mm adjustment, but according to the production of waterproof fabric and heat sealing tape to adjust the distance between the hot air gun and the two pressure wheel, to adjust the adhesive requirements
  10. The nozzle is required to be horizontally parallel to the edge of the upper and lower pressure wheel. Otherwise, one side of the pressure band will not stick to it
- Attention: Any change will directly affect the effect of the products produced due to different tape, different operator, different environment, different climate and different thickness of material

Pls be noted, the machines will be changed according to following items:

- A. The heating temperature can be adjusted
- B. The total pressure is adjustable, and the pressure of the upper wheel is adjustable
- C. The hot air volume can be adjusted
- D. The distance between the hot air nozzle and the upper and lower pressure wheel can be adjusted

## 六、 Inspection and maintenance

### 1. Check and repair items

#### 1.1 air road maintenance

- A. Check the total air source and keep it above 0.4mpa
- B. Check the general pressure regulating valve, pull out the handle of the general pressure regulating valve, and clean the dirt in the filter cup if the pointer of the general pressure gauge does not change after one adjustment
- C. Check whether the flow limit valve of each cylinder is loose or not
- D. Check the trachea for aging, damage, loosening and air leakage

#### 1.2 circuit inspection

- A. All the installation, maintenance and maintenance of the electrical control system of the machine must comply with the relevant safety regulations of the state to avoid the occurrence of equipment and personal accidents
- B. When replacing components after failure, be sure to choose the same model or the same components as the original as far as possible
- C. Clean the electrical control cabinet after regular shutdown
- D. Tighten the wiring terminals of the electrical control system with regular shutdown
- E. In order to prevent damage to PLC and display operation panel, please do not plug the connection line between PLC and display operation panel under power
- F. For the trouble that cannot be solved, please contact our service network all over the country in time
- G. The company shall not be responsible for the consequences caused by any violation of safe operation and maintenance procedures (see relevant national standards)

#### 1.3 maintenance of mechanical parts

- A. Check whether each transmission chain is out of position or loose, and if any, correct or tighten the top wire on the chain teeth
- B. Check whether the chain is too loose or too long. Adjust the top chain tension or the bearing block distance
- C. Check whether the nozzle of the hot air gun is parallel to the rubber wheel of the upper column. If it is not parallel and not in the middle, it

should be adjusted according to the debugging method mentioned above  
 Note: mechanical despite how durable it is, in the long run will happen after the use of different degree of wear and tear caused by mechanical movement disorders, such as not timely maintenance and maintenance, is bound to cause some parts of serious damage, and cannot be repaired, so we need to maintenance personnel familiar with and understand it, do daily maintenance and regular maintenance, in strict accordance with the technical requirements for debugging and maintenance, so as to prolong the service life of equipment.

## 2. Common faults and troubles hooting

Faults	Reason	Solution
The upper cylinder cannot rise and fall or it is not smooth	Insufficient total or cylinder pressure	Check the air source and adjust the size of air road
	Control air leakage	Check the air road and connect it again
	The solenoid valve is broken	Replace the original
	The limiting valve is locked	Adjust the limiting valve
	air road is too big or too small	Adjust the limiting valve
	The exhaust silencing screen is clogged with dirty	Clean the exhaust silencing screen
	The three top screws beside the slider seat are not properly adjusted (too tight)	Add the butter and oil to the sliding position of the slider holder
Glue not good	Heat sealing tape is not suitable with waterproof fabric	Make sure the material between heat sealing tape and waterproof fabric are same, change the heat sealing tape

	The distance between the hot air pipe and the top pressure wheel has problem; the gun nozzle is blocked by debris; the pressure wheel speed is too fast; Hot air gun temperature is too low,; air volume is too small; all will affect the paste	Clean up the hot air nozzle dirt and adjust the gun nozzle distance, reset the temperature and pressure wheel speed
The scissor can't cut well	Scissors are not sharp	Replace the scissors or sharpen it
	Scissor spring too loose or elastic failure	Replace or adjust the spring
	Low or leaky air pressure	Adjust the air pressure, check the air road
Screen don't work in normal or can't show the	Screen is broken	Replace the screen
	The connection has problem	Check the connection
	Power switch is closed	Check the power circuit
The motor is not working or the speed is too small	Error in setting control center	Adjust the parameter in control center
	The motor line is wrong or it is short-circuited	Check electrical controlling circuit
	The mechanical part can't moving	Replace the transmission parts
	Motor damaged	Replace the motor

Pressure wheel transfer virtual too large, press the belt	transmission chain is too loose or worn the edge	Adjust the chain
Create empty	Gear or universal joint wear	Replace the gear or universal joint
	The up and down pressure wheel and the radial pressure wheel produce virtual position	Replace the pressure wheel and fit it closely with the pressure wheel shaft
The value of the temperature control meter is too large or cannot be displayed in normal operation	Damage of temperature sensor or disconnection of the certain conductor	Replace the temperature sensor and conductor
	The PID parameter is not adjusted properly	Readjust the PID parameter
	Not properly connected thermocouple	Reconnect the thermocouple
	Temperature controller is broken	Replace the temperature controller
Swing arm cylinder swing arm is not in place	Air pressure is not enough	Adjust the total pressure or adjust the flow
	Too small cylinder flow	Adjust the limiting valve
	Swing scale shift	Check whether the swing gun adjustment is in place
	Cylinder blow-by	Replace the cylinder
	Air leaks in other parts of the air road	Check the air road

	The time is too small from Swing arm to target	Adjust the time from swing arm to target
Pedal is not working	The 220V power supply is not connected properly	Check the power
	The connection for pedal is not ok	Check the connection
	The line is broken	Check the circuit
	Micro switch of the pedal connection is not good or damaged	Replace the micro switch of pedal

Besides the above common faults, we may find there are some other objective existence of the problems which the company don't find it. If the users meet the problems unable to solve, please contact with the company, at the same time we are glad to have the feedback from the users