Fully Automatic 1-sided Terminal Crimping and Tin Soldering Machine

Model:KS-T103AV

CE

Date of update:Oct,2022

Keep for future use!

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1. Introduction

Thank you for purchasing Fully Automatic 1-sided Terminal Crimping and Tin Soldering Machine KS-T103AV from SHANGHAI KINGSING AUTO CO., LTD. KINGSING Auto is a famous high-tech enterprise, which has been engaged in developing, manufacturing and marketing wire-harness processing equipment for over 15 years.

Please read though and refer to these operating instructions for proper use and safety.

(Keep this manual with the machine for the benefit of personnel responsible for installation, operation, and maintenance. In addition, be sure to keep any other documents or samples with the machine.)

1.1 Package Contents

Please check the followings on delivery.

Automatic Terminal Crimping and Soldering Machine KS-T103AV	1 unit
Power cord	1 pc
Air tube	1 pc
Allen wrench	1 set
Socket wrench	1 pc
Cross screwdrivers	1 pc
Tool Box	1 pc
Oil kettle	1 pc
User Manual	1 copy

Report it if anything missing or broken to our representative.

1.2 Package Notes

Keep the original package after unpacking and always use it for later transportation.

After unpacking, please check in the following:

a) The machine model number and other accessories against the packing list for invoiced items ordered.

b) Any significant damage to the machine when delivered.

c) It is possible that some screws and bolts may have loosened during transit. Please check, and tighten as required, all screws and bolts before powering the machine on.

d) Check the power supply before starting machine. The power plug is required to be connected to a grounded receptacle to avoid electric shock, in the event of an electrical breakdown.

2. Safety Precautions

Safe structure of applicator is designed into this application equipment to protect operators and maintenance personnel from most hazards during equipment operation. However, certain safety precautions must be taken by the operator and repair personnel to avoid personal injury, as well as damage to the equipment. For best results, application equipment must be operated in a dry, dust–free environment. Do not operate equipment in a gaseous or hazardous environment.

IMPORTANT:

- ALWAYS wear approved eye protection when operating powered equipment.
- ALWAYS pay attention to the hands position during crimp terminals to prevent injury.
- ALWAYS insert power plug into a properly grounded receptacle to avoid electrical shock.
- ALWAYS turn off the main power switch and disconnect electrical cord from the power source when performing maintenance on the equipment.
- NEVER wear loose clothing or jewelry that may catch in moving parts of the application equipment.
- NEVER insert hands into applicator set when the equipment is power on.
- NEVER alter, modify, or misuse the crimping machine.

Carefully observe the following safety precautions before and during operation of the equipment.

1. Read this user manual fully and carefully to avoid any accident or incident, and prolong the service life of the machine. After a thorough reading, and before continuing, please contact KINGSING if anything remains uncertain. KINGSING is committed to providing follow-up communication for all purchases.
2. KINGSING provides a one-year warranty from the date stamped on the commercial invoice issued with the purchase. Please contact us if the machine malfunctions in any way, or if there are any problems with manufacture quality. During the warranty period, customers will not be charged for any replacement parts or maintenance service. However, all freight costs associated with replacement parts and/or service required will be at the customer's expense.
3. The manufacturer's warranty applies only to the original purchaser named on the official invoice documentation. Please keep this manual in a safe place and pass to new owner if machine is sold.

Correct use of the instrument includes observation of all the instructions and the prescribed operating conditions!

4. **DO NOT** power on the machine if damage is evident upon inspection. Immediately contact KINGSING to discuss a quality assurance process.

5. Position the machine on the horizontal ground. The location needs sufficient space for heat dissipation to ensure an appropriate operating temperature.
6. If the parts need to be replaced or the inside of the machine needs to be cleaned (such as wires, clamp, belt and etc.), please disconnect the power first.
7. Stay Alert! Never run the machine when feeling overcharged, drugged, tired or unable to work!
8. Dress properly! Do not wear loose clothing, jewelry or gloves as they can be caught in moving parts!

Important notice for selecting operation place:

The following places should be avoided for operation and storage:

1) Damp or dusty places.
2) Places exposed to high temperatures, direct sunlight or low temperatures. (operating range: 0°C to 40 °C)
3) Do not spill liquids onto the machine.
4) Do not expose the KS-T103AV to strong vibrations and impact.

The KS-T103AV may only be used:

- For the purpose for which it was intended and in a perfectly safe technical condition.
- All persons involved in the start-up, operation and maintenance of the KS-T103AV must be professional and familiar with the operation manual.

※ General Safety Attentions

The " 

Danger" " 

Caution" " 

Note" are defined as follows:

	DANGER: Denotes an imminent hazard which may result in moderate or severe injury. Maloperation may cause death or severe injury to the operator.
	CAUTION: Denotes a condition which may result in product or equipment damage. Maloperation may cause the operator to be seriously or slightly injured.
	NOTE: Highlights special or important information. Maloperation may cause slight injury to the operator or damage to the equipment.

Be sure to follow the warnings in this user manual!

The warning sign on this machine is a very important item selected from the warning items.

3. General Description

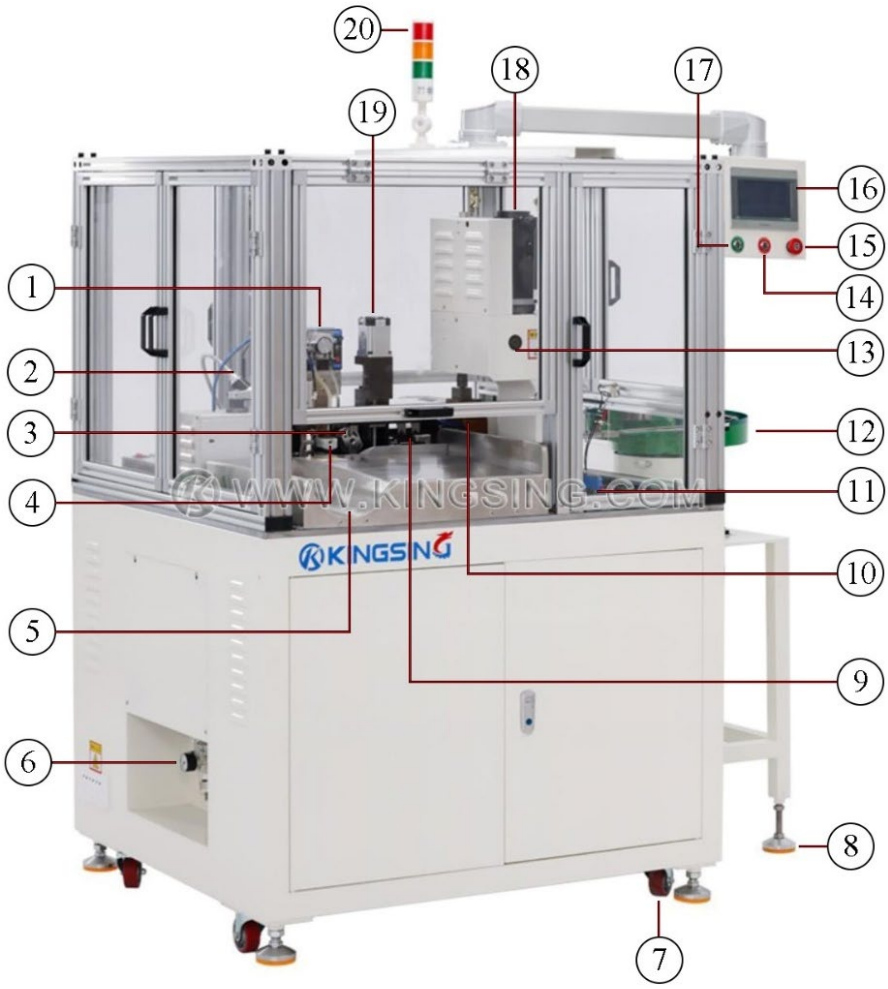
3.1 Machine Description

KS-T103AV is designed for one side cutting stripping and terminal crimping, the other side twisting and tin soldering. All required processing parameters such as cutting depth, cutting length, stripping length and crimping depth can be set in and saved in the LCD touch screen. The most economic and efficient way to process single wires and terminals. It adopts vibration disk feeding mode to feed the loose terminals, reliability and top production performance coupled with multiple function are the features that make this automatic crimping and tin soldering machine such a compelling product.

3.2 Machine Feature

1. Built-in motor, beautiful appearance, equipped with universal casters, easy to move;
2. Stable work, large output, and overload protection function;
3. Low noise, low energy consumption, no pollution, and small floor space;
4. High-precision servo motor, machine control is more accurate and stable, and the service life is longer;
5. It adopts vibration disk feeding mode to ensure the feeding stability of the loose terminals;
6. 7-inch touch screen, digital and graphical control interface, more intuitive;
7. The machine body is made of high-strength thick steel plate with precise dimensions to ensure the stability of crimping;
8. Optional crimping force monitoring system, vertical wire pre-feeder and long wire conveyor belt, etc.
9. With the functions of lack of wire detection, machine abnormal detection, low air pressure detection, etc.

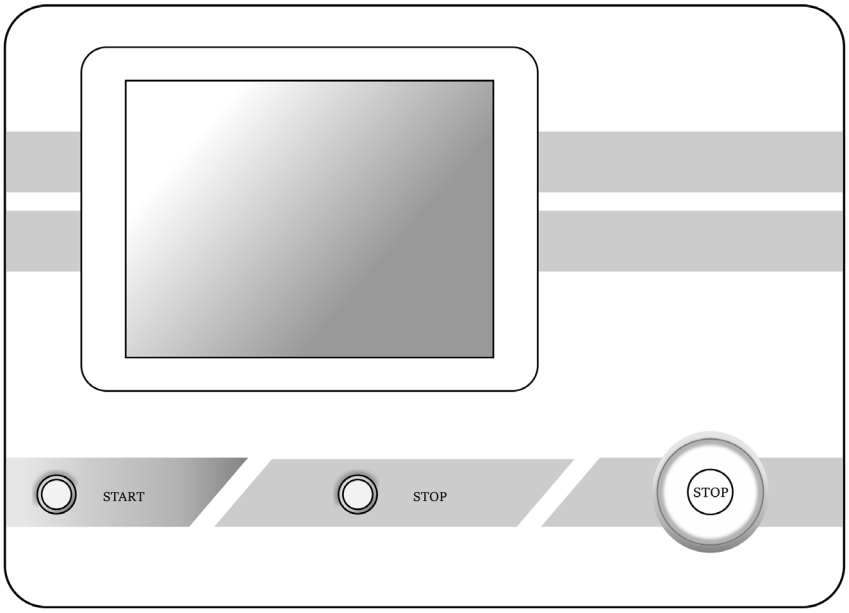
3.3 Machine Structure



NO.	Name	NO.	Name
①	Flux Peristaltic Pump	②	Work Lamp
③	Flux Dipping Station	④	Tail Stripping Twisting Station
⑤	Finished Product Receiving Tray	⑥	Air Source Connection
⑦	Caster	⑧	Supporting Foot
⑨	Cutter Unit	⑩	Applicator
⑪	Optical Fiber Sensor	⑫	Vibration Disk
⑬	Manual Rotating Screw	⑭	Stop Button
⑮	Power Switch	⑯	Touch Screen

⑰	Start Button	⑱	Crimping Motor
⑲	Cutter Motor	⑳	Tri-color Alarm Light

3.4 Control Panel



START: When everything is ready, press START button directly to run the machine automatically. Enter manual control page, press “JOG A” or “JOG B” so that the button is under highlight state, then press START button to run the machine step by step, it is used to adjust the machine.

STOP: When the machine is running, press STOP button to stop the machine after the current cycle is completed. When the machine stops, press and hold STOP button for more than 0.5 seconds to reset.

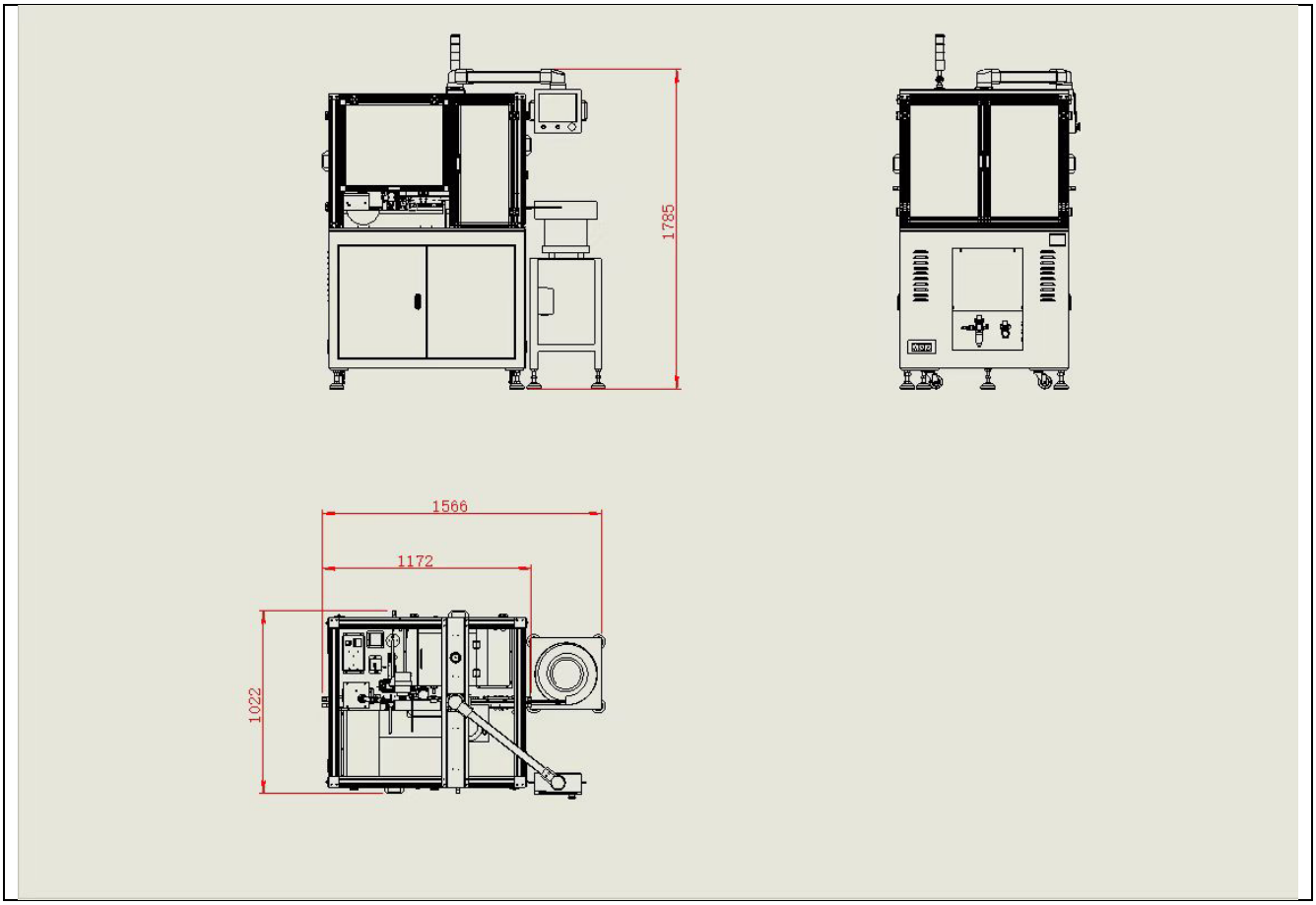
E.STOP: Turn on the power when rotating the button to the right, and turn off the power when pressing down. Press this button immediately when emergency happens.

Display Area: This area is used to display and modify the production parameters, and control the operation of the machine.

3.5 Technical Specifications

Name	Fully Automatic 1-sided Terminal Crimping and Tin Soldering Machine
Model	KS-T103AV
Function	Wire cutting, stripping, twisting, terminal crimping, tin soldering
Available Terminal	Loose terminals
Wire Diameter	0.05~6mm^2 (AWG10#-AWG30#)
Cutting Length	45~999.9mm (Optional conveyor belt is required for 800mm or more)
Stripping Length	Max. Head: 10mm Tail: 14mm
Twisting Function	Wire tail twisting
Cutting/Stripping Accuracy	+-(Length×0.2%)
Crimping Force	Standard 2TON
Crimping Stroke	30mm (40mm can be customized)
Capacity	Around 1000 PCS/Hour
Machine Power	1.5KW
Display Mode	7-inch high-definition LCD color touch screen
Control Mode	STM32 microcontroller, 165NA/MIPS working mode, 5US standby wake-up, high-speed computing
Work Voltage	AC220V/50Hz Single Phase
Air Pressure	0.5-0.7MPa (Must be clean, dry and stable compressed air)
Net Weight	500KG
Dimension (L×W×H)	1566×1022×1950mm
Detection Device	1.Lack of wire 2. Terminal detection 3. Safety cover is opened 4. Machine is abnormal 5. Total quantity reached
Optional Parts	1.OTP applicator and blades 2. Vertical wire pre-feeder 3. Reel type wire pre-feeder 4. Long wire conveyor belt 5. Crimping force monitor

3.6 Layout Diagram

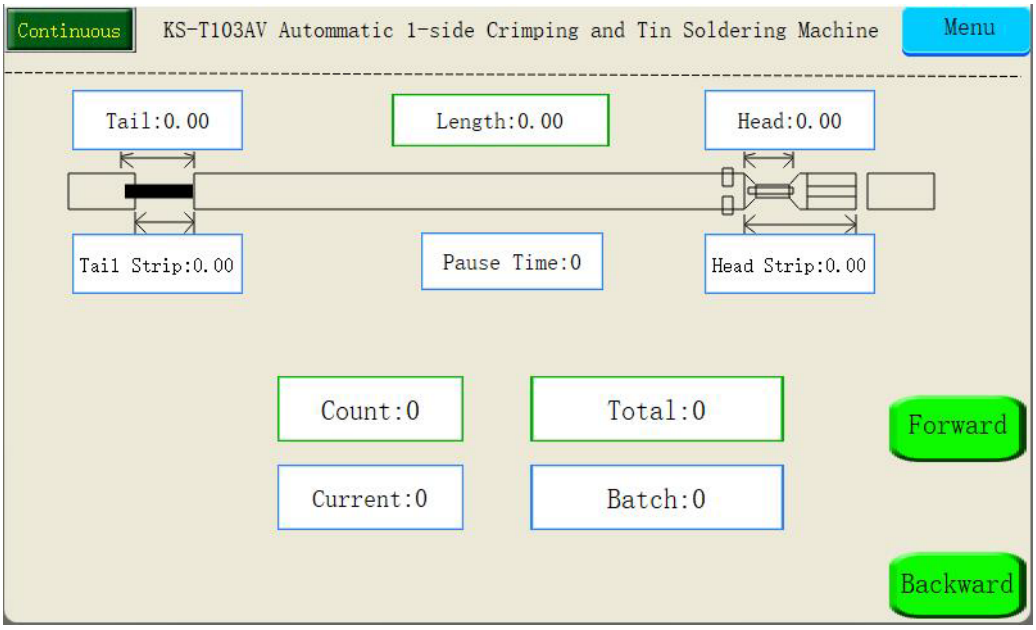


4. Program Setting

- **Booting Page**

This screen is displayed after booting, select the system display language, then enter the automatic screen.

- **Automatic Page**



Continuous: Under continuous mode, press “start” button, the machine will run continuously, this is the normal production mode. Under inching A mode, press “start” button continuously, A side of the machine will run step by step. Under inching B mode, press “start” button continuously, B side of the machine will run step by step. Under “Run once” mode, press “start” button once, the whole machine will run for one cycle and then stop.

Menu: Open the main menu window.

Length: The wire total length.

Head/Tail: Wire head/tail stripping length.

Head Strip/Tail Strip: Wire head/tail insulation pulling length. If pulling length is larger than stripping length, it will do full stripping, otherwise it will do half stripping. (When crimping terminals, please make sure that the insulation pulling length is about 1mm larger than the wire stripping length)

Pause Time: Set the pause time when the bundle quantity is reached.

Count: Accumulation of currently completed output quantities.

Total: Set the planed total quantity to be produced.

Current: Accumulation of the currently completed bundle quantities.

Bundle: Set each bundle quantities.

Forward: Inching control the forward rotation of the feeding rollers to feed the wire.

Backward: Inching control the reverse rotation of the feeding rollers to retreat the wire.

● Feed Wire-Cutter

1# Wire Feeding

Jog Speed: Set the manual running speed of the motor.

Forward: Manually control the forward rotation of the feeding rollers to feed the wire.

Backward: Manually control the reverse rotation of the feeding rollers to retreat the wire.

Run Locat: For example, input a value in “Locate Pos.” inputbox, then click “run locat” button, the feeding motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Motor Enable: Enable/disable of the feeding motor.

Origin: The feeding motor returns to the origin.

Feed Wire SP: The automatic running speed setting of the wire feeding motor.

Locate Pos.: For example, input a value in this inputbox, then click “run locat” button, the feeding motor will automatically run to the set position, it is used to test the position when adjusting the machine.

Torq Up Limit: The upper limit of the torque setting, the machine will alarm and stop if the upper limit is reached.

Current torque: The current torque of the feeding motor is displayed.

Torq Down Limit: The lower limit of the torque setting, the machine will alarm and stop if the lower limit is reached.

Feed Wire Detect: Open or close the wire feeding detection switch.

2# Cutter

Current Pos.: The current position of the cutter motor.

Cut Speed: The automatic running speed setting of the cutter motor.

Locate Pos.: For example, input a value in this inputbox, then click “run locat” button, the cutter motor will automatically run to the set position, it is used to test the position when adjusting the machine.

Cutoff Pos.: The distance moved by the middle cutting blade from the origin to the cut off position.

Cut Skin Pos.: It controls the blade cutting depth, make sure that the stripping blades just cut through the outside insulation but not hurt the inner copper cores.

Precut Pos.: The cutter does not return to the origin after stripping the wire, it returns to the precutting position to prepare for stripping the next wire, it is used to improve the working efficiency.

Blade Retract: In order to prevent the inner copper cores from hurting by the blade edge during the stripping period, so the blade should return back a small distance after it cuts through the insulation, this parameter controls this distance.

Cut Down: Manually move the cutter down.

Cut Up: Manually move the cutter up.

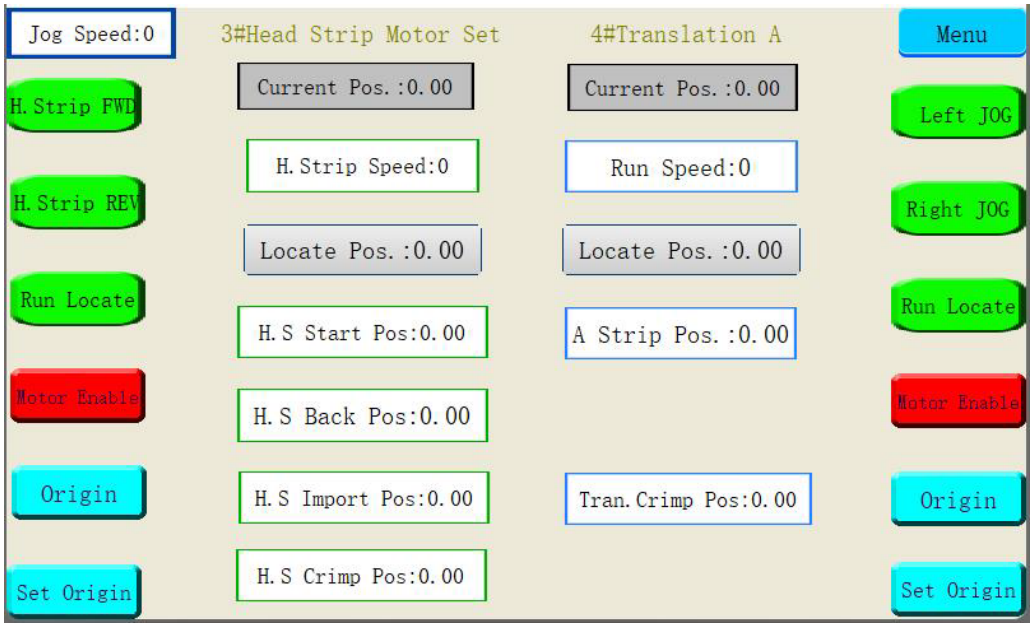
Run Locat: For example, input a value in “Locate Pos.” inputbox, then click “run locat” button, the cutter motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Motor Enable: Enable/disable of the cutter motor.

Origin: After clicking this button once, the cutter motor returns to the origin.

Set Origin: Set the current position to the cutter origin. **(Prudent operation)**

● Head Strip Motor-Translation A



3# Head Strip Motor Set

Current Pos.: The current position of the head stripping motor is displayed.

H.Strip Speed: The automatic running speed setting of the head stripping motor.

Locate Pos.: For example, input a value in this inputbox, then click “run locat” button, the head stripping motor will automatically run to the set position, it is used to test the position when adjusting the machine.

H.S Start Pos.: The advancing distance of the head stripping motor before stripping the wire head.

H.S Back Pos.: The retreating distance of the head stripping motor after stripping the wire head.

H.S Import Pos.: The distance that the head stripping motor moves forward to insert the wire into the guiding clamp, the purpose of this action is to facilitate threading the wire into the terminal more smoothly for crimping.

H.S Crimp Pos.: After the wire is inserted into the guiding clamp, the guiding clamp opens, and then the head stripping motor moves forward for a distance to put the wire to the crimping position for terminal crimping action.

H.Strip FWD: Manually control the forward moving of the head stripping motor.

H.Strip REV: Manually control the backward moving of the head stripping motor.

Run Locat: For example, input a value in “Locate Pos.” inputbox, then click “run locat” button, the head stripping motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Motor Enable: Enable/disable of the head stripping motor.

Origin: After clicking this button once, the head stripping motor returns to the origin.

Set Origin: Set the current position to the head stripping origin. **(Prudent operation)**

4# Translation A

Current Pos.: The current position of the translation A motor is displayed.

Run Speed: The automatic running speed setting of the translation A motor.

Locate Pos.: For example, input a value in this inputbox, then click “run locat” button, the translation A motor will automatically run to the set position, it is used to test the position when adjusting the machine.

A Strip Pos.: The translation A motor moves to the head stripping blade to strip the wire head. This parameter is equal to the distance between the cutting blade and the head stripping blade.

Tran.Crimp Pos.: The translation A motor moves to the terminal crimping position for crimping the terminals after stripping the wire head.

Left JOG: Manually control the left moving of the translation A motor.

Right JOG: Manually control the right moving of the translation A motor.

Run Locat: For example, input a value in “Locate Pos.” inputbox, then click “run locat” button, the translation A motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Motor Enable: Enable/disable of the translation A motor.

Origin: After clicking this button once, the translation A motor returns to the origin.

Set Origin: Set the current position to the origin of the translation A motor. **(Prudent operation)**

- **Tail Strip Motor-Translation B**

5# Tail Strip Motor Set

Current Pos.: The current position of the tail stripping motor is displayed.

T.Strip Speed: The automatic running speed setting of the tail stripping motor.

Locate Pos.: For example, input a value in this inputbox, then click "run locat" button, the tail stripping motor will automatically run to the set position, it is used to test the position when adjusting the machine.

T.S Start Pos.: The advancing distance of the tail stripping motor before stripping the wire tail.

T.S Back Pos.: The retreating distance of the tail stripping motor after stripping the wire tail.

T.S Twist Pos.: The distance that the tail stripping motor moves forward to the twisting clamp for twisting action.

T.S Flux Pos.: The distance that the tail stripping motor moves forward to the flux dipping position, it controls the flux dipping depth.

T.S Tin Pos.: The distance that the tail stripping motor moves forward to the tin dipping position, it controls the tin dipping depth.

Forward: Manually control the forward moving of the tail stripping motor.

Backward: Manually control the backward moving of the tail stripping motor.

Run Locat: For example, input a value in "Locate Pos." inputbox, then click "run locat" button, the tail stripping motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Enable: Enable/disable of the tail stripping motor.

Origin: After clicking this button once, the tail stripping motor returns to the origin.

Set Origin: Set the current position to the tail stripping origin. **(Prudent operation)**

6# Translation B

Current Pos.: The current position of the translation B motor is displayed.

Run Speed: The automatic running speed setting of the translation B motor.

Locate Pos.: For example, input a value in this inputbox, then click "run locat" button, the translation B motor will automatically run to the set position, it is used to test the position when adjusting the machine.

Tran.Strip Pos.: The translation B motor moves to the tail stripping blade to strip the wire tail. This parameter is equal to the distance between the cutting blade and the tail stripping blade.

Flux Pos.: The translation B motor is translated to the flux dipping position.

Tin Position: The translation B motor is translated to the tin dipping position.

Twist Time: The twisting time setting.

Tran.Left: Manually control the left moving of the translation B motor.

Tran.Right: Manually control the right moving of the translation B motor.

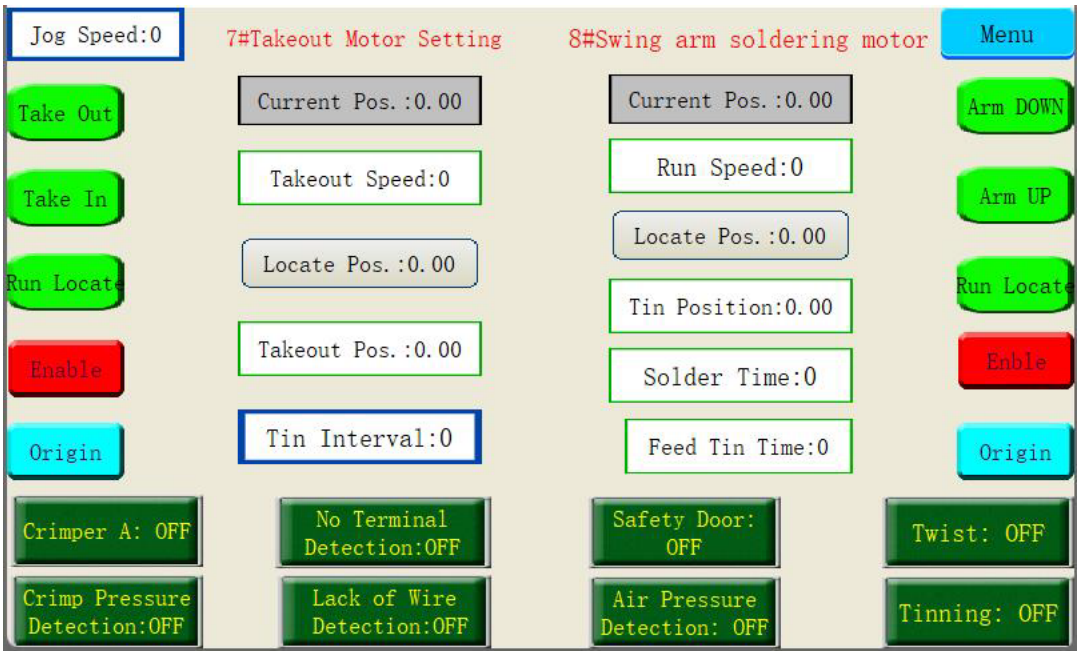
Run Locat: For example, input a value in "Locate Pos." inputbox, then click "run locat" button, the translation B motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Enable: Enable/disable of the translation B motor.

Origin: After clicking this button once, the translation B motor returns to the origin.

Set Origin: Set the current position to the origin of the translation B motor. **(Prudent operation)**

- **Takeout Motor-Swing arm soldering**



7# Take out Motor Setting

Current Pos.: The current position of the take out motor is displayed.

Take out Speed: The automatic running speed setting of the take out motor.

Locate Pos.: For example, input a value in this inputbox, then click "run locat" button, the take out motor will automatically run to the set position, it is used to test the position when adjusting the machine.

Take out Pos.: Set the moving distance of the wire taking out clamp from the origin to the finished product hopper.

Tin Interval: The tin feeding interval time setting, it controls the amount of the liquid tin in the tin pot.

Take Out: Manually control the wire taking out clamp to move outwards.

Take In: Manually control the wire taking out clamp to move inwards.

Run Locat: For example, input a value in “Locate Pos.” inputbox, then click “run locat” button, the take out motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Enable: Enable/disable of the take out motor.

Origin: After clicking this button once, the take out motor returns to the origin.

8# Swing arm soldering motor

Current Pos.: The current position of the swing arm soldering motor is displayed.

Run Speed: The automatic running speed setting of the swing arm soldering motor.

Locate Pos.: For example, input a value in this inputbox, then click “run locat” button, the swing arm soldering motor will automatically run to the set position, it is used to test the position when adjusting the machine.

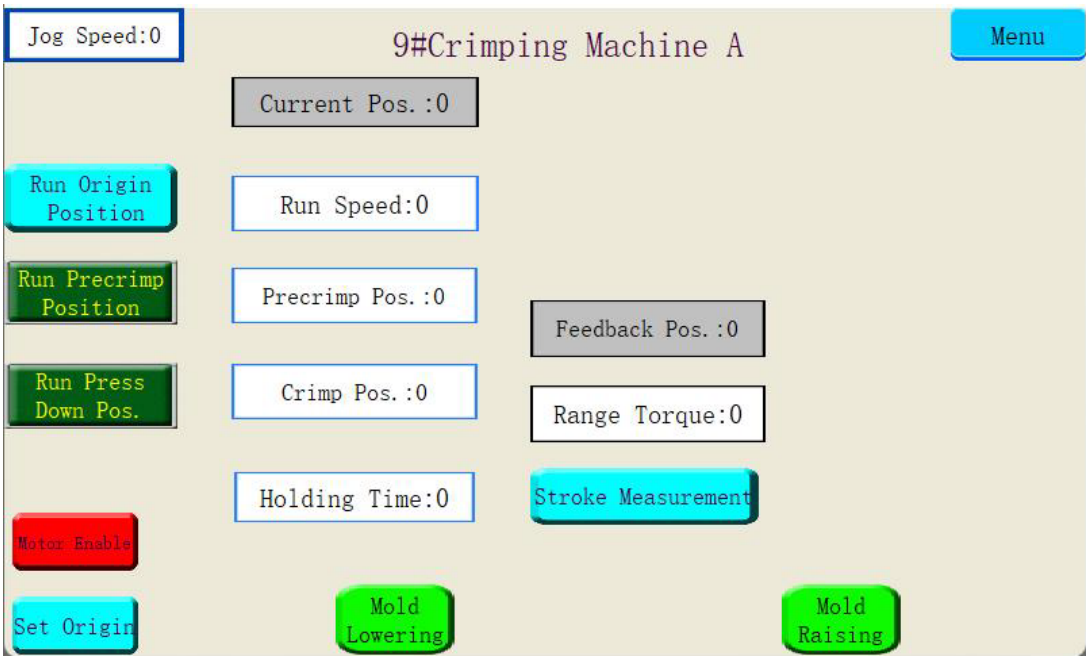
Tin Position: The rotating angle setting of the swing arm soldering motor.
Solder Time: The tin soldering delay time setting.
Feed Tin Time: The duration setting of each tin feeding.
Arm DOWN: Manually control the soldering swing arm to move downwards.
Arm UP: Manually control the soldering swing arm to move upwards.
Run Locate: For example, input a value in “Locate Pos.” inputbox, then click “run locat” button, the swing arm soldering motor will automatically run to the set position. It is used to test the position when adjusting the machine.

Enable: Enable/disable of the swing arm soldering motor.

Origin: After clicking this button once, the swing arm soldering motor returns to the origin.

Crimp A ON/OFF: Open/close the terminal crimping function.
Crimp Pressure Detection ON/OFF: Open/close the crimping pressure detection function. (Optional)
No Terminal Detection ON/OFF: Open/close the terminal missing detection function.
Lack of Wire Detection ON/OFF: Open/close the wire shortage detection function.
Safety Door ON/OFF: The machine alarms and stops when the safety door is opened.
Air Pressure Detection ON/OFF: Open/close the air pressure detection, when the air pressure is low, the machine alarms and cannot be started.
Twist ON/OFF: Open/close the wire twisting function.
Tinning ON/OFF: Open/close the tin soldering function.

● Crimping Machine A



9# Crimping Machine A

Current Pos.: The current position of the crimping motor is displayed.

Run Speed: The automatic running speed setting of the crimping motor.

Precrimp Pos.: The first descending height of the punching head when crimping the terminal.

Crimp Pos.: The punching head continues to descend to the crimping position.

Holding Time: The pressure holding time setting when the punching head presses down to the crimping position, after this time and then it lifts up.

Feedback Pos.: The feedback result is displayed after stoke measurement.

Range Torque: The maximum torque setting when the machine performs stroke measurement operation.

Stoke Measurement: Click this button to perform the stroke measurement operation.

Run Origin Position: The crimping motor returns to the origin.

Run Precrimp Position: The crimping motor runs to pre-crimping position.

Run Press Down Pos.: The crimping motor runs to the crimping position.

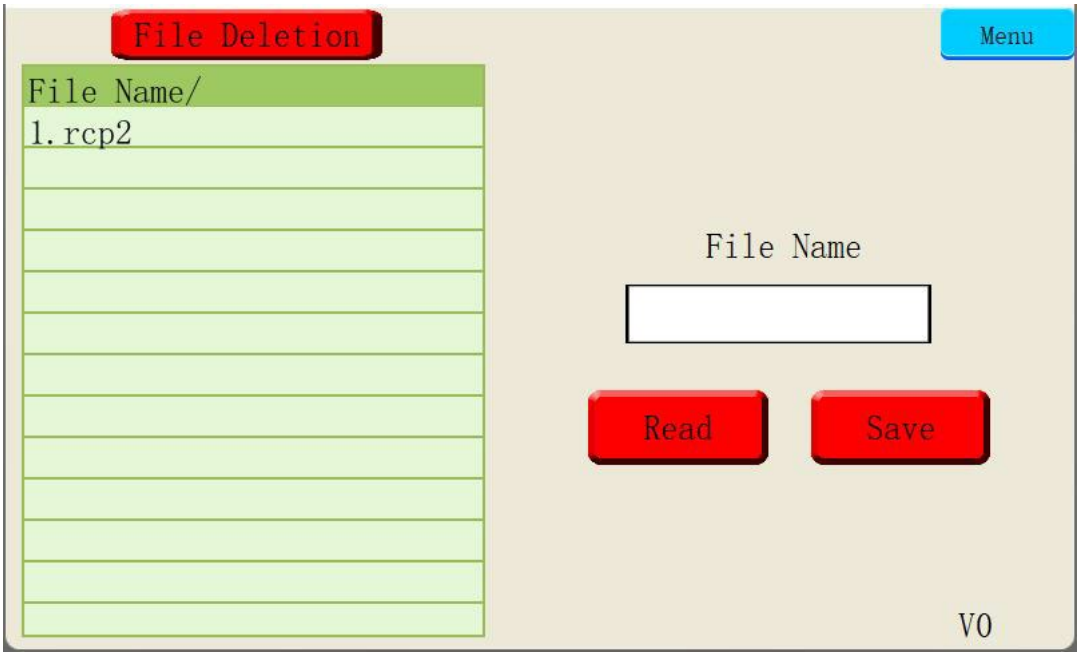
Motor Enable: Enable/disable the terminal crimping motor.

Set Origin: Set the current position to the origin of the crimping motor. **(Prudent operation)**

Mold Lowering: Manually control the forward rotating of the crimping motor.

Mold Raising: Manually control the reversely rotating of the crimping motor.

- **Program Storage Page**



This is the program file storage page, it is used for saving the processing parameters, when the wire is changed, the corresponding program can be directly called without repeated debugging, which greatly improves the production efficiency.

File Name: Name of the selected program.
Save: Save the parameter settings of the current program.
Read: Read the data of the current selected program.
File Delete: Delete the current selected program.

- **I/O Monitoring**

These two controlling pages reflect the working status of the controller, which is used to control the actions of operating the machine. It's convenient for operators to adjust some parts and debug the issues according to the working state of every part.

5. Fast Operation

5.1 Operation Standard

1. Preparation before starting up

- Make sure the working area is flat without shaking.
- Keep the table clean, no sundries.
- Please make sure no terminals in the blade.
- Please confirm the applicator position and terminal crimping height, use the handle run the first time manually to make sure blade will not be damaged.
- Terminals and wire for processing need to be installed correctly. Wire is required to cross the cutter to the clip.

2. Start

a. Rotate the emergency/power switch button and make it popup, then power-on.

b. Press STOP key to reset the machine.

c. Press START key to run the machine.

3. Stop

First press the stop button and wait for the machine to stop completely before turning off the power.

5.2 Operation Steps

1. When first operation

a. Please confirm if the power supply is AC220V 50HZ.

b. Please make sure whether the socket is grounded, power line is in good condition.

c. Whether the power cord is in good condition, check whether the insulation is broken, and whether the joint connection is disconnected.

d. Please check if there are any foreign matters in the machine moving parts.

e. Please oiling the machine as required.

2. Connect to the power supply; plug in the three-pin plug with a ground wire, open the electrical cabinet and turn the circuit breaker to the ON position.

3. Connect the air supply; please keep the air pressure at 0.5～0.7MPa.

4. Connect the power cable and signal cable of the prefeeder to the main machine.

5. Connect the power supply and signal cable of the vibration disk. Install the wire of the optical fiber sensor.

6. Rotate the emergency stop on the control panel to the right to make it pop out, the machine is powered on and press stop button to reset the machine.

7. Turn on the power switches of the vibration disk and prefeeder.

8. Install the tin wire roll and feed the tin wire into the guiding tube.

9. Turn on the heating switch of tin pot, set the heating temperature to a suitable value, generally set to around 350℃.

10. Enter the JOG output operation page, click “Y14 feed tin motor” to feed the tin wire forward, when the tin wire reaches the tin pot, click this button again to stop.

11. Install the wire to the prefeeder, pass through the inlet hole, bottom of the wire detection lever, wire straightener and feeding roller in order, lift the lower induction block to feed the wire for a certain length, and then pass the wire through the hole of the induction block.

12. Install the wire into the feeding belt of the terminal crimping machine, continuously press the manual feeding button on the machine to feed the wire forward, until it exceeds the cutter.

13. Turn on the switch of the flux peristaltic pump, the flux flowing speed can be adjusted by turning the adjusting knob.

14. Manual operation

Manual mode supports only single-end operation, enter the main page, press “continuous” once to switch to JOG A mode, then press “START” button to run the machine step by step to check the stripping and crimping effect of A side. Then switch to JOG B mode to check the twisting and tinning effect of B side.

15. Automatic operation

Switch to “Continuous” mode, press START button, the machine runs automatically.

6. Work finished

a. The machine will automatically stop when the set quantity is reached;

b. When an abnormality occurs, the machine alarms. First press the reset button to reset the machine, and then check the problem;

c. Press the STOP button, and then turn off the power after the machine has completely stopped.

7. Precautions

a. When the machine is running, it is absolutely not allowed to touch the moving parts with your hands;

b. When overhauling, turn off the machine and implement single-person operation.

Note: If using the machine for the first time or after each debugging, you must first switch to manual mode, run in single step to check whether each step is running normally, and then switch to automatic mode for continuous operation to prevent damage to components due to improper operation.

6. Maintenance

During the operation of the machine, ensuring the nice working conditions of the machine is the key to use it. The following routine maintenance should also be noted.

Preventive maintenance will keep the terminal crimping machine in good working order and ensure maximum reliability and service from all of its components.

To avoid personal injury, the machine must be turned off and disconnect the power supply to the machine before and adjustments or maintenance.

6.1 Maintenance Precautions

- The machine is serviced every 200,000 times.
- Power must be disconnected before maintenance.
- Do not use compressed air to blow the inside of the machine.
- The touch screen is made of fragile material. Please do not poke with sharp or hard things. The display and touch screen can be wiped with a soft cloth. Do not use chemical solvents.
- If the crimping blade needs to be replaced, the power supply should be turned off first. When replacing, the screw should be tightened.
- When abnormal conditions such as jamming or stacking occur, stop working immediately to prevent damage to the blade.
- When the terminal is stuck in the blade edge or the terminal tape is stuck in the cutter seat, first switch the machine to the manual mode, and clean the abnormal terminal with the needle. It is strictly prohibited to reach into the crimping area.

6.2 Daily Maintenance

1） Tidy

Do not place objects that are not related to the machine on the machine or around the machine, which causes confusion on the machine or the surrounding working area and affects operation.

2） Neaten

Place the accessories related to the machine and the tools to be used in a place that easy to find in time to prevent the machine from being processed in time.

3） Cleaning

Clean the machine in time to ensure that equipment abnormalities can be found and solved during maintenance, and will not stop operation during use. (Clean every shift)

a) Operators must clean the machine every day to remove dust and debris from the surface of the

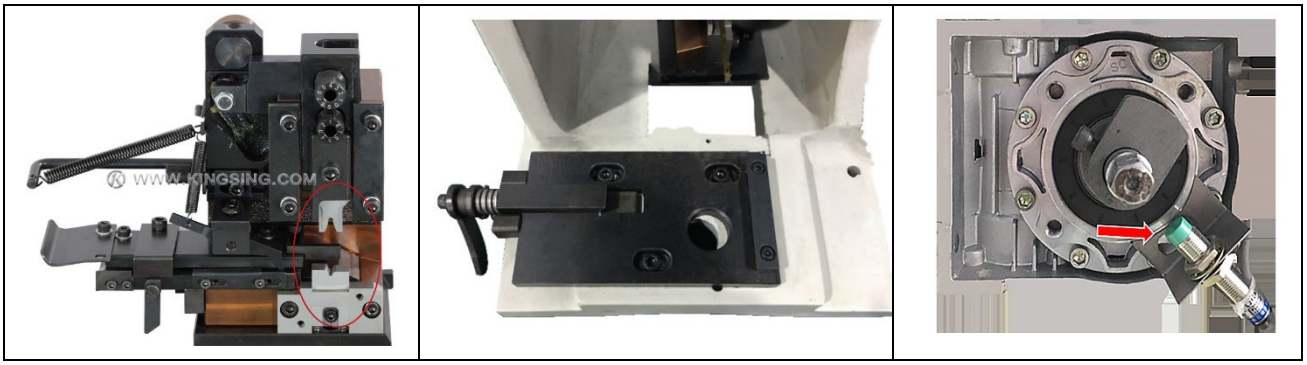
machine. Wipe off the equipment with a clean soft cloth.

b) Clean any wire debris and terminal scraps from the crimping area (include upper and bottom blades, cutter block and cushion block).

c) Clean the waste around the bottom plate of the crimping machine.

d) Clean the sensor surface.

CAUTION **Please disconnect the power supply first and use a hairbrush to clean the crimping blade, do not use air gun, in case the wire cover or waste terminals drop on the gear and block the machine parts.**



4） Maintenance

Develop good habits, adhere to daily maintenance, and confirm whether the machine has any bad phenomena every day to ensure that the machine can operate normally every day.

a. Examination and Adjustment

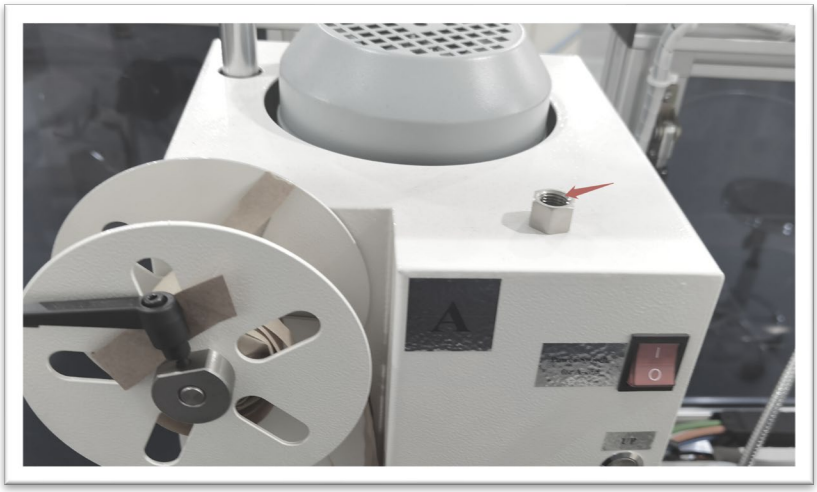
- Power on and operate the machine for 3 ~ 5 times before working, and check that there is no abnormality in each part.
- Check if the power cord and the foot switch are well connected before work.
- Check that the switch and button functions are normal.
- Check if the screen and power indicator are properly displayed.
- Check if there is any abnormal sound when the machine is running normally.
- Check the condition of upper and lower crimping blades.
- After the terminal machine is running for 3 to 6 months, it is necessary to check whether the parts of the parts need to be replaced.
  - i. Check to avoid that the springs of each part are rusted and aging, and the elasticity is weakened.
  - ii. Check to avoid that the locking screw of each part of the machine loose or rusty.

iii. Check the sensor and sensor operation status.

b. Lubrication

The moving parts of the machine require regular lubrication to ensure reliable service and long life.

a) Lubricating punching head slider. Using an oil kettle, add 1-2 drops of oil to the filling hole every day. It is possible to use standard gear oil or rail hydraulic oil with viscosity of 32~150cst.



b) Lubricating the ball screw every month, it's suitable to use Lithium base grease for lubrication.

c) Lubricating the linear guide rail every month, it is recommended to use Solid Vaseline for lubrication.

7. Troubleshooting

Dangerously high levels of voltage remain inside the control box for several minutes after the electrical power is interrupted. To avoid personal injury, turn off the machine at the main power switch/circuit breaker and disconnect the machine from the power source. And then wait for a minimum of five minutes for the voltage to dissipate before proceeding.

If the following questions occurs, please follow the processing method. If the question is not in this list, or if it is processed according to the processing method, there is still a problem. Please contact the manufacturer for telephone guidance or factory home repair.

No.	Fault Description	Fault Analysis	Solutions
1	The machine won't start after turning on the power switch	1. The input voltage is not correct; 2. Fuse is blown; 3. Switch button is damaged; 4. Circuit breaker is not turned on.	1. Replace the power supply; 2. Replace a new fuse; 3. Replace a new button; 4. Turn on the breaker.
2	The length of the wire head varies	1. The pressure of the feeding roller is not enough; 2. The straightener is pressed too tightly; 3. The guiding tube is not aligned with the center of the blade edge.	1. Adjust the roller pressure; 2. Loose the adjusting knob of the straightener; 3. Adjust the tube position.
3	The length of the wire tail varies	1. The clamp is not aligned with the blade edge; 2. The clamp is too loose.	1. Adjust the clamp position; 2. Adjust the pressure screw.
4	The actual total length does not match the set length. 1. Longer than the set length; 2. Shorter than the set length; 3. Length is not consistent.	1.&2. The parameter settings are not correct; 3. Roller gap or cutting depth value is not set properly; the wire is not fed smoothly in the straightener.	1.&2. Adjust front blade distance and rear blade distance to appropriate values; 3. Adjust the roller gap, increase the cutting depth value, and keep the wire feeding of the straightener smooth.
5	Bad terminal crimping	1. The crimping blade is worn; 2. The crimping pressure is not adjusted correctly;	1. Replace with a new set of the blades; 2. Adjust the crimping

		3. Terminal feeding is abnormal.	pressure; 3. Check if the terminal is stuck during feeding, adjust it.
6	The wire front or back ends of the same bundle are cut off	Excessive accumulation of waste insulation on the edge of the blade.	1. Add air suction function; 2. Clean the blade directly with a brush.
7	Terminal crimping force is not stable	1. The applicator is not locked tightly; 2. The wire core is damaged; 3. The crimping blade is worn; 4. The screw of the punch head slider is not locked.	1. Lock the applicator; 2. Adjust the cutting depth or RTN value; 3. Replace a new set of blades; 4. Lock the screw.
8	The machine stopped suddenly while it was running	1. The crimping load is too large. The inverter is in overcurrent protection; 2. Poor contact of power plug; 3. The fuse is blown.	1. Check the crimping height and adjust the applicator; 2. Replace the power socket; 3. Replace a new fuse.
9	Cylinder does not work	1. Air leakage. 2. Unplug the air tube from the solenoid valve and operate it manually to see if there is air source: a) check whether the air cylinder is stuck or damaged when air source comes out. b) if there is no air source, check whether the air nozzle is blocked or the solenoid valve is damaged.	1. Check the leakage parts, replace it. 2. Replace the air cylinder or solenoid valve.
10	The terminal machine does not reach origin alarm	1. Punching head does not reach the highest point; 2. There are foreign matters on the inductive switch.	1. Adjust the punching head to the highest. 2. Check and clean the switch.
11	The machine does not work after pressing start button	The machine is not reset.	Press STOP button to reset
12	System halted	Too much electromagnetic interference.	Restart the machine

8. Aftersales Service

1. We offer 12 months' free maintenance service from the stamped purchase date.
2. During the warranty period, clients do not need to pay for any parts or service; but all freight costs caused by sending spare parts are at the buyer's expense (excluding consumable parts).
3. We only assure the warranty to the clients who originally purchased the machine from our company or our authorized agent. The warranty is void once the machine is on-sold, or otherwise traded to a new entity.
4. We are not responsible for any equipment fault occurred as follows:
   a. Any equipment fault cause by not abiding by the operational requirements in the manual.
   b. The operational environment in user's factory does not meet the minimum operational requirements set out in the manual. (power instability, compressed air not dry and clean, etc.)
   c. A non-professional operator dismantles the machine without permission, which then leads to equipment fault or damage.
   d. Force majeure will be invoked for any extraordinary incidents at leads to equipment fault or damage.
   e. Maintenance by 3rd parties, other than our authorized agent(s) will void the warranty.

9. KINGSING Assistance Center

Please contact KINGSING directly whenever technical assistance is required. The following information is required when contacting us:

When contacting KINGSING regarding service to equipment, it is suggested that a person familiar with the machine be present with a copy of manual or invoice which issued by KINGSING to receive instructions. Many difficulties can be avoided in this manner. Be ready with the following information:

1. Customer full company name.
2. Customer address.
3. Person to contact (name, title, telephone number, email, WeChat and etc.).
4. Machine model number. (and series number is available)
5. Product part number or picture.
6. Urgency of request.
7. Nature of problem. (better offer some pictures and demo video to explain details)
8. Description of inoperative components with picture.
9. Additional information that maybe helpful. Such as how the problem occurred.
10. KINGSING contact information:

sales@kingsing.com Bella Go (Sales Director)

todd@kingsing.com Todd Chou (Executive Chief Engineer)

tech@kingsing.com Will Sheng (After-sales Engineer)

Revision Summary

Since the previous release, the manual format has been updated to include current corporate requirements.

We always welcome any feedback or improvement suggestions!