

TMR-100 Semi-Auto Taping Machine

User Manual V1.0



Preface

Congratulations on choosing the TMR-100 Semi-Auto Taping Machine. This manual shows how to easily program and setup the tracker for the best results. Make sure to read this manual carefully before using this product, so as to avoid delays or confusion with its operation. Please note that specifications and instructions are subject to change without notice to facilitate product improvement. Updates and changes will be integrated into the latest release. The manufacturer assumes no responsibility for any errors or omissions in outdated documents.

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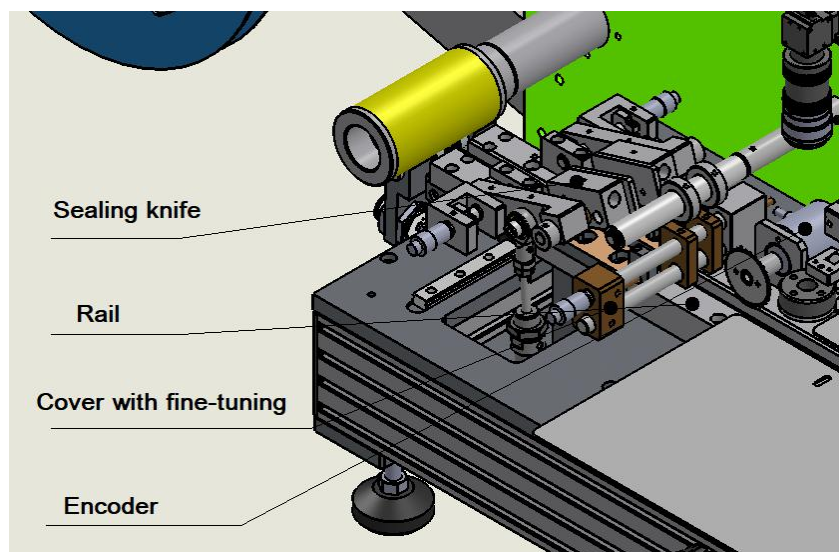
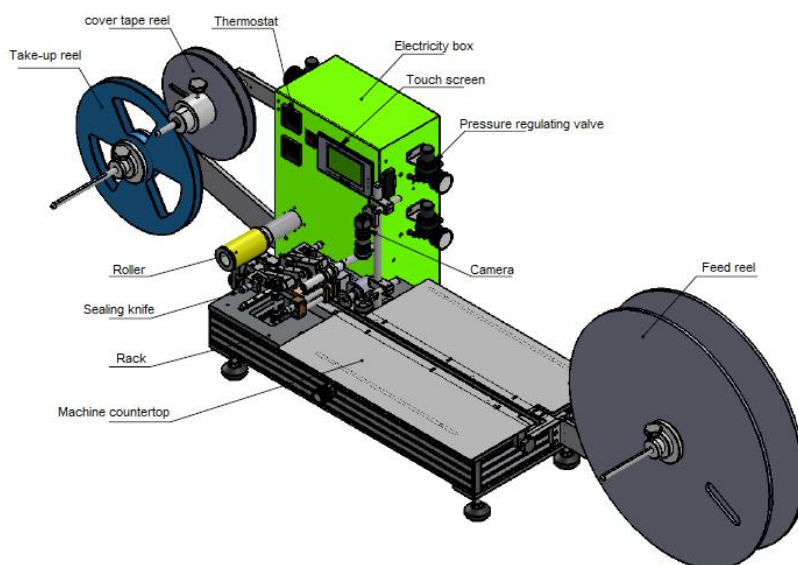
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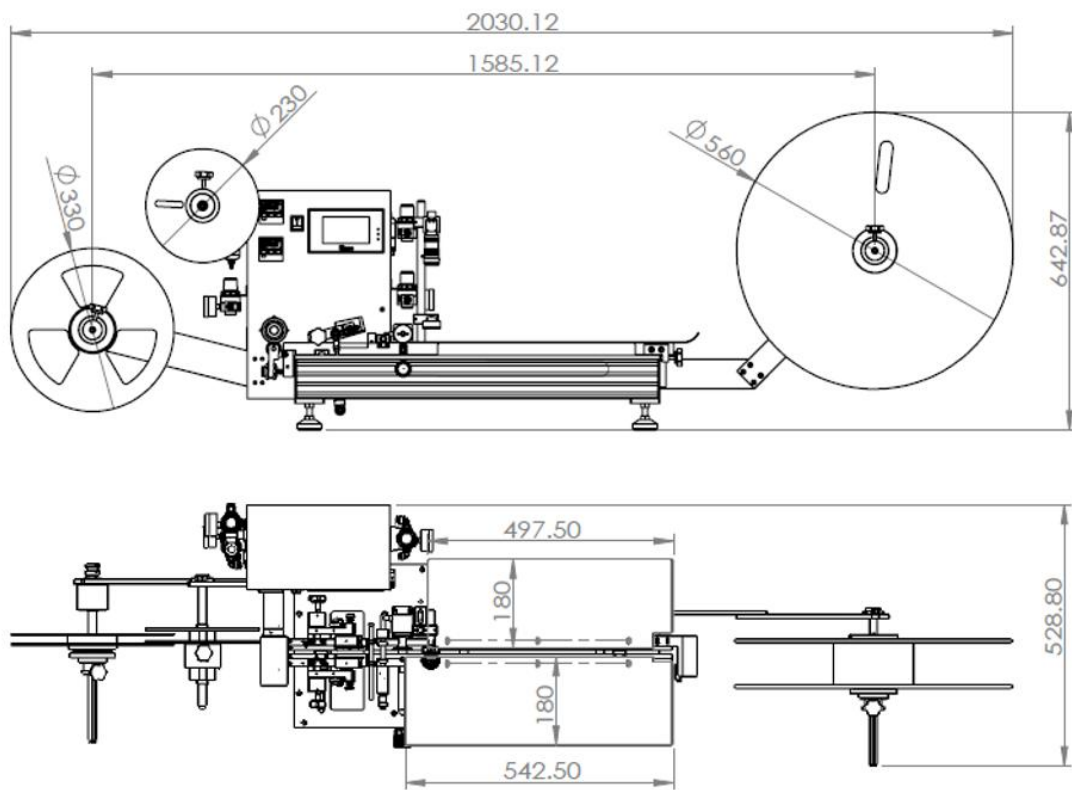
1. Product Overview

1.1 Application

This equipment is a special packaging equipment for small electronic industry, which is manually placed products and automatically sealed by machines. Used in small and medium batches of various electronic components, connectors, hardware, plastic parts and other products suitable for carrying packaging. Sealing is done by hot pressing to bond the carrier tape and cover tape together. Self-adhesive cover tape can also be used for sealing. The device is suitable for a wide range of carrier tapes, which can be sealed with a width of 8, 12, 16, 24, 32, 44, 56 mm.

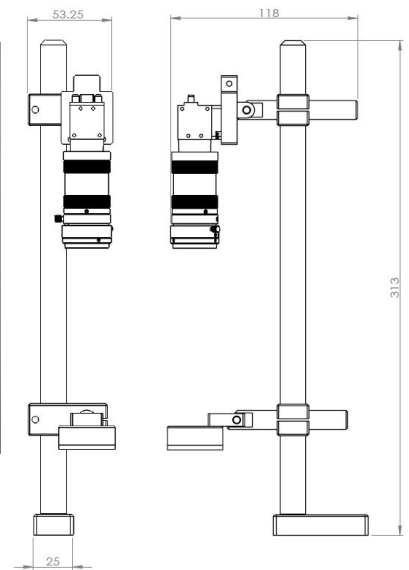
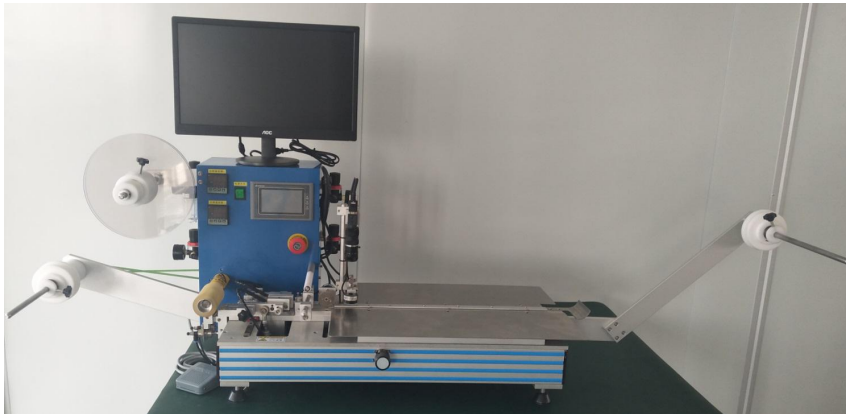
1.2 Interface & Dimension





1.3 CCD Camera (optional)

Standard Panasonic PV200 Series Intelligent Camera



Camera bracket

1.4 Specifications

Item	Description
Power supply, Air pressure	AC220V、50HZ、4--5.0kg/cm ²
Feeding	Carrier Tape, Cover tape for EIA-481 Standard
Taping width	12mm--56mm
Temperature Control	Independent PID temperature control for double sealing knife, temperature range 20-300℃
Tape speed	3000-5000 UPH

Counter	Industrial Encoder Counting
Taping Form	Hot pressing & self-adhesive
Size	L2030mm xW528mm x H642mm
Weight	50KG

1.5 Features

- The track width can be flexibly adjusted in the range of 12-56 mm.
- The position of the sealing knife can be fine-tuned to <0.1mm.
- Independent PID temperature control of double sealing cutter, accurate and stable temperature control;
- The tension of the cover belt can be adjusted and the position of the cover belt can be fine-tuned.
- Stepless adjustment of belt pulling speed;
- Enumeration adopts industrial encoder, which is simple and reliable and ensures accurate counting.
- The loading and unloading discs are simple and compatible with all EIA-481 standard discs.
- Manual and pedal switches can control the start and stop of the machine to facilitate the operation of the equipment.
- The machine is controlled by PLC, which is stable and reliable.

2. Structure and Working Principle

2.1 Equipment structure

2.1.1 Thee mainly composed of the machine

- Track part
- Cover belt part
- Sealing part
- Taping mechanism
- Counting part
- Receiving part

2.2 Functional description

2.2.1 Track Width Adjustment

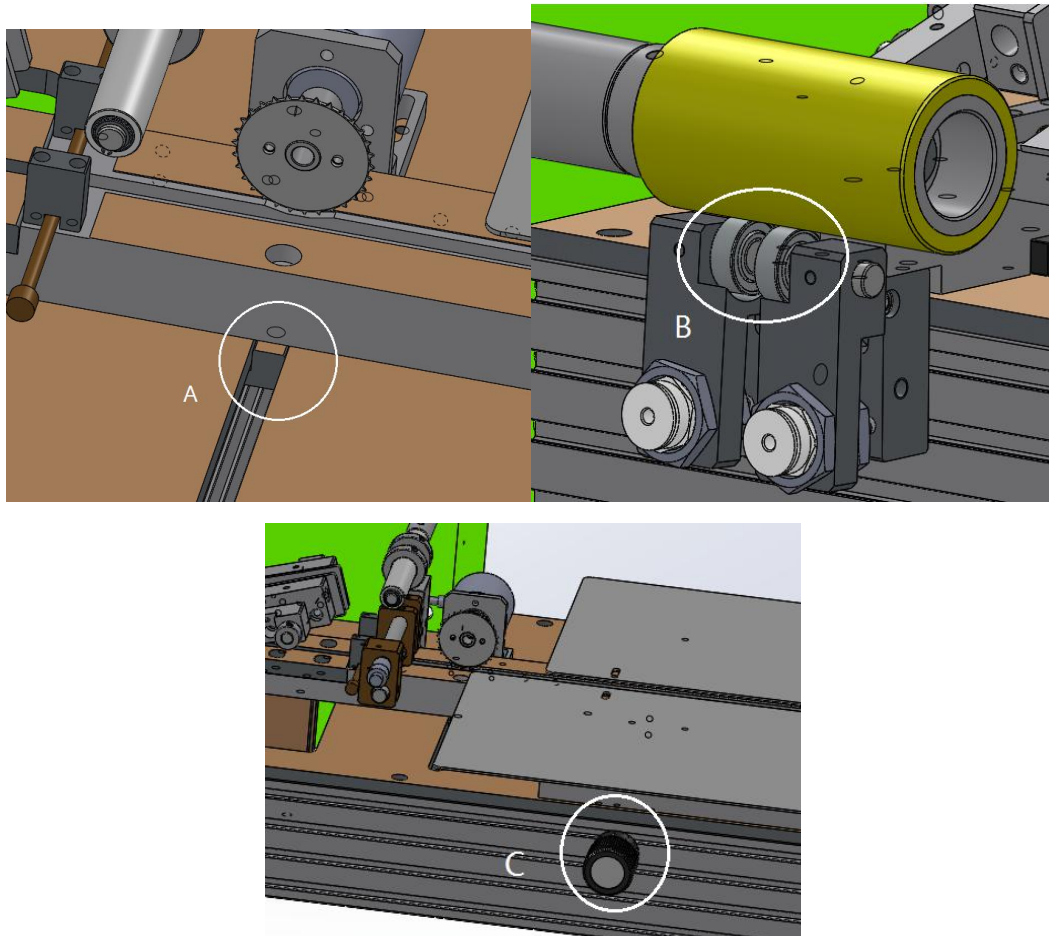
The track width of semi-automatic taping machine can be adjusted arbitrarily in the range of 12MM-56MM.

- Release the trapezoidal block screw of the outer track and rotate the knob to adjust the width of the track manually. The distance between the outer track and the inner track is adjusted to the width close to the carrier cavity. The belt needed to be braided is penetrated under the arc plate at the tail of the track, and the belt is pushed forward through the track. The manual knob is adjusted repeatedly, so

that the belt can move freely from left to right in the orbit, and the upper and lower deviations move slightly, that is, the two tracks are basically parallel. Finally, the track trapezoidal block screw is locked.

- After adjusting the track, click the button on the touch screen to see if the pulley can hold the edge of the belt without damaging the belt cavity. Otherwise, the position of the inner and outer pulleys must be readjusted.

Figure A is a trapezoidal block, B is a pulley, and C is a hand-wheel for adjusting track width.



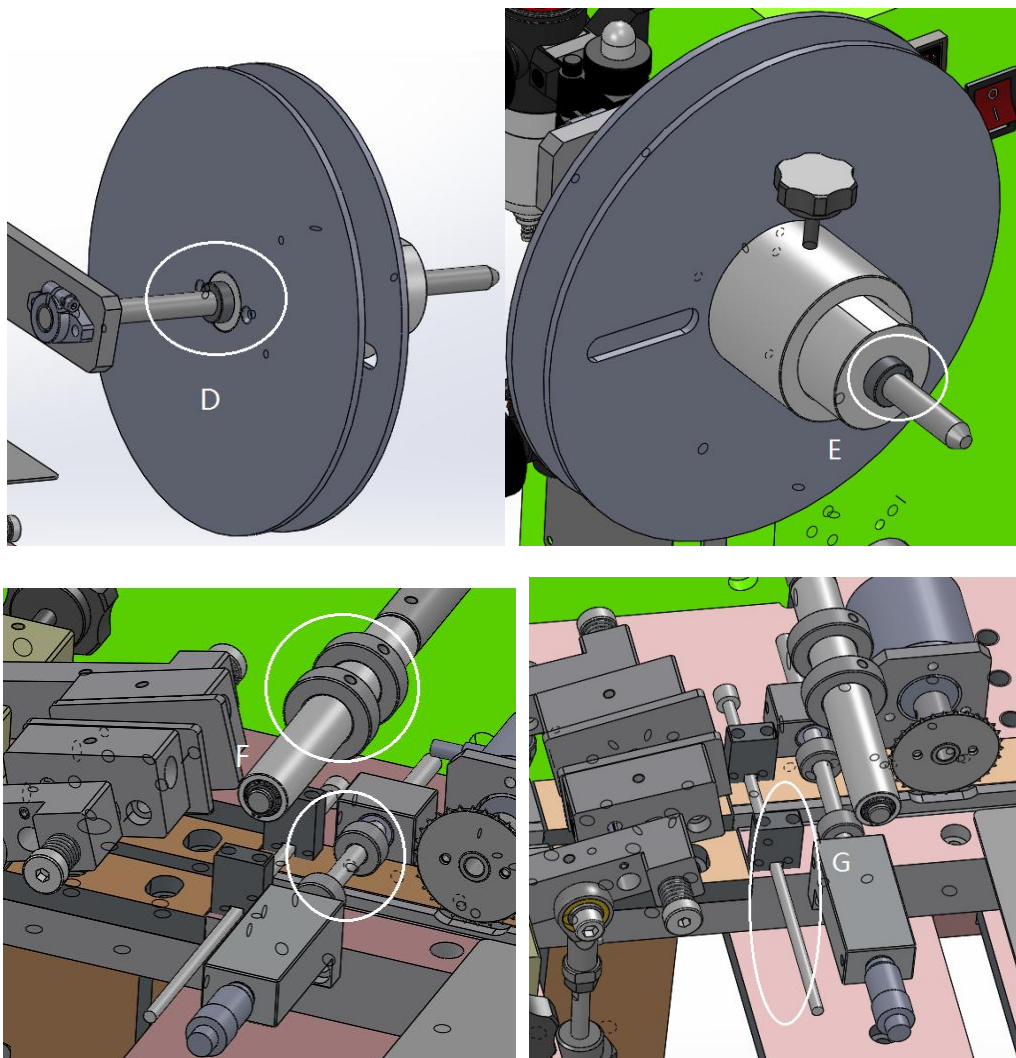
2.2.2 Cover tape adjustment

Semi-automatic taping machine can adjust the tension of cover tape. The machine can automatically adjust the tension of the cover tape according to the material and quality of the cover tape, so as to maintain a relatively stable state between the cover tape and the carrier tape, and make the sealing of the cover tape smooth.

- Installation of cover tape
Install the cover tape to ensure that the adhesive side of the cover tape coincides with the contact surface of the carrier tape after several windings. Ensure complete sealing.
- Regulation

The position of the cover tape restraint ring is adjusted well, and the restraint ring is basically in line with the inner track on the vertical plane. The spring pressure ring can be locked, and the position of the spring pressure ring can be adjusted according to the required tension. The cover tape is passed through the restriction ring of the lower right cover tape, the pressure bar is raised a little, and the blade can be pressed to the position of the cover tape. Then the adjusting device of the cover tape is fine-tuned so that the position of the cover tape and the carrier tape is in a reasonable position, and the cover tape can not cover the side holes of the carrier tape.

Fig. D is the cover band limit ring, Fig. E is the spring compression ring, Fig. F is the cover band limit ring, and G is the cover band pressure bar.



2.2.3 Sealing method

Self sealing

When using self-adhesive tape, the following points should be paid attention to:

- The hot-pressing sealing device does not need to be heated or pressed down. Only the friction between the pulley and the drum can bind the cover tape to the carrier tape.
- No contact is allowed on the glue side when wrapping the cover tape, but it is directly bonded to the carrier tape.

Hot pressing sealing

Different sealing methods are adopted to ensure that the cover tape and carrier tape remain flat when they are bonded together.

- **Continuous hot-pressing sealing**
This pressing method can make the adhesion of the cover belt on the carrier belt maintain continuity and consistency, because different cover tape and different carrier tape will have different coordination.
- **Incremental hot-pressing sealing**
When the continuous sealing can not ensure the smooth adhesion between the cover tape and the carrier tape, the inch method can be adopted to complete the hot pressing sealing.

2.2.4 Sealing part adjustment

The hot pressing head part is the most important functional unit of the machine, which can precisely adjust the position of the sealing knife, and the double head is independent. PID temperature control.

Adjustment of Hot Pressing Tool Head

The hot pressing tool head of this machine is controlled by a fine adjusting head, which can control the position of the hot pressing tool mark on the carrier belt.

The micrometer head is rotated in or out to make the tool mark reach the ideal position and the locking nut can be locked.

2.2.5 Adjustment of Hot Pressure Temperature and Pressure

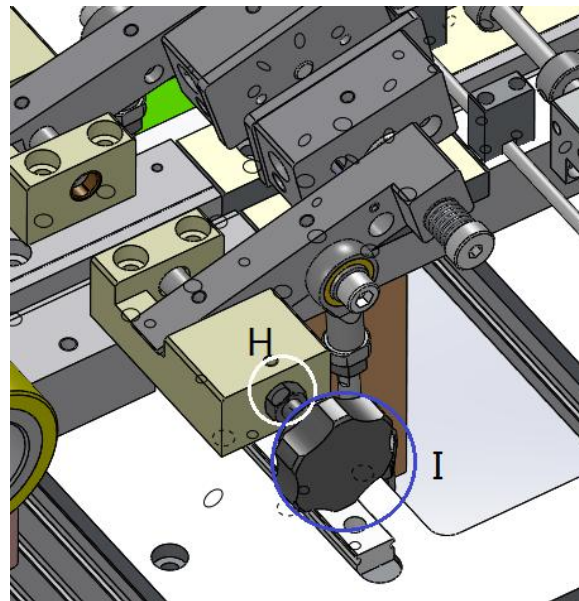
- The hot-pressing temperature varies with the cover tape. In the recommended temperature range, the suitable working temperature is determined by some sealing tests.
- The relationship between pressure and temperature of hot-pressing tool head is inversely proportional, that is, the temperature rises, and the pressure is required to be reduced accordingly. Generally, the working pressure setting of hot-pressing tool head has been set when it leaves the factory. Generally, only minor changes are needed, while the temperature can be adjusted arbitrarily according to the different cover material until the sealing tension is positive. It is within the permissible range.

The rising and falling speed of the hot-pressing cutter head is controlled by two current-limiting valves on the sealing cylinder. The current-limiting valves are

generally adjusted to the appropriate position when they are out of the factory, and need not be adjusted. If necessary, they can be adjusted slightly. However, it is not allowed to make the hot-pressing cutter head rise and fall too fast to avoid premature damage of the sealing cutter.

Fig. H is a fine-tuning locking nut for the position of the hot-pressing tool head.

Fig. I is a fine-tuning head for the position of the hot-pressing tool head.

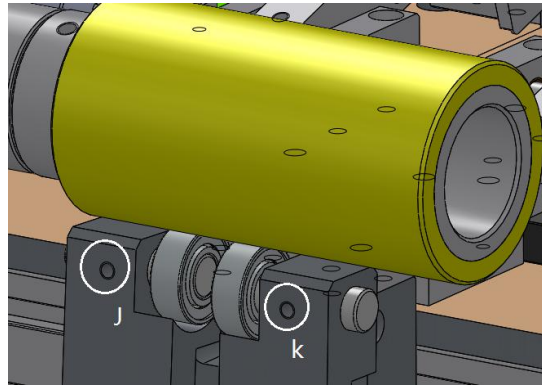


2.2.6 The belt pulling mechanism

The belt pulling mechanism of this machine is an ideal mechanism, which can better protect the integrity of the belt than ratchet belt.

- When the gripping control of the track is adjusted, the belt will pass through the two axle wheels at the lower part of the rubber wheel and click the "gripping" button. At this time, it is necessary to observe whether the two wheels will crush the carriage chamber. If so, it must be readjusted. One is to adjust the wheels, the other is to adjust the track, so that the carriage can run completely and smoothly.
- When the belt is bonded to the upper belt, the speed of the belt can be adjusted freely according to the actual situation. The speed is set by the pulling speed of the touch screen parameter interface. It should be noted that the speed of the belt is suitable for the product to advance steadily in the belt cavity without bouncing.

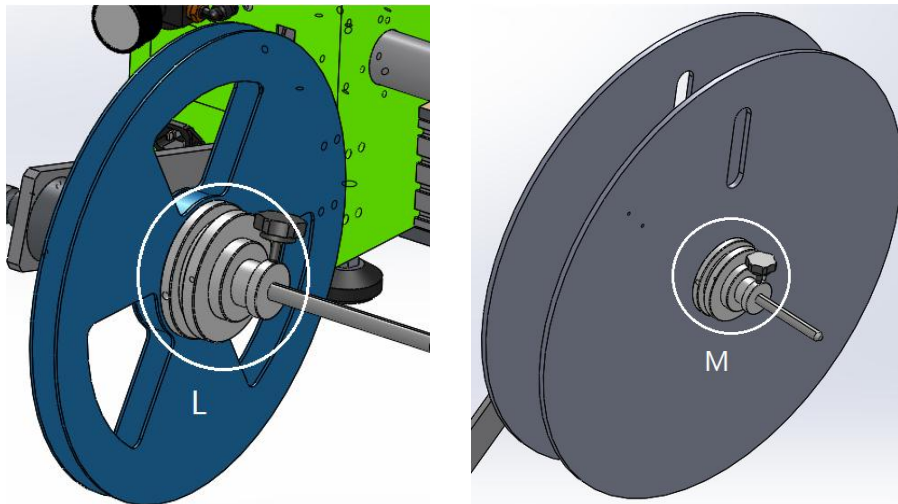
Fig. J and K are locking screw for fixed axle of pulley



2.2.7 Receiving and placing mechanism

The function of the belt receiving and placing mechanism of this equipment is very convenient to operate. Just loosen and remove the platen, install the empty belt or rubber disc, and then install the platen and lock it. Can be installed in accordance with EIA-481 standards of rubber discs, paper discs.

Fig. L and M are locking screw for fixed axle of pulley



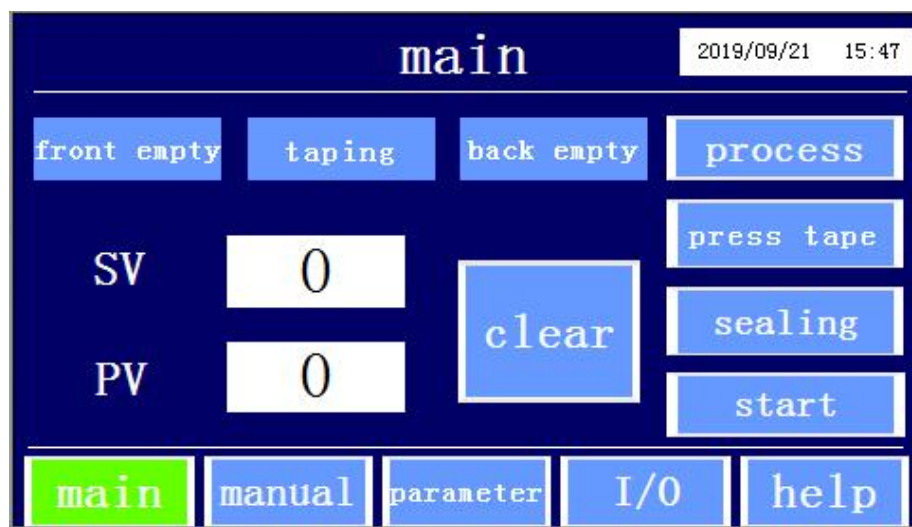
3. Function description of touch screen interface

3.1 Boot interface



When the device is connected to the power supply, the touch screen displays the "start" screen after starting, and the "start" screen automatically jumps to the "main" after displaying 1S.

3.2 Main



"Front empty", "taping" and "Back empty" are the instructions for the taping process. When one of the instructions is yellow, it means the current worker of the taping machine.

Make it in this taping process.

"Process" button, click the "process" button, the taping process in the "Front empty quantity", "taping" and "Back empty quantity" three states in turn switch. And automatically zero the number of completed processes.

"Clear" button, click the "Clear" button, when the "Front empty quantity", "taping" and "Back empty quantity" state of completion of the number of zero. If the "detection" function is turned on, it must be cleared before each tape is in the right position and ready to start work.

" Press tape " button, when clicking the " Press tape " button, the belt is pressed on the drum by the pulley and driven by friction.

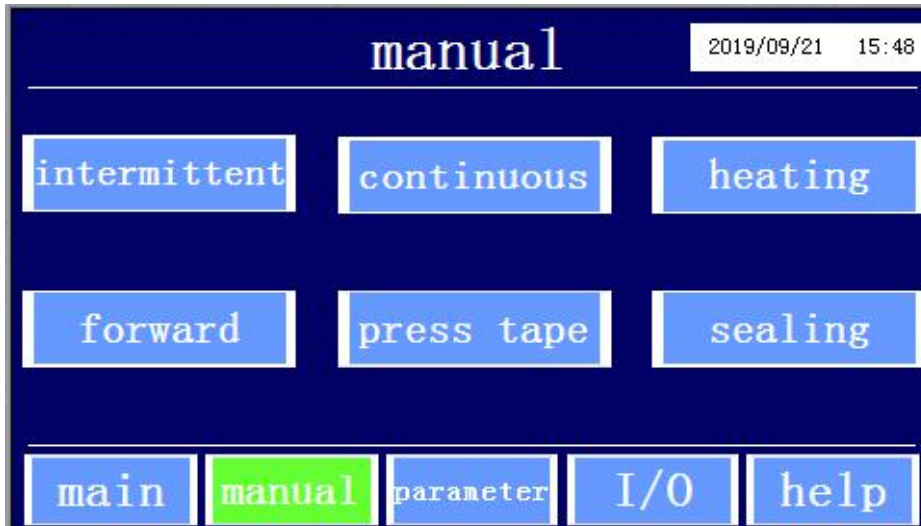
"Start" button, click the "Start" button for more than 1 second, if the start conditions are met, the machine can run automatically. The pedal switch has the same function as the "start" button.

SV corresponds to the set values of " Front empty quantity ", "taping" and " Back empty quantity "

PV corresponds to the current values of " Front empty quantity ", "taping" and " Back empty quantity "

" Main ", "Manual", "Parameters", "I/O" and "Help" buttons are the interface switch buttons. When the buttons are yellow, they indicate the current situation. The screen is invalid when the button is clicked.

3.3 Manual



"intermittent" button, "intermittent" button for function selection button, click on the button, button yellow, the tape machine works in "intermittent" mode, that is, the knife is sealed according to set parameters, intermittent downward pressure. The button is power-off holding type.

"Continuous" button, "Continuous" button for function selection button, click the button, when the button is yellow, the tape machine works in "Continuous" mode, that is, the sealing knife press the set parameters, continuous down pressure. The button is power-off holding type. The "intermittent" button and the "continuous" button are switching buttons. The "intermittent" and "continuous" buttons can only choose one of the working modes.

"Heating" button, "Heating" button is the function selection button, click on the button, when the button is yellow, the knife of the tape knife is heated for the cover of heat sealing material, closing the heating function, for the cover of self-adhesive material. The button is power-off holding type.

"Detection" button, "Detection" button is a function selection button, click the button, when the button is yellow, the missing material detection is effective, and when there is a

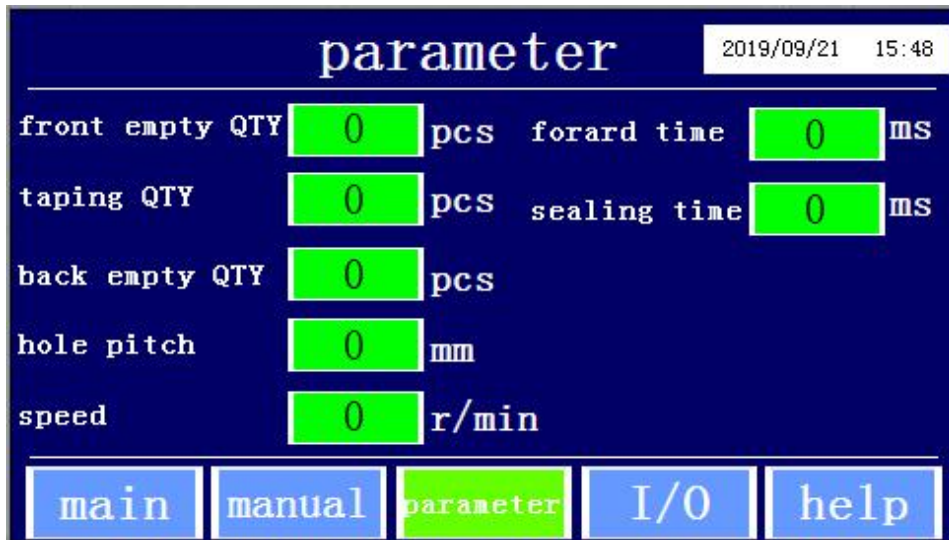
missing material in the process of tape weaving, the automatic alarm stops. The two modes of " Front empty quantity " and " Back empty quantity " are invalid for missing material detection. The button is power-off holding type.

"Forward" button, click the button, the pull-belt motor began to rotate. Loosen the button and stop the pull-belt motor from rotating.

" Press tape " button, click the button, press the knife down. Loosen the button and lift the knife.

" Sealing " button, click the button, pulley press drum, drive the load belt forward by friction. Loosen the button and the clamping device.

3.4 Parameter



The parameter of " Front empty quantity " is the number of cavities in the front end of a roll of no-load tape at the beginning of ribboning.

" Taping quantity " parameter is the number of products that need to be loaded into a roll of no-load tape when braiding.

The parameter of " Back empty quantity " is the number of cavity in the backend of a roll of no-load tape at the end of ribboning.

The " Hole pitch " parameter is the center spacing between two adjacent cavities, which should be determined according to the actual use of the carrier tape specifications.

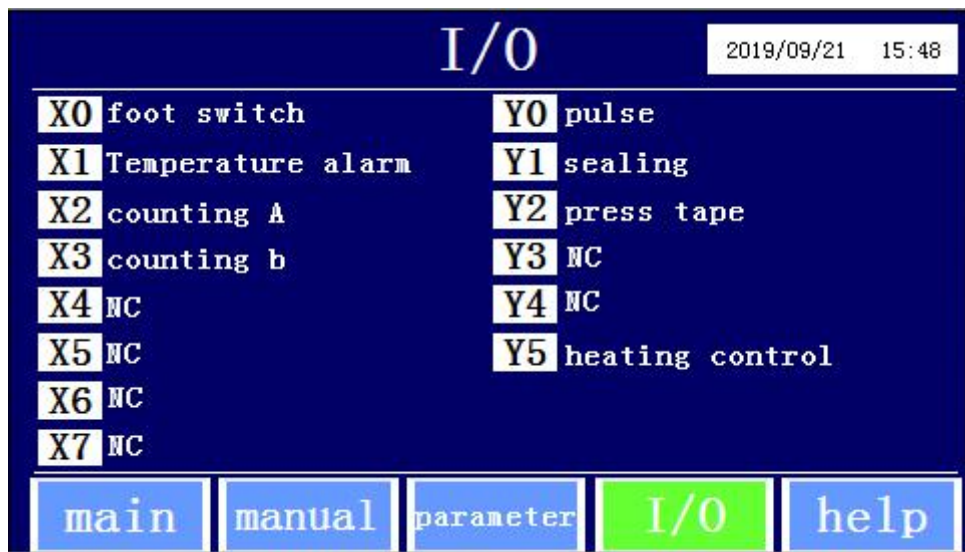
The " Taping speed" parameter is the forward speed of the carrier when the equipment is working.

When the parameter of "sealing time" is "intermittent" mode, the holding time of sealing knife press down. "Sealing time" is only valid in ""intermittent " mode, " Continuous " mode is invalid.

When the parameter of "forard time" is "intermittent" mode, the time when the carrier belt advances after the knife is lifted. "Forward time" is only in the " intermittent " mode Effective, "continuous" mode is invalid.

When inputting parameters, the upper part of the input box shows the input range of the parameters. If the input range exceeds, the parameters cannot be inputted.

3.5 I/O



"X0" - "X7" reflects the input state of PLC, which is used to judge whether the current input of PLC is valid, and when yellow is displayed, it is valid.

"Y0" - "Y7" reflects the output state of PLC, which is used to judge whether the current output of PLC is valid or not, and when yellow is displayed, it is valid.

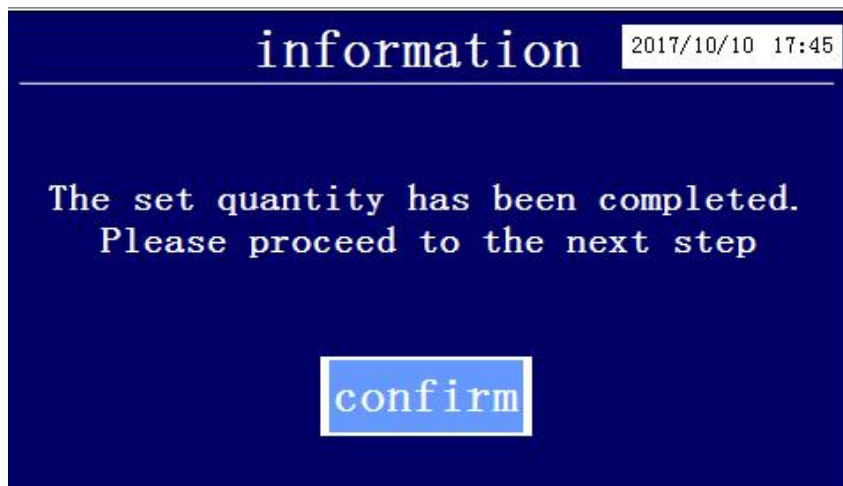
3.6 Help



The interface displays machine-related information such as product model, software version, date of delivery, etc.

3.7 Information

3.7.1



After each process of " Front empty quantity ", "taping" and " Back empty quantity " is completed, the touch screen displays the information of the interface, which will automatically return to the home page after about 2S.

Then click the "Start" button on the touch screen homepage to continue running, or press the foot switch to start and continue running.

You can also click on the " Confirm " button of the information interface to quickly close the interface for subsequent operations.

3.7.2



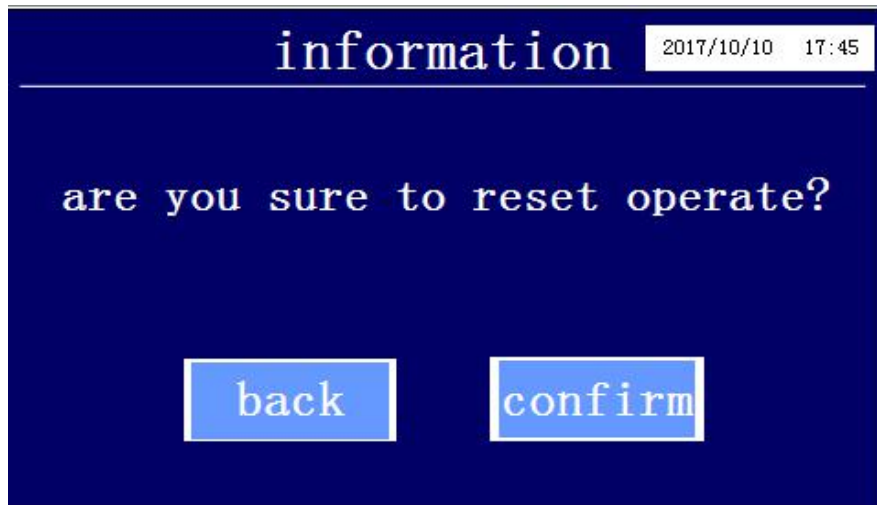
When the heating mode is valid, the thermostat detects that the current temperature of the sealing knife is greater than or less than the set value of 5 degrees, click the "Start" button or step on it.

Foot switch, there will be the information interface, click the " Confirm " button to return to the home page. If you continue to click on the "Start" button or step on the foot

The information interface will continue to appear when the temperature of sealing knife still does not meet the requirements when the switch is stepped on. It can also wait for the deviation between the current temperature and the set temperature to be small.

At 5 degrees, the interface will automatically return to the home page, click the "Start" button or press the foot switch to run.

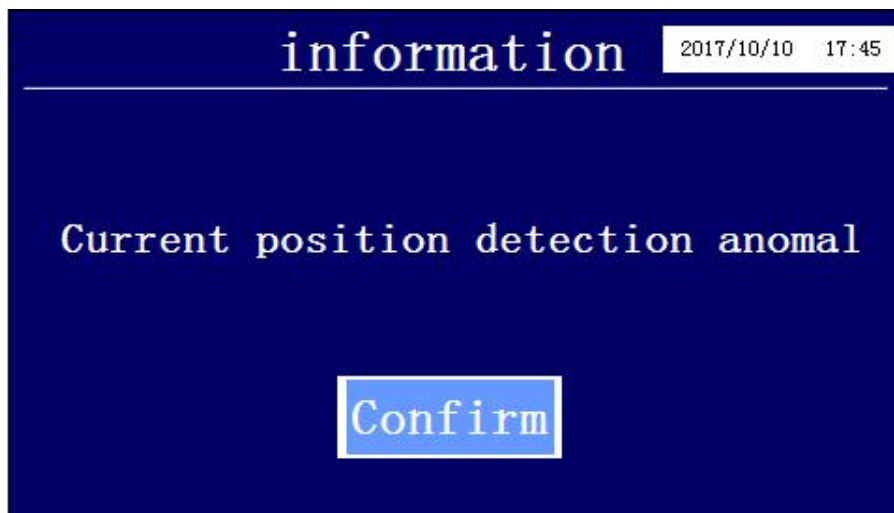
3.7.3



When you click the "Are you sure to reset operate?" button, the touch screen displays the interface information. Ask the operator to confirm whether the zeroing operation is really to be performed.

Click the "Back" button, and the "Are you sure to reset operate?" operation is not performed. Click on the "Confirm" button, then perform the "reset operate".

3.7.4



When the detection mode is valid, the information interface appears and stops when the detection bit is missing. When the interface exists, it can't run. It needs to click the "Confirm" button first to run. When running, the location will not be detected twice.

You can also click the "Confirm" button of the interface and return to the home page for other operations.

4. Maintenance

4.1 Gas pressure

Check whether the total gas pressure is normal once a day



When the total gas pressure is between 0.4Mpa and 0.5Mpa in normal use, do not set too large to prevent large vibration when sealing.

The product pops up from the carrier belt.

4.2 Internal and external sealing

Check internal and external sealing pressure once a day. The internal and external sealing pressures and entrainment pressures are within the normal range of the total gas source pressures and can be adjusted as needed



4.3 Entrainment pressure pressure

Check whether entrainment pressure is normal or not.

Usually the lateral sealing pressure is about 0.2 Mpa and the entrainment pressure is about 0.2-0.3 MPa.



4.4 Air source filter

Check the total air source filter for water accumulation once a day



This filter uses differential pressure drainage mode, which will drain automatically. If there is too much water, the drain valve under the filter can be pressed manually to drain. Or check whether the drainage function is normal.

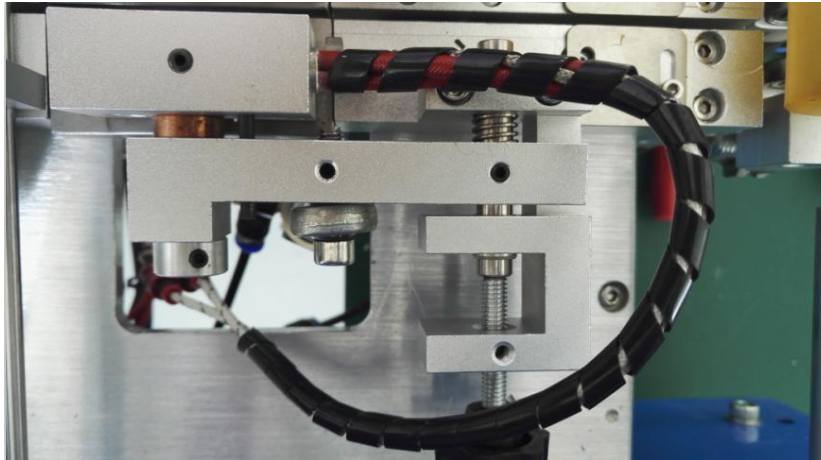
4.5 Air Leakage

Weekly inspection of air leakage in each tracheal joint

Check the air leakage of each tracheal joint regularly. If the air leakage occurs, it can be locked or replaced again.

4.6 Heating Line

Check once a day whether the heating line is broken or loosened



If the heating pipe wires are damaged or loose, it is easy to cause short circuit of power supply or electric shock accident of operators (although there is leakage inside the machine Protector)

4.7 Clean the knife

Clean the knife with alcohol regularly according to the frequency of equipment use
According to the use frequency of the equipment, the stain on the sealing knife can be cleaned regularly with alcohol to avoid affecting the heat sealing effect. Clear When cleaning, remove the blade and re-install it after cleaning.

4.8 Temperature Controller

Check whether the temperature of the temperature controller is accurate
Every time the equipment is used, if it is heat-sealed, when the temperature of the isotherm controller rises to a set value after the power is turned on, Using other temperature measuring instruments, check whether the surface temperature of the heater in the sealing part is in accordance with the display value of the thermostat, or Within the allowable deviation range. If the measured temperature does not meet the use requirements, it is necessary to check to avoid actual heating. The body temperature does not meet the requirements and affects the sealing tension.