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Foreword

Welcome to use automatic rotary type rotary pillow packing machine!

If it is the first time to use our pillow packing machine, please read carefully and thoroughly this “operation manual”, it will help you to use and maintain the machine correctly, assure the safety of people and machine, full play the performance of the machine, reduce troubles and prolong the service life of the machine.

1. Safety Precautions

- 1) Never start the machine before make familiar with the correct operation methods and safety regulations.
- 2) Untrained and unauthorized persons are not allowed to operate this machine.
- 3) Carefully read this manual and understand all of the content and requirement in this manual before using the machine.
- 4) The machine can be operated only after it is completely installed and properly adjusted.
- 5) Before starting the machine, make sure there is no tool or any other object on top of the machine.
- 6) Before switch off the power, never touch the inside of the machine or the electric equipment.
- 7) Never leave the running machine unattended---operators should not leave the working scope of the machine during the machine is running.
- 8) When the machine is running, never touch the sealing wheel, sealing die and moving parts.
- 9) Electric control circuit must be checked and repaired by professional electricians.
- 10) Do not refit the machine, or install any device, tool or peripheral equipment to the machine without the permission of our company in order to avoid any danger.
- 11) If there is anything in the manual you cannot understand, or if you encounter any problem that cannot be solved with this manual, please contact our company or our sealer, never try to handle it yourself.
- 12) Do not use this machine in the environment other than the stipulated.

Warning: For your safety and the safety of the machine, do observe all above safety precautions, otherwise, this company will be free from any responsibility for any accident out of inobservance.

2. Machine Description

2. 1. Machine Application

This machine is designed for packing fixed shaped materials into pillow packages, suitable for packing all kinds of regular shaped solid products, including foodstuff, such as biscuits, breads, moon cakes, candies etc, commodities, industrial parts etc. For small pieces and separated articles, they should be put in to boxes or tied into blocks before this machine can be used to pack them, and this packing method is also applicable to pack other nonsolid products.

2.2. Structural features

- 1) Dual frequency converter control, bag length is adjustable, no need to adjust idle running distance, adjustment can be make in one step, save time and film.
- 2) Text type human-machine interface, parameter setting is convenient and quick.
- 3) Problem self diagnose function, any trouble is clear at a glance.
- 4) Highly sensible photoelectric eye for color mark tracking, which makes sealing and cutting position more accurate.
- 5) Independent temperature PID control, more suitable for packing films of all kinds of materials.
- 6) Position fix stop function, free from cutter sticking and film waste.
- 7) Simple driving system, work is more reliable, and maintenance is more convenient.
- 8) All controls are carried out with software, it is convenient for function adjustment and upgrade, and it will never drop behind.

2.3. Machine outline and names for each part (see diagram 1)

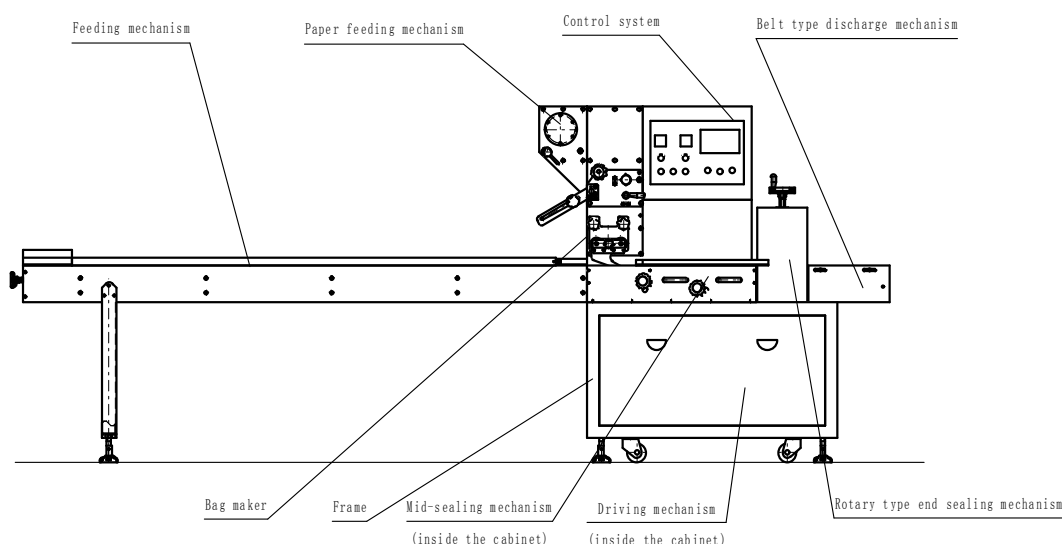


Diagram 1. Outline of Rotary type pillow packing machine and the components

2.4. Positions and names of the adjusting components (see diagram 2)

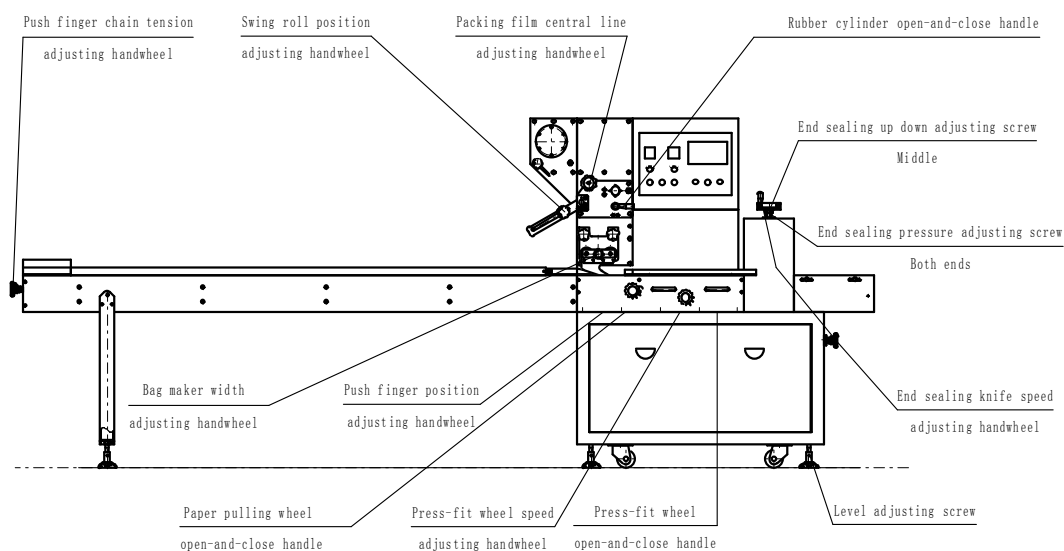


Diagram 2. Positions and names of the adjusting components for 250B/D Rotary type pillow packing machine

2.5. Technical specification

Model	250B	250D
Film width	Max. 250mm	
Bag length	65~190mm or 120~280mm	90~220mm
Bag width	30~110mm	
Product height	Max. 40mm	Max. 55mm
Film roll diameter	Max. 320mm	
Packing speed	40~230 bag/min	
Power source	220V, 50/60Hz, 2.4KVA	
Machine size	(L) 3770 × (W) 670 × (H) 1410	
Machine mass	800Kg	
Remarks		Equipped with inflating device

3. Machine installation

3.1. Ground requirement

This machine should be installed on a flat and hard surface. Enough space should be kept around the machine for operation and maintenance (see diagram 3).

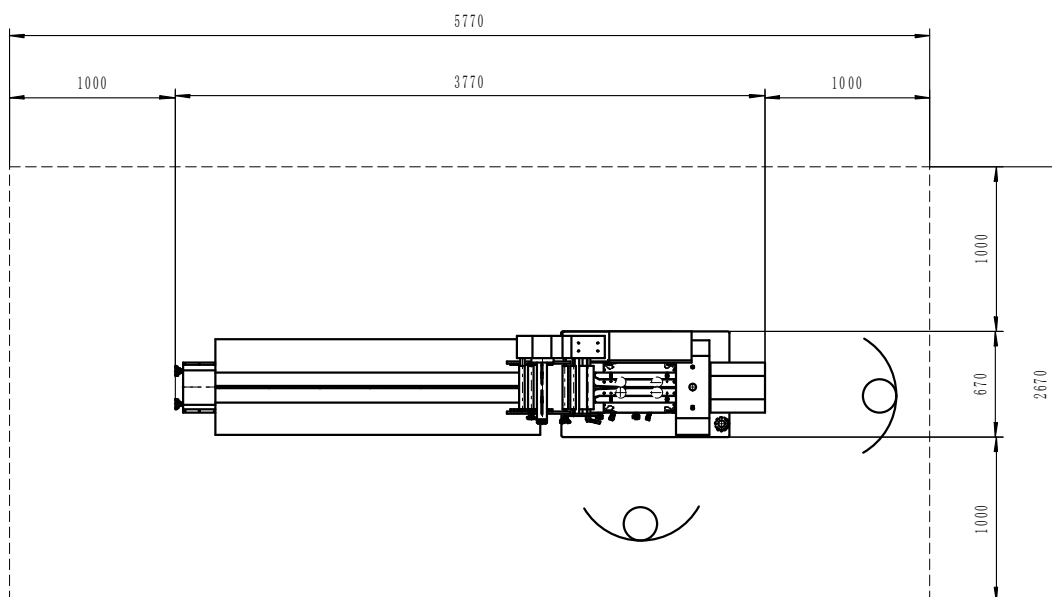


Diagram 3. Floor plan for model Rotary type pillow packing machine

3.2. Environment conditions

- 1) Temperature: Normal environment temperature should be within $5^{\circ}\text{C} \sim 40^{\circ}\text{C}$.
- 2) Humidity: $30\% \sim 90\%$.
- 3) Keep away from gasoline, chemicals, acid and alkali materials, explosives, and combustibles.
- 4) Environment illumination: Above 300 LUX
- 5) Keep away from direct sunlight
- 6) Keep away from vibrating machines.
- 7) Avoid direct fan blowing.

3.3. Steps of installation

- 1) The first step is to determine the installation position, refer to diagram 3. After the machine is set, take the worktable as the level reference to adjust the four level adjusting screws, set the main machine in a level position.
- 2) Install the feeding machine, fix it to the left side of the main machine with bolts, then adjust the two level adjusting screws of the feeding machine, set it in a level position. For the part connecting with the main machine, the bottom of the feeding chute and the main machine table should be aligned and kept in a same level.
- 3) Install the push finger chain. Loosen the left handwheel (see diagram 2) of the feeding machine, and install and connect the push finger chain. Turn the handwheel to adjust the push finger chain to a proper tension.
- 4) Connect power supply line. This machine uses single-phase 220V, 50HZ power supply. Never connect to 380V or other unqualified power supply. Special

attention must be paid to this requirement! In order to ensure safety, all wiring work should be carried out by qualified professional electricians. Connecting cable is attached to the machine. If you use your own power plug, 1.5m m² three core cable must be used, correctly connect the live wire(L), the zero wire (N), and the grounded wire (E).

3.4. Switch on the power and test run

- 1) Make sure that the power supply is correct (test L, N with a test pencil) .
- 2) Connect all the circuit breakers in the control cabinet, check if all meters and power indicator lamps on the control panel are normal.
- 3) Press inching button, check if the machine can operate normally.
- 4) On the human –machine interface, set the packing speed to 40 packages per minute, then press the start button (green), run the machine normally for 3 to 5 minutes, after make sure the machine can operate normally, press the stop button (red). Now a correct installation is completed.

4. Machine Adjustment

4.1. Feeding mechanism

The feeding mechanism of this machine is equipped with a push finger chain, the tension of the chain is adjusted the two “push finger chain tension adjusting handwheels” on the left end of the feeding mechanism. After the product to be packed is determined, adjust the width of the guide chute of the feeding mechanism to an extent so long as the product to be packed can pass through the guide chute smoothly.

4.2. Paper feeding mechanism

1) Packing film circumambulating route

After the packing film roll installed on the automatic central aligning clamping roller, the film should circumambulate through certain route. The circumambulating route will be slightly different as whether a code printing machine is installed or not.

- a) When the machine is equipped with a code printing machine, the circumambulating route should be arranged as shown in diagram 4.

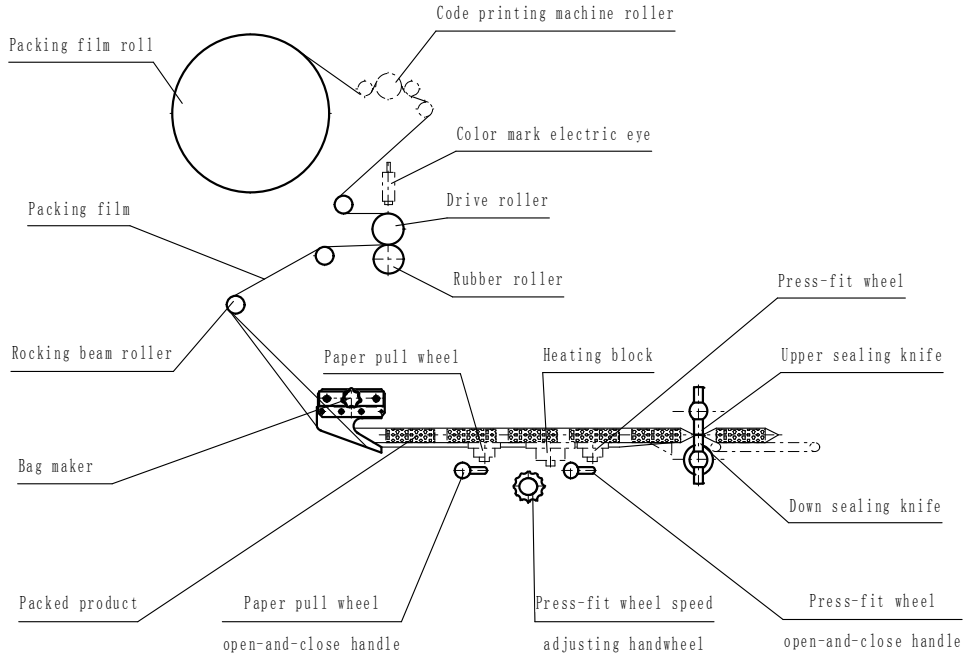


Diagram 4. The film circumambulating route when the machine is equipped with a code printing machine.

b). When the machine is not equipped with a code printing machine, the circumambulating route should be arranged as shown in diagram 5.

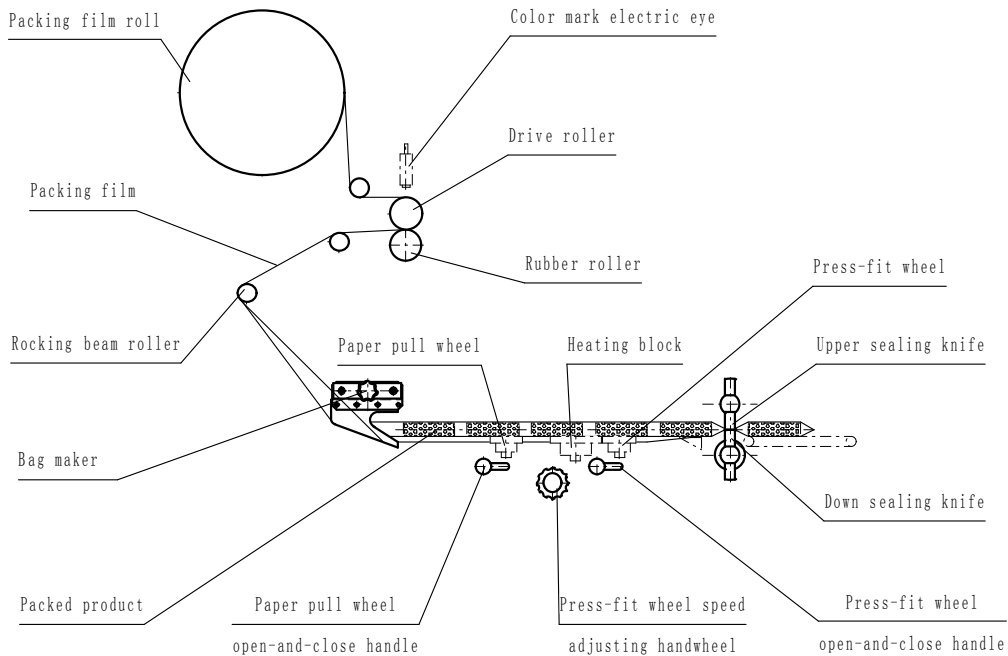


Diagram 5. The film circumambulating route when the machine is not equipped with a code printing machine.

Regardless what circumambulating route is adopted, when the film enters the bag maker, open the mid-sealing open-and-close handle, make the paper pass through the paper pull wheel, mid-sealing heating board, press-fit wheel, then close the open-and-close handle, run the machine by inching, make the packing film pass through the end sealing knife, now the film installation is completed.

2) Packing film tension and central aligning adjusting

When the packing film pass through the bag maker, if the tension of the packing film is uneven, i.e., loose in the middle and tight on both sides, or tight in the middle and loose on both sides, the paper transfer will become unsmooth, at this time, it needs to adjust the position of the swing roll (see diagram 2) or the angle of the swing link, this will change the relative position between the swing roll and the bag maker, thus the tension of the packing film will be adjusted to a even tension as required.

If the mid-sealing of the packed product is uneven, it needs to adjust the “packing film central aligning adjusting handwheel” (see diagram 2), until the two sides of the mid-sealing are lined up. Adjustment in each time should not be too large (the adjusted result will not be reflected immediately).

4.3. Bag maker

Bag maker is bag folder that can adjust the width and packing film elevation.

The width of the bag maker can be adjusted through “bag maker width adjusting handwheel”. The proper width of the bag maker should be the width of the packed product plus 5mm positive allowance.

To adjust the height of the bag maker, loose the fixing handwheel of the bag maker, move the bag maker up and down to adjust the height of the bag maker. The height of the bag maker should be the height of the product plus 5mm positive allowance. After adjustment, lock the fixing handwheel.

4.4. Mid-sealing mechanism

Mid-sealing mechanism consists of a paper-pull wheel, heating block, press-fit wheel, open-and-close handwheel, press-fit wheel speed adjusting handwheel etc. When the packing film passes through the paper-pull wheel, heating block, press-fit wheel, if paper is laid up or strained, it should be adjusted with the “press-fit wheel speed adjusting handwheel”.

Mid-sealing should result a tight sealing and clear lines, otherwise it should be adjusted, and following is the adjusting method:

- 1) Put two white papers, between which a carbon paper is sandwiched, onto the mid-sealing wheel and turn it one revolution, open the two white papers, the printed marks on the two white papers should be clear, if not, adjust the meshing position between the two wheels, check the printed marks again, until the printed marks are clear on the papers.
- 2) If the meshing is correct and the temperature is proper, but sealing quality is still undesirable, it needs to adjust the set screws to limit the meshing pressure of the sealing wheel, till the sealing becomes desirable.

The mid-sealing parts have been adjusted properly in the factory, so it is generally do not need to adjust.

4.5. End sealing mechanism (Rotary type)

1) End sealing knife seat and cutter adjustment

The cutter seat have been adjusted, tested and inspected in a strict way and generally it does not need make further adjustment. In case adjustment is need, use two white papers, between which a carbon paper is sandwiched, to test and check if the pressed marks on the paper are even and clear, if they are clear, the cutter seat position is correct and no adjustment is required, if not, adjustment to the cutter seat is required, to adjust, loosen the screw M10 (not completely take off), then adjust the crossing adjusting screw to correct the position of the cutter seat, until proper result is reached. At last tighten the screw M10. Adjustment of the cutter seat can be carried out without heating.

The adjustment of the cutter is generally made by pacing copper sheets. The proper adjustment is that it adjust cut off the film without making much nose. If the cutter is unable to be adjusted well, is must be replaced. Adjustment of the cutter must be carried out under heating (about 120°C).

2) Adjusting the height of the end dealing knife holder

The height of the end dealing knife holder should be adjusted according to eh height of the packed product so as to make the meshing center of the sealing knife align with the height of the center of the packed articles, as shown in diagram 4 and 5. To adjust, loosen the four screws of the side board of the cutter holder, then adjust the up-and-down adjusting screw of the end sealing (the middle screw), making the distance between the meshing position of the upper and lower sealing knives and the working plane is about a half of the height of the packed product. After adjustment, don't forget to tight the four loosened screws before restart the machine again.

3) Adjusting the end sealing knife speed

The speed of the end sealing knives should be adjusted according to the different lengths of the packages. The speed should be adjusted so that the linear velocity of the end sealing knives is equal to the speed of the packing film, there is no paper lay up and straining paper cutting at the cutter. If there is lay up, it means the knife speed is slow and it needs to increase the speed with the “end sealing knife adjusting handwheel” (see diagram 2); if the paper is strained, it means the knife speed is too high and it needs to decrease the speed with the “end sealing knife adjusting handwheel”, until reach the synchronized speed.

4) Adjusting the cutting position of the end sealing knives

In this feeding machine, the linkage relationship between the push rod and the end sealing knives is different according to the lengths of the packages. The method and procedures for adjusting the synchronous relationship between the push finger and the end sealing knives are as following:

(A) When color marks are printed on the film package:

- (1) When there is no product in packages, select “parameter setting” display and set the value of the “cutting position” with the human-machine interface so as to adjust the cutting position of the end sealing knives. (refer to section 5.1 for setting method), set the cutting position at the color mark.
- (2) Put 3 to 5 packed articles between the push fingers of the feeding mechanism, start the machine, when the packed articles reach 100mm away from the front of the end sealing, stop the machine.
- (3) Check to see if the packed articles are between the two color marks, and measure the deviation direction and amount and record them.
- (4) Take out the packed articles, adjust the push finger position with the “finger position adjusting handwheel” (the handwheel can be turned after it is pushed inward), so as to adjust the position of the packed articles.
- (5) Repeat steps 2 to 4, until the packed articles are just between the two color marks.

(B) When there is no color mark on the film package:

- (1) Put 3 to 5 packed articles between the push fingers of the feeding mechanism, start the machine, when the packed articles reach 100mm away from the front of the end sealing, stop the machine.
- (2) Check visually to judge if the end sealing position is between the two packed articles and measure the deviation direction and amount and record them.
- (3) Take out the packed articles, adjust the push finger position with the “finger position adjusting handwheel” (the handwheel can be turned after it is pushed inward), so as to adjust the position of the packed articles.
- (4) Repeat steps 1 to 3, until the packed articles are just between the two color marks.

5. Machine operation

- 1) Safety check: Check and make sure there is no foreign matter on the conveyer belt, working table, and end sealing knives, and there is no other person around the machine.
- 2) Switch on the power. Open the door of the cabinet and connect the main breaker, close the cabinet, check to see if all thermostats and power supply indicator lamp on the control board are normal, and see if the display of the human-machine interface is normal.

After safety check and the power supply is normal, carry out the following operation:

5.1. Human-machine interface

The main parameters of this machine are set with the human-machine interface. After the power is switched on, the first page of the human-machine interface is displayed, as shown in diagram 6.

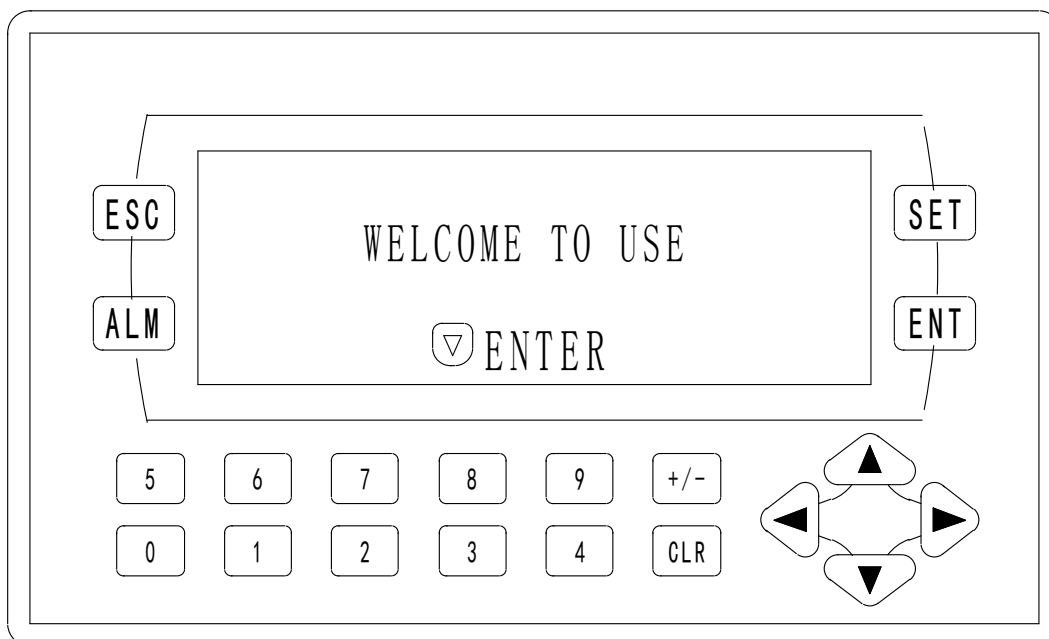


Diagram 6. The first page of the human-machine interface

Follow the description on the screen, press the touch key (↓), the human-machine interface will give a sound and enters the next page (the main menu), as shown in diagram 7.

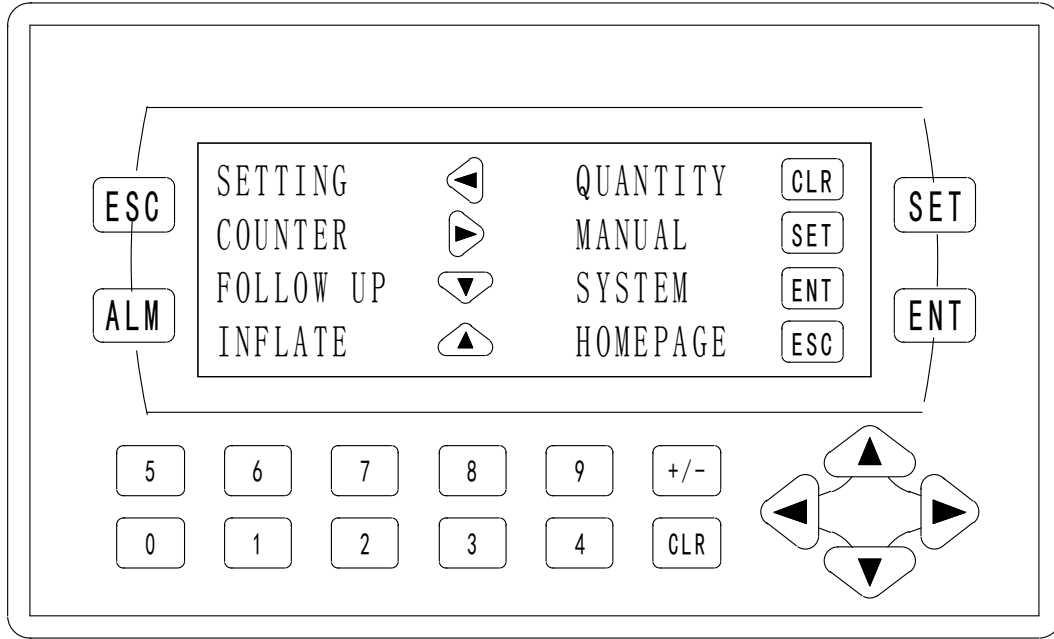


Diagram 7. The main menu of the human-machine interface

(A) Parameter setting

Follow the indication in the “main menu of the human-machine interface” (diagram 7), press (←) key, it enters the “parameter setting” display, as shown in diagram 8. Press (ESC) key, return to the “main menu of the human-machine interface”, as shown in diagram 7.

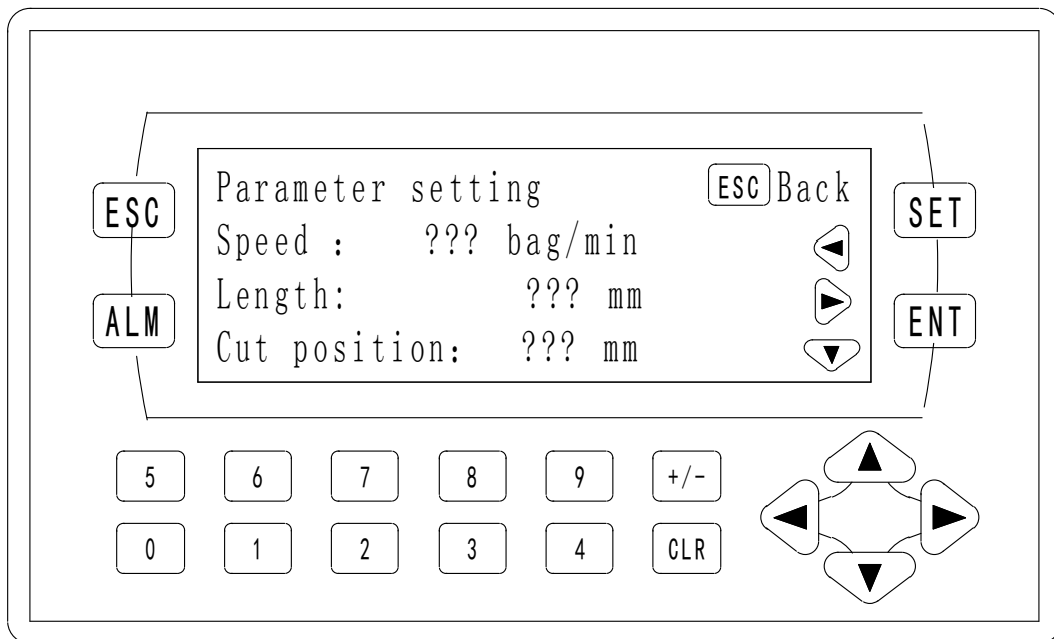


Diagram 8. The parameter setting display of the human-machine interface

- 1) Setting “packing speed”: Follow the description of the “parameter setting” display (diagram 8), press (←) key to enter the “packing speed” display (see diagram 9), enter the values by following the descriptions on the screen, if the speed value excels the rated the speed of the machine, an error signal will be displayed and ask you to reset the value, until the set value is correct.

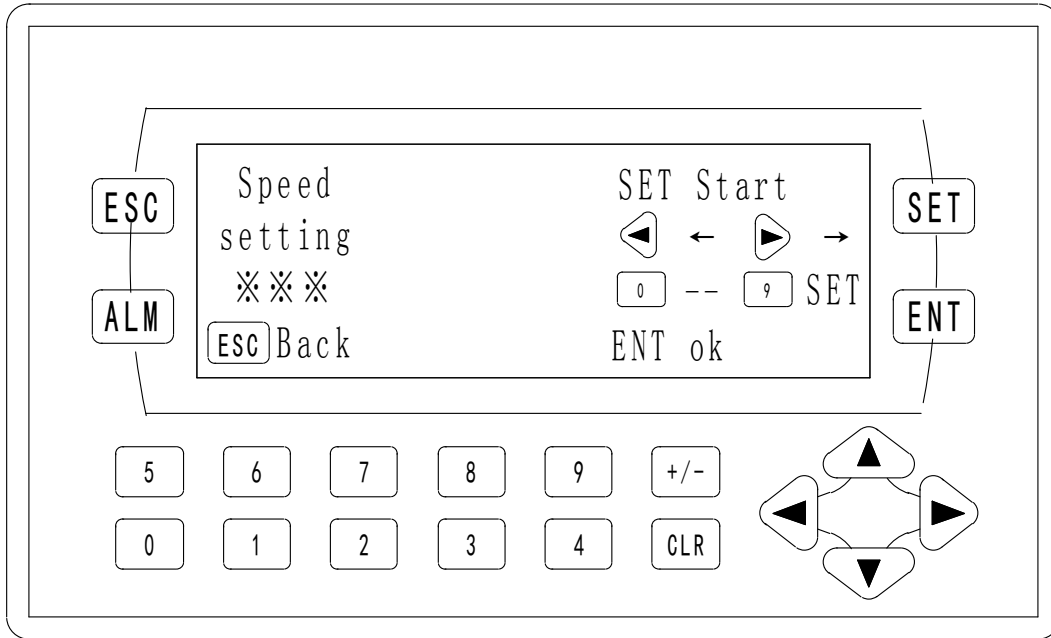


Diagram 9. The packing speed setting display

- 2) Setting “package length”: Follow the description of the “parameter setting” display (diagram 8), press (→) key to enter the “package length” display (see diagram 10), enter the values by following the descriptions on the screen, if value of package length excels the rated value of the machine, an error signal will be displayed and ask you to reset it, until the set value is correct.

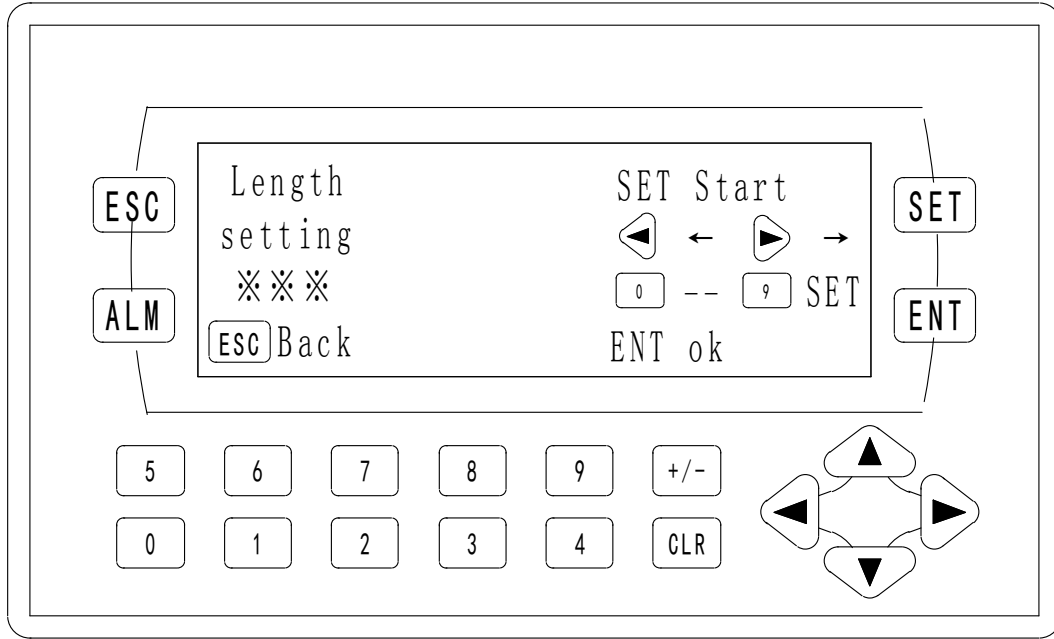


Diagram 10. The package length setting display

- 3) Setting “cutting position”: Follow the description of the “parameter setting” display (diagram 8), press (↓) key to enter the “cutting position” display (see diagram 11), enter the values by following the descriptions on the screen. To confirm the input value, at first, set the parameter of the cutting position to “0”, seal and cut the empty bags, measure the distance “L” between the cutting point and the color mark

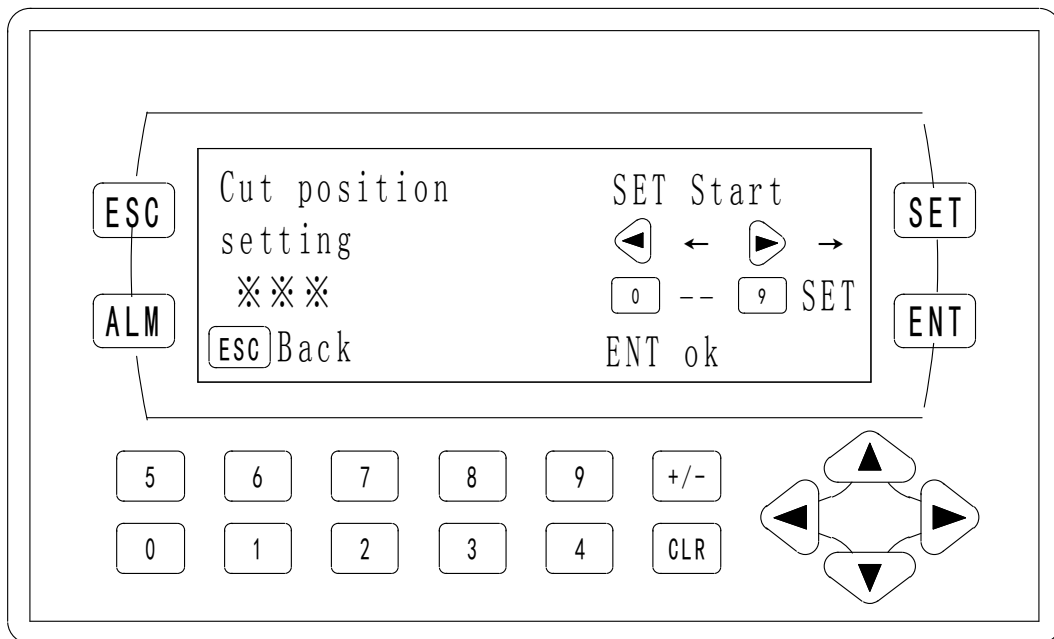


Diagram 11. Cutting position setting display

(see diagram 12), and then input the measured value “L” to the “cutting position” parameter.

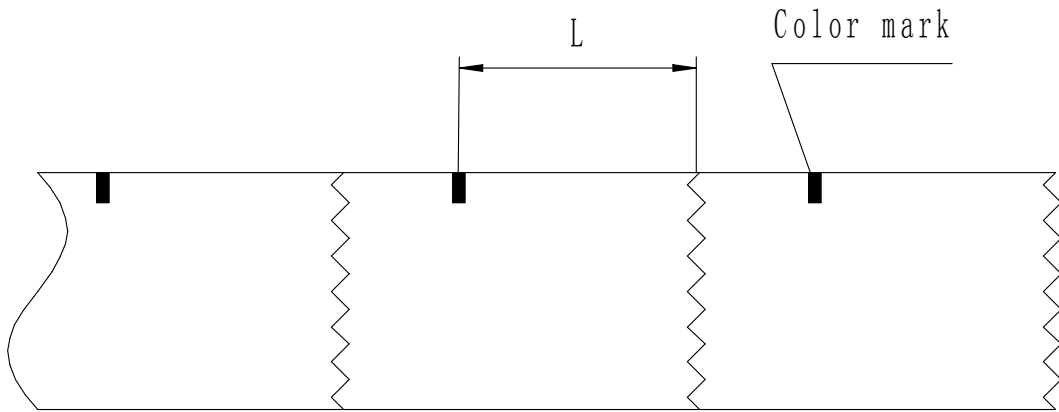


Diagram 12. Cutting position measuring

(B) Counting

Follow the indication in the “main menu of the human-machine interface” (diagram 7), press (→) key to enter the “counting” display, as shown in diagram 13.

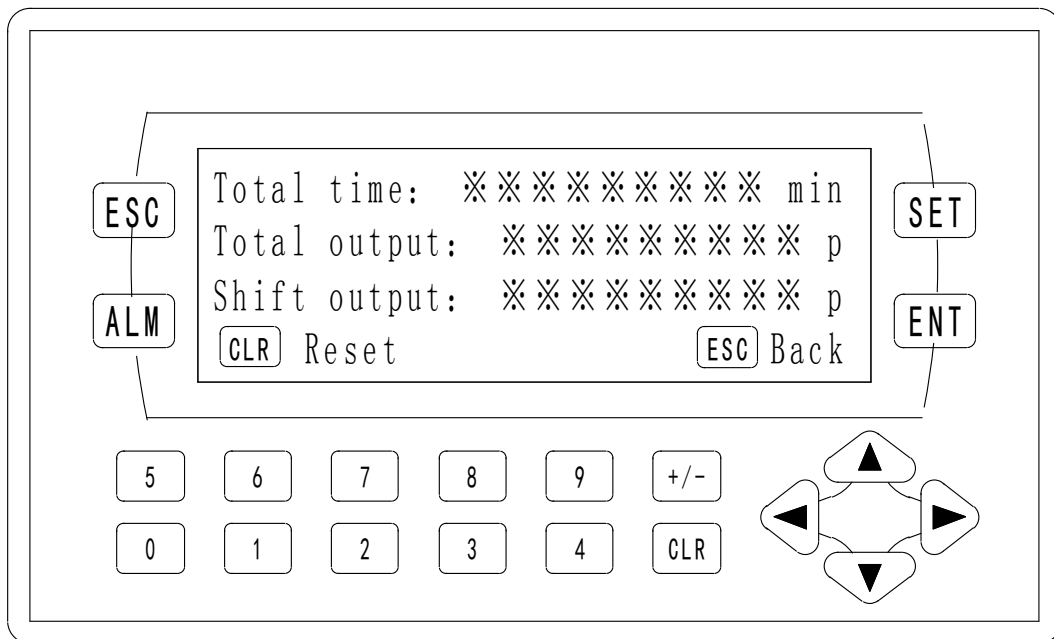


Diagram 13. Yield counting display

This display mainly record the accumulated working time, accumulated output and shift output, so as to facilitate production management for users. Shift output can be reset by pressing (CLR) key. Press (ESC) key to return to the “main menu of the human-machine interface” (diagram 7).

(C) Follow up method

Follow the indication in the “main menu of the human-machine interface” (diagram 7), press (↓) key to enter into the “follow up method” display, as shown in diagram 14. Press(ESC)key to return to the “main menu of the human-machine interface” (diagram 7).

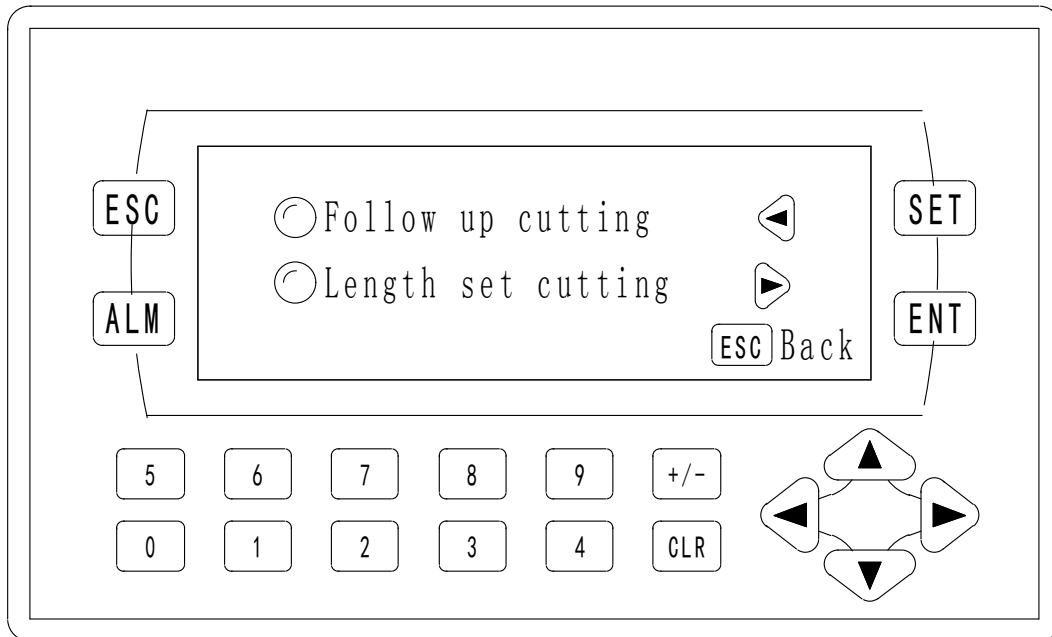


Diagram 14. Follow up method display

Press (←) key, the machine will enter into “Follow up cutting” mode, Press (→) key, the machine will enter into “Length set cutting” mode. For packages with color marks (i.e. for product to be followed up through color marks), “Follow up cutting” is used; for packages without color marks, “Length set cutting” mode” is used.

(D) Inflating setting (option)

Follow the indication in the “main menu of the human-machine interface” (diagram 7), press (↑) key to enter into the “Inflating setting” display, as shown in diagram 15. Press (ESC) key to return to the “main menu of the human-machine interface” (diagram 7).

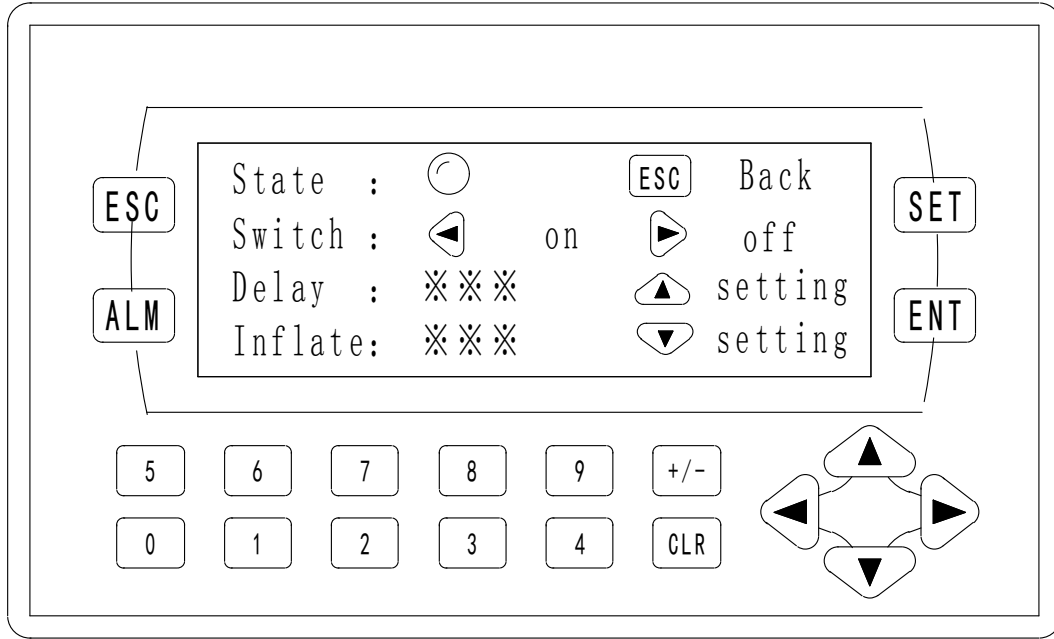


Diagram 15. Inflating display

- 1) Setting inflating delay: Follow the indication in the “inflating setting” display(diagram 15), press (↑) key to enter into the “inflating delay” setting display (see diagram 16), input the value by following the indication on the screen. The input value should be decided by inflating effect.

Press (ESC) key to return to the “inflating setting” display (diagram 15).

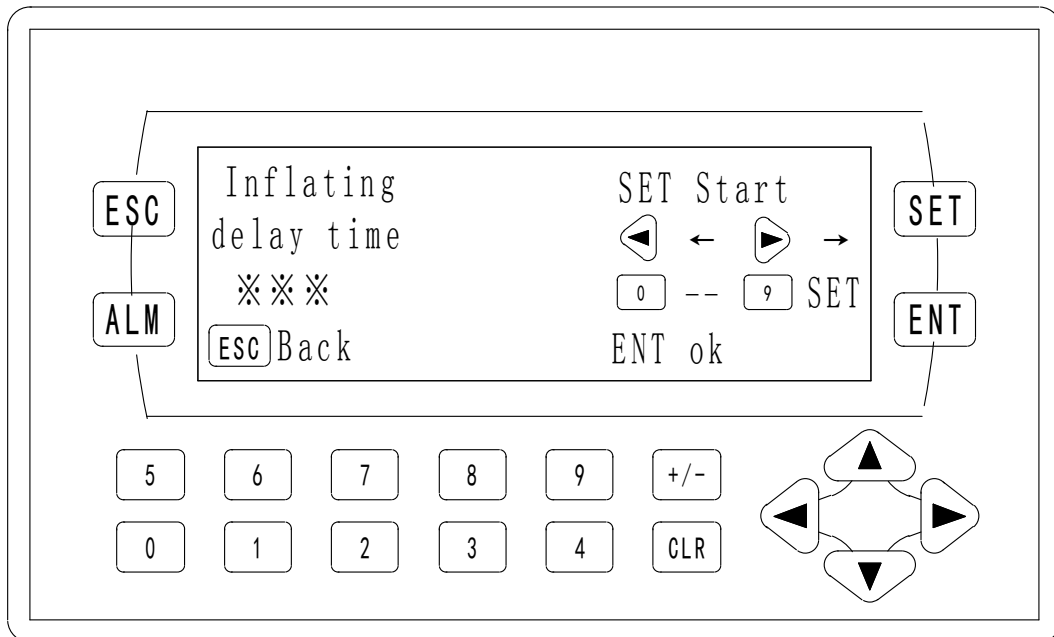


Diagram 16. Inflating delay display

2) Setting inflating time: Follow the indication in the “inflating setting” display (diagram 15), press (↓) key to enter into the “inflating time” setting display (see diagram 17), input the value by following the indication on the screen. The input value should be decided by inflating effect.

Press (ESC) key to return to the “inflating setting” display (diagram 15).

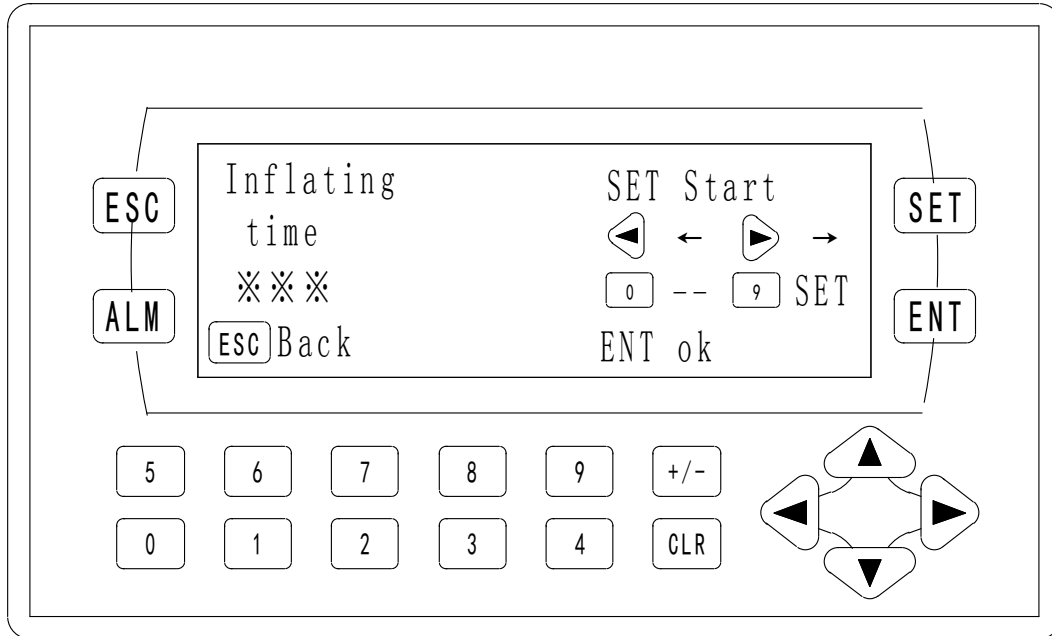


Diagram 17. Inflating time display

(E) Manual operation

Follow the description in the “main menu of the human-machine interface” (diagram 7), press (SET) key to enter into the “Manual operation” display, as shown in diagram 18. Press (ESC) key to return to the “main menu of the human-machine interface” (diagram 7).

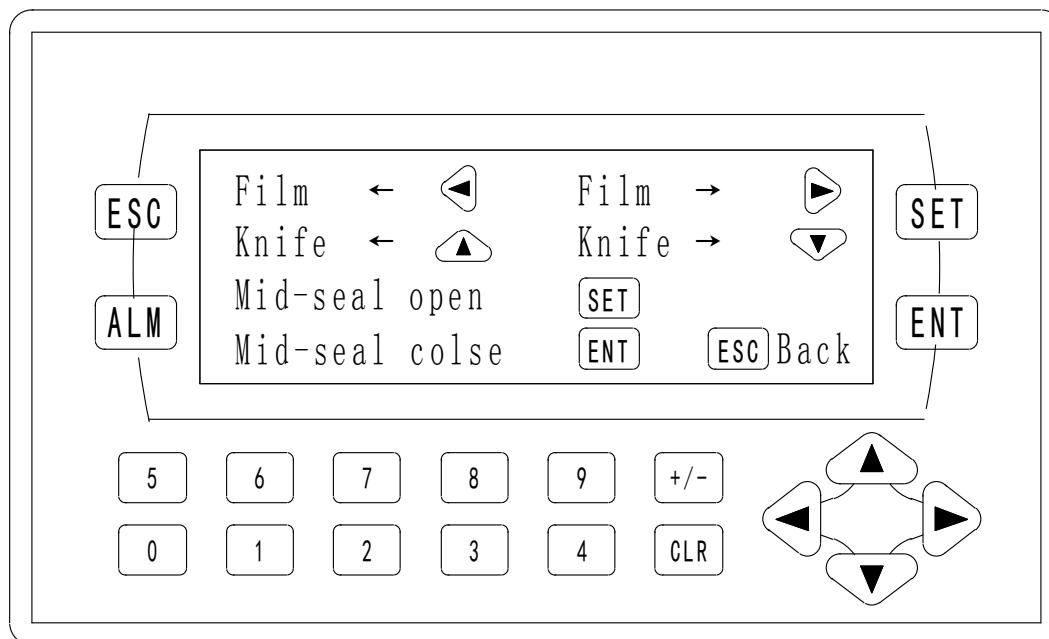


Diagram 18. Single action display

This display is used for single action operation:

- a) Paper feed system moves forward and backward
- b) End sealing system moves forward and backward
- c) Mid-sealing system opens and closes

(F) Quantity packing

This machine contains a fixed quantity packing function. When you open the fixed quantity packing and set up the fixed packing quantity, this time, start the packing machine. It works normally. When the quantity of packing reaches the packing number set up, the packing machine stops automatically. Such, can then be convenient to handle the finished product of packing.

After shutting down midway, start the packing machine again, this time, the fixed quantity packing starts calculating from the zero.

Follow the indication in the “main menu of the human-machine interface” (diagram 7), press (CLR) key to enter into the “Quantity setting” display, as shown in diagram 19. Press (ESC) key to return to the “main menu of the human-machine interface” (diagram 7).

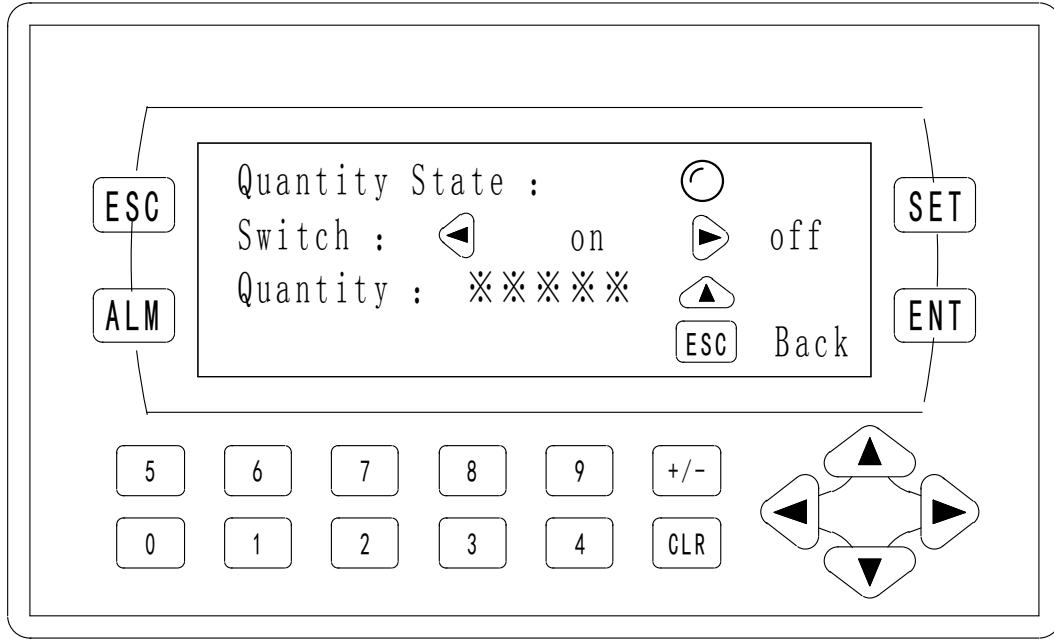


Diagram 19. Quantity display

Press (←) key to open the “quantity function”, Press (→) key to close the “quantity function”, press (↑) key to enter into the “quantity range” display, as shown in diagram 20. input the value of the quantity range in accordance with the description in the human-machine interface .

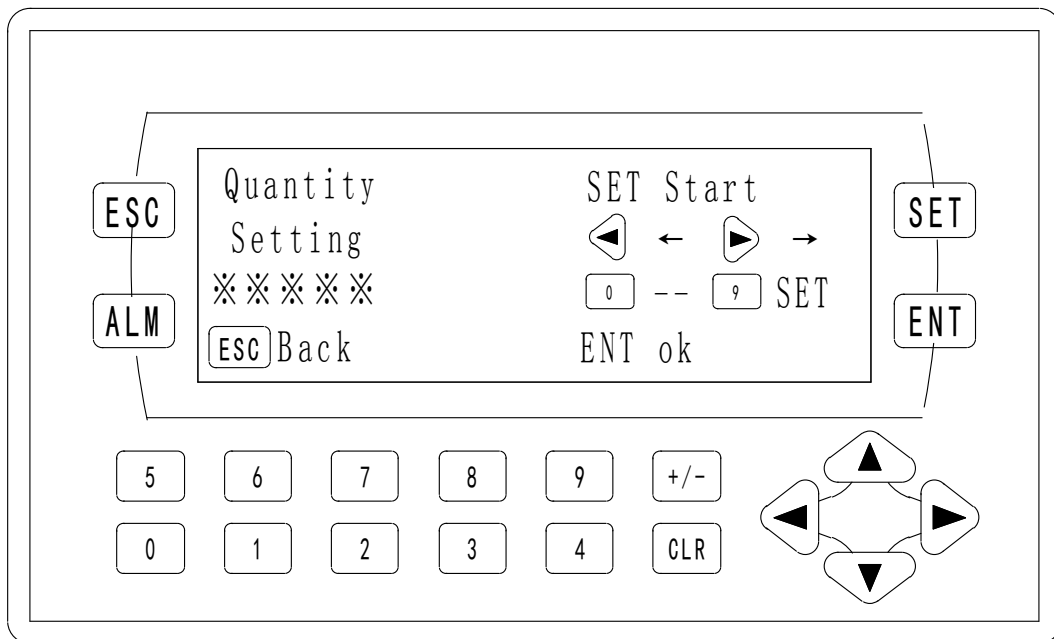


Diagram 20. Quantity range display

(G) System

There will be no further description about the maintenance; please talk to the commissioning technicians for detailed method about the system.

5.2. Temperature control

This machine has two sets of temperature control systems, which control the “mid-sealing temperature” and the “end-sealing temperature” respectively. The temperature setting value for each set of temperature control system is determined according to the packing speed, the thickness of the packing film, and the environment temperature. The optimum temperature setting value should have a result that there is no leakage and burnt crimple for both mid-sealing and end-sealing. The operation method for thermostat is described in the thermostat instruction manual attached to the machine.

5.3. Color mark magic eye

Magic eye is required for products to which following up is needed. After the packing film is installed, adjust the position of the magic eye; along the light beam emitted from the magic eye with to the place where color marks pass by, as shown in diagram 21.

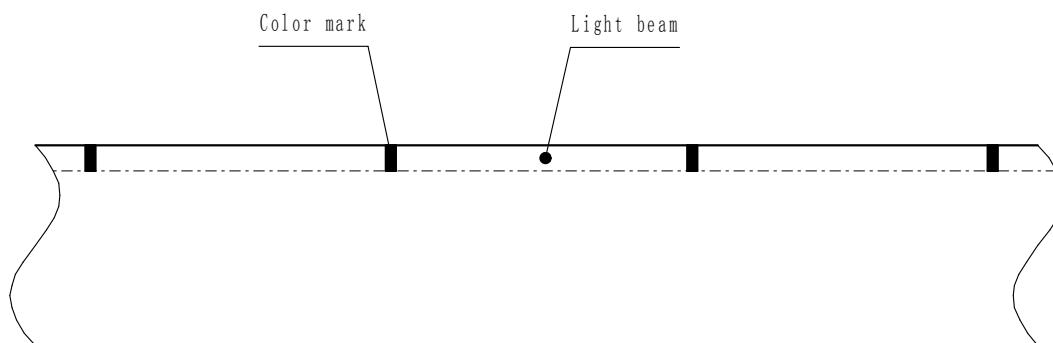


Diagram 21. Position for light beam of the color mark magic eye

The sensitivity of the color mark magic eye has been adjusted properly in factory. If further adjustment is needed, follow the magic eye instruction manual attached to the machine.

5.4. Start

1) Inching

Press and hold the inching button (black), the machine will run in speed of 30 packages per minutes, when the key is released, the machine will stop immediately.

2) Continuous running

Press the start button (green), the machine will run continuously with the set speed until the stop button (red) or emergency stop button (mushroom shaped) is pressed.

5.5. Stop

1) Normal stop

Press the stop button (red), the machine will stop with the end-sealing knife in the level position.

2) Emergency stop

Press the emergency stop button (mushroom shaped), the machine will stop immediately, to restart the machine, the reset button must be pressed.

6. Maintenance

6.1. Shift cleaning and maintenance

- 1) Before cleaning the machine, cut off the power supply to the machine so as to ensure the safety of people and the machine.
- 2) Clean the working table and the surface of the machine with a clean and moistened cloth.
- 3) Clean off the film scraps stuck to the feeding mechanism, mid-sealing mechanism and the end-sealing mechanism with compressed air.
- 4) Clean off the film scraps stuck to the end-sealing knife with a steel wire brush.

6.2. Monthly check and maintenance

- 1) Add lubricating oil to the meshing gears of the drive system and the chains of the chain wheel, a thin layer of lubricating oil is enough. It is not allowed to add lubricating oil to the synchronous belt of the machine and the flat conveyer belt.
- 2) Add lubricating oil to the end-sealing bearing.
- 3) Check the tension of the drive chain and belt, retighten if necessary.
- 4) Check all the screws and nuts, if there is any for loose screw or nut, retighten it.
- 5) Check carbon deposit, clean if necessary.

6.3. Biannual check and maintenance

- 1) Check the wearing condition of the drive belt and the flat conveyer belt, replace if necessary.
- 2) Check all the wearing parts, replace the worn parts in time.
- 3) Check the wearing condition of the drive parts, replace if necessary.
- 4) Check the electric wiring and tighten if necessary. Clean the dust from the electric elements with compressed air.

7. Resolving abnormalities

Problems	Possible causes	Remedies
Cutting position is deviated from the color marks	<ol style="list-style-type: none"> 1. Color mark follow up is not used 2. The film color mark is weak. 3. Film is slipping. 	<ol style="list-style-type: none"> 1. Change follow up method into “follow up cut” in the follow up method display of the human-machine interface. 2. Refer to the magic eye instruction manual attached to adjust the sensitivity of the magic eye. 3. Adjust the tension of the rubber roller or the degree of tightness of the brake.
The cutter cut on products	<ol style="list-style-type: none"> 1. The push rod and the cutter are asynchronous. 2. The height of the cutter seat is improper. 3. Packing speed is too high. 	<ol style="list-style-type: none"> 1. Refer to section 4.6.4 about push finger position. 2. Adjust the height of the end-sealing parts, adjust the sealing knife meshing center to the half of the product height. 3. Decrease the packing speed.
Burnt crimples appear on the seal	<ol style="list-style-type: none"> 1. Temperature is too high. 2. Speed is too low. 3. The thermal endurance of the film’s outer layer is poor. 	<ol style="list-style-type: none"> 1. Bring down the temperature. 2. Increase the speed 3. Replace with better film
Sealing is loose or missed	<ol style="list-style-type: none"> 1. Temperature is too low. 2. Speed is too high. 3. The thermal endurance of the film’s inner layer is poor. 	<ol style="list-style-type: none"> 1. Increase the temperature. 2. Decrease the speed 3. Replace with better film.
Thermostat does not control temperature	<ol style="list-style-type: none"> 1. Heating element is damaged 2. Solid state relay is burnt. 3. Thermocouple is damaged 4. Temperature control meter is damaged 	<ol style="list-style-type: none"> 1. Replace the heating element. 2. Replace the solid state relay 3. Replace the thermocouple 4. Replace the thermostat

