



4-BS-PV100700 Vertical Band Sealer With Solid Ink Coding

Operating Manual



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I. Use

This sealer is suitable for sealing all kinds of plastic films, which is widely used in fields of food, medicine, chemicals, daily use and vegetable seeds etc. It is the best sealing equipment for packing batch products from factories and shops.

II. Safety Instructions

1. Make sure that the adopted power supply is correct.
The machine adopts single-phase three wire system (AC 220V/50Hz). The wire whose color alternating between yellow and green is leakage protection ground wire, which cannot be removed, and the power line should be prevented from pressing. Please tidy away when it is not in use.
2. After power being connected, do not touch any electric device.
3. When machine is operating, do not touch any transmission parts, which may cause injury.
4. When machine is operating, do not touch both heating blocks and ink roller heating block so as to avoid scald.
5. Do not operate the machine in corrosive environment.
6. Do not change any parts of the machine at discretion.
7. Keep the machine clean both the inside and outside, and clear dirt in sealing belt in time.
8. Fill and exchange oil in worm-gear case regularly. Meanwhile, remember to oil the gear and sprocket (YP7408 semiliquid gear oil).
9. Cut off the power supply when the machine is not in use. Must shut off the power when the operator leave the machine.
10. Keep this operation manual with care for easy reference.

III. Specifications

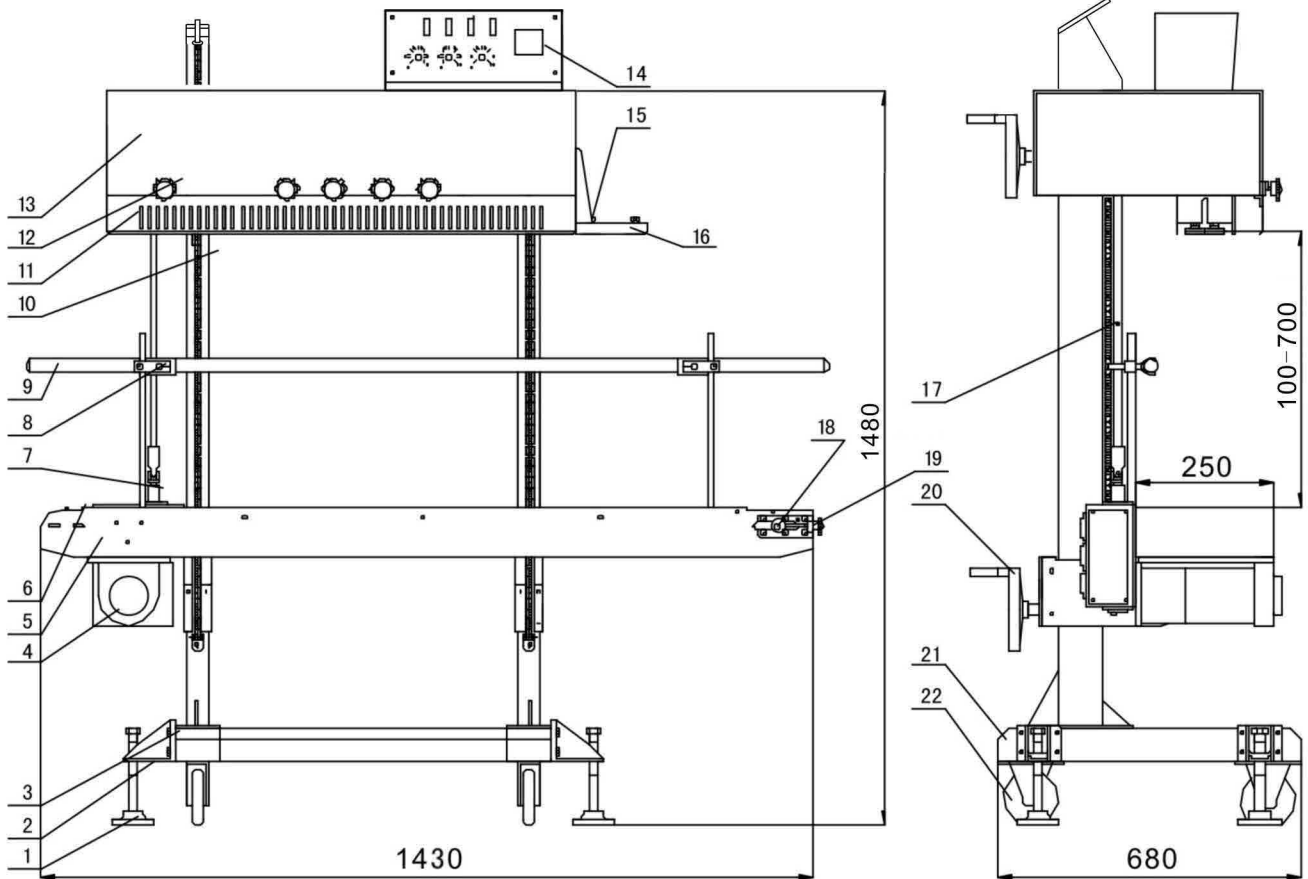
Model Parameter Item	FRM-1120LD Solid-ink coding continuous band sealer	
Voltage	AC 220/50 110/60	
Motor power	245W	
Sealing power	300×2W	300×4W
Printing power	40×2W	--
Sealing speed	0~10m/min	
Sealing width	10mm	
Temperature control range	0~300 (°C) (Stepless adjustable)	
Printing type	Solid ink Color ribbon	--
Distance from sealing center to conveyor table	100-700 (mm)	
Size of conveyor table	1460x250mm	
Thickness of film(monolayer)	≤0.12mm	≤0.18mm
Conveyor loading for single package	≤5kg	
Overall loading of conveyor	≤15kg	
External dimension (LxWxH)	1430×680×1480mm	1450×680×1480mm
Net weight	136kg	150kg

IV. Performance Features

1. FRM-1120LD series derives two models. One is FRM-1120LD, which is equipped with solid-ink roller coding mechanism, further, model FRM-1120LD can also choose to be equipped with color ribbon printing mechanism. The other one is FR-1370LD, and it is equipped with two set heating blocks which is suitable for sealing thicker plastic film bags. Its standard model is not equipped with coding mechanism, and if needed, model FR-1370LD can also choose to be equipped with solid-ink roller or color ribbon printing mechanism.
2. This sealer, adopting electronic thermostat control unit and stepless speed-adjusting transmission mechanism, can seal various plastic film bags in different materials and can also be equipped with varied packaging production lines. The machine has no limitation on sealing length, which is characterized by high efficiency in continuous sealing, reliable sealing quality, rational structure and convenient operation etc.
3. FRM-1120LD series can use solid-ink roller to print desired colored label while sealing, with the characteristics of high definition, instant print, instant dry and strong adhesion; For types in R type arrange, the machine can print two lines in font size four (18PT) or three lines in font size five (10.5PT), and 20 characters can be arranged in each line. Special order is available for machine which can print in T type arrange or multiline.
(NOTE: This manual introduces the solid-ink roller coding mechanism which is controlled by electromagnetic clutch intermittent mechanism. Manual will be enclosed for other control mechanism or color ribbon printing mechanism.)

V. Structure & Working Principle

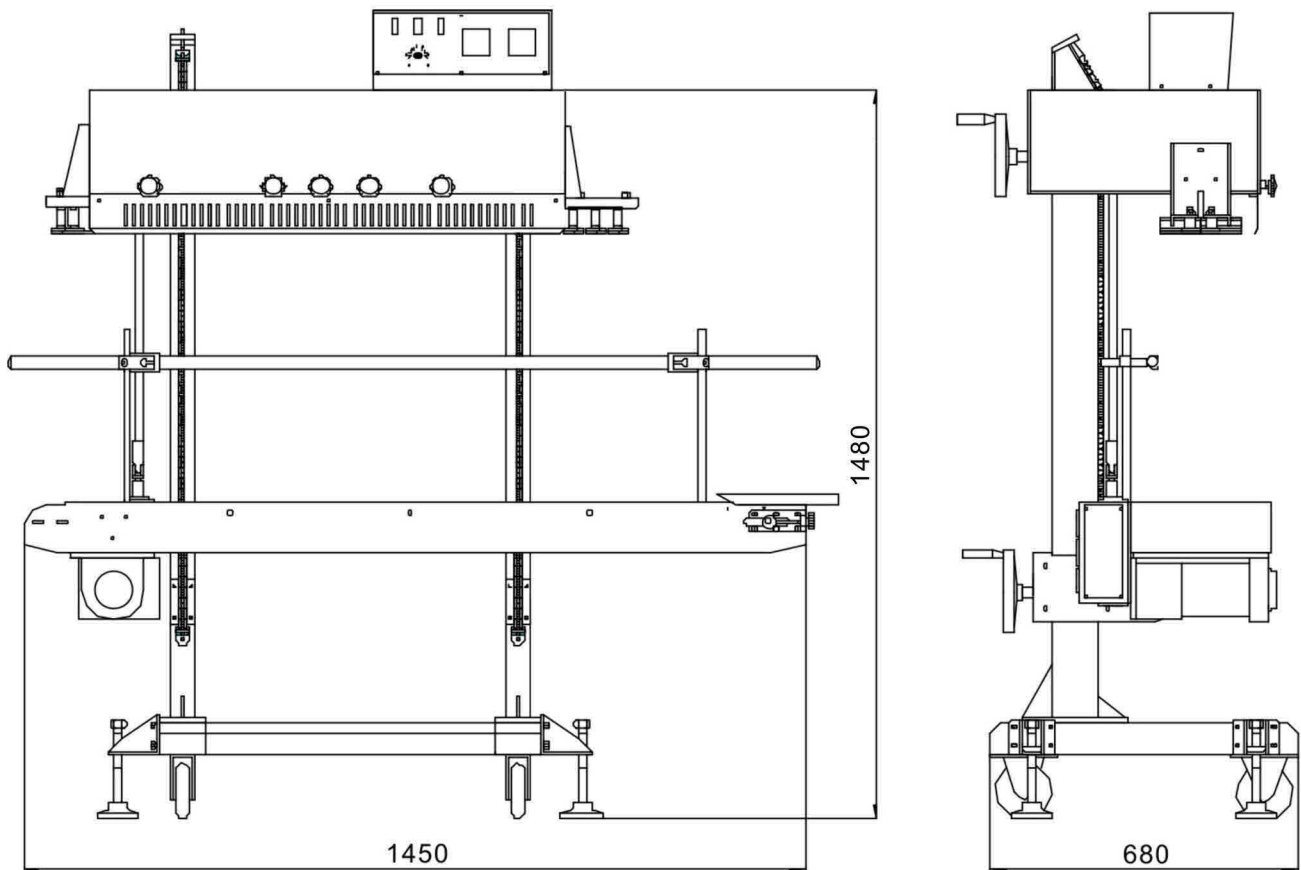
1. This machine is made up of machine frame, speed-adjusting mechanism, sealing temperature control system, transmission and conveying system, and printing assembly etc (see Diagram 1-Diagram 2).



FR-1120LD Solid-ink coding continuous band sealer

Diagram 1

1. pedal plate; 2. pedal plate bolt; 3. pedal plate bracket; 4. gear box; 5. conveyor table
6. conveyor belt; 7. baffle support; 8. support rod bracket; 9. baffle rod; 10. stand column; 11. shield; 12. adjusting knob; 13. housing case; 14. control panel; 15. in-guiding wheel bracket; 16. in-guiding wheel; 17. vertical shaft; 18. adjusting seat for conveyor belt; 19. adjusting knob; 20. lifting handwheel for conveyor table; 21. base plate; 22. castor



FR-1370LD Continuous band sealer with two sets of heating blocks

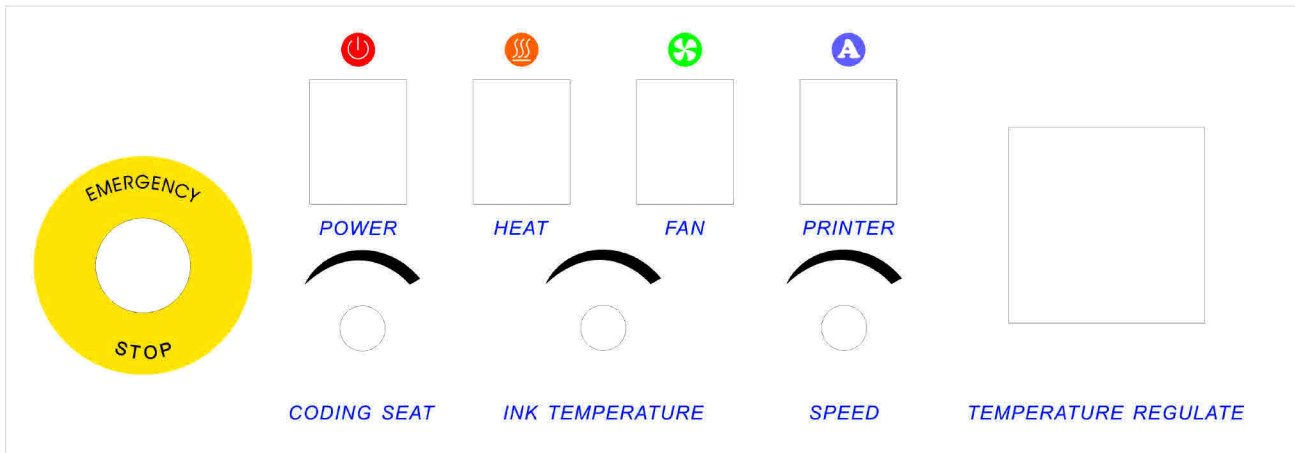
Diagram 2

2. After the power supply being connected, the heating element produces heat that rapidly raise the temperature of both upper and lower heat blocks. By using the temperature controller and speed-adjusting mechanism, adjust it to the needed temperature and speed. The plastic packing bag is transmitted by conveyor belt, and its sealing part will be conveyed into the middle of two working sealing belts. Then it is clamped by the two sealing belts and conveyed into the heating area, and sealing part is pressed by two heating blocks and impressing wheels there, which could make the plastic film fused and stuck together. After this, the sealing part will be conveyed into the cooling area for cooling, and then to be pressed by embossing wheel for making stripe or netted pattern, at last, colored label on the sealing part will be coded by printing wheel. The sealing and printing transmission are driven by one motor, which drives sealing belts, guiding belts and conveyor belt to work synchronously, as well as make printing mechanism working intermittently.

3. Power of vertical sealer makes sealer head run through vertical shaft.

VI. Operation Instruction

1. Control Panel (See Diagram 3)



FR-1120LD

Diagram 3

2. Prepare the machine for use

- 1) This machine is equipped with a three-pin crust-grounded socket. Please check if it is well connected so as to ensure safe operation.
- 2) First-time use or too long intermission will make the heating elements damp. So it is necessary to preheat at lower temperature for several minutes before the normal operation.
- 3) Adjust the height and position of the conveyor table to get the required sealing position.
- 4) Adjust the position of feed opening according to the external size from sealing line to bag opening.
- 5) According to the thickness and material that to be sealed, adjust the clearance between two heating blocks and two cooling blocks, so that both clearances are

approximately equal to the thickness of packing bag in one layer. The firmness of sealing and high definition of embossing shall be guaranteed, also suitable length extended from two ends of sealing part shall be ensured.

3. Ways of replacing and adjusting the sealing belt:

- 1) Remove the safety cover, when heating blocks become cooled, rotate retaining washer in the upper heating block and lower cooling blocks by 30 degrees, and lift these two sections. At same time loosen the middle pressing wheel and middle pressing wheel spring, and remove guiding belt to prepare for removing sealing belt.
- 2) Push and move the driven wheel seat (adjusting block) in the direction of heating blocks, then remove the sealing belt.
- 3) Replace with a new sealing belt and install the guiding belt back.
- 4) Put the driven wheel, heating and cooling blocks, pressing wheels, and etc. to the original position, meanwhile rotate cam clockwise to make it return to original position as well.
- 5) Connect the power supply and test the machine, if irregular sealing appears on the belt, make adjustment by adjusting screws on the driven wheel seat (adjusting block)(see Diagram 5).

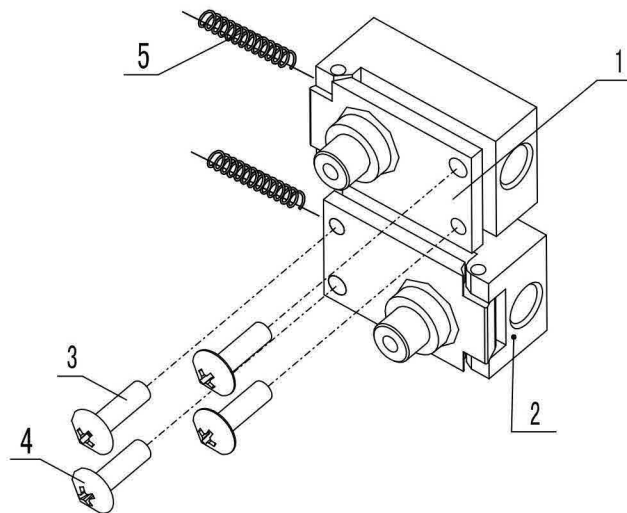


Diagram 5

1. driven wheel seat(adjusting plate); 2. driven wheel seat(adjusting block);
3/4. adjusting screws; 5. spring

- 6) Close the safety cover, connect the power supply and test the machine. When the heating block reaches setting temperature, it can work continuously.

4. The selection of the type arrange way:

The type in longitude arrange is R arrange, while types in axial arrange is T arrange (see Diagram 6).

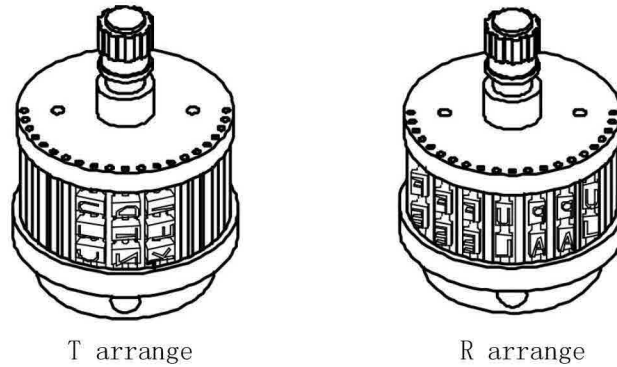


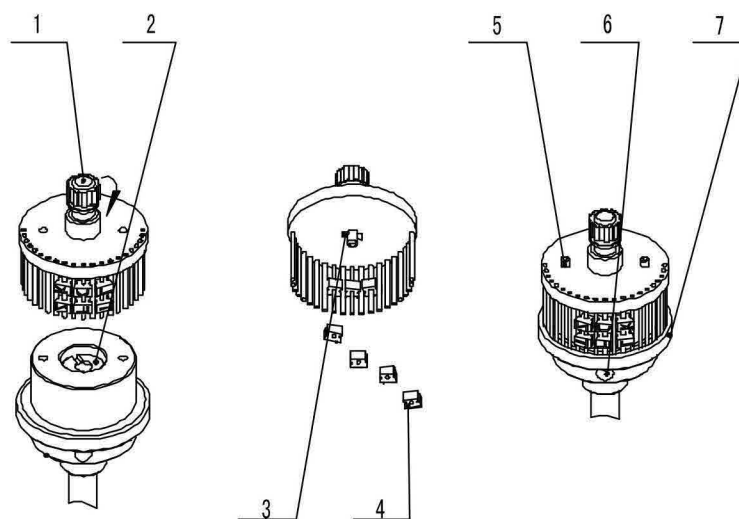
Diagram 6

(This manual introduces the solid-ink roller coding mechanism which is controlled by electromagnetic clutch intermittent mechanism. Manual will be enclosed for other control mechanism or color ribbon printing mechanism.)

5. Adjustment for the ink roller, printing wheel and silicone wheel:

1) Replace types on printing wheel (see Diagram 8):

Rotate the holding latch on the printing wheel cover to take the traverse pin out of the groove from the end cover of printing wheel shaft, the printing wheel cover will bounce by itself and types can be replaced after removing its cover. Then press the silicone bar on it and put printing wheel cover. At last, insert the traverse pin back into the groove, and rotate for fastening.



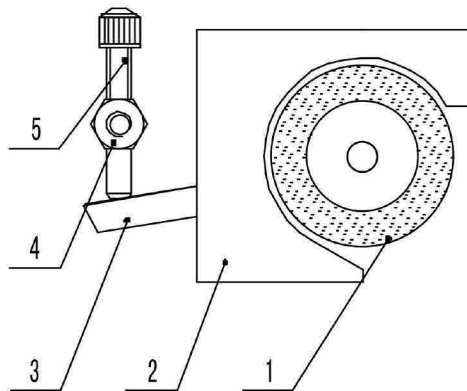
1. holding latch; 2. end cover of printing wheel shaft; 3. traverse pin; 4. types; 5. locating pin;

6. set screw of printing wheel; 7. printing wheel

Diagram 7

2) The adjustment of the clearance between ink roller and types:

Adjust the adjusting screw (5) for the ink roller's swing pole, rotate the printing wheel, and make the types' surface touch the ink roller's (1) surface slightly. If the ink roller can be easily driven by rotating the printing wheel with hand, it should be ok (see Diagram 8).

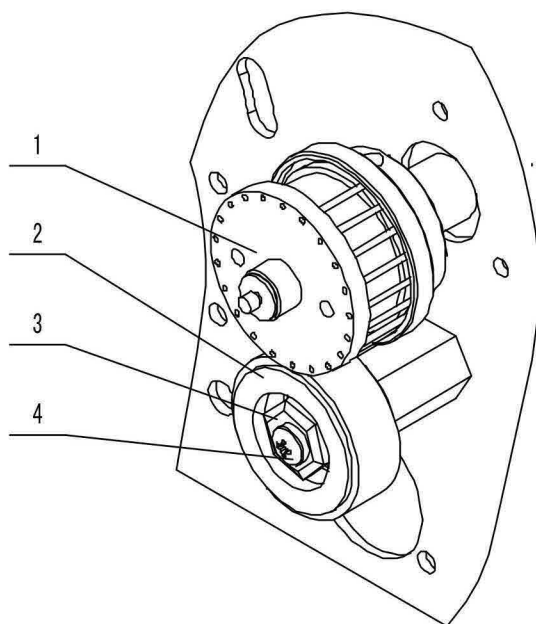


1. ink roller; 2. heating block of ink roller; 3. swing pole; 4. adjusting strut; 5. adjusting screw;

Diagram 8

3) Adjustment of the pressure between printing wheel and silicone wheel:

The types on the printing wheel would not touch the silicone wheel when it is not in printing process. And they only touch each other when the printing work is in process. Loosen the screw (4) in the front of the silicone wheel, then rotate the eccentric sleeve (3), so as to make the types' surface slightly touch the silicone wheel's (2) surface. If the machine is used to print relatively thicker packing bag, the screw should be loosened accordingly and the pressure may not be oversized, fasten the screw (4) after making adjustment (see Diagram 9).



1. printing wheel; 2. silicone wheel; 3. eccentric sleeve; 4. screw

Diagram 9

4) Temperature adjustment for printing wheel and ink roller:

All the knobs of this machine are set to position 0 before leaving factory. Users need to make adjustment by themselves. For a new ink roller, during previous time of using, the temperature should be relatively lower, after a period time of using, the temperature can be raised to higher degree, which can make the deep-seated ink ooze and prolong the ink roller's life-span. When the ink roller reaches the working temperature, use a piece of white paper to touch the ink surface, as long as it can stick a little ink, it should be ok. The temperature can't be too high or too low.

The ink roller that suits for this machine specified in following table, including colors of white, yellow, red, blue, green, brown and black. If the packing bag needs steam cooking after printing, you should choose the ink rollers of moderate temperature or high temperature, in this situation, the temperature must be set in higher degree accordingly while using.

Model	Outer dia. (mm)	Height (mm)
Low temperature series 120-150°C (NO:935)	Φ36	16
	Φ36	32
	Φ36	40
Moderate temperature series 135-165°C (NO:932)	Φ36	16
	Φ36	32
	Φ36	40
High temperature series 150-175°C (NO:930)	Φ36	16
	Φ36	32
	Φ36	40

6. Adjustment of coding position:

Users can locate the coding position by adjusting coding position knob according to the length of bag opening.

7. Adjustment of number of lines in printing label:

Arrange types within stipulated range, and then use the provided silicone bar to fix the types in required axial position.

8. Steps for replacing conveyor belt by dismantling conveying table (see Diagram 11):

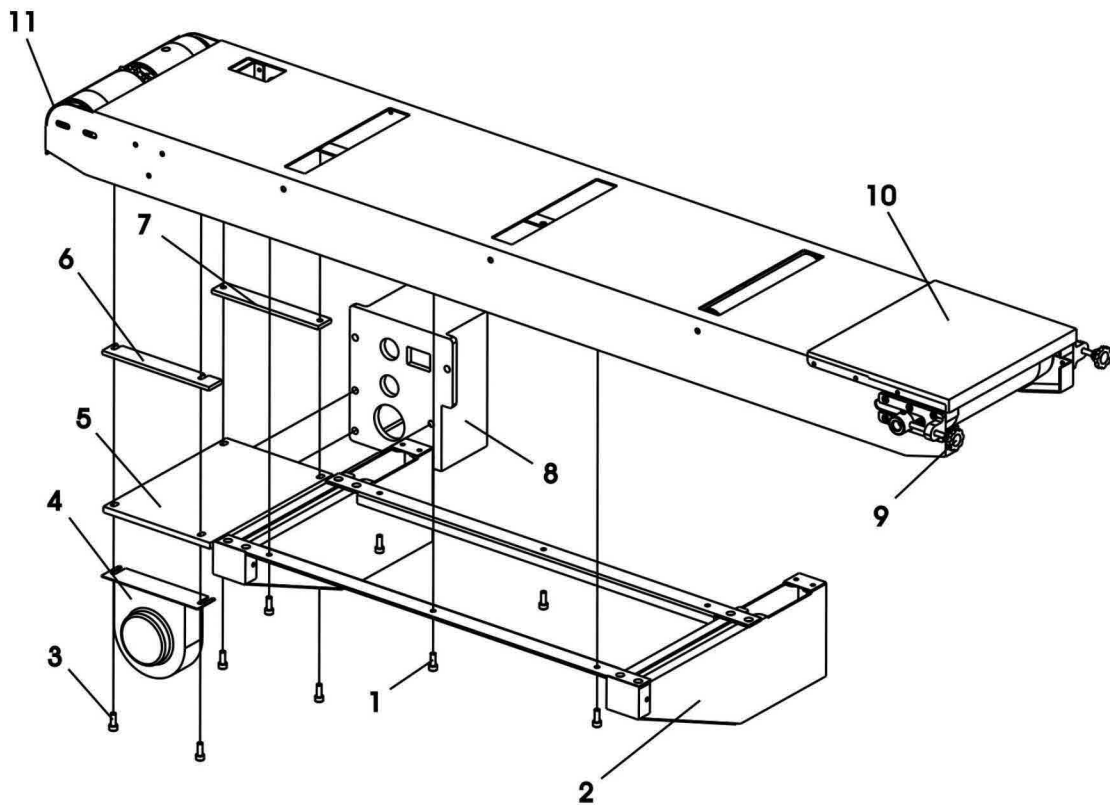


Diagram 10

1. hexagon socket head bolt; 2. Conveyor Table Bracket; 3. hexagon socket head bolt; 4. motor safety cover; 5. motor mounting Plate; 6. front baseplate; 7. back baseplate; 8. gear box; 9. adjusting knob

First of all, dismantle the platens (10) in left and right sides of the conveying board and the discharge plate (11). Then rotate the adjustment knob (9) counterclockwise and remove it. Move the driven roller shaft to make it in the far

left end of the slot. Then remove screw (1) (total 6 pcs), loosen screw (3) (front two pcs) to drag off the front baseplate (6) and motor safety cover(4). At this point, the conveyor belt is in a fully loosened state and finally unload conveyor belt.

9. Starting procedure

- 1) Connect the power supply and turn startup switch on, the indicating light will light, then adjust the speed-adjusting knob and all transmission parts will start to run synchronously.
- 2) Fine tune the knob of embossing wheel to make that wheel swivel, after getting a proper pressure, fix limiting screw.
- 3) Once turn the heating switch on, the green light of the electronic temperature controller will light. According to the material and thickness of the packing bag, adjust the temperature controller to the required temperature, then set the position of ink roller heating knob. Once the heating blocks and ink roller heating blocks begin to preheat, the machine needs to be started meanwhile and kept running at low speed.
- 4) That whether it is necessary to turn on the fan for cooling depends on the material and thickness of packing bag.
- 5) Flatten and align sealing opening, then deliver the bag by aligning the bag opening with the feed opening, when the bag opening is gripped by the sealing belts, which makes the bag move forward automatically, at that moment, please do not push it in or pull it out by force, otherwise irregular sealing or breakdown will happen.
- 6) If it is found that there is dirt attached to the sealing belt or the heating block, you need to stop the sealer and clear it.

10. Stop operation

In order to prolong the using life-span of the sealing belt, please remember, before shutting down the machine, you should return the temperature regulating knob to position 0 first, then turn on the fan, the temperature on the indicator begins to fall and the sealing belt should still be in state of running at this time. About several minutes later, when the temperature drops below 100°C, only can you turn off the fan and main power supply.

11. Emergency stop switch:

At any time, the machine should stop immediately when pressing emergency stop switch. The emergency stop switch is a self-locking switch, and needs to rotate clockwise 120 degrees to open it after self-lock.

VII. Circuit Diagram

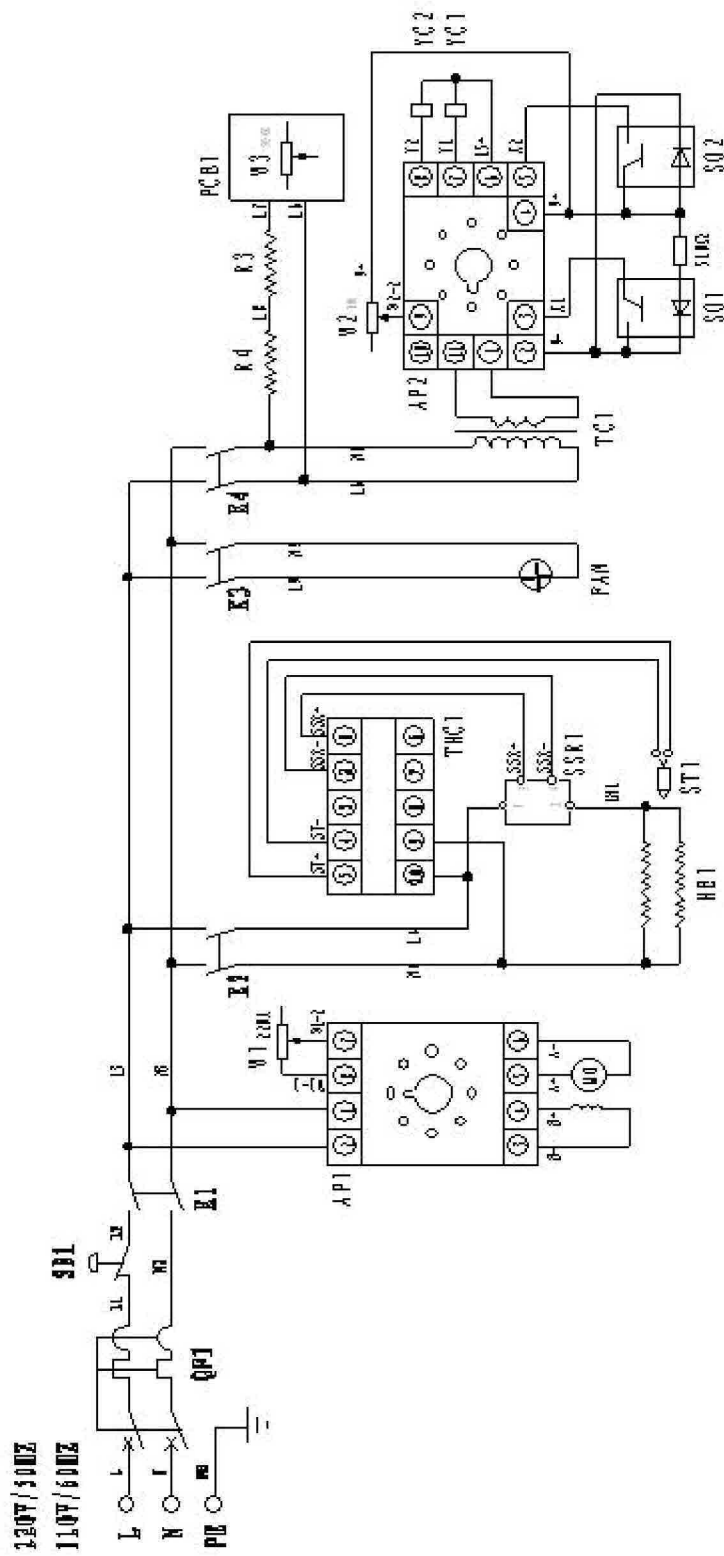


Diagram 11

- QF1- High Breaking Switch, SB1-Emergency Stop Switch, K1- Power Switch, K2- Heat Seal Switch
- K3- Fan Switch, K4- Coding Switch, K5- Gas-filling (Suction) Switch, WJ1- Speed Adjusting
- W2- Coding Position Adjusting, WJ3- Ink Roller Temperature Adjusting, HE1- Heat-sealing Heating Tube
- R3/R4- Ink Roller Heating Tube, MD- Speed-adjusting Motor, M- Gas-filling (Suction) Pump, FAN- Fan
- TQ1- Transformer, YC1- Electromagnetic Clutch, YC2- Electromagnetic Brake, SQ1- Grooved Optical coupler
- SQ2- Photoelectric Sensor, THC1- Heat-sealing Temperature Controller, ST1- Thermocouple, SSR1- Solid Relay
- AP1- Speed-adjusting Board, AP2- Main Control Board, PCB1- Temperature-adjusting Board

VIII. Troubleshooting

Problem	Reason	Solution
Fail to work	<ol style="list-style-type: none"> 1. Power supply disconnected 2. Fuse broken or Circuit breaker tripped 3. Emergency Switch fail to reset after being Pressed 	<ol style="list-style-type: none"> 1. Check the power socket 2. Replace fuse or circuit breaker 3. Reset the Emergency Switch
Sealing belt is off-tracking.	Driving wheel shaft is not parallel to driven wheel shaft.	Adjust two adjusting screws on driven wheel seat.
Sealing belt is easy to broke.	<ol style="list-style-type: none"> 1. Too much tension on sealing belt. 2. Sealing belt is off tracking. 3. Crease on sealing belt. 4. Adhesive film or other dirt attached to sealing belt surface. 5. Sealing belt is easy to burn. 	<ol style="list-style-type: none"> 1. Adjust the vertical adjusting screw on driven wheel seat, so as to make sealing belt less loose 2. (see the point above) . 3. No crease on sealing belt. 4. Clean its surface in time 5. Clearance between two heating blocks is too small or temperature is too high.
Embossing is not clear.	<ol style="list-style-type: none"> 1. Embossing wheel is worn out. 2. Pressing spring on embossing wheel is not tightened to enough degree. 	<ol style="list-style-type: none"> 1. Replace embossing wheel. 2. Adjust the embossing wheel's tightening spring.
There is resistance when the sealing belt is conveying.	The clearance between heating blocks or cooling blocks is too small, the friction is too much.	Adjust the clearance between sealing belts properly, which should be about thickness of packing bag in one layer, so that not only ensure the strong sealing and clear printing, but not make the two ends of sealing part extend too long.
There is block or fold phenomenon when the packing bag is conveyed to middle pressing wheel or embossing wheel.	Too much pressure caused by pressing wheel or embossing wheel.	<ol style="list-style-type: none"> 1. Adjust the pressing wheel or embossing wheel to proper pressure, so as to make the clearance between two sealing belts be about thickness of packing bag in one layer. So that not only ensure the strong sealing and clear printing, but not make the two ends of sealing part extend too long. 2. Adjust limiting screw after adjusting clearance.
Conveyor belt is off-tracking.	The driving roller shaft is not parallel to driven roller shaft.	Adjust two adjusting screws of driven roller shaft (rear shaft) on conveyor table.
Conveyor belt and sealing belt don't move synchronously.	Too small tension on conveyor belt.	<ol style="list-style-type: none"> 1. Tighten the chain of driving roller shaft (front shaft) and middle shaft properly. 2. Tighten the conveyor belt properly

Problem	Reason	Solution
Ink roller printing mechanism doesn't work	<ol style="list-style-type: none"> 1. The power supply is not connected. 2. Main control PC board is not inserted in place or poor contact. 3. Main control PC board is damaged. 	<ol style="list-style-type: none"> 1. Check whether the power line is connected and indicating light is on. 2. Check whether plug for PC board is inserted in place. 3. Check and replace PC board.
Printing wheel doesn't work.	<ol style="list-style-type: none"> 1. start sensor's touching head is blocked. 2. Start sensor is not clean, whose hole is blocked by dust. 3. Main control PC board has been damaged. 4. Round pin on clutch falls off or is damaged. 5. Electromagnetic clutch's wire is broken. 	<ol style="list-style-type: none"> 1. Clean the obstacle. 2. Clean the dust on sensor's surface. 3. Check and replace PC board. 4. Repair round pin. 5. Repair clutch.
Printing wheel doesn't stop.	<ol style="list-style-type: none"> 1. Sensor (groove sensor) is damaged, moved, or its surface covered by dust. 2. Main control PC board is damaged. 	<ol style="list-style-type: none"> 1. Replace or correct position of sensor or clean its surface. 2. Check PC board and replace it.
No heat for ink roller heating block or printing.	<ol style="list-style-type: none"> 1. Heating pipe or wire is damaged. 2. Heating PC board is damaged. 3. The potentiometer on knob is damaged. 4. Carbon brush seat is not in place. 5. Carbon brush is damaged. 	<ol style="list-style-type: none"> 1. Replace heating pipe. 2. Replace PC board. 3. Replace potentiometer. 4. Adjust and tighten nut then. 5. Replace.
The temperature of heating block for ink roller printing mechanism is out of control.	The relay for temperature control PC board is damaged.	Check and replace temperature control PC board.
The printing position is out of control.	<ol style="list-style-type: none"> 1. Tightening screw on printing wheel is loose. 2. Main control PC board is damaged. 	<ol style="list-style-type: none"> 1. Tighten the screw. 2. Check and replace PC board.
The speed is a little lower	the speed potentiometer is not exact	adjust the speed switch
The noise of reducer is risen	replace the greasel of reducer	add #000 great wall extreme pressure lithium grease
The bag can't feed to heating area	the gap between lower and upper heating block is too small	adjust the switch of upper heating block and change the pressure of spring

▲ Motor maintenance

1. Stop machine when any abnormal occurs to motor, continue to use till problem solved.
2. Dedust and clean motor at regular intervals. Alcohol, gasoline and liquid with benzene chemicals should be avoid using, otherwise affecting paint of motor cover
3. **Carbon brush is designed to be used 2500 hours continuously and commutator 2500 hours. Motor internal and commutator external should be cleaned every 120 hours after use. (Using alcohol to clean commutator). Replace carbon brush and commutator immediately after they worn out.**
4. Avoid damages like friction, rain, and chemical corrosion...etc. Use motor under normal environment. Contact suppliers if use motor under bad condition such as corrosion, temperature above 30°C or under 5°C