FRM-810

Solid-ink Coding Continuous Band Sealer

Operation Manual

Contents

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 AC 220V/50Hz, and the wire whose color alternates between yellow and green is leakage protection ground wire, which can not 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.
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 inside and outside, and clear dirt from 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.
10. Keep this operation manual with care for easy reference.

III Specifications

Model / Parameter / Item	FRM-810 I Solid-ink coding continuous band sealer	FRM-810 错误！未找到引用源。 Solid-ink coding continuous band sealer	FRM-810 错误！未找到引用源。 Solid-ink coding continuous band sealer
Voltage	AC 220V/50Hz 110V/60Hz		
Motor power	50W		
Sealing power	300×2（W）		
Printing power	40×2（W）		
Sealing speed	0~16（m/min）		
Sealing width	8 、10（mm）		
Temperature control range	0~300（℃）（Stepless adjustable）		
Distance from sealing center to conveyor table	10~40 （mm）	200~320 （mm）	10~40（mm）
Film thickness (monolayer)	≤0.08 mm		
Single package loading of conveyor	≤1 Kg		
Overall loading of conveyor	≤3 Kg		
External dimensions(LxWxH)	950×400×430（mm）	950×400×640（mm）	950×400×900（mm）

Net weight	45 Kg	50 Kg	55 Kg

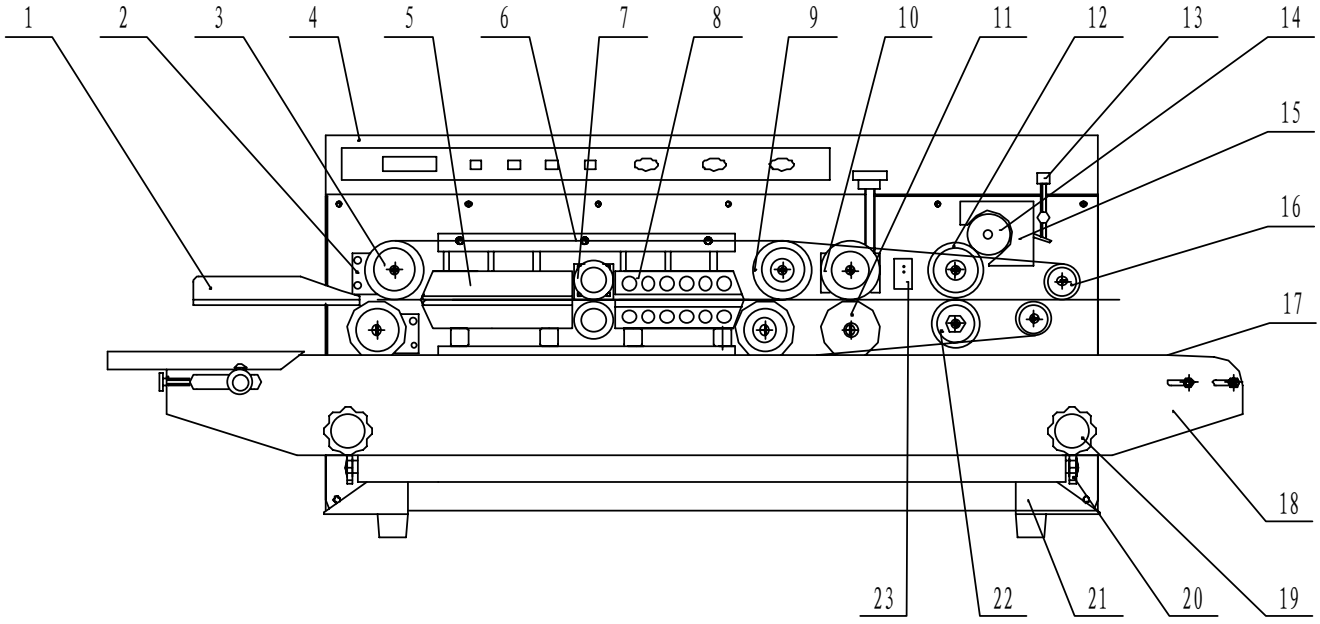
IV Performance Features

This sealer, adopting electronic thermostat control mechanism 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, characterized by high efficiency in continuous sealing, reliable sealing quality, rational structure and convenient operation etc.

Through adopting solid-ink roller printing mechansim, the machine can print desired colored label on bag while sealing, with the characteristics of high definition, instant print and instant dry, and strong adhesion. For types in R arrange, the machine can print two lines in font size two (18PT) and three lines in font size five (10.5PT), and 20 types can be arranged in each line. Special order for T arrange or multi-line types is available.

V Structure & Working Principle

This machine is made up of rack, speed-adjusting mechanism, sealing temperature control system, transmission & conveying system, and printing mechanism etc. (see diagram 1)



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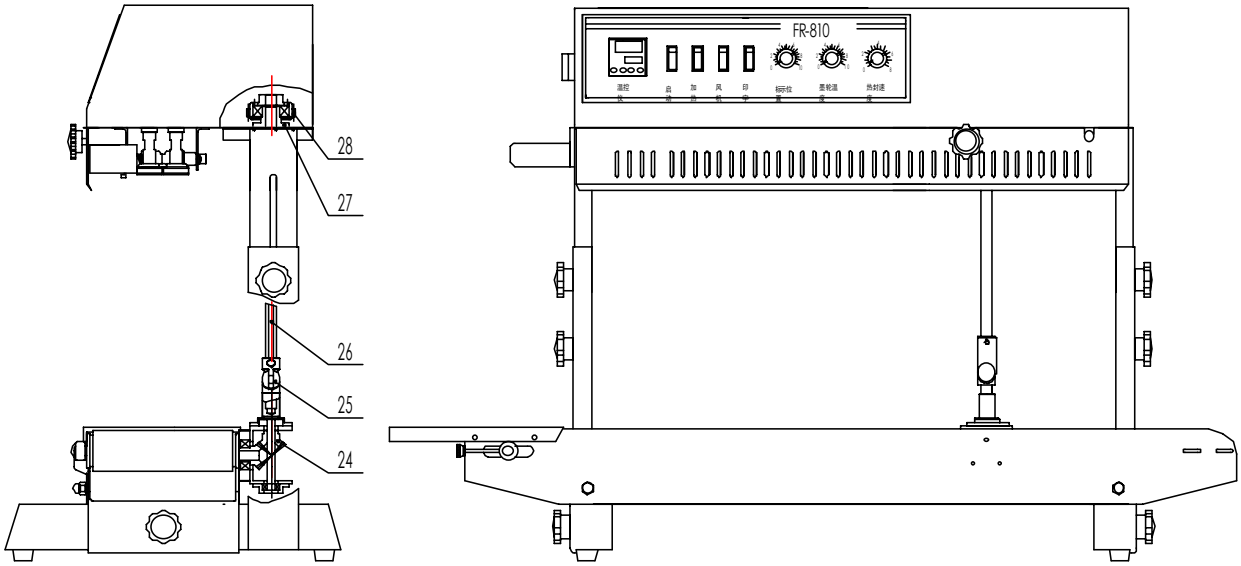


FRM-810II

1. feed opening 2. adjusting block of driven wheel 3.driven wheel 4.control cabinet 5. heating block 6. sealing belt 7. pressing wheel 8. cooling block 9.driving wheel 10.embossing wheel 11.silicone wheel for embossing 12.printing wheel 13. adjusting screw for ink roller swing pole 14.solid ink roller 15. heating block for ink roller 16.guiding wheel 17.conveyor belt 18.conveyor table 19.fastening knob for lifting conveyor table 20. tightening knob for conveyor's horizontal adjusting 21.ledge 22. silicone wheel 23. sensor 24. bevel gear assembly 25. gimbal 26. vertical shaft 27. driving gear shaft 28.driving gear

Diagram 1

After power supply being connected, electrothermal elements start to produce heat, which leads to rapid temperature rise of both upper and lower heating blocks. Required temperature and speed can be got through adjusting temperature controller and speed-adjusting mechanism. The plastic packing bag will be transmitted by conveyor belt, and its the sealing part will be conveyed into the clearance between two sealing belts, then the sealing part will be clamped by two sealing belts and conveyed into the heating area. The sealing part is pressed by two heating blocks and pressing wheels there, which could make the plastic film fuse and stick 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 printed by printing wheel.

The transmission of sealing and printing is started by motor, which drives sealing belts, guiding belts and conveyor belt to work synchronously, as well as make printing mechanism work intermittently.

VI Operation Instruction

1, Control panel (see diagram 2)

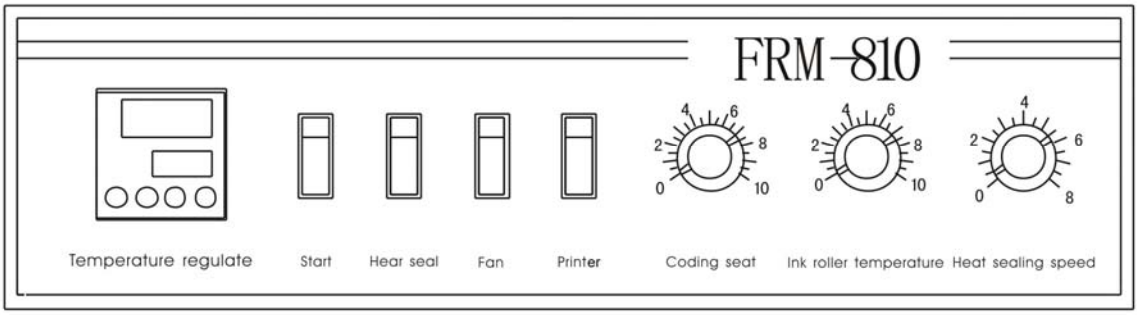


Diagram 2

2, Prepare for the machine for use

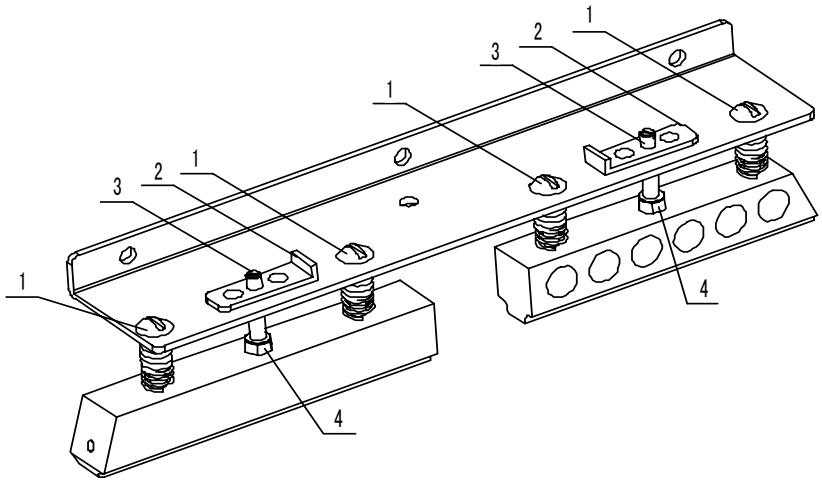
1), This machine is equipped with three crust grounded socket, please check if it is well connected so as to ensure safe operation.

2), First-time use or too long intermission will make the electronic heating elements moistened, so several minutes' low-temperature preheating is necessary before the normal operation.

3), Adjust the conveyor table's height and horizontal location to get required sealing position.

4), According to the external size from sealing line to bag opening, regulate the position of feed opening.

5), According to the thickness of material that to be sealed, adjust the clearance between heating blocks and cooling blocks. Adjust the clearance between two sealing belts by adjusting the stopping flakes (2), specifically, turn the stopping flake clockwise to raise block or counterclockwise to lower block. The clearance between two sealing belts should be equal to the thickness of packing bag in one layer approximately, which must guarantee the firmness of sealing and high definition of embossing, and ensure suitable length extended from two ends of sealing part. After making adjustment, fix the limiting screws. (see diagram 3)

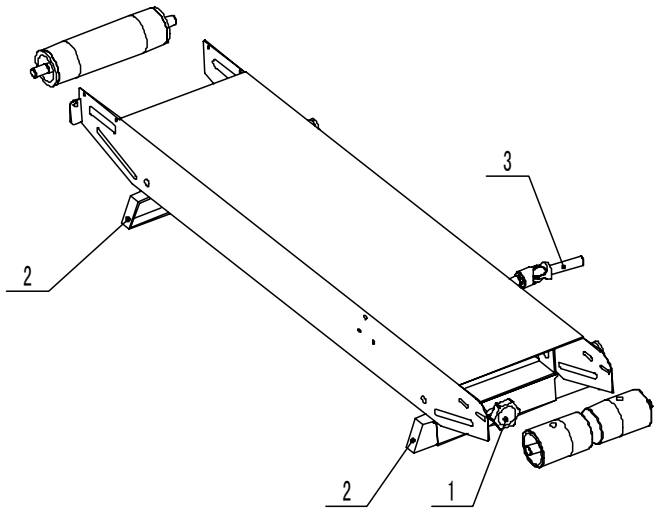


1. screw 2. stopping flake 3. fastening screw 4.nut

Diagram 3

6), The transverse adjustment of conveyor table: loosen two nuts (1) on two sides. There are three location holes on the foot rest (2). Just insert square head bolts into

them as needed, then fasten. After moving the conveyor table outward, install the connecting shaft (3) saved in the spare parts kit into gimbal. (see diagram 4)



1. adjusting knob 2.foot rest 3. gimbal

Diagram 4

3, Starting procedure

1), Connect the power supply and start switch, indicator light will illuminate, then adjust the speed-adjusting knob and all transmission parts start to run synchronously.

2), Micro-adjust 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 temperature required, then set the position of heating knob of ink roller. When the heating blocks and ink roller heating block 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.

4, 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 occur.

5, If it is found that there is dirt attached to the sealing belt or the heating block, stop the sealer and clear it.

6, Ways of exchanging and adjusting the sealing belt

1),Remove the safety cover, after the heating block being cooled, turn stopping flakes on both upper heating block and upper cooling block by 30° to lift both two blocks, then loosen the springs both on embossing wheel and pressing wheel, then remove the guiding belt, so as to make it ready for removing sealing belts (see diagram 3).

2), Move the driven wheel seat (adjusting block) toward heating block,and remove the sealing belt.

3), Replace with a new sealing belt and install the guiding belt back.

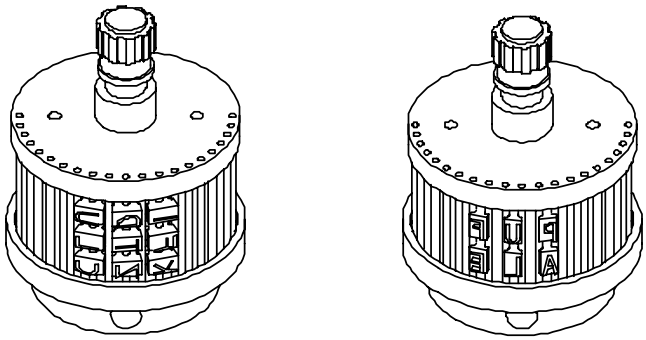
4), Put the driven wheel, heating and cooling blocks, and pressing wheel etc to the

original position.

5), Connect the power supply to test the machine, if irregular sealing appears on the belt, make adjustment with adjusting screws on driven wheel seat (adjusting block).

6), Install the safety cover. Once the temperature reaches the set temperature, the machine is ready for continous working.

7,The selection of the type arrange way: the types in longitude arrange belong R arrange, while types in axial arrange belong T arrange (see diagram 5)



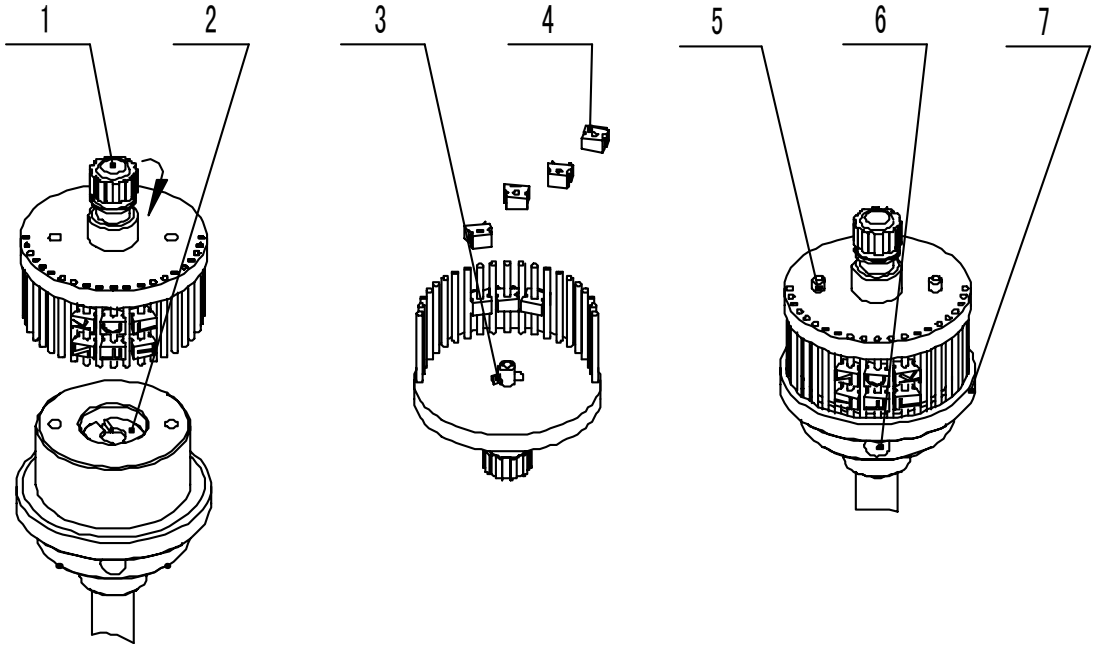
T arrange R arrange

Diagram 5

8, The adjustment of ink roller, printing wheel and silicone wheel

1), Exchanging words on printing wheel(see diagram 6):

Rotate the holding latch on the printing wheel cover by an angle to take the traverse pin out of the groove, the printing wheel cover will bounce by itself and types can be exchanged after removing its cover, then press the silicon bar on it and install printing wheel cover. At last, insert the traverse pin into the groove on the end cover of printing wheel, and rotate by an angle for fastening.

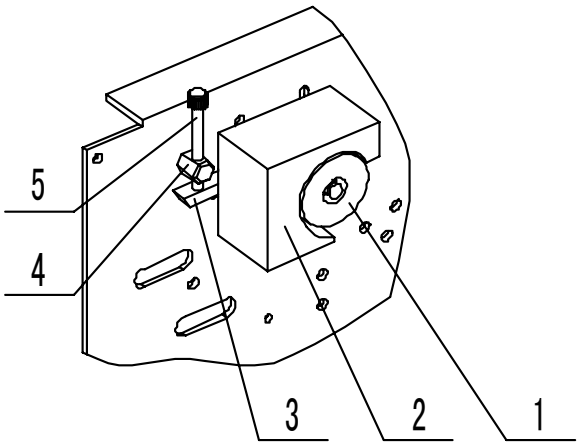


1. holding latch 2. end cover of printing wheel shaft 3.tranverse pin 4. type 5.fixed pin 6. fastening screw for printing wheel 7. printing wheel

Diagram 6

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

Adjust the adjusting screw (5) of the ink roller's swing pole, rotate the printing wheel, and make the types' surface touch the ink roller's (1)surface slightly. When you use your hand to touch printing wheel, if the ink roller can be easily be driven, it should be ok. (see diagram 7)

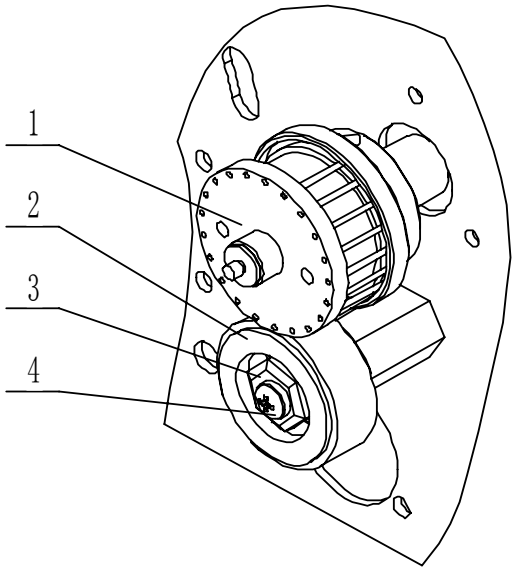


1. ink roller 2. heating block of ink roller 3. swing pole 4.adjusting strut 5. adjusting screw

Diagram 7

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

When printing work is not in process, the types on the printing wheel must not touch the silicone wheel, and they only touch each other when 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 as the pressure can't be too much, fasten the screw after making adjustment.(see diagram 8)



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

Diagram 8

4), Temperature adjustment for printing wheel and ink roller

All the knobs of this machine are set to 0 position before leaving factory. Users need to make adjustment by themselves. For a new ink roller, during previous time of use, the temperature should be relatively lower, after a period time of use,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 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℃ （code:935）	Φ36	16
	Φ36	32
	Φ36	40
Moderate temperature series 135-165℃ （code:932）	Φ36	16
	Φ36	32
	Φ36	40
High temperature series 150-175℃ （code:930）	Φ36	16
	Φ36	32
	Φ36	40

9, Adjustment of coding position

Considering length of bag opening, the user can locate the coding position by adjusting coding position switch.

10, Adjustment of line number for printing label

Arrange types within range stipulated in ***IV Performance Features*** in this manual, then use the provided silicone bar to fix the types in required axial position.

11, Stop operation

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

VII Circuit Diagram

K1: switch/main switch; K2: switch/start; K3: switch/fan; K4: switch/heat seal; K5: switch/printer; W1: sealing speed regulator; W2: temperature of ink roller; W3:coding position; R1,R2:heating pipe for sealing; R3,R4: heating pipe of ink roller; MD:speed-adjusting motor; DF: fan; AP1: speed-adjusting PC board;

AP2:temperature-adjusting PC board of ink roller AP3: main control PC board; AP4:sealing temperature controller; YC1: electromagnetic clutch; YC2: electromagnetic brake ;SQ1: thermocouple; SQ2: groove sensor; SQ3: photoelectric sensor; TCL:control transformer

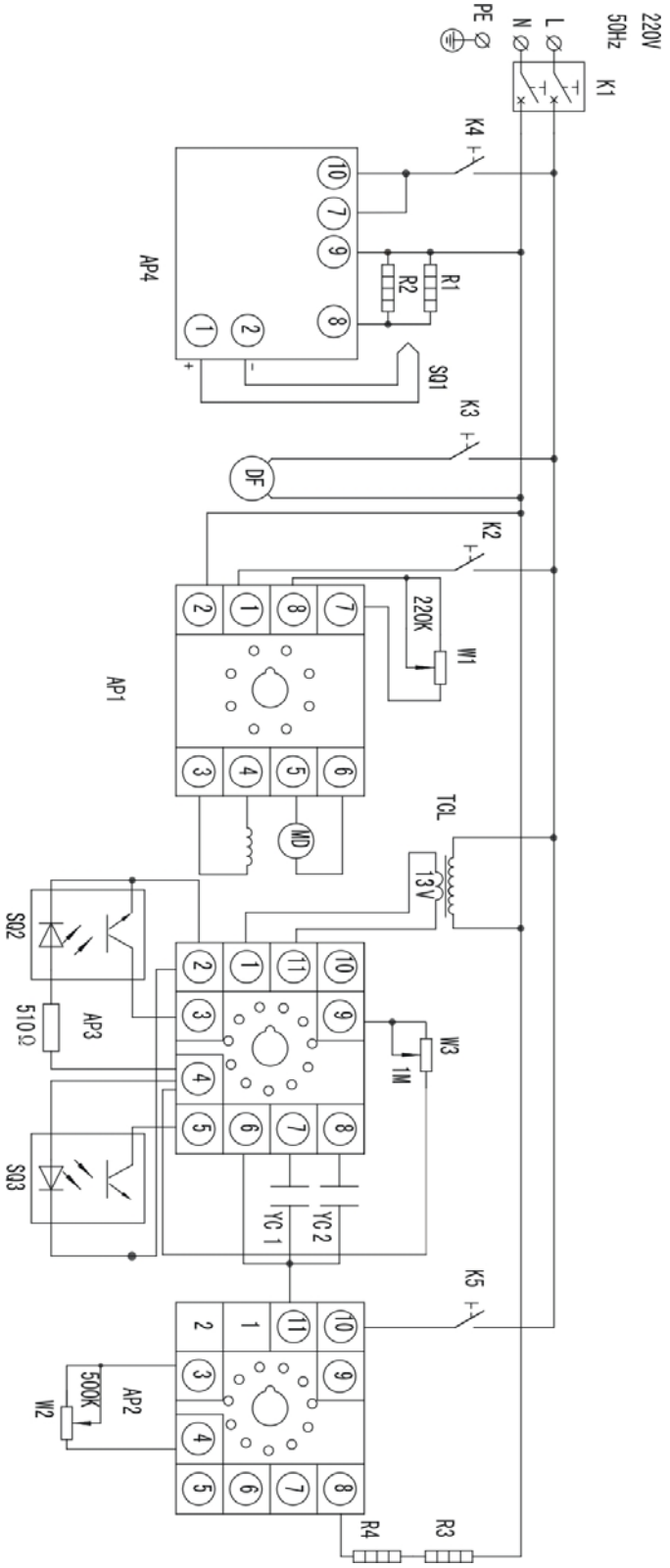


Diagram 9

VIII Breakdown Drawing of Machine Body

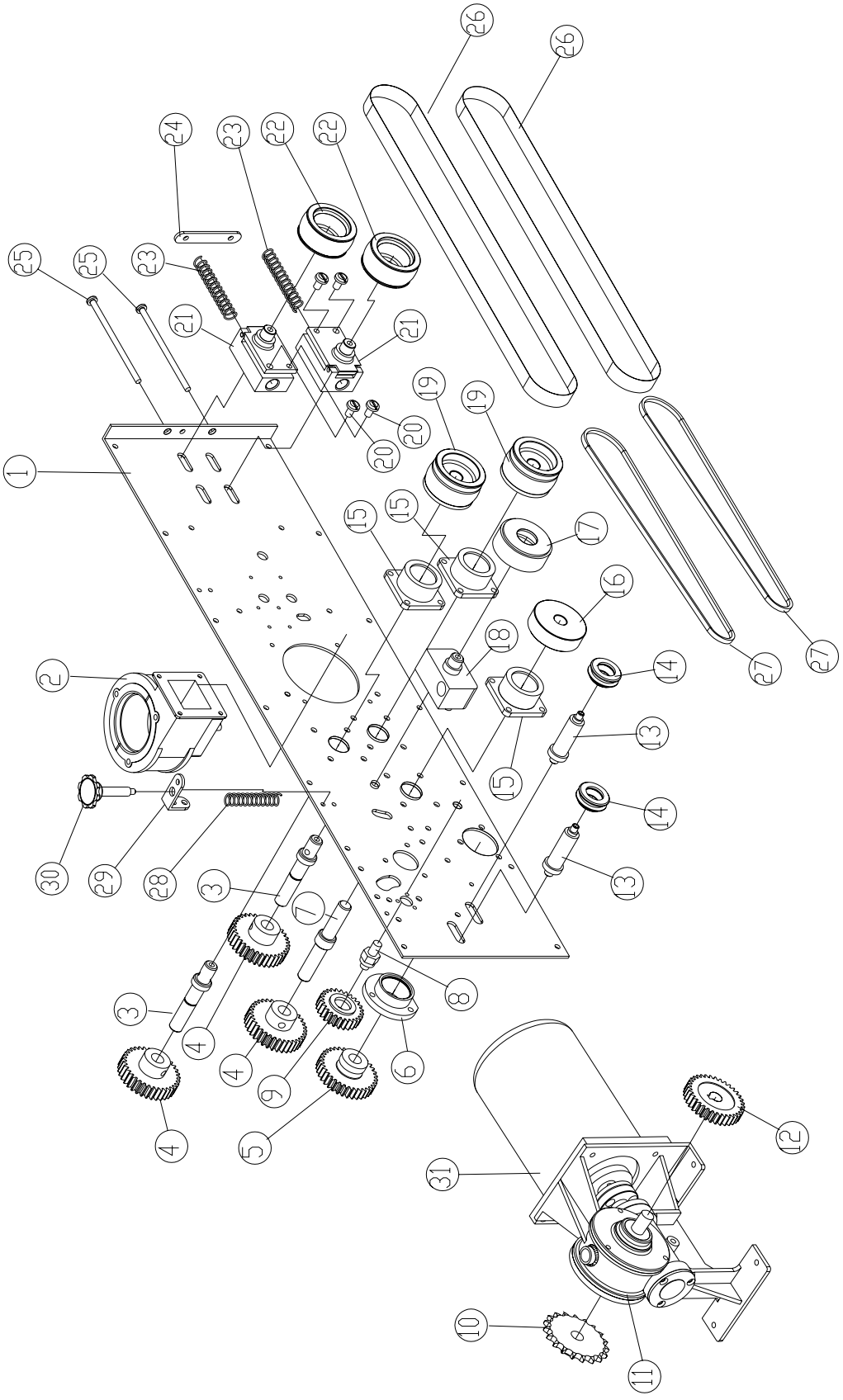


Diagram 10

Code	Part number	Quantity	Name	Remark
1	105211	1	bottom board	
2	921102	1	fan(cy063)	
3	101027	2	driving wheel shaft	
4	101032	3	gear	
5	105030	1	connecting gear	
6	105013	1	bearing seat for connecting shaft	
7	105041	1	silicone wheel shaft	
8	105012	1	medium gear shaft	
9	105011	1	medium gear	
10	105020	1	driving sprocket	
11	A10503	1	worm-gear case assembly	
12	105038	1	output gear of worm-gear case	
13	101015	2	guiding wheel shaft	
14	105023	2	guiding wheel	
15	101026	3	square bearing seat	
16	106010	1	silicone wheel assembly	
17	101018	1	embossing wheel	
18	101017	1	embossing wheel seat	
19	105022	2	driving wheel	
20		4	adjusting screw	
21	101023	2	driven wheel seat	
22	101024	2	driven wheel	
23		2	spring for driven wheel seat	
24		1	connecting piece	
25		2	adjusting bolt	
26	910903	2	sealing belt 810×15×0.2	
27	910801	2	guiding belt 598×4.5×3.5	
28		1	adjusting spring for embossing wheel	
29		1	adjusting support for embossing wheel	
30		1	adjusting knob for embossing wheel	
31		1	motor	

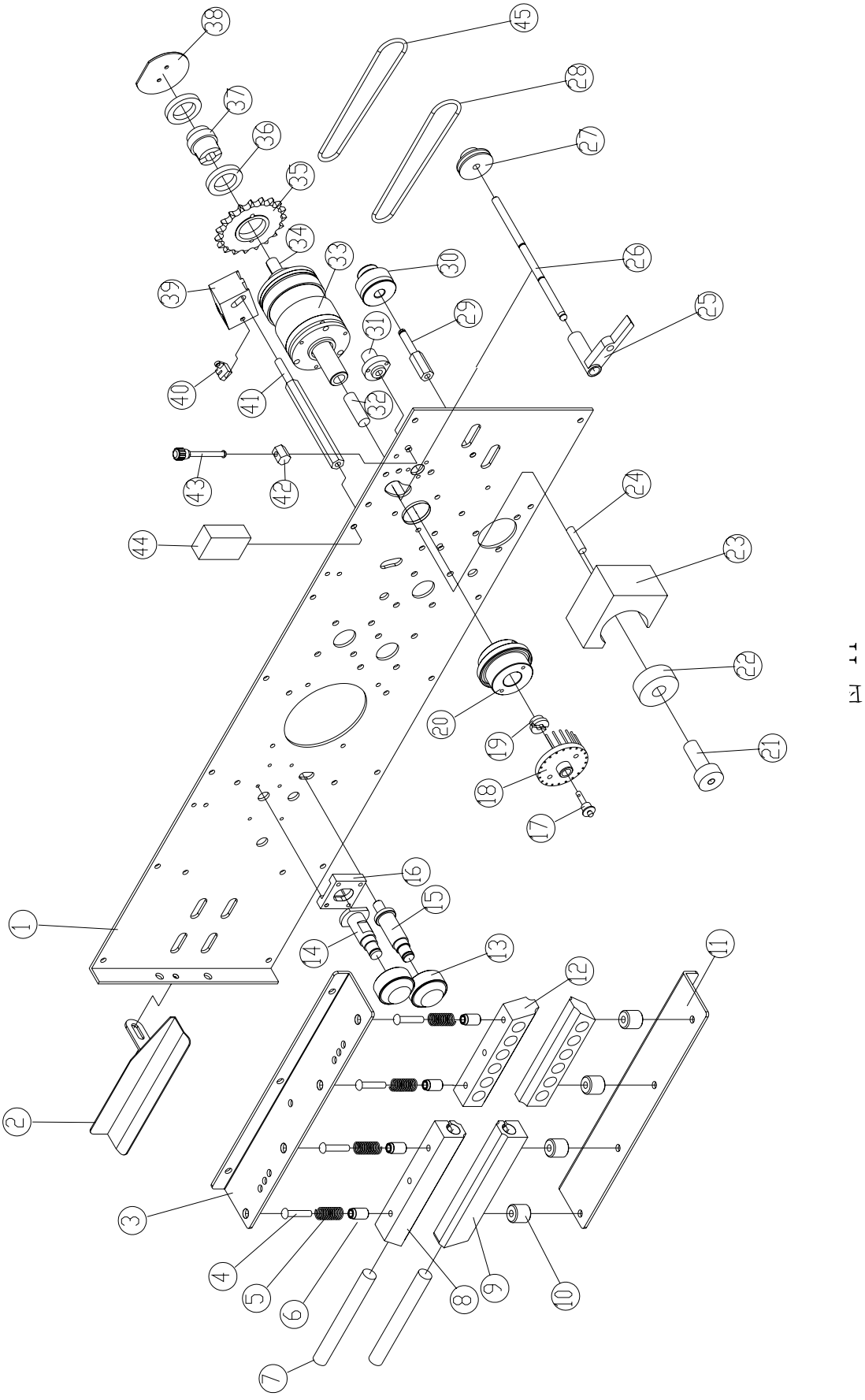

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Diagram 11

Code	Part number	Quantity	Name	Remark
1	105211	1	bottom board	
2	101035	1	feed opening	
3	105006	1	upper holding plate	
4		4	screw	
5		4	copper block spring	
6		4	guide sleeve of upper holding plate	
7	921303	1	heating pipe (heat for sealing)	
8	930301	1	upper heating block	
9	930301	1	lower heating block	
10	101050	4	heating block support	
11	105006	1	lower holding plate	
12	930302	2	cooling block	
13	105009	2	pressing wheel	
14	105007	1	upper pressing wheel shaft	
15	105008	1	lower pressing wheel shaft	
16	105017	1	slide carriage	
17	201016	1	holding latch for printing wheel	
18	201014	1	printing wheel cover	
19	201015	1	end cover of printing wheel shaft	
20	201013-2	1	printing wheel seat assembly	
21	201008	1	ink roller sleeve	
22	911005	1	ink roller（φ35×32）	
23	201002	1	heating block of ink roller	
24	921301	1	heating pipe of ink roller heating block	
25	201007	1	swing pole of ink roller	
26	105036	1	ink roller shaft	
27	105039	1	ink roller shaft pulley	
28	910209	1	small adhesive tape φ60×3.1（O type ring）	
29	105035	1	middle pulley shaft	
30	105032	1	middle pulley	
31	201006	1	seat for ink roller swing pole shaft	
32	921301	1	electric heating pipeφ10 110v 40w（printing wheel shaft）	
33	A10501	1	electromagnetic clutch assembly	
34	105033	1	printing wheel shaft	
35	105021	1	driven sprocket	
36	201003	2	copper slip ring	
37	201004	1	slip ring core	
38		1	anti-dazzling screen	
39	920423	1	carbon brush holder	
40	940702	1	groove sensor	

Code	Part number	Quantity	Name	Remark
41	105031	1	suppport for brush	
42		1	adjusting strut for ink roller swing pole	
43		1	adjusting knob for ink roller swing pole	
44	940705	1	photoelectric sensor	
45	910208	1	small adhesive tape φ50×3.1（O type ring）	

IX Breakdown Drawing of Conveyor

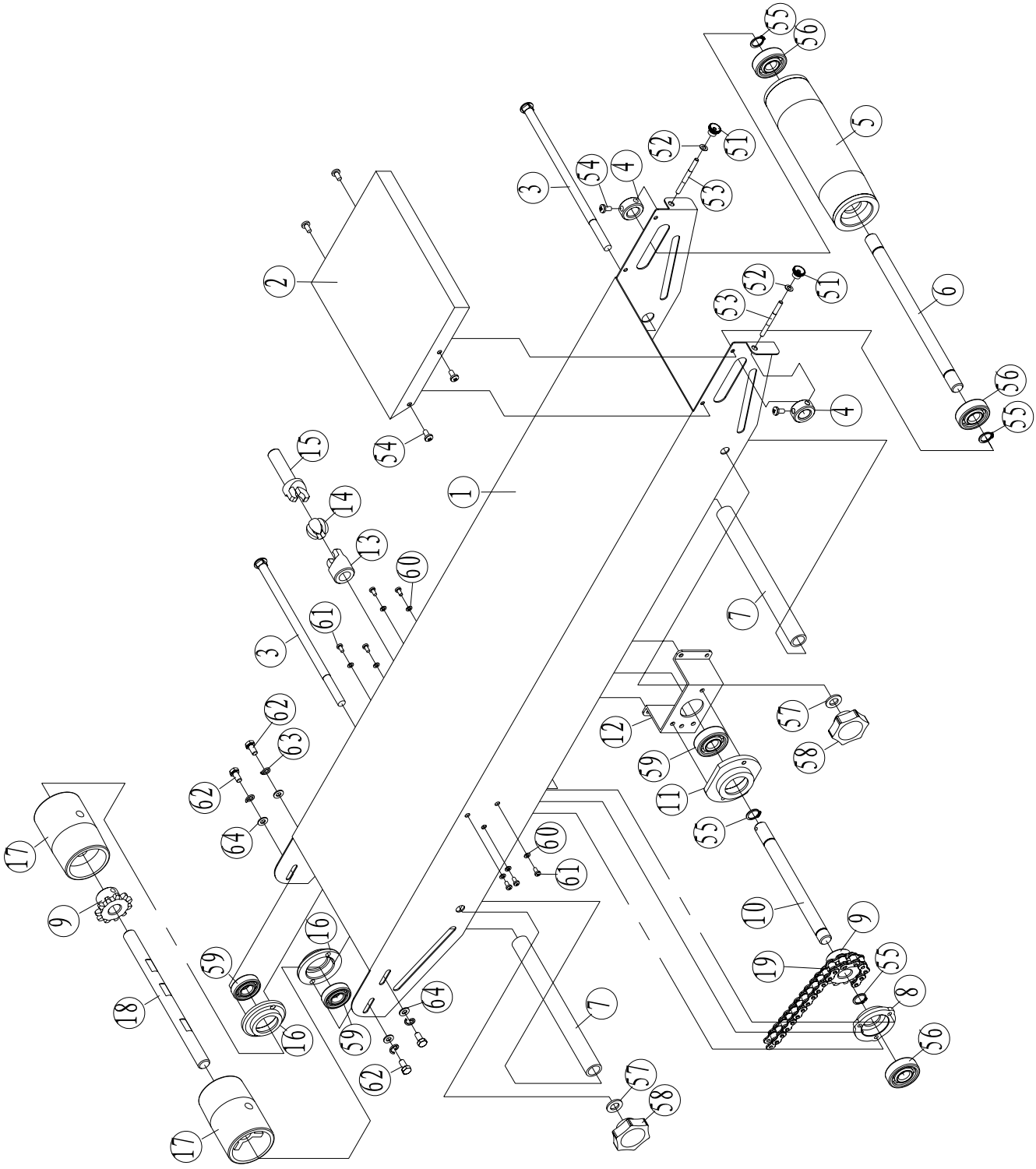

Diagram 12

Code	Part number	Quantity	Name	Remark
1	105201	1	conveyor table	
2	105206	1	worktable	
3	GB12-1988	2	half-round square neck bolt	
4	105026	2	adjusting block for conveyor belt	
5	105207	1	rear roller（assembly parts）	
6	105208	1	rear shaft of conveyor table	
7	105203	2	separating tube	
8	101013	1	bearing seat of conveyor middle shaft II	
9	101010	2	sprocket of conveyor table	
10	105202	1	middle shaft of conveyor table	
11	101003	1	bearing seat of conveyor middle shaft I	
12	105014	1	underlay plate of middle shaft	
13	105037	1	connector	
14	105037	1	connecting ball	
15	105037	1	adjusting shaft	
16	101003.1	2	bearing seat of front roller shaft	
17	105204	2	front roller	
18	105205	1	front roller shaft	
19	930603	1	driving chain	
51	930113	2	adjusting nut for conveyor belt	
52	GB/T818-2002	2	small washer	Φ4
53	GB901-1988　B grade	2	double end bolt	M4×40
54	GB/T818-2000	6	screw	M4×8
55	GB/T891-1986B	4	circlip for shaft	Φ12
56	930512	2	bearing 180201	Φ32×Φ12×10
57	GB95-2002	2	washer	Φ8
58	930111	2	674 knob	
59	930516	4	bearing 180101	Φ28×Φ12×8
60	GB/T848-2002	7	flat washer	Φ3
61	GB/T818-2000	7	screw	M3×6
62	GB/T818-2000	4	screw	M5×10
63	GB859-1987	4	spring washer	Φ5
64	GB95-2002	4	flat washer	Φ5

X Troubleshooting

Problem	Reason	Solution
Sealing belt is off the track.	Driving wheel shaft is not parallel to driven wheel shaft.	Adjust two adjusting screws on driven wheel seat.
Sealing belt is easy to broke.	1.Too much tension on sealing belt. 2. Sealing belt is off the track. 3. Crease on sealing belt. 4.Adhesive film or other dirt attached to sealing belt surface. 5. Sealing belt is easy to burn.	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.	1. Embossing wheel is worn out. 2. Pressing spring on embossing wheel is not tightened to enough degree.	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 pressing wheel or embossing wheel.	Too much pressure caused by pressing wheel or emboosing wheel.	1. Adjust the pressing wheel or emboosing 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 the track.	The driving roller shaft is not parallel to driven roller shaft.	Adjust two adjusting screws for driven roller shaft (rear shaft) on conveyor.
Conveyor belt and sealing belt don't move synchronously.	Too small tension on conveyor belt.	1. Tighten the chain of driving roller shaft (front shaft) and middle shaft properly. 2. Tighten the conveyor belt properly.
Ink roller printing mechanism doesn't work.	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	1. Check whether the power line is connected and indicating light is on. 2. Check whether plug for PC board is inserted in place or wire end falls off. 3. Check and replace PC board.
Printing wheel doesn't	1. Start sensor's touching head is blocked. 2. Start sensor is not clean,whose hole is blocked by dust.	1. Clear the obstacle. 2. Clean the dust on sensor's surface. 3. Check and replace PC board.

work.	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.	4. Repair round pin. 5. Repair clutch .
Printing wheel doesn't stop.	1. Sensor (groove sensor) is damaged, moved, or its surface is covered by dust. 2. Main control PC board is damaged.	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.	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.	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.	1. Tightening screw on printing wheel is loose. 2. Main control PC board is damaged.	1. Tighten the screw. 2.Check and replace PC board.

XI Spare parts list

No	Name	Specification	Unit	Quantity
1	sealing belt	810 x 15 x 0.20	pc	10
2	guiding belt	598 x 4.5 x 3.5	pc	2
3	power line		pc	1
4	ink roller	φ35 x 32	pc	1
5	small adhesive tape	φ50	pc	2
6	small adhesive tape	φ60	pc	2
7	type	18PT-R type	set	1set (34 types)
8	nipper		pc	1
9	socket screw wrench	（M4）	pc	1
10	silicone block		pc	2
11	ink roller sleeve		pc	1
12	tighten ring		pc	1