Blister Packaging Machine
Model: BPM-150

OPERATION INSTRUCTIONS

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1. General Introduction

BPM-150 automatic blister packaging machine, the machine is an advantage at home and abroad for innovative plastic packaging machine design, machine key parts of the company a number of innovative technologies. Packaging for the pharmaceutical industry, tablets, drugs, capsules, also packaged foods and small metal parts, electronic components. The machine set coil unwinding, aluminum feeding, blister forming, filling materials, waste recycling, plastic heat sealing, printing batch number, textured indentation, forum cutter display counting ten functions in one machine, packaging materials good seal, safety and health.

China's pharmaceutical packaging machine is for technical improvements and implementation of GMP production equipment, products have been sold to domestic and foreign pharmaceutical companies and large and medium-sized hospitals, and exported to India, Pakistan, Malaysia, Burundi, Hong Kong and Taiwan and other countries and regions, by customers alike.

2. Main Performance and Feature

With frequency stepless speed regulating, the punching frequency reaches 6-35times per minute.

The stroke can be adjusted within 40-120mm, which is easy to adjust with correct synchronization.

Adopts plate-type mould, positive-pressure forming, featured by batch number printing, creasing and cutting, aluminum-foil/plastics automatic feeding, automatic alarm for broken—piece and finished-piece and automatic stop etc.

Equipped with one set general feeder, which filling percentage reaches 99.5 and above. The feeder is fitted with dust exhaust joint so can overcome the dust problem duting feeding.

Adopts registering matching heating so that can reduce the heat energy loss of heater to the least, and the required temperature will be greatly reduced.

This machine has small volume, light weight, cramped structure, easy operation amd maintenance.

3. Main Technical Parameters

Description	Specifications
Punch Speed (times/min)	15-35
Adjustable stroke (mm)	40-120(freely adjusted)
Max. Forming Area (mm)	140×110
Max. Forming Depth (mm)	25
Main Motor Power (kw)	1.5
Upper Heating power (kw)	0.8
Lower Heating Power (kw)	0.8

Heating Power for Heat Sealing (kw)	0.7
Air Pump Volume Flow (m3/min)	⩾0.2
Air Pressure (MPa)	0.4-0.6
PVC for Medicine (mm)	0
Aluminum foil (mm)	0.02×150
Overall Dimensions (mm)	2450×570×1550
Machine weight (kg)	620

4. Structure and Principle

Please see the structure of the machine. It is composed of frame, forming mechanism, feeder, heat-sealing and creasing mechanism, cutting mechanism, pulling manipulator and electric control etc.

The main transmission is driven by geared-down motor, the chain wheel on the output shaft of redactor drives the chain wheel of main shaft to run, and then the chain actuates the pulling cams so that accomplish the intermittent to-and-fro movement. The forming and heat-sealing hot plates adopts the cylinder as original power to accomplish lifting up and down of forming mould plate and cross-hatching mould plate.

The medicine PVC are heated and softened by heating plate and enter into forming mould, positive-pressed to be form by compressed air, the be filled in capsules of tablets by general feeder. The aluminum-foil web is cut and transferred by mini motor, and enter into the heat-sealing mould to be cross-hatch heat-sealed with the plastic piece which is full of medicine, then through pressing, cutting, batch no. printing finally enter into punched.

5. Start Operation

The control system adopts PLC control technology, the entire control system design is reasonable, flexible program with anti-interference ability, low failure rate, easy maintenance and greater scalability characteristics. Users are Please refer to the following for proper use and maintenance, if the problem with the company.

1) Start and Emergency Stop

A. Start: Turn on the main power supply, all within close the cabinet switch, the control system is powered, touch screen display of the product name in the following figure (I)

Figure (I)

This screen is mainly based on customer requirements for multilingual language selection, click directly into the English language interface as figure (Ⅱ)

B. Emergency: When faced with an emergency stop switch on the control panel is pressed, an emergency stop device, but the main power or in the energized state.

2) Menu

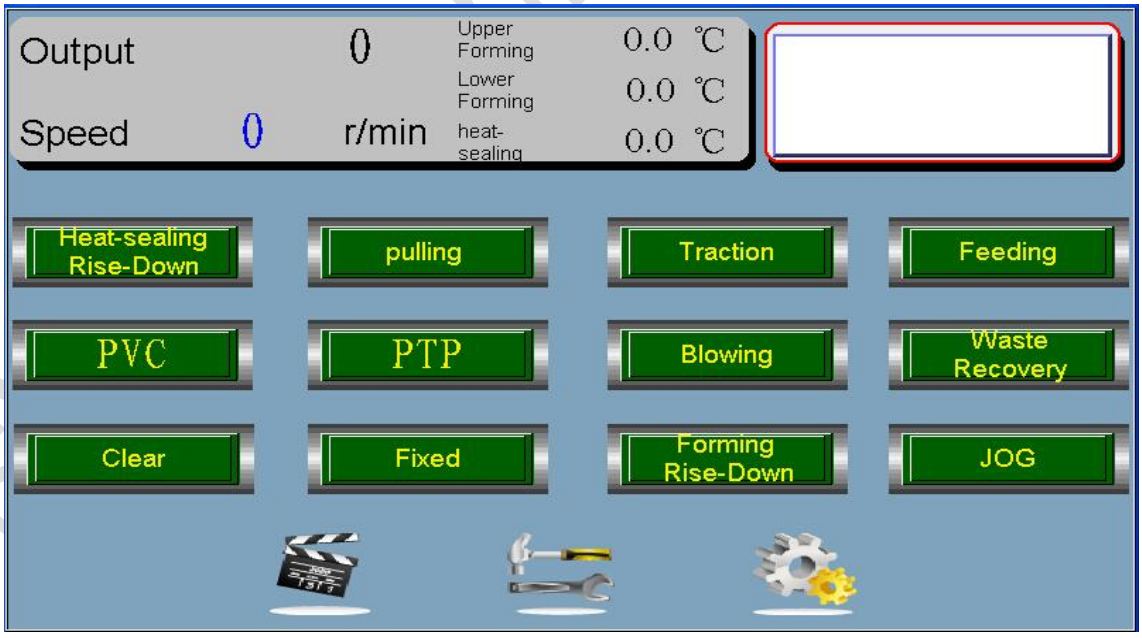


Figure (Ⅱ)

Output: Refers to the number of the statistical production;

Speed: Equipment operation frequency per minute;

Upper Forming ℃:Forming on the current temperature ℃ of the heating plate;

Lower Forming ℃:Current temperature ℃ molded under heating plate;
Heat-sealing: The current temperature of the heating plate sealing;
Heat-sealing Rise-Down: Sealing cylinder manual operation, if the current state of the cylinder is open, then click on the Heat-sealing Rise-Down button then the cylinder will be in a closed state, that is to control the sealing cylinder and off;
Pulling: Means forming depth deeper for some species need to install this device, but the device does not have this device;
Traction: Traction control cylinder loose with clip in full production this feature button is always open;
Feeding: Refers to the control feeder on and off, in full production during the switch button is turned on;
PVC:PVC can be opened or stop the discharge motor will achieve for PVC discharge or stopped. The machine is powered down or off and starts, the key will be to maintain the status before the power failure or shutdown;
PTP: PTP open or stop the discharge motor will achieve the PTP's discharge or stopped. The machine is powered down or off and starts, the key will be to maintain the status before the power failure or shutdown;
Blowing: Refers to the molding of compressed air on and off, in the normal course of compressed air to keep working condition.
Water Recovery: Refers to the closing of waste motor started, conduct waste rewinding, when you close the motor does not work, in the automatic mode, collect scrap motor automatically open. The machine is powered down or off and starts, the key will remain shut down or power off state before.
Clear: Refers to the replacement of product batches, in turn take over functions such as play a recount, background red button is disabled or needs to make clear the background green light indicates that the original data has been cleared successfully, you need to re-count.
Fixed: Control only on and off Fixed the cylinder, the cylinder automatic mode only retreat is always processed on state;
Forming: Refers to the shape of the cylinder and off;
JOG: While debugging mold or formal production equipment functional observation station synchronization with the situation.
The above is the operation of the function button on the device, Before this operation is required before the parameter settings for each action, making parameter settings need to modify those parameters for password confirmation, Click on the figure (II)  modify the parameters directly into the bottom right corner of the icon permissions screen, as figure (Ⅲ)

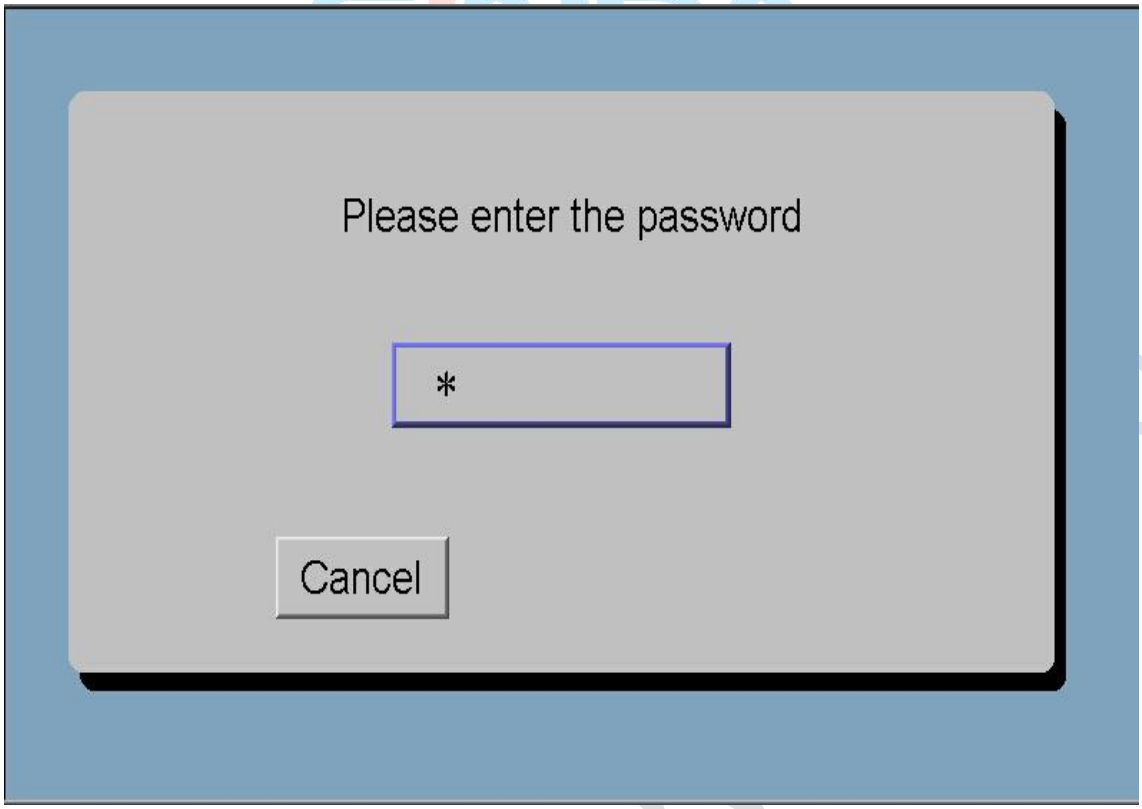


Figure (Ⅲ)

Enter the 8888 directly into the parameter setting interface, figure (Ⅳ)

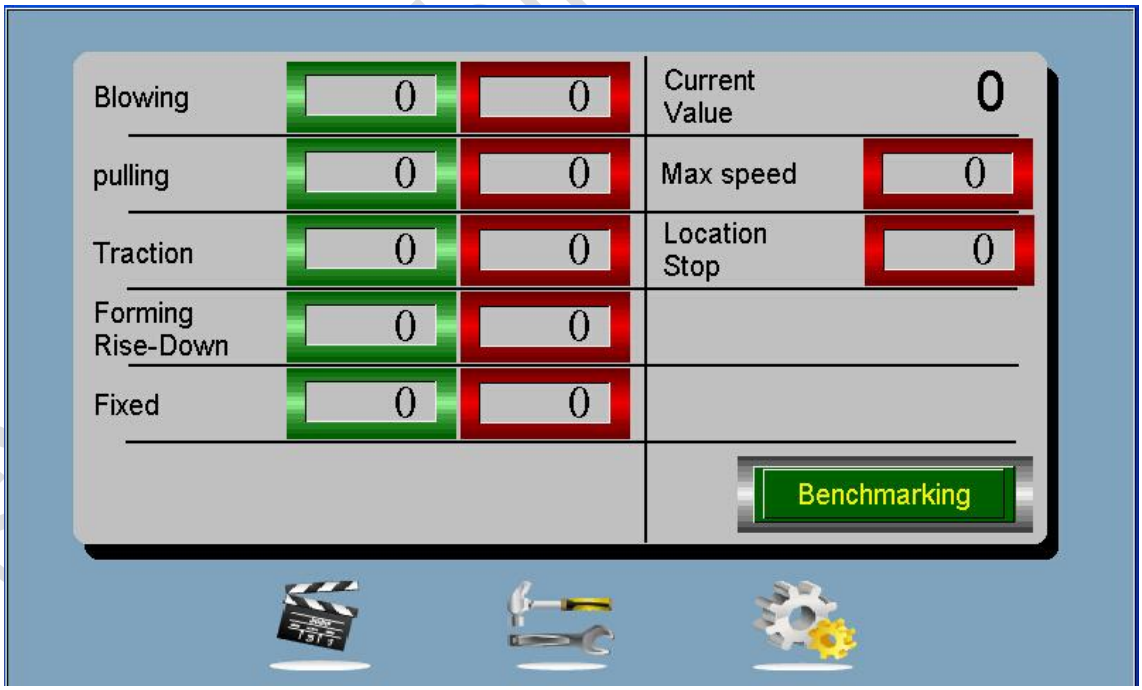


Figure (Ⅳ)

Above figure (Ⅳ) above is not the picture parameter set, this parameter setting data is encoded value set, which is running around the spindle encoder value composed by 1000.

Blowing: Blow molding encoded value to the encoded value at the beginning of the closed;

Pulling: For when forming relatively deep tray with this device, this device does not have this device;
Traction: Refers traction grip to pull the end of the cylinder release time, which is pulling the cylinder to release the clip encoded value;
Forming Rise-Down: Each version of the drug version shaping up and down movement of the time, that is molded by the coded values to control cylinder shaped cylinder up and down;
Fixed: Fixed cylinders on and off ;
Max speed: Setting the maximum operating speed equipment, contribute to the maintenance of equipment;
Location stop: Every device coded values of normal or abnormal shutdown.
Current Value: Equipment operation was coded values.

The above parameters are set correctly, then click Into the operation screen  ,In Figure (II) click on the top of the screen (heating the molding) position to enter the setup screen for the molding temperature (upper and lower) and sealing temperature settings, as Figure (Ⅴ)

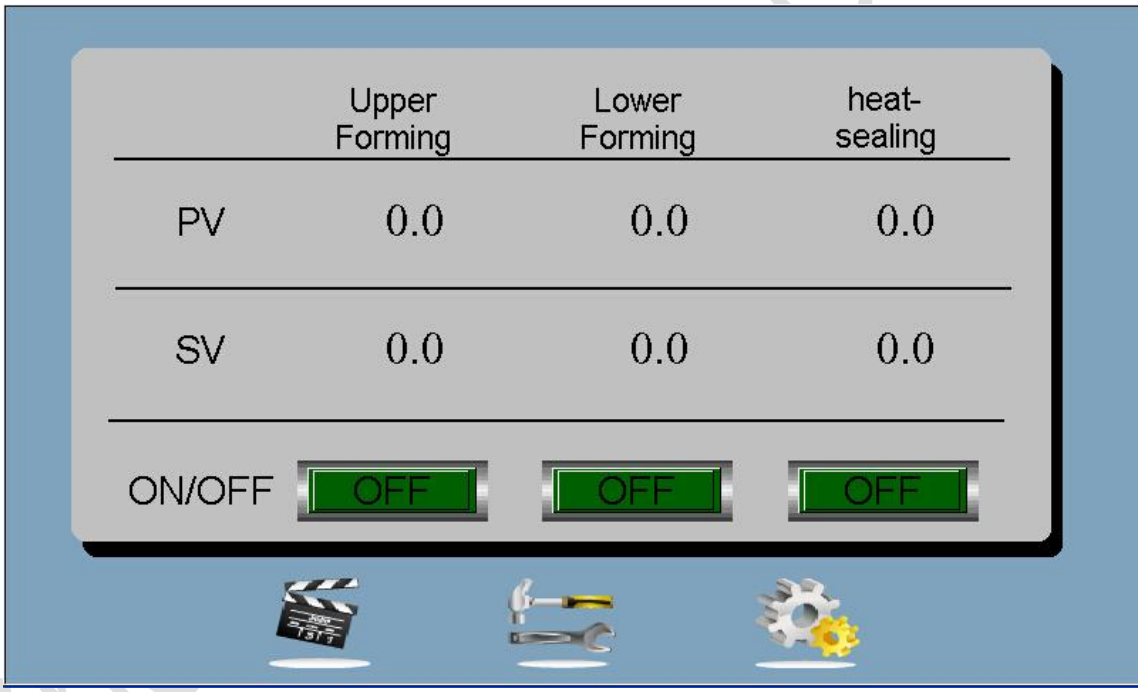
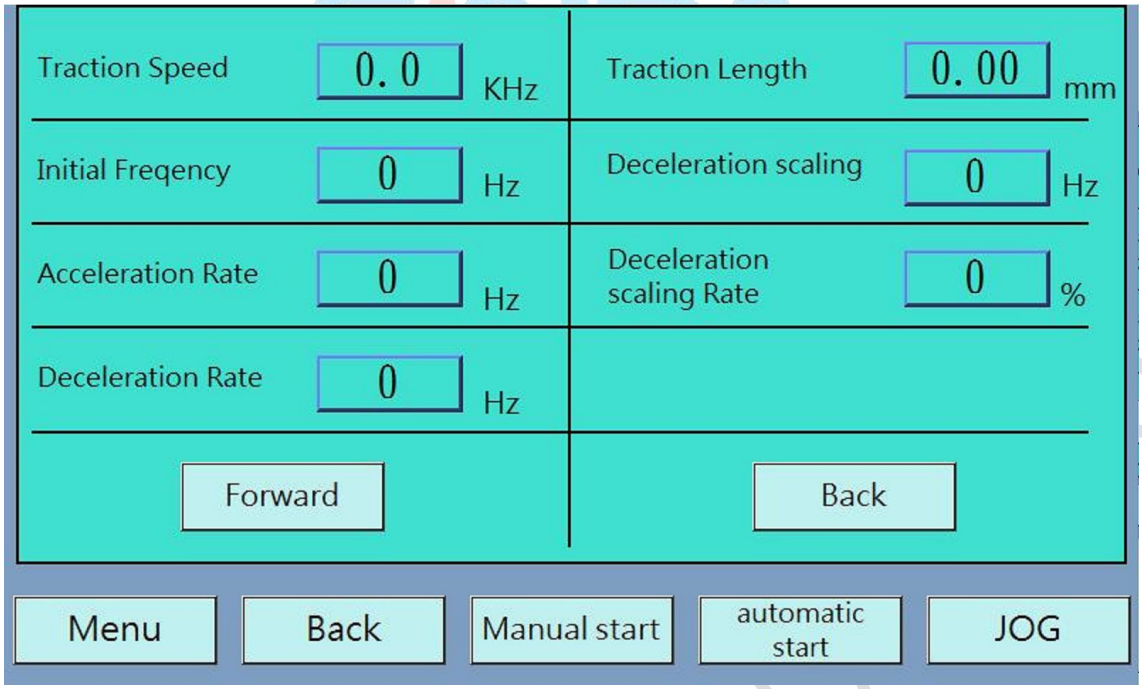


Figure (Ⅴ)

PV: The current value of the heating plate;
SV: Setting needs to be heated to a temperature value, click "on forming the" digital at the following set values directly into the "on forming heating" temperature setting, "forming under" and "sealing" action above. When setting the temperature value click below switch, OFF means the heating turned off, ON means the heating start.
After all the parameters are set up by pressing a touch screen panel on the right side of the green button on the device is in automatic operation, that is so functional and action will automatically start.



1.Traction Speed：refers to the running speed of the servo motor during the traction process. The too fast traction speed affects the filling rate of the feed. If the slow speed affects the synchronization (the traction wheel slips and the length of the puller becomes shorter), it should be synchronized. Set the pull speed .

2.Initial Freqency： refers to the frequency or starting speed at which the servo motor starts to pull.

3.Acceleration Rate ： refers to the frequency of traction of the servo motor after the Acceleration Rate. For example, the figure is 2000Hz, which means that the servo motor is pulled up to the Traction Speed at 2000Hz per millisecond after the Acceleration Rate 5000 Hz .

4.Deceleration Rate：refers to the servo motor after the percentage of the Traction Length , and then decelerates to the end of the traction according to the set Deceleration Rate . (Not in the case of the standard)

5.Traction Length：refers to the length of the stroke according to the size of the plate of the mold. For example, the size of the medicine plate is: 80 mm × 57 mm. If 80 mm is used as the stroke of the device, then in the Traction Length column. Set the value to 81 or 81.5, including the scrap size for each plate.

6．Deceleration scaling：refers to the servo motor decelerating to the traction after the total length of the traction in the case of the cursor-to-plate version. The setting method is the same as the Speed setting. (The device does not have this feature in the case of the benchmark) .

7. Deceleration scaling rate： refers to the reduction ratio of the servo motor in the total length of the traction in the case of the cursor facing the version. For example, if the figure is 90c/o, which means that the total length of the traction is 90%, the deceleration starts. If the Deceleration scaling rate is set too short, it will affect the benchmarking speed. If the setting is too long, the servo will decelerate too slowly. If the positioning is not accurate, the tracking will go too far (the cursor is out of the cursor point, the device does not have this

function).

8.Forward ： Click the Forward button, the servo motor starts to advance intermittently, and release the button to stop the servo motor. This button is set to make better adjustments to the device .

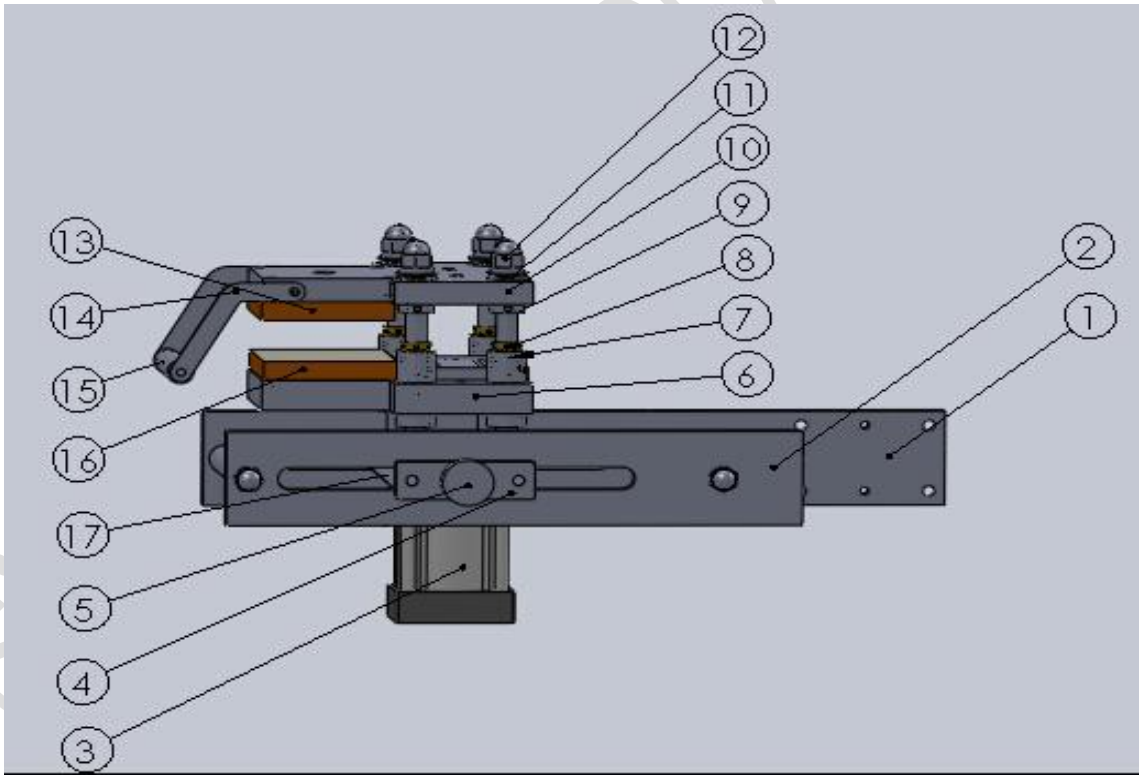
9.Back： Click the Back button, the servo motor starts to move Back intermittently, and release the button to stop the servo motor. This button is set to make better adjustments to the device .

he above settings are generally adjusted before leaving the factory and do not need to be changed. If there isan error in the production process or the product specification needs to be adjusted, it must be adjusted by a full-time staff.

Note : When the device enters the automatic operation mode, the function keys except the host start control will be turned on. Therefore, it is necessary to ensure that all the actions of the single machine are normal in the manual operation mode before the automatic operation can be started.

6. Adjustment and Use

1) Forming Station



1. Long arm bracket	2.Right arm bracket	3.Forming cylinder
4. Fixed platen	5.Adjustment wheel	6.Guides
7. Ball bushing	8.Ball sets	9.Round nuts
10. Cover	11.Dish washer	12.Cap nut
13. Up heating plate	14.Up support	15.Turning rolls

16. Down heating plate 17. Cylinder block

Adjustment:

PVC plastic film was preheated by a heating plate 13 between the heating plate 16, the thickness, width, or molded shape, size, depth, and different regions, different properties may require different preheating temperature, the heating temperature of the upper and lower plates by temperature setting, the temperature value from the temperature sensing rod to a temperature measured value of the heating plate, and when the temperature reaches the set temperature value is automatically stop heating. Should be installed close to the charging plate forming the upper and lower mold in PVC heat transfer in a timely manner after charging plate PVC positive pressure forming, forming the upper and lower die if too far away from the charging plate, then heated through contact with PVC PVC uniform surface temperature drops at room temperature affect positive molding.

Note:

① In order to avoid high temperature deformation PVC material, 110 is disposed generally

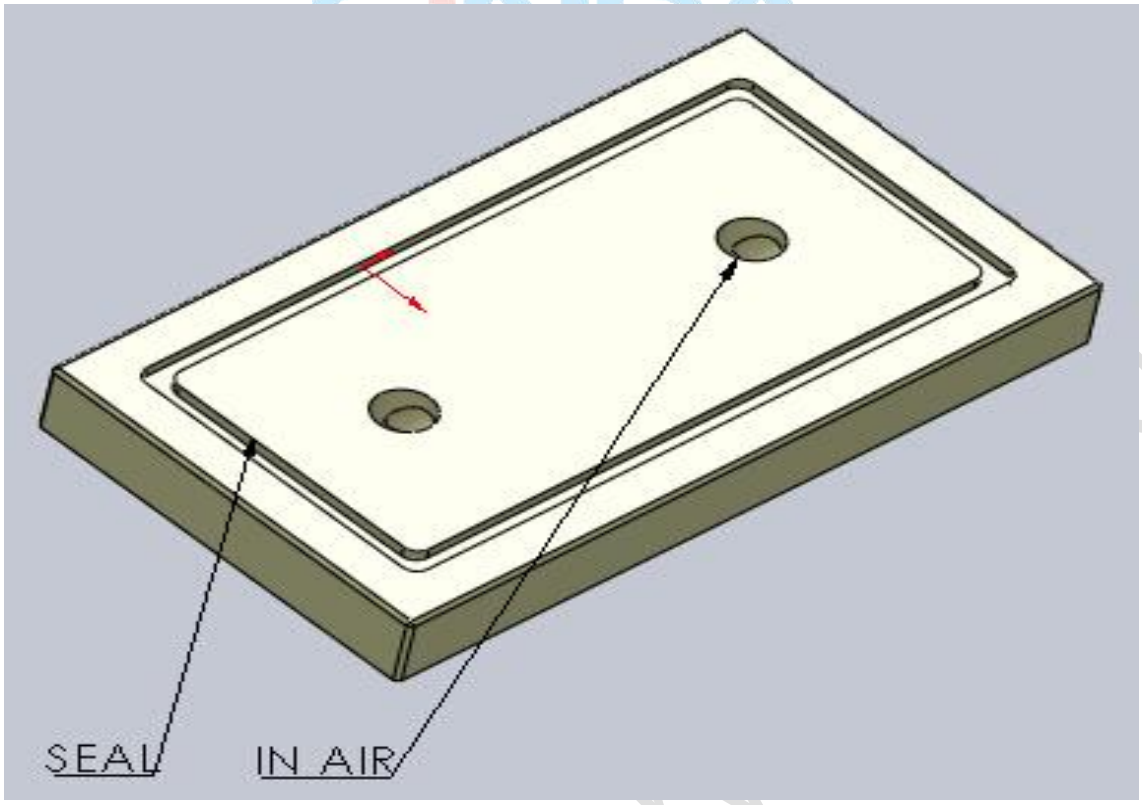
② When installing a heating plate, upper and lower should be noted that the balance of the heating plate

③ generate noise, with a suitable adjustment of the gap between the lower heating plate, the manufacturing process to avoid the upper and lower heating plates fit

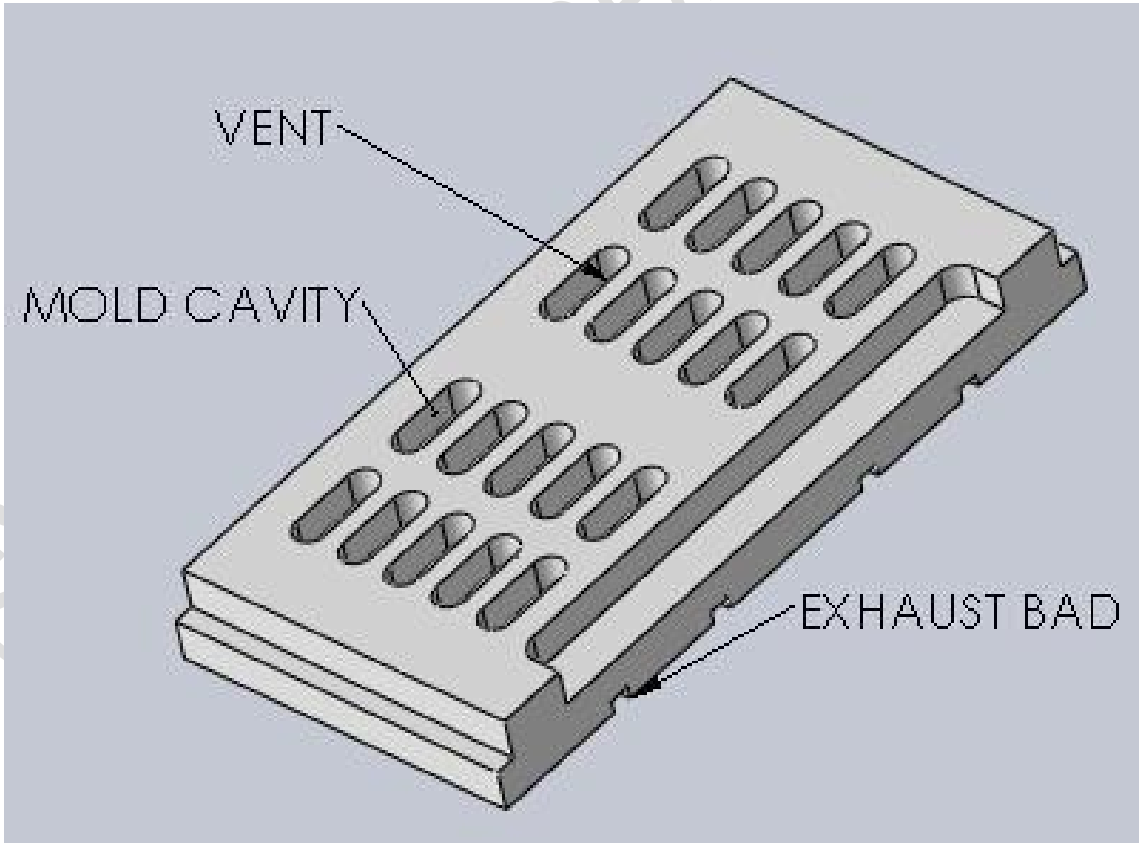
④When forming the upper and lower contact pressure is not easy to die too heavy, can only be achieved when there is no leak blowing phenomenon better contact with the upper and lower mold

Al-plastic Forming Mold

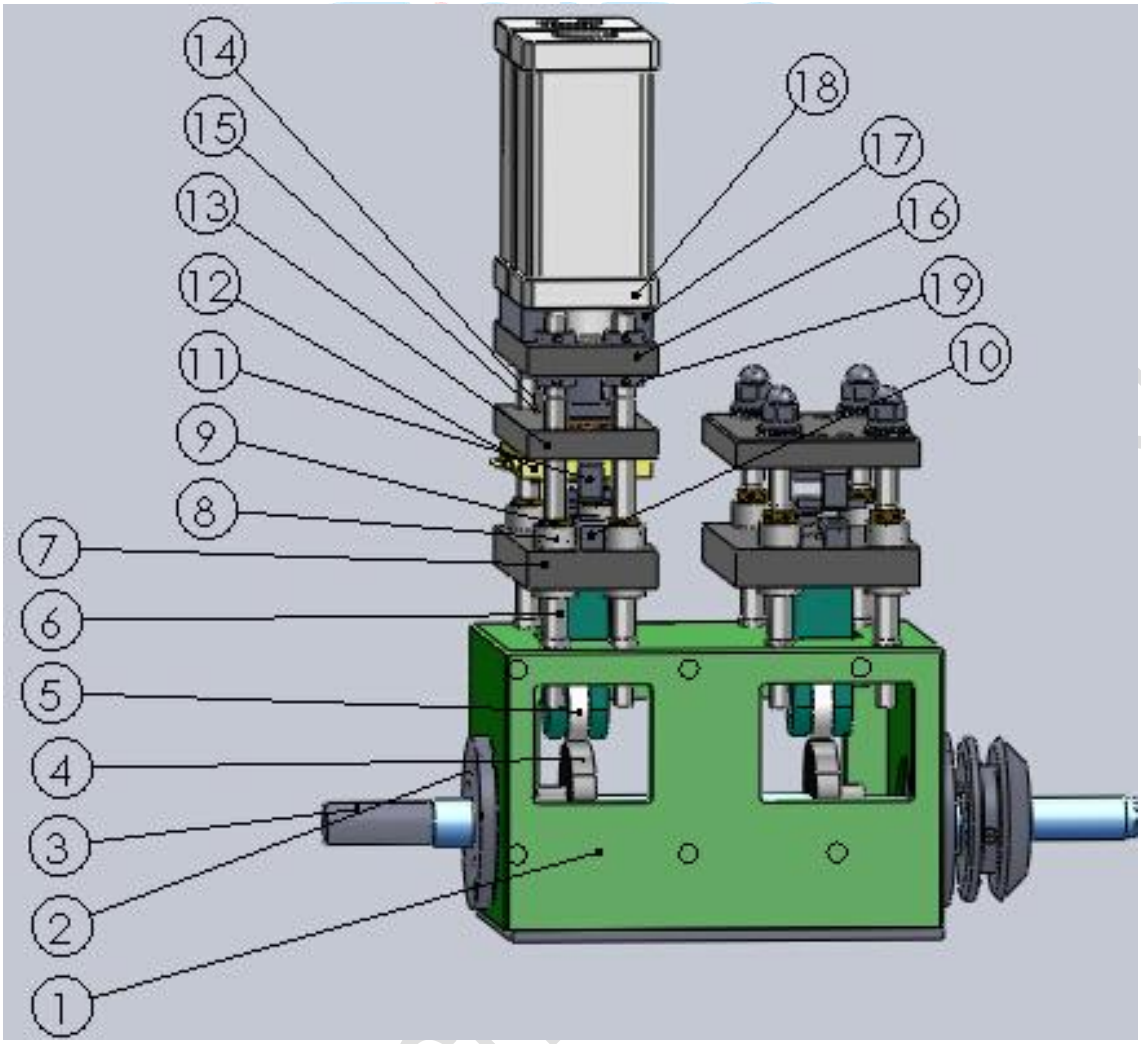
①Forming up mold (channel mold)



②Forming down mold (Forming mold)



2. Figure heat-seal station



1. Sealing cam box
2. Sealing bracket flange
3. Spline
4.Sealing cam
5. Wheel
6. Column
7. Sealing guide
8. Ball bushing
9. Ball seat
10. Lower platen sealing
11. Up sealing platen
12. Heating plate
13. Sealing cover
14.Cylinder separator
15.Cylinder separator
16. Cylinder block botton
17. Cylinder block
18. Cylinder
19.Round nuts

2) Principle of heat seal equipment:

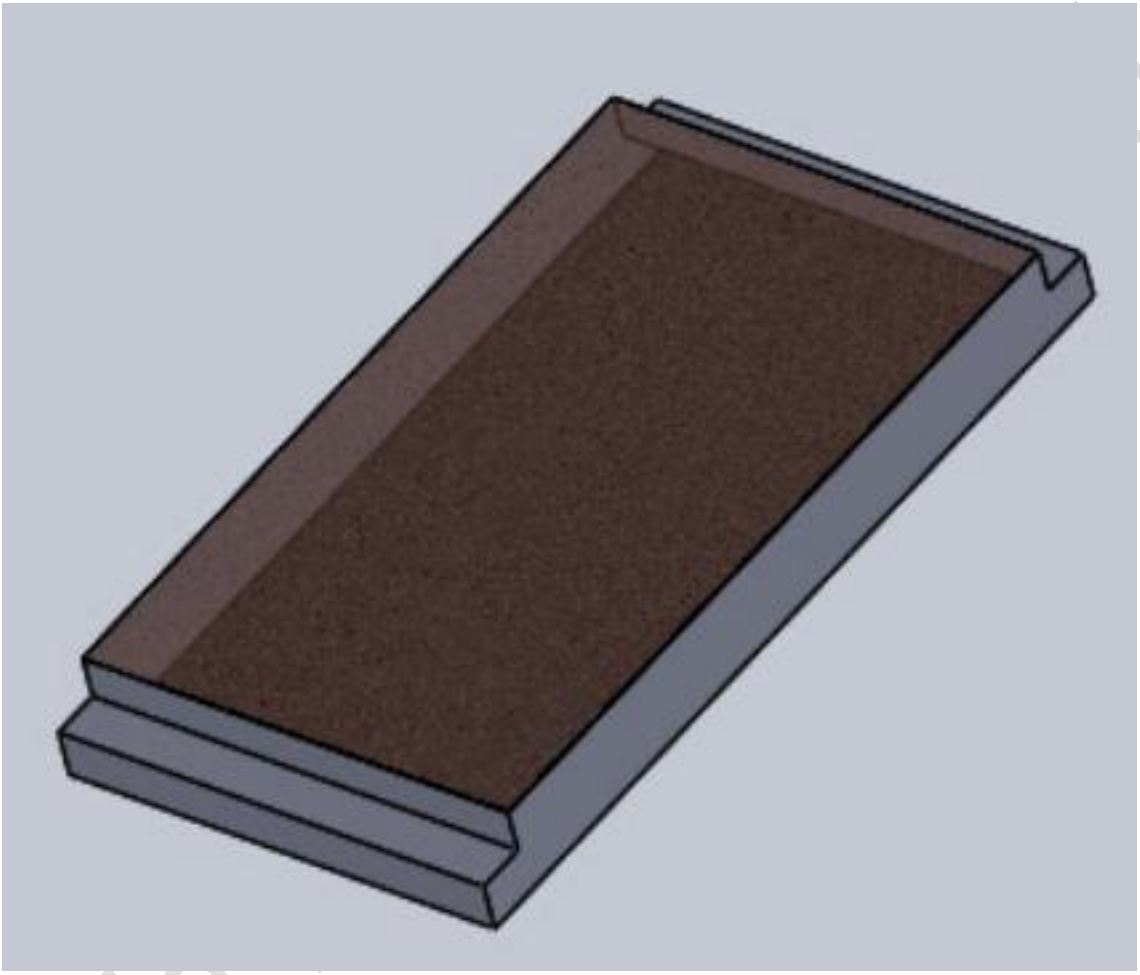
Forming good blisters filled blisters and within good material role in pulling the traction filled blisters promote good sealing lower die, sports cam by the sealing and sealing up to the highest point on the die extrusion role in the cylinder so that in combination with PVC foil with heat, and to ensure that the material between the PVC foil sealing performance.

Adjustment:

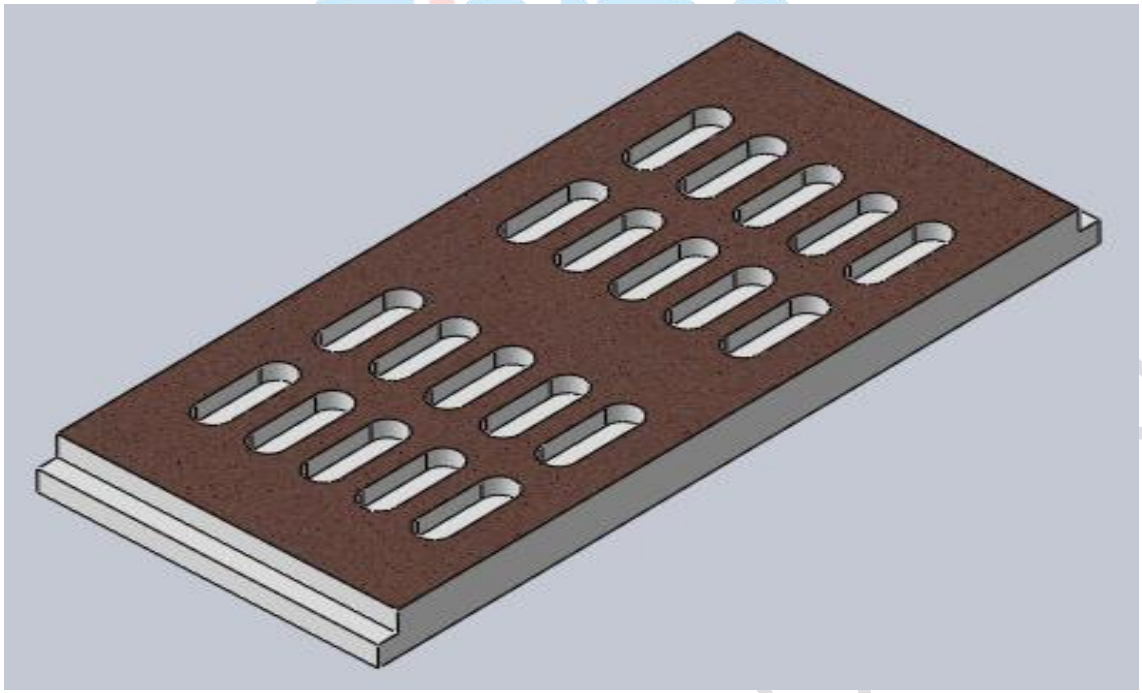
According to loosen the mold platen sealing under 10 then sealing the lower mold pushed from the side, next to the same procedure to install the heat seal die heating plate 12 below, please note that if the temperature to prevent burns, installed after adjusting round nut 19 , the cylinder upward adjustment, its purpose is to prevent excessive pressure on the

upper and lower mold sealing crushed down mode, adjust the PC and then click on control Panel "jog" button, so that the host rose to the highest point , and then dropped into the cylinder, and then sealing up and down slightly to adjust the template contacts the upper and lower templates mild extrusion cylinder, in the actual production to further fine-tune the general heat-sealing temperature is set to 150℃.

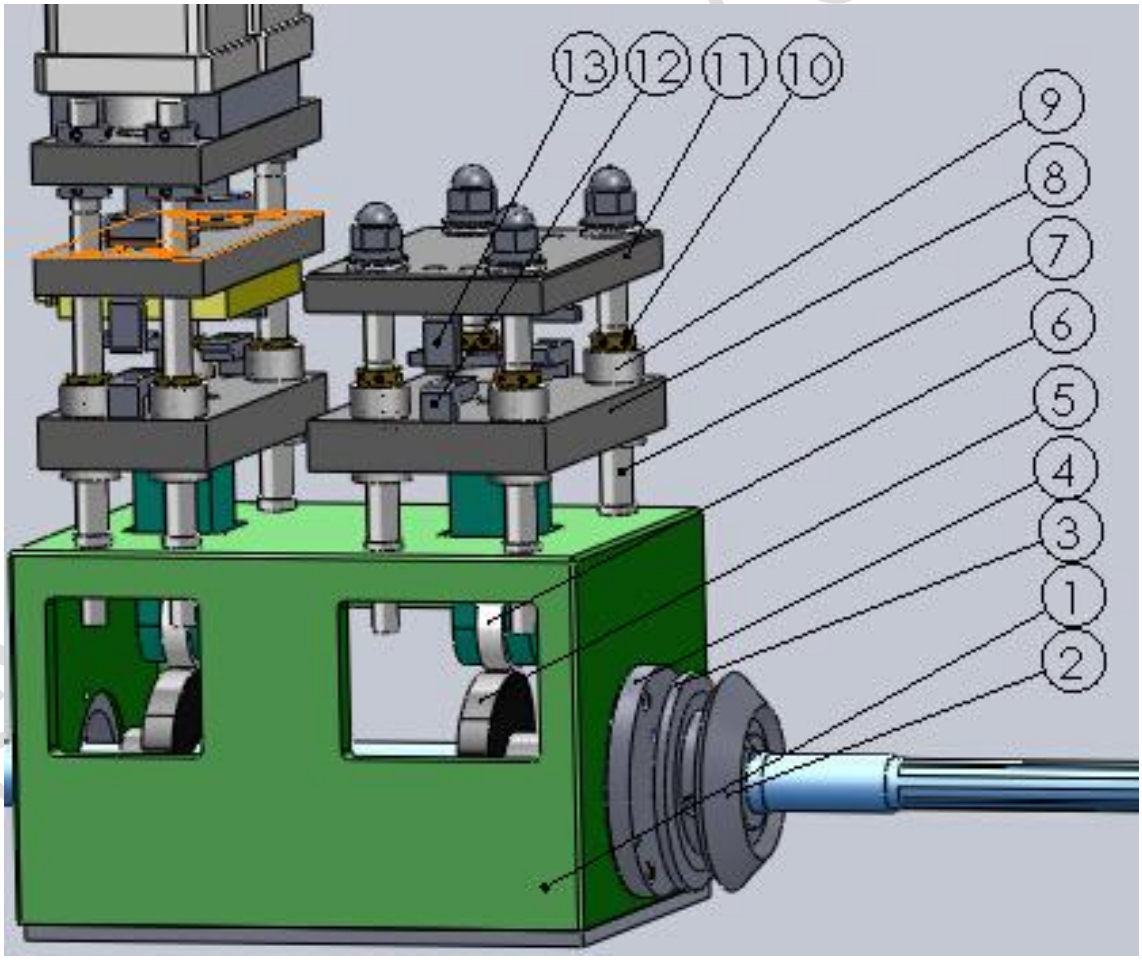
①heating sealing up mold (anilox plate)



②Heating ing sealing down mold



3) Figure batch number station

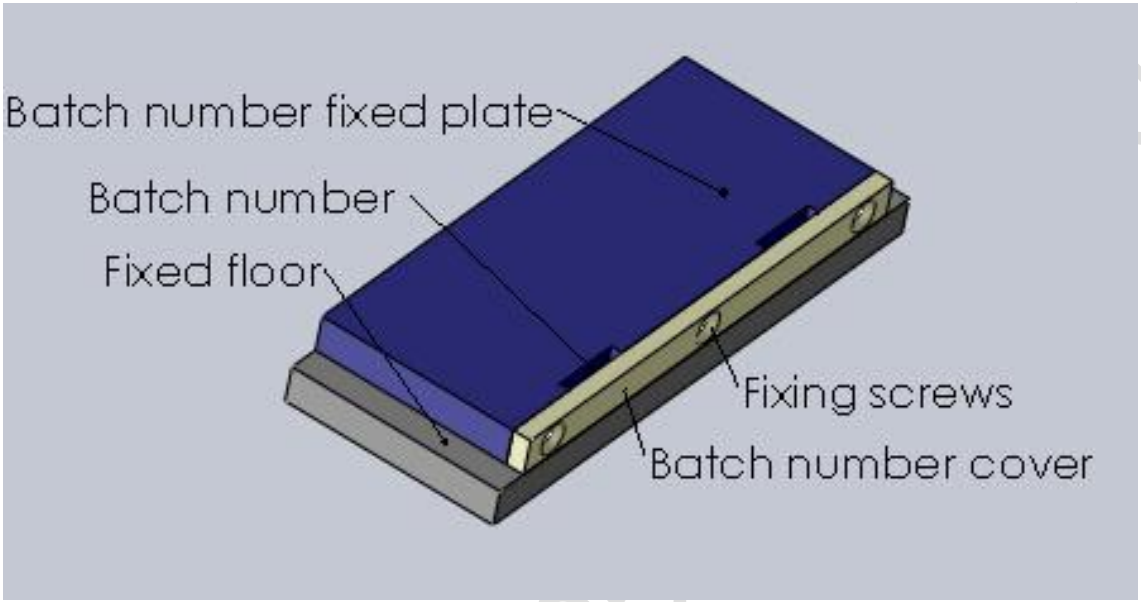


1.Cam box 2.Bevel gear 3.Shaft sprocket 4.Batch number bracket flange
5. Batch number cam 6.Wheel 7.Column 8.Batch number guide
9.Ball bushing 10.Ball seat 11.Batch number cover

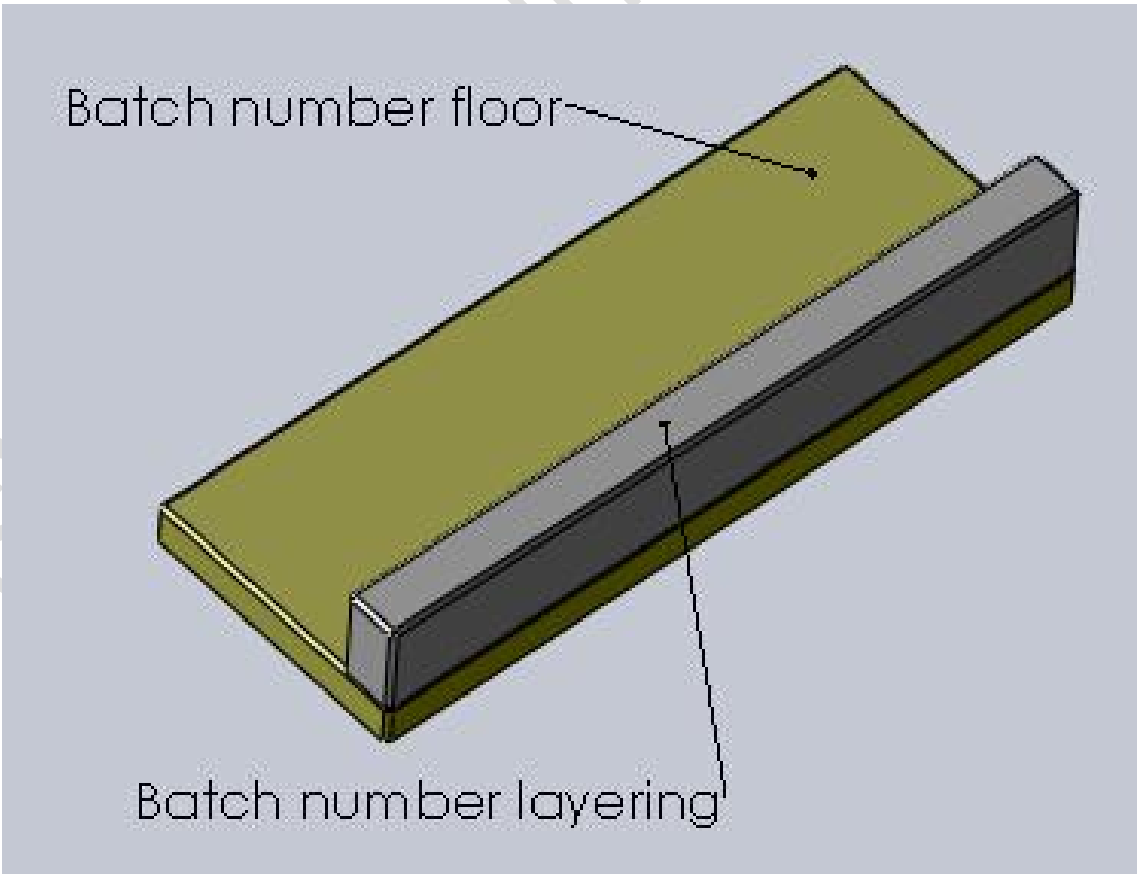
12. Lower platen batch number 13.Up batch number platen

Note: If the entire mold under no indentation device, this station is generally batch number station, if the entire mold indentation device that is another batch number device, then this station as an indentation station, batch station with heat sealing station as a whole.

① Batch number up mold (assembly)

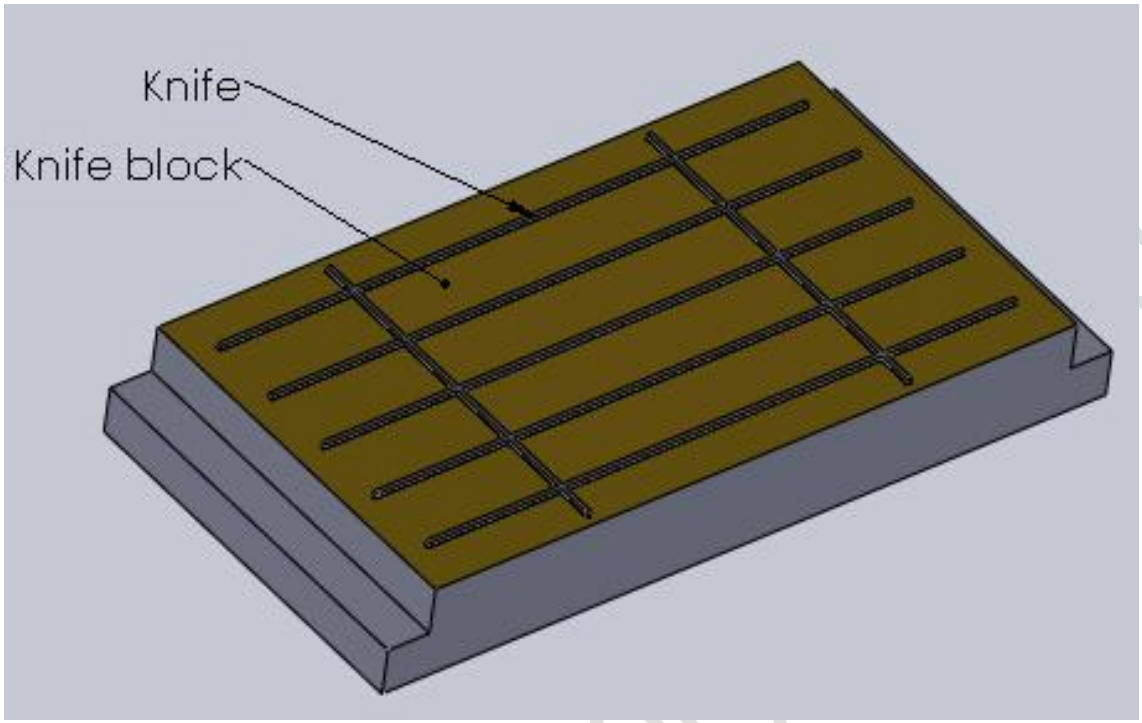


② Batch number down mold assembly

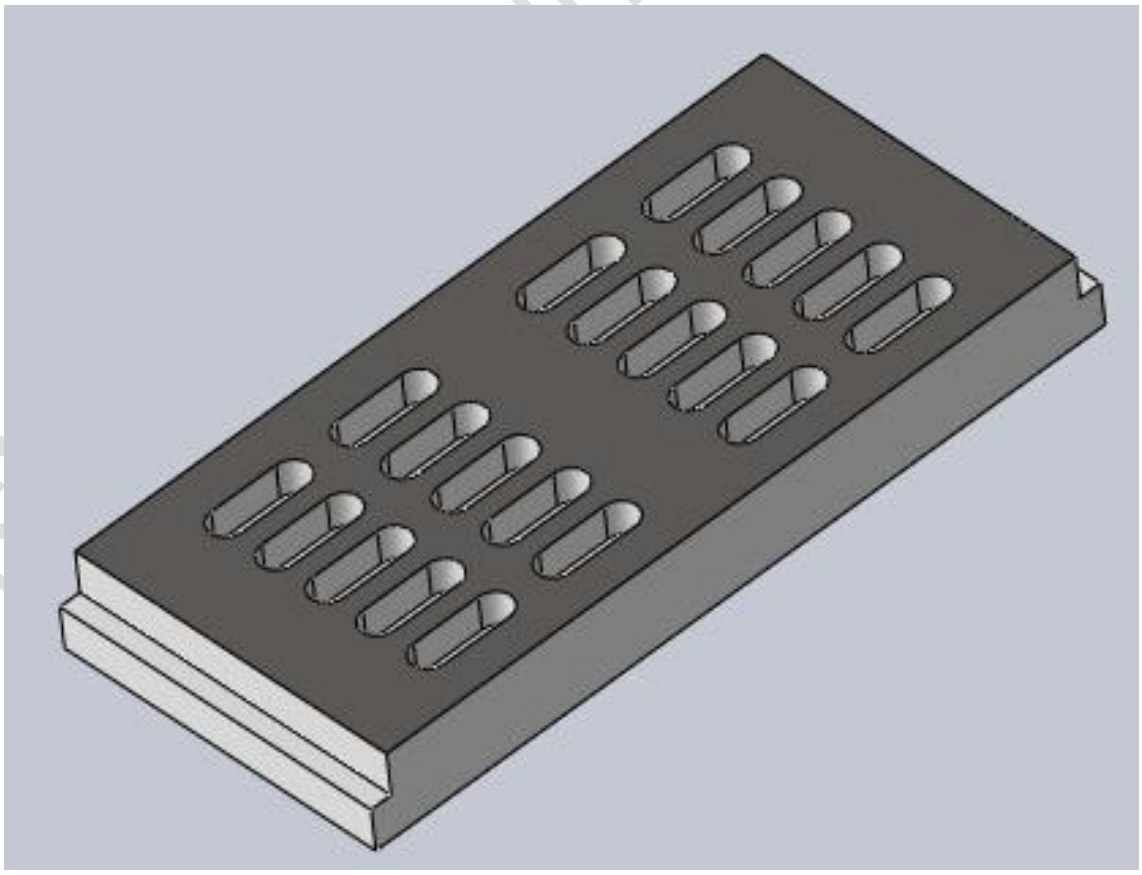


4) Al-plastic Indentation Mold

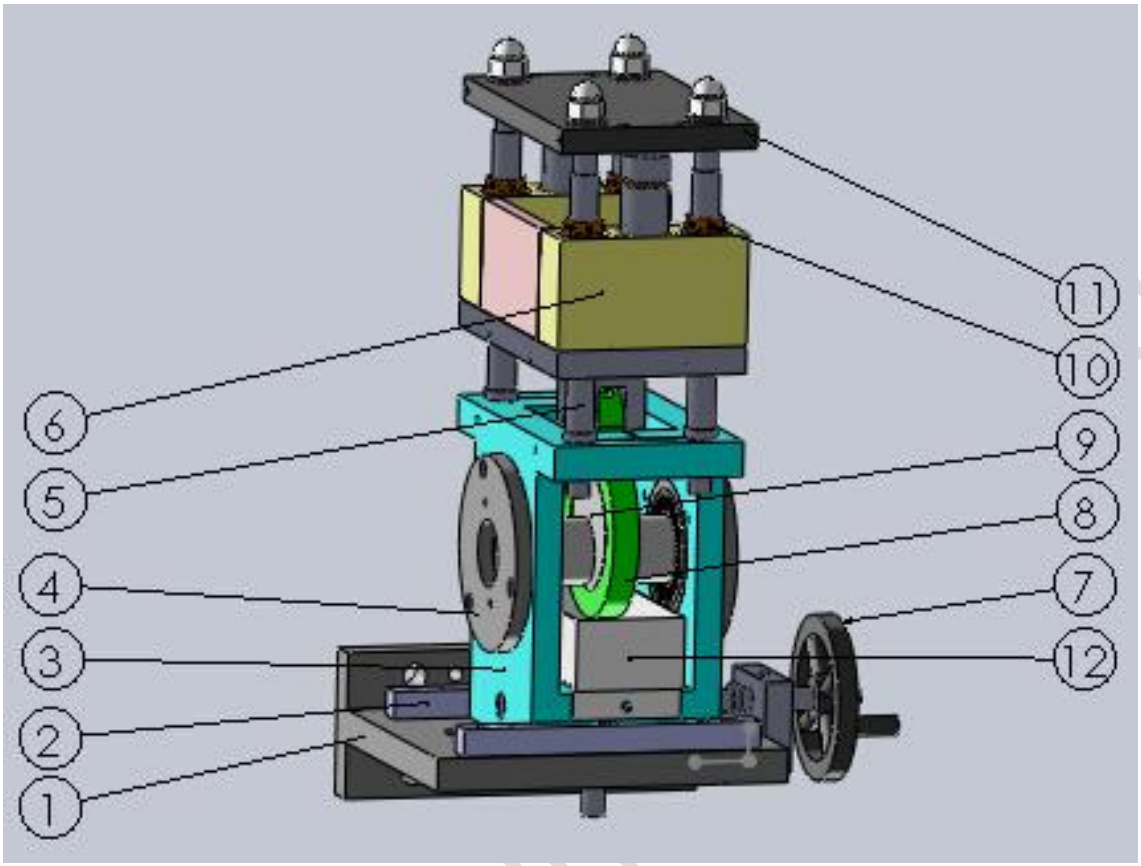
① Indentation up mold(assembly)---match



②Indentation down mold(assembly)

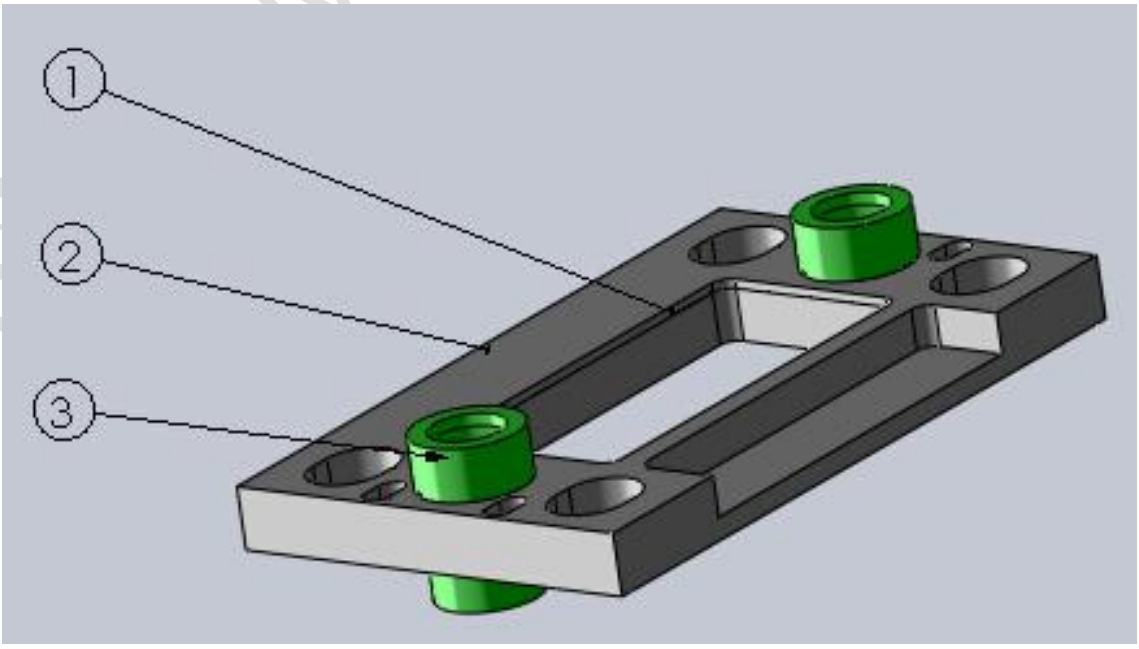


5) Figure punching station



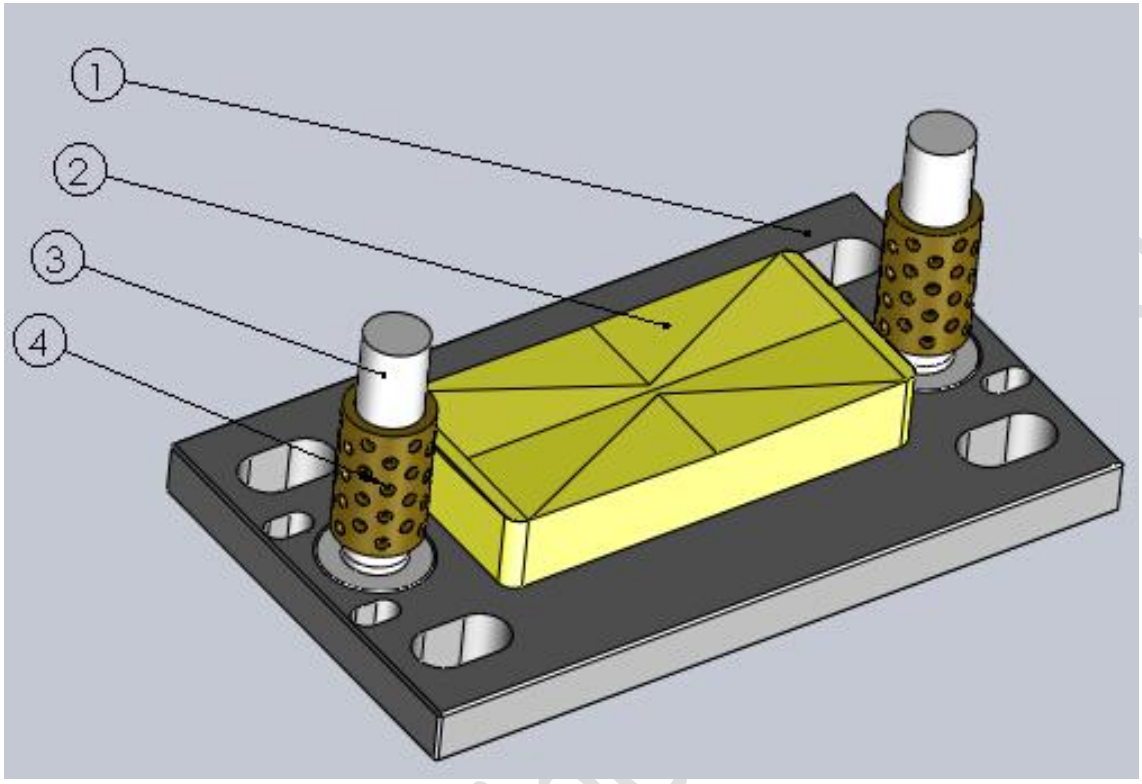
1.Support base	2.Fixed-artide	3.Punching bracket
4.Punching bracket flange	5.Column	6.Pad
7.Handwheel	8.Eccentric outer	9.Eccentric wheel
10.Ball seat	11.Punching cover	12.Oil box

① Punching low line mold



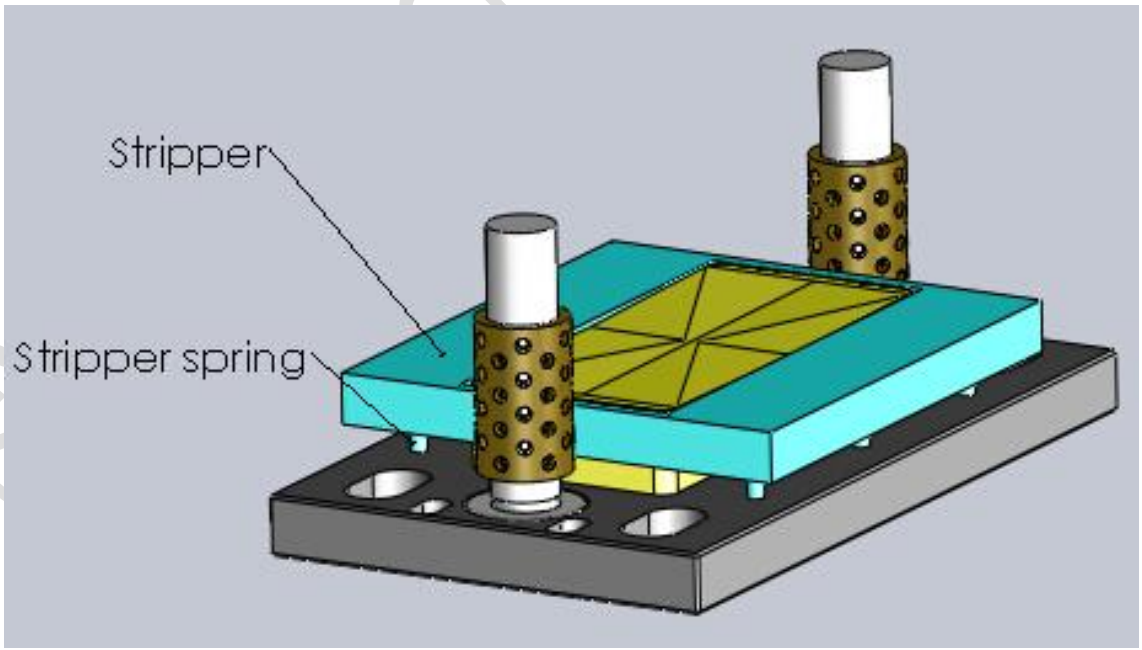
1.Incision 2.Die 3.Column-ball bushing

② Punching mold



1.Punch block 2.Punch 3.Guide shaft 4.Ball seat

③Stripper Plate



6) Die Cleaning

7) Forming Mold

① Forming Molding the Cleaning:

Molding the Forming six surfaces can be used pine fragrance wipe clean the mold cavity(the surface in contact with the packaging material)to the surface can be cleaned with a disinfectant alcohol. After cleaning, carefully check the vent for blockage, the mold can be viewed against the light transmittance can check the exhaust is smooth, if clogging the row for pores adhesion through wear pins individually, and the use compressed air to blow out residual adhesion. Be sure to maintain the smooth flow of each vent if the vent is clogged cause molding incomplete or adverse effects.

② Forming up mold the cleaning:

Forming up mold(channel mold)six surfaces can be used pine fragrance wipe clean the mold cavity (the surface with the packaging material to come into contact with)the surface may be cleaned with a disinfectant alcohol. After cleaning, carefully check the airway hole for blockage can individually adhesive material cleanup airway with compressed air ,the airway blockage air pressure or air flow enough to cause molding imperfections.

Heating sealing die mold

① heating sealing up mold (anilox plate)the cleaning:

The heat sealing textured plate surface can wipe clean pine fragrance. After long-term use of textured board, sometimes resulting in a textured pattern on the lines accumulate dirt, with copper wire brush to gently wipe the surface and then the alcohol wipe down the textured lines.

PVC or other packaging materials caused by heat sealing temperature is too high sticky textured board with a blade along the textured lines gently remove adhesive material,(this operation should be careful to avoid scratching textured impact messy lines)after heat sealing wire brush and the gently wipe down textured Silk Road residual adhesive material, and finally with a sterile alcohol wipe.

Many printing ink of heat sealing textured board sticky and difficult to clean, textured panels can soak in the rosin the water 1-2days and then cloth to wipe clean.

②Heat sealing mold cleaning method ibid.

Batch Number Mold

Batch number up mold and Batch number down die surface stains with pine fragrance or with an alcohol wipe.

Indentation Mold

Machine during operation, sometimes there will be PVC, aluminum foil or other packaging material residual indentation mold, you can use the compressed air will be the residual packaging materials blown clean, then wipe clean with pine fragrance or rubbing alcohol.

Apply anti-rust oil on a regular basis to the indentation blade to avoid blade rusty affect the service life and embroidered stains left in the medicine version indentation guide post mold the steel ball sets and stripper plate should regularly add grease to maintain its lubrication.

Al-plastic Punching Mold

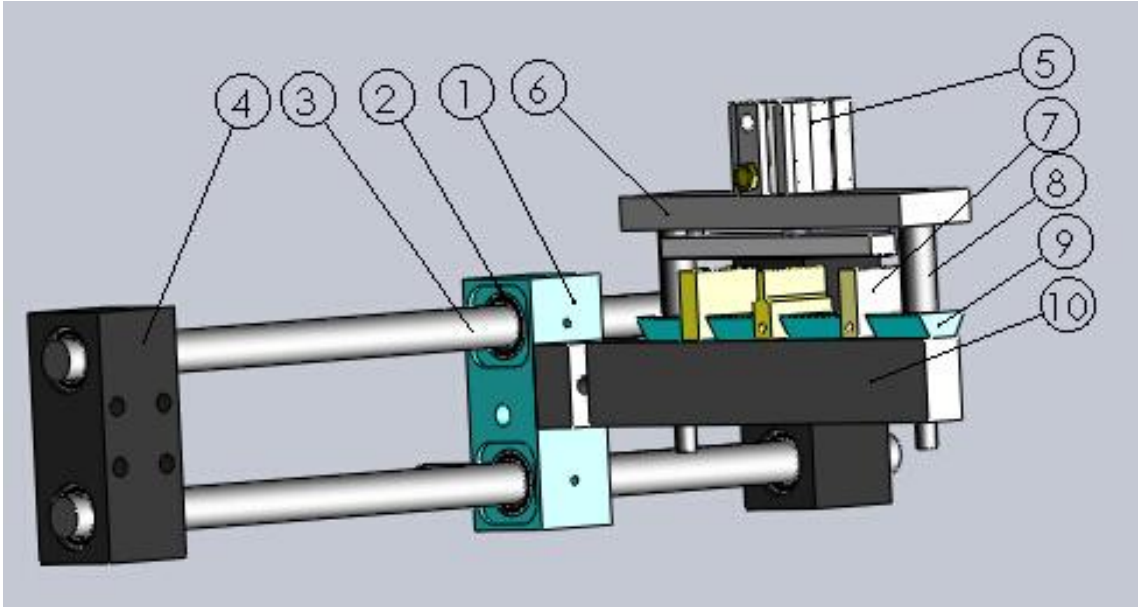
The whole set of punching mold can wipe clean pine fragrance.

The machine during operation, and sometimes there is PVC, aluminum foil, or other packaging materials remaining in the indentation on the mold can be used compressed air

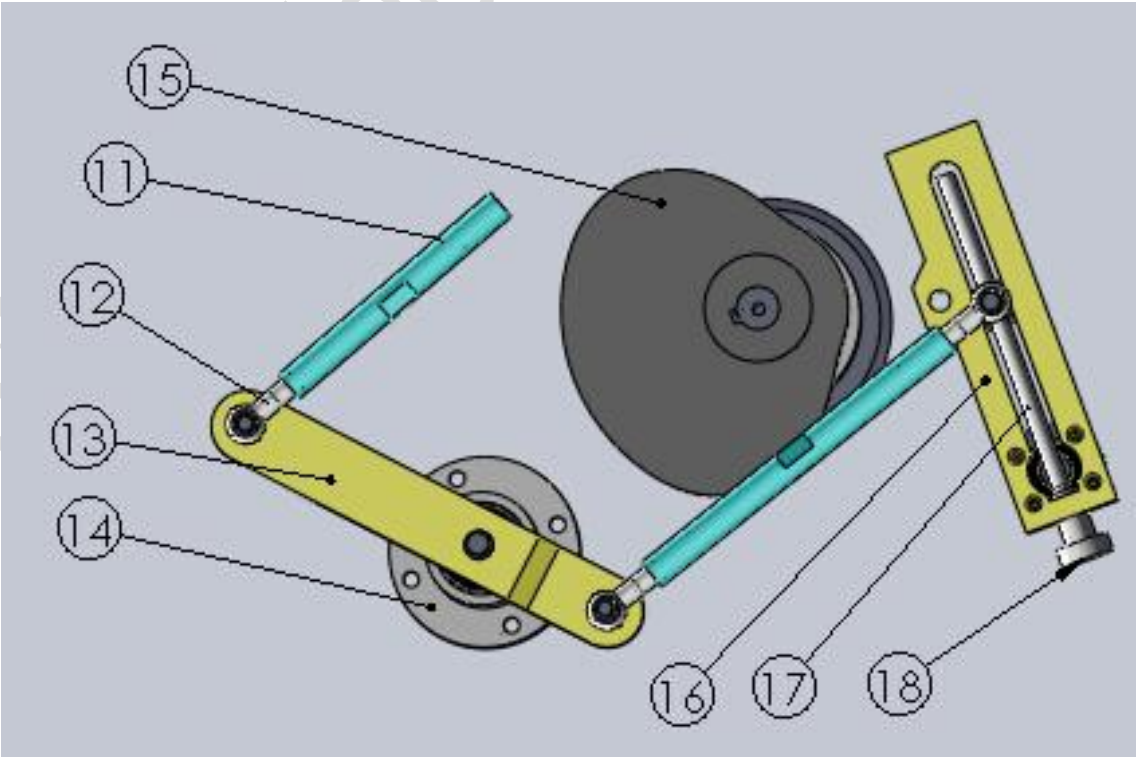
to the remaining packaging material blown clean. Please periodically to mold and punch coated with anti-embroidered oil so as not to affect the service life and embroidered stains left in the medicine Edition mouth rusty mold blade.

Periodically to punch seat guide posts, steel ball sets and stripper spring add grease to maintain its lubrication.

8) Figure Traction station



1.Holder	2.Linear bearings	3.Guide shaft	4.Short guide shaft seat
5.Cylinder	6.Cylinder bottom	7.Traction block	8.Small column
9.Fixed article	10.Traction arm		



Adjustment:

Due to the size of the forum Forum spacing different positioning and traction traction required length adjustment, adjust the size of the main forum is to adjust the spacing of the three parts of the positioning block 7, according to adjust spacing according to the forum; traction length adjustment is mainly about adjusting 16,17 , 18 parts, loosen the fixing nut 18 to 18 16 to rotate to adjust the distance between the fulcrum and the cam to achieve traction in length.

7. Installation and Maintenance

1) Unpacking should check whether the machine is complete, whether with attached annex with a list of transport phenomena in whether to break something.
2) level machine should be placed in the room, no foot screws installed, the bottom surface of the foot 12 mm thick rubber mat board, in order to avoid long-term damage to the ground and appeared to use the shift phenomenon.
3) Before starting to conduct a comprehensive clean with a soft cloth slightly moistened with soapy water (or detergent wipe) to surface oil, dirt, and then dry with a soft cloth.
4) For safety production, should specify the location of the grounding plate access ground.
5) full-time staff to arrange for machine operation and maintenance.
6) The operator must be familiar with the instruction manual for the aircraft structure, and then use a basic understanding of the operation.
7) gears, sprockets, bushings and cam mechanism of class plus the oil once.
8) reducer manufacturing units according to the instruction manual regularly filling 3 # molybdenum disulfide sodium acetate lubrication.

8. Common Faults and Exclusion Method:

Faults	Failure	Reason	Remedy
Blister Forming bad	Blister bottom perforated film	Forming temperature is too high	Lowering the temperature
		Poor quality PVC itself has holes	PVC plastic film exchange
		Blowing air pressure is too high	Reduce the blowing pressure
	Forming an incomplete	Forming temperature is too low	Increase the temperature
		Not parallel to the upper and lower mold	Adjust the column cap nut When the upper and lower mold fit well sealed
		O-ring damage	Replace the O-ring
		Blowing holes and vent plug	Dredge with a needle vent
		Air pressure is too high or too low	Regulating valve, the pressure is generally 0.5-0.6Mpa

		Blowing the wrong time	Blowing cam position adjustment (to be closed molding that line deflated)
Plastic film sealing blister did not accurately into the die hole	Before and after the	Stroke is not adjusted	Each version of the stroke length measurement, if the gap can be adjusted to adjust the handle 5 in Figure 6, reduced travel clockwise, counterclockwise rotation stroke increases.
		Forming right to travel between the sealing	Forming station adjusting the position so that forward or backward PVC.
	Lateral deviation or unilateral tight loose	Forming die and mold sealing inaccurate two-mode installation center line right or tilt	Adjusted for mold and mold sealing
		Track improper adjustment	Re-adjust the track
		Bad molding or sealing mold cooling, resulting in deformation of PVC or extended temperature	Addition of cooling water flow
		PVC poor quality, inconsistent telescopic heated on both sides	Exchange PVC (plastic film)
Hot Seal Not Good	Not firmly bonded	Plastic foil surface temperature is too low melting point is not reached, sealing pressure is not enough	Increase the temperature is kept constant at about 150 ℃ (the exact temperature and engine speed, temperature related)
	Textured uneven	Textured rust or dirt	With a wire brush or with a needle, blade sharpening eliminate dirt Manager
		Sealing temperature is too low	Increase the sealing temperature
		Textured poor fit of the lower mold plate	Local oil stone grinding lower die plane (the red lead paint or ink plane coincide with the lower mold plate moves textured, worn to the point of contact)
Hot Seal Not Good	Textured uneven	Forming temperature is too high, when the thickness of the thin blister forming pull between the bubble and the bubble	Forming temperature reduction
		Sealing pressure is too	Lower sealing pressure
		Insufficient pressure	Increased pressure

		Not parallel to the upper and lower mold	Adjust the plane parallel to the upper and lower mold
	Aluminum foil is pressed through	Sealing temperature is too high	Reduce heat sealing temperature
Wrinkled aluminum foil	Oblique wrinkles (wrinkles are all oblique direction)	Unilateral tight loose foil	Transfer process before adjusting plate, move forward or backward to change the swivel roller parallelism
		Aluminum foil is not parallel to the pressure roller	Knurled adjustment handle, so that the pressure roller and parallel to the orbital plane
		Sealing mold or mold is not properly installed (tilt)	Loaded positive sealing mold or mold (center after being adjusted in parallel)
Adverse blanking	Vertical deviation	Stroke is not adjusted	Adjust blanking move handle, so punching position forward or backward
	Lateral deviation	Forming (sealing) mode or track errors)	Re-adjust the shape (sealing) mode or track
Feeder bad	Jumper (jump when sealing release tablets)	Sealing die or sealing position is not adjusted	Adjust the position for sealing plastic blister make accurate mold hole falls
Adverse indentation	Adverse dislocation	Feng blade wear volume	Replace the blade, reducing stress