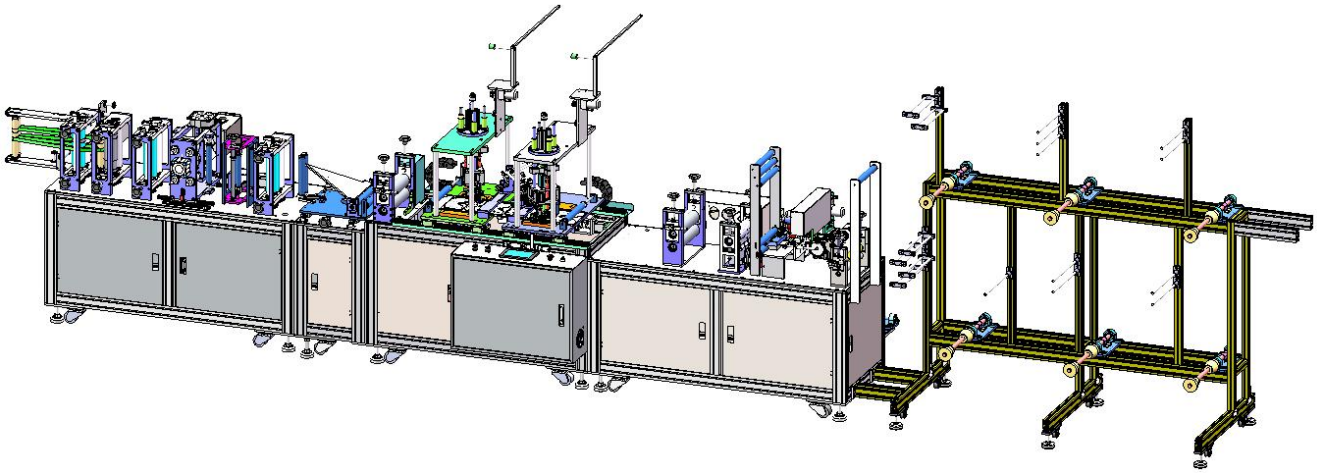
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N95 Equipment Operation Manual

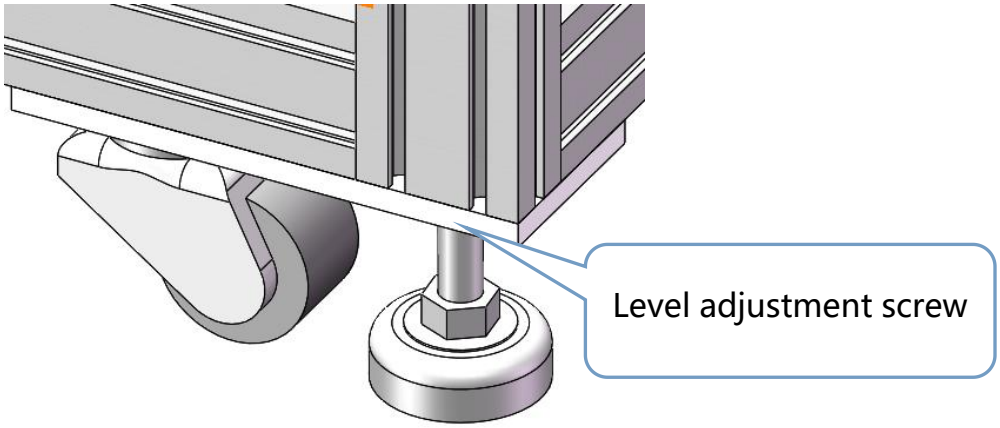


Equipment Name: Automatic N95 Mask Machine

Equipment Model: TR260II-FMM

Important notes for safe operation

1. Before moving the machine, you must first loosen the level adjustment screws at the bottom of the machine.
2. the combination of parts that are disassembled when the machine is boxed must be assembled according to the marks made during disassembly.
3. Place the machine in an appropriate position. When it is necessary to fix it, adjust the leveling screw to make the machine level. As shown:



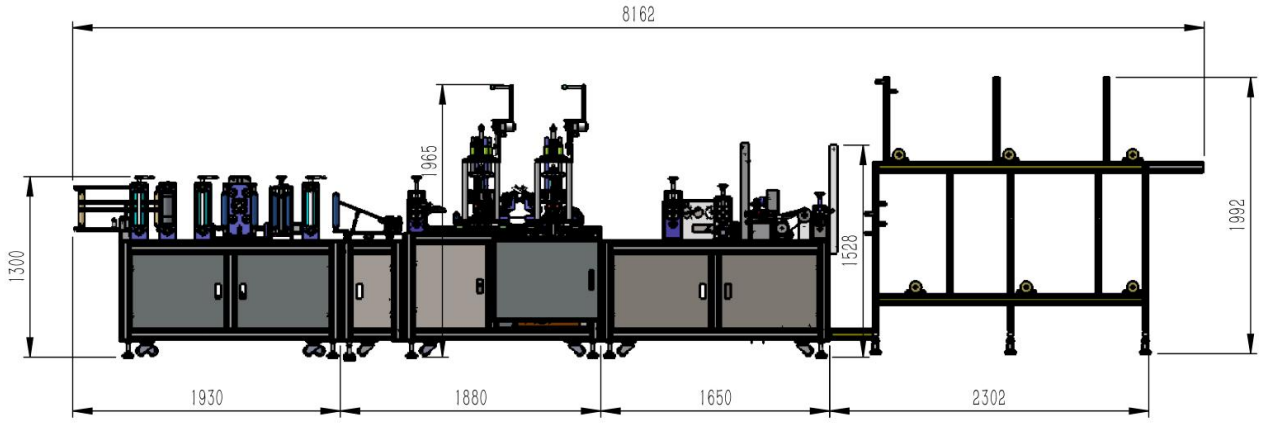
4. Before power on, use the AC V file of the meter to check the power supply voltage and the machine voltage (AC 220V, 50/60Hz, 1Phase)
5. Whether it is consistent and stable, only when it is consistent and stable can be connected to the power supply. Otherwise, it is easy to damage the ultrasonic system.
6. The machine must be grounded to prevent leakage of electricity and hurt people. When checking or repairing the machine, it must be shut down to prevent accidents.
7. Keep the inside and outside of the machine tidy, clean and free of debris.
8. Do not open the electric box and ultrasonic system by non-professionals or non maintenance personnel.

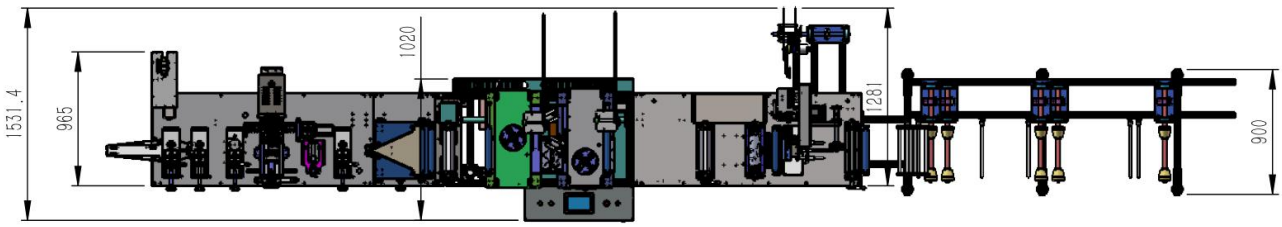
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I. Technical specifications

Model： TR260II-FMM
Machine Dimensions： 8200(L)×1530(W)×2000(H)
Suggested Fabric Width： PPSB-260mmx50g Hot Air cotton-260mmx40g melt-blown-260mmx30g ~~PPSB-260mmx30g~~
Suggested Nose Wire：PP or PE double-core Air pressure:0.6-0.8Mpa
Voltage：220V Productivity：around 30pcs/min

Detailed size chart：





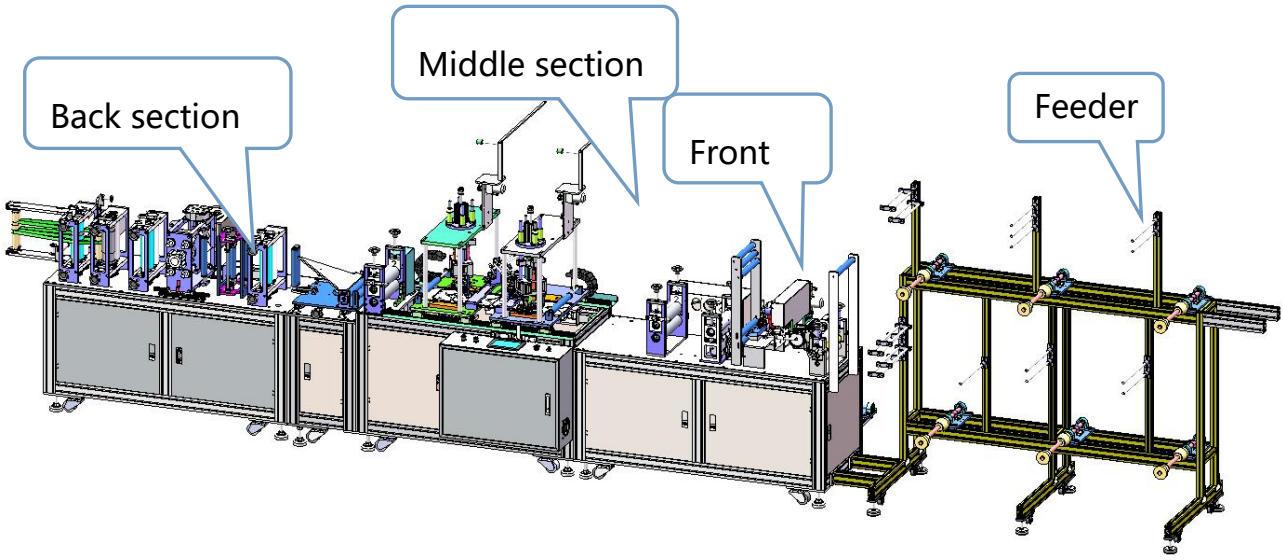
II. Introduction to the functions of each component of the main unit

2.0 Machine introduction

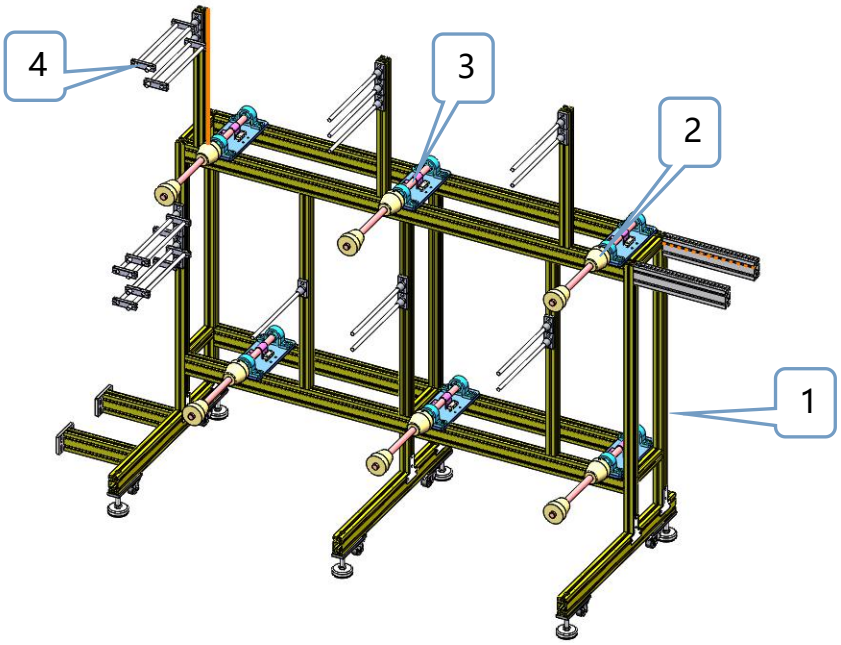
N95 automatic mask machine is a fully automatic machine used to produce folded mask . It uses ultrasonic technology to weld 3-6 layers of PP non-woven fabric, activated carbon filter material and filter material. The whole set of equipment is integrated and fully automatic folding production technology through non-woven fabric welding, ear band welding, printing, half folding, edge banding, rolling cutting, etc., and can process 3M9001, 9002 and other folded masks. The raw materials selected according to product requirements, which can produce masks meeting different standards such as FFP1, FFP2, N95 etc. The whole production process does not require manual participation, and the finished product is fully automated. This machine is mainly used for the automatic forming of three-dimensional masks: the whole roll of fabric is driven by the roller after being unrolled, and the fabric is unrolled through the whole roll of the nose bridge, and then cut into a fixed length and inserted into the hemming fabric for welding, integral forming and welding, and then passing through the ears. It is welded with a welding mechanism, folded by a folding mechanism, then ultrasonically inclined and sealed, and finally cut and formed by a cutter roller; finally, it drops into a sterile transfer basket.

2.1Brief introduction of each component function

The schematic diagram of the whole machine is as follows:

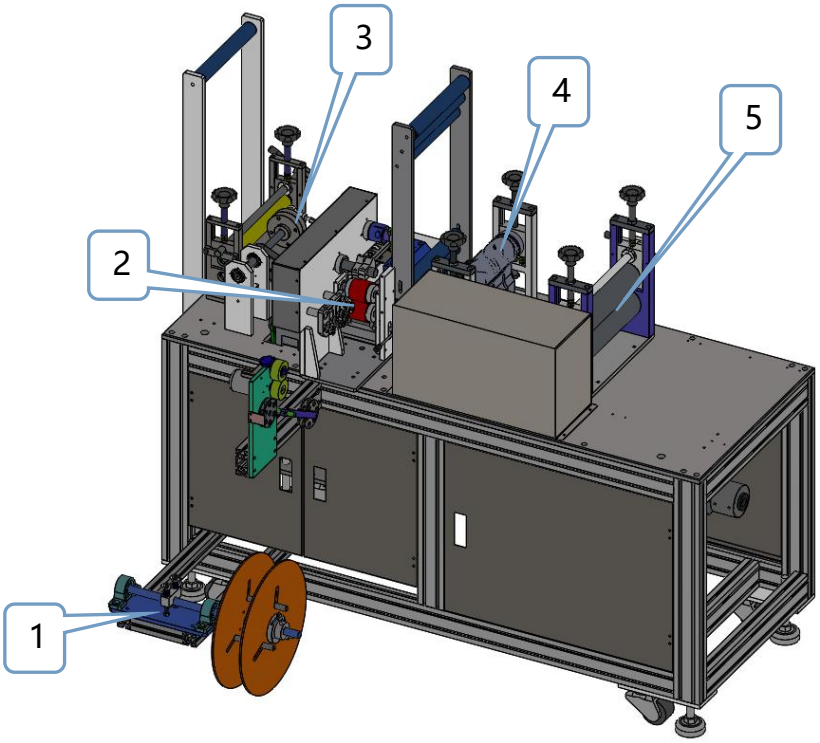


2.1.1 Feeder:



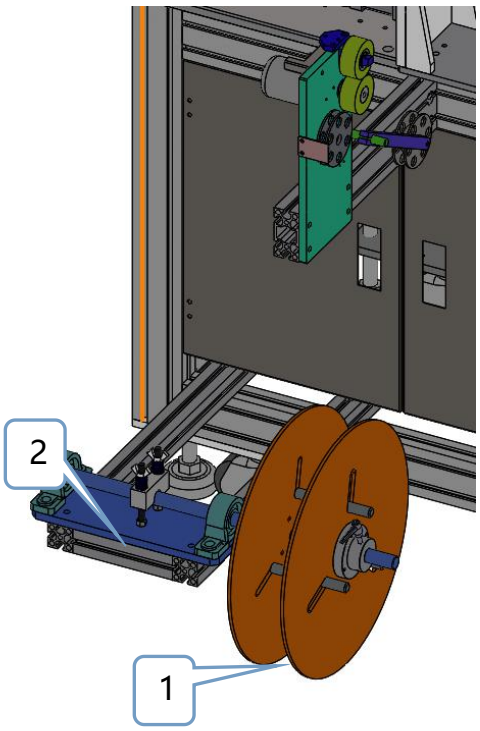
1. The main body of the rack;
2. Unwinding axis: the cloth is placed here;
3. Adjust components: adjust the screws here to control the tension of the fabric;
4. Guide component: control the left and right position of the cloth;

2.2.1 Front:



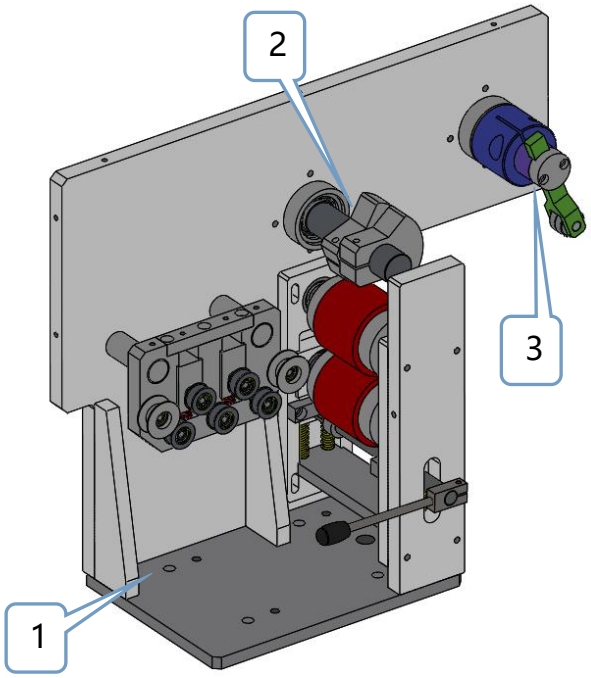
1. Pay-off mechanism: the entire roll of nose bridge line is placed here;
2. Wire feeding mechanism: send and straighten the bridge of the nose;
3. Push thread mechanism: send the cut nose bridge thread into the fabric;
4. Welding mechanism: the fabric is welded for the first time here;
5. Pulling mechanism: pulling the fabric;

2.2.2 Pay-off mechanism：



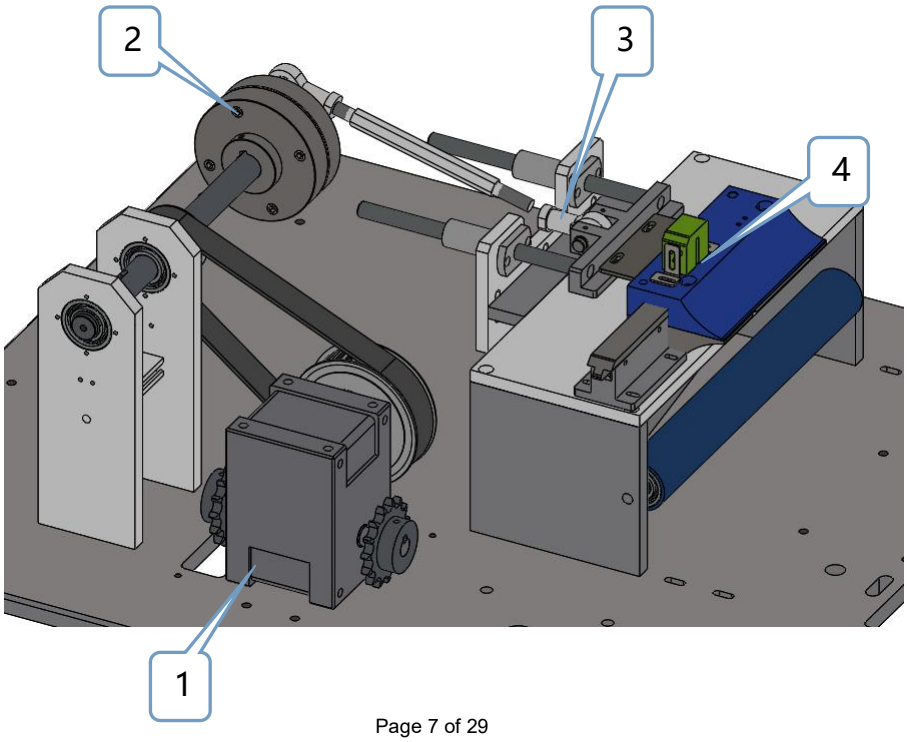
1. Nose bridge mechanism: release the handle to load and unload the whole roll of nose bridge;
2. Brake mechanism: adjust the nut to control the tension of the bridge of the nose;
3. Pulling mechanism: feeding the nose bridge through the motor;

2.2.3 Pay-off mechanism：



1. Wire wheel: correct the nose bridge;
2. Cam mechanism: Adjust the angle of the two cams to control the length of the nose bridge;
3. Pressure cutter mechanism: press down the nose bridge cutter;

2.2.4 Pay-off mechanism：



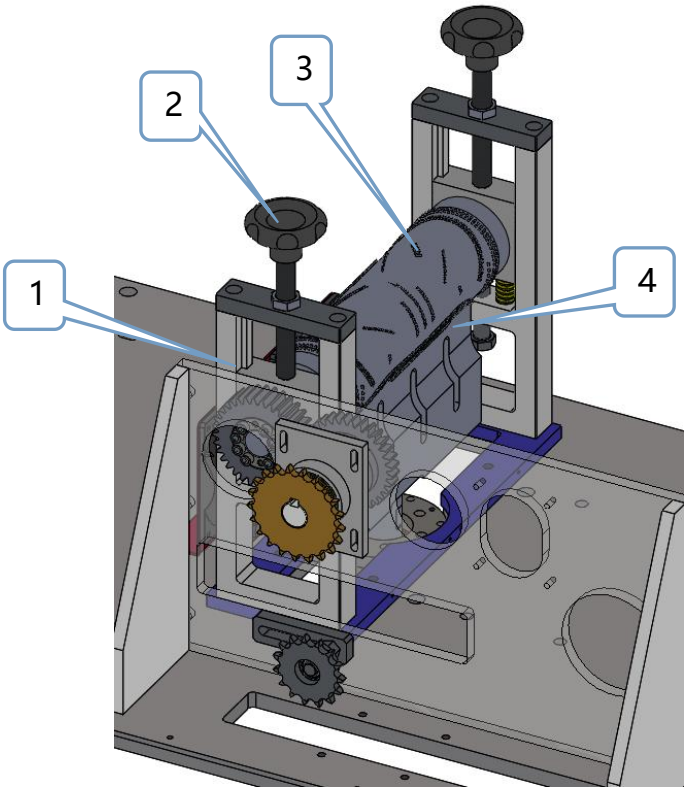
1. Splitter

2. Soft connection mechanism: When the nose bridge box is jammed, it will automatically disconnect from the splitter and alarm;

3. Push plate mechanism: the adjusting screw can finely adjust the front and rear positions of the nose bridge;

4. Nose bridge cutter: cut off the nose bridge;

2.2.5 Welding mechanism：



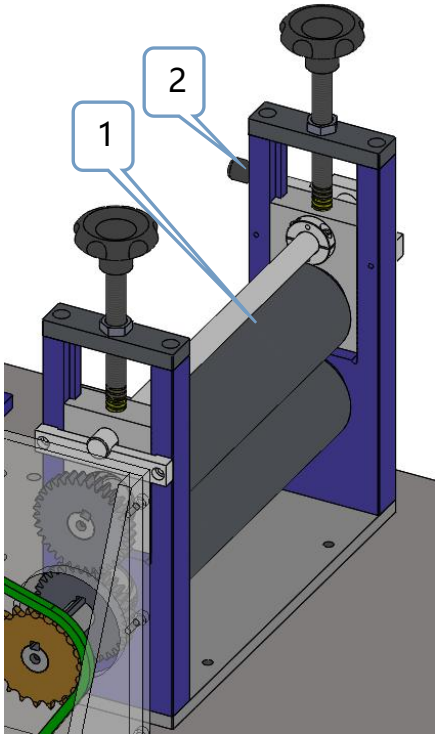
1. Expansion sleeve: connected to the transmission gear, when the position of the nose bridge is not correct, the screw can be loosened for adjustment;

2. Locking screw: adjust the height of tooth mold and ultrasonic;

3. Welding tooth mold: used to weld the mask pattern on the ultrasonic vibrator;

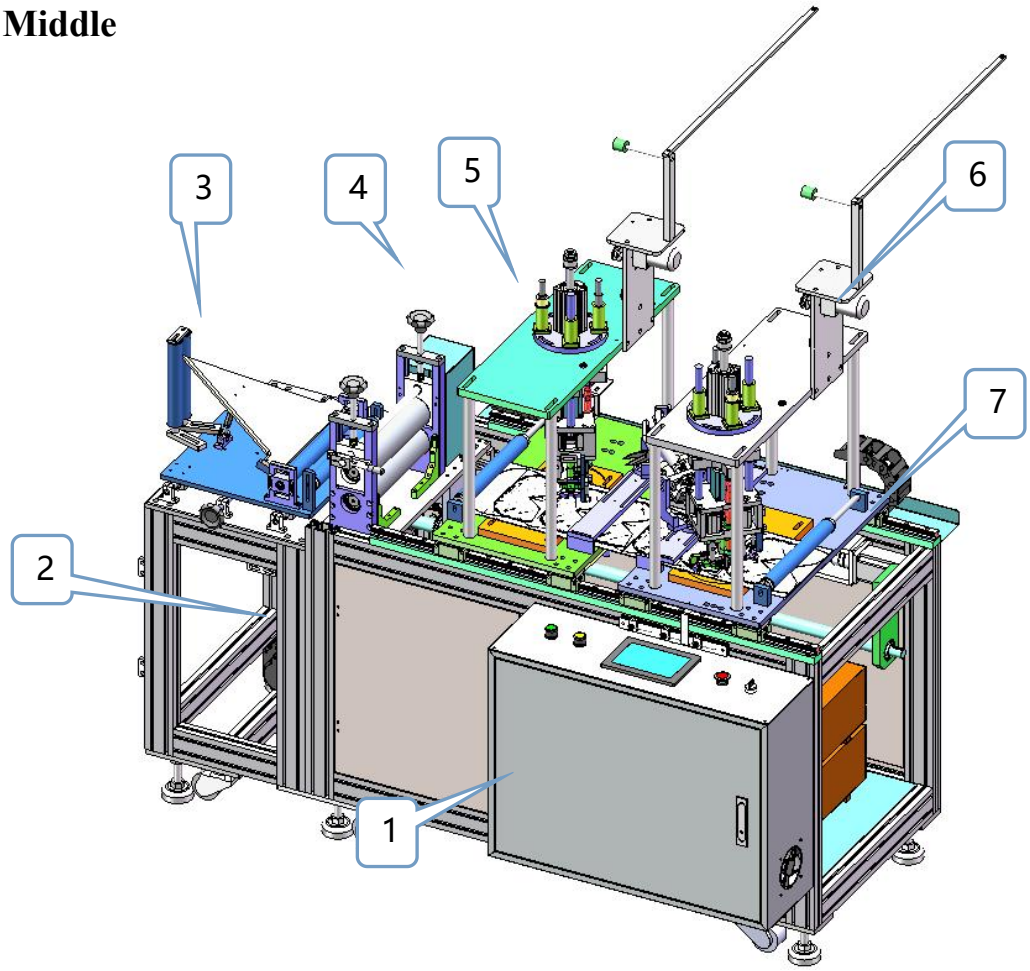
4. Tooth mold ultrasonic: High-frequency vibration that occurs when contacting the tooth mold is converted into heat, thereby welding the cloth;

2.2.6 Pulling mechanism：



1. Pulling roller: pulling the fabric
2. Adjusting handle: turning to disconnect the traction of the cloth;

2.3.1Middle



1. Main servo motor: power source for cloth traction and tooth die cutter;

2.Electric control box: where electrical components are concentrated, non-professionals should not open it;

3. Folding mechanism in half: Fold the fabric in half;

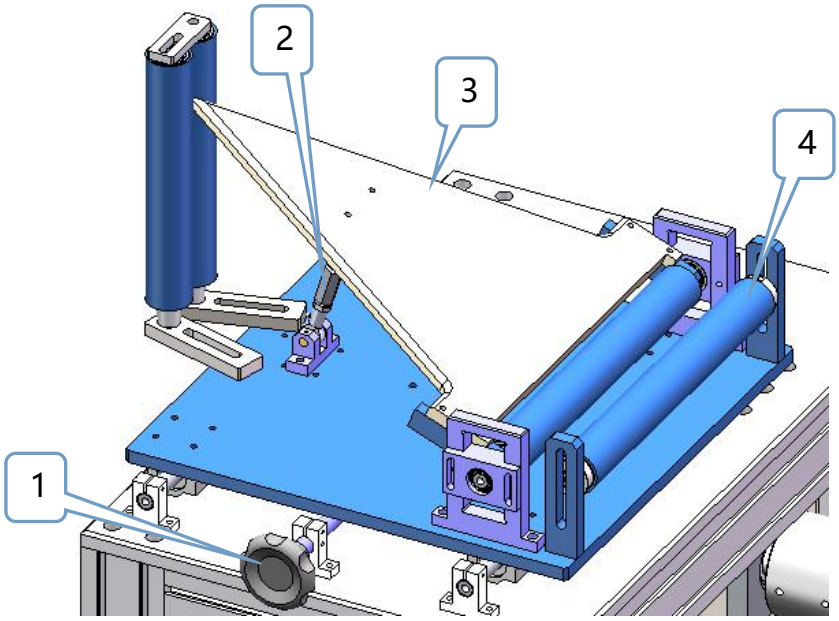
4. Pulling mechanism: pulling the fabric;

5. Right ear strap welding mechanism: Weld the right ear strap on the flat fabric;

6. Left ear strap welding mechanism: Weld the left ear strap of the fabric in the flat state:;

7. Ear band servo motor: the power source of the welding ear band mechanism;

2.3.2 Folding mechanism:



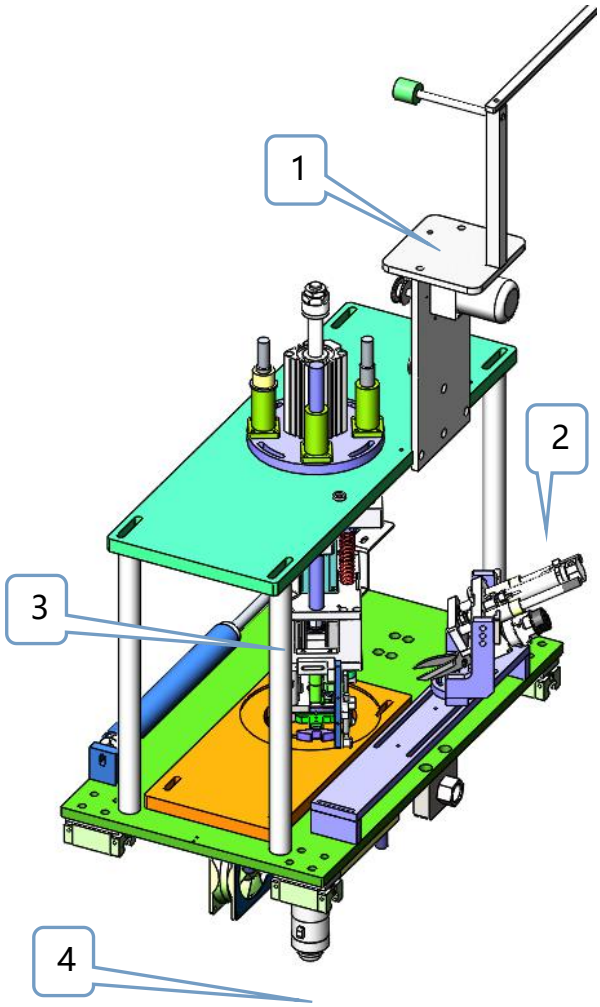
1. Adjust the hand wheel: turn the hand wheel to adjust the center position of the fabric after folding in half;

2. Height adjustment lever: adjust the height of the fabric after folding in half, usually matching the height of the cutter;

3. Triangular plate: the main part of the fabric folded in half;

4. Feeding shaft: to ensure smooth transition of fabric;

2.3.3 Welding ear strap mechanism:



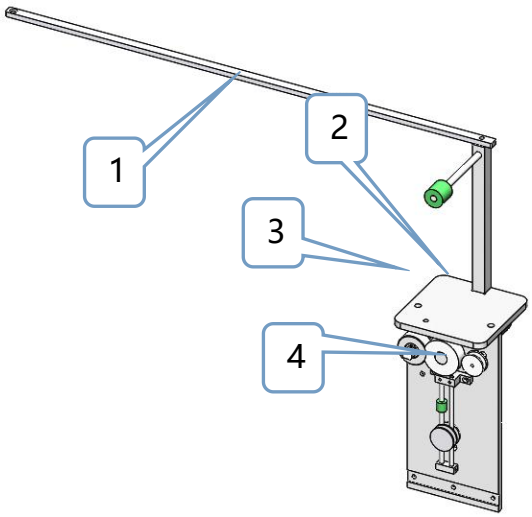
1. Ear line mechanism: conveying ear belt line;

2. Ear line cutting mechanism: cut off the ear line;

3. Rotary pay-off mechanism: control the length of the ear strap line and rotate it to the designated position for welding;

4. Ear wire ultrasonic: Weld the ear strap wire;

2.3.3.1 Ear line mechanism:



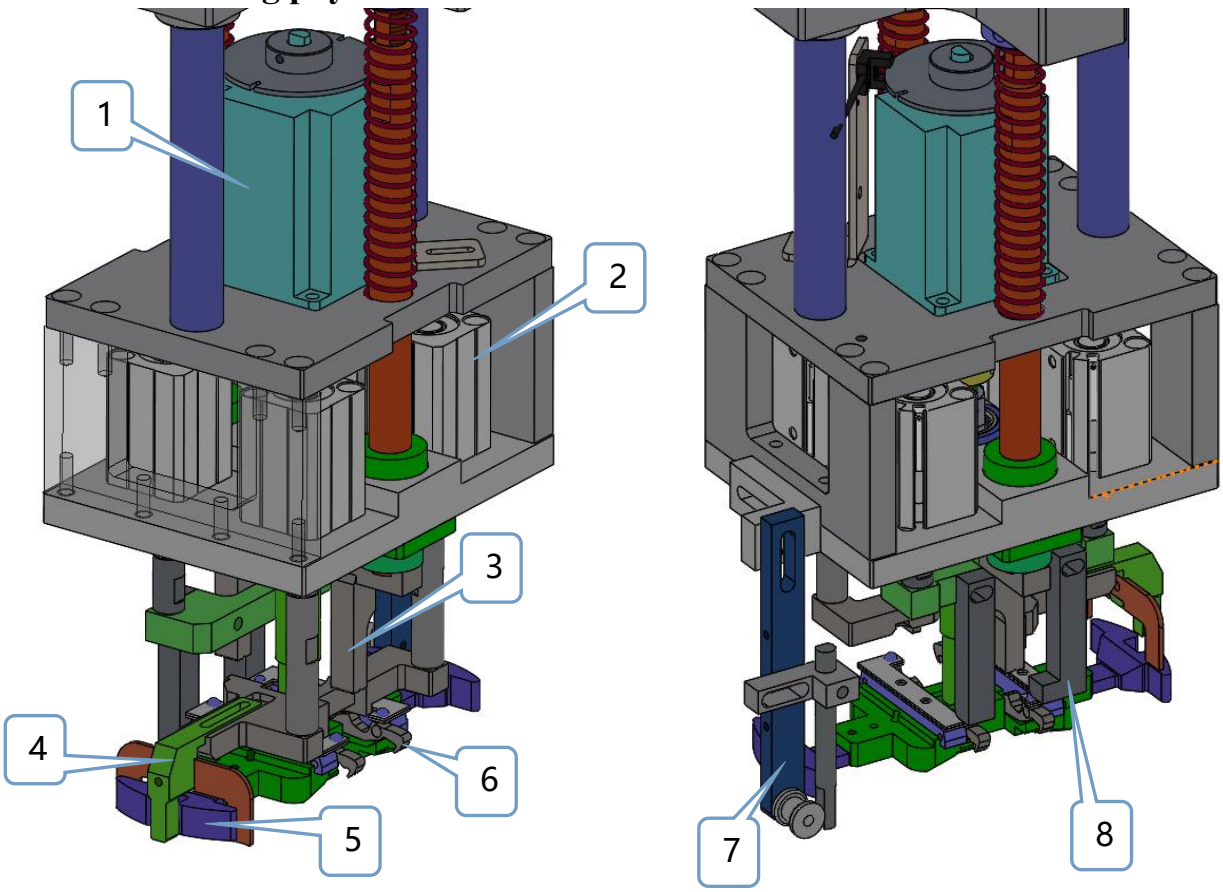
1. Hanging rod: the ear strap line passes through this rod;

2. Feeding driving wheel: when the feeding control wheel leaves the bottom of the slide bar, the ear straps start to feed until the feeding control wheel returns to the bottom of the slide bar;

3. Feeding pressing wheel: pressing the ear strap;

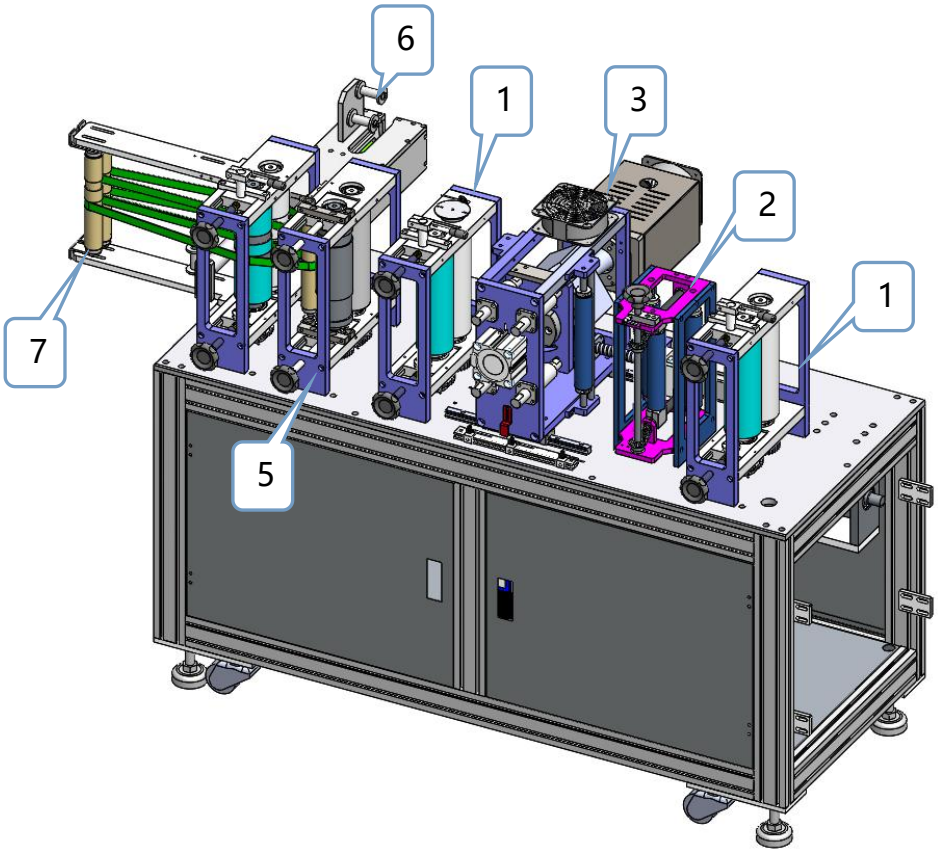
4. Feeding control wheel: control the stop of the feeding driving wheel

2.3.3.2 Rotating pay-off mechanism:



1. Rotating disk motor: the power source of the rotating pay-off mechanism;
2. Thread clamping cylinder: execute jaw opening, jaw closing, and thread off action;
3. Ear strap welding head: Weld the ear wire to the fabric;
4. Off-line pressing block: Take the welded ear line out of the rotating mechanism;
5. Winding block: Rotate and pull out the ear cord, you can adjust it here when you need to adjust the length of the ear cord
6. Crimping claw: clamp the ear line;
7. Ear wire guide wheel: guide the ear wire;
8. Claw pressing block: the cylinder presses down to close the pressing claw to clamp the ear wire;

2.4.1 Back section：



1. Pulling mechanism: pulling the fabric;

2. Cloth adjustment mechanism: adjust the hand wheel to control the front and back position of the fabric;

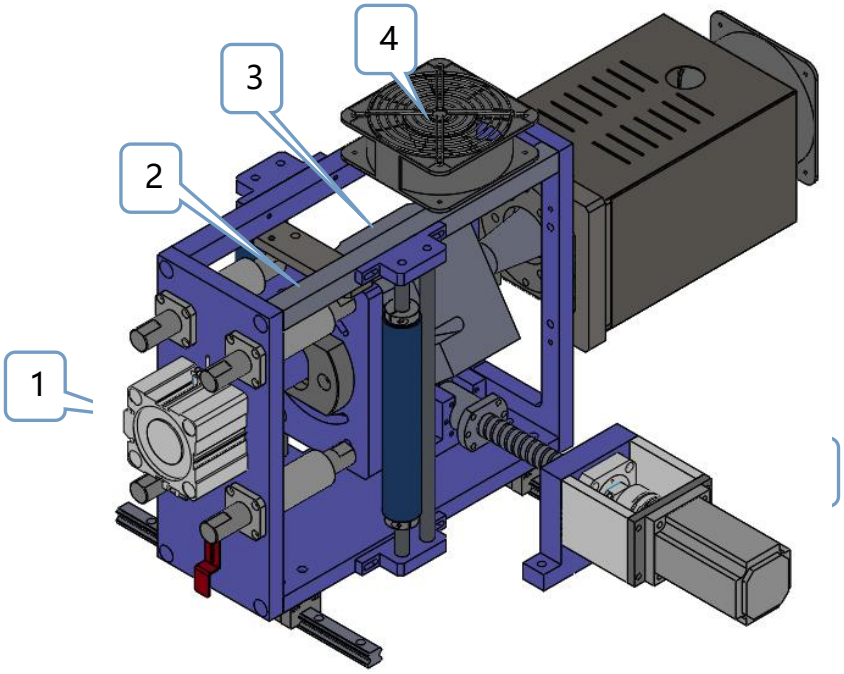
3. Edge sealing and welding mechanism: edge sealing and welding of the folded fabric;

4. Roll-cutting mechanism: roll-cut the fabric to finally get a shaped mask;

5. Waste collection mechanism: collect the waste after roll cutting;

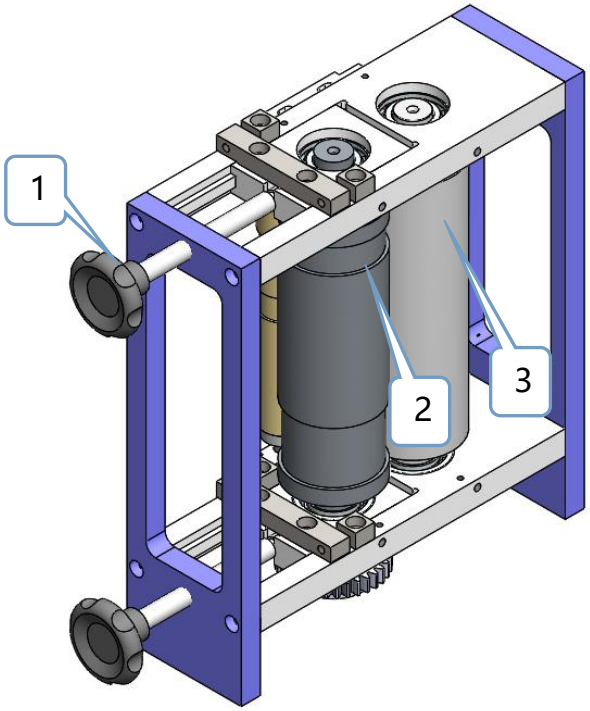
6. Discharge mechanism: the finished mask flows out at this position;

2.4.2 Edge welding mechanism：



1. Edge banding cylinder: perform edge banding and welding action;
2. Edge banding block: Weld the edge banding pattern to the fabric;
3. Edge banding ultrasonic: welding after touching the edge banding block;
4. Cooling fan: heat dissipation of ultrasonic;
5.Edge banding servo motor: the power source of edge banding and welding mechanism;

2.4.3 Roll cutting mechanism：

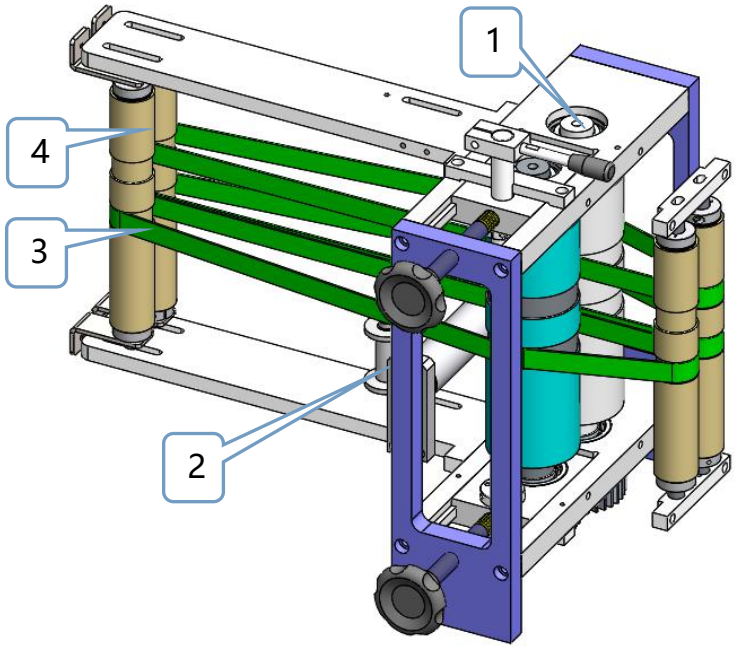


1. Compression hand wheel: used to compress the cutter and the knife pillow, when the cutting is not cut, the locking and compression hand wheel can increase the cutting pressure of the cutter;

2. Roller cutter: used for roll-cutting the outer frame of the mask and used as mold consumables;

3. Knife pillow: support the driving roller, the basic table surface for mask forming roller cutting;

2.4.4 Discharge mechanism：



1. Conveying roller: convey the finished mask out;

2. Waste transition roller: waste materials fall off automatically in this mechanism and flow into the waste collection mechanism;

3. Guide belt: clamp the finished mask and flow it out;

4. Guide roller: the adjustment screw can control the tension of the belt;

III. Electrical parts：

1. Principle of Electronic Control

Debug the position of each mechanism according to the shape of the mask, and use the built-in electronic cam program of the PLC to control the servo motor of the ear band and edge banding to complete the chase cutting action, so as to realize the welding positioning of the ear band and edge banding.

2. Specifications of main electrical components

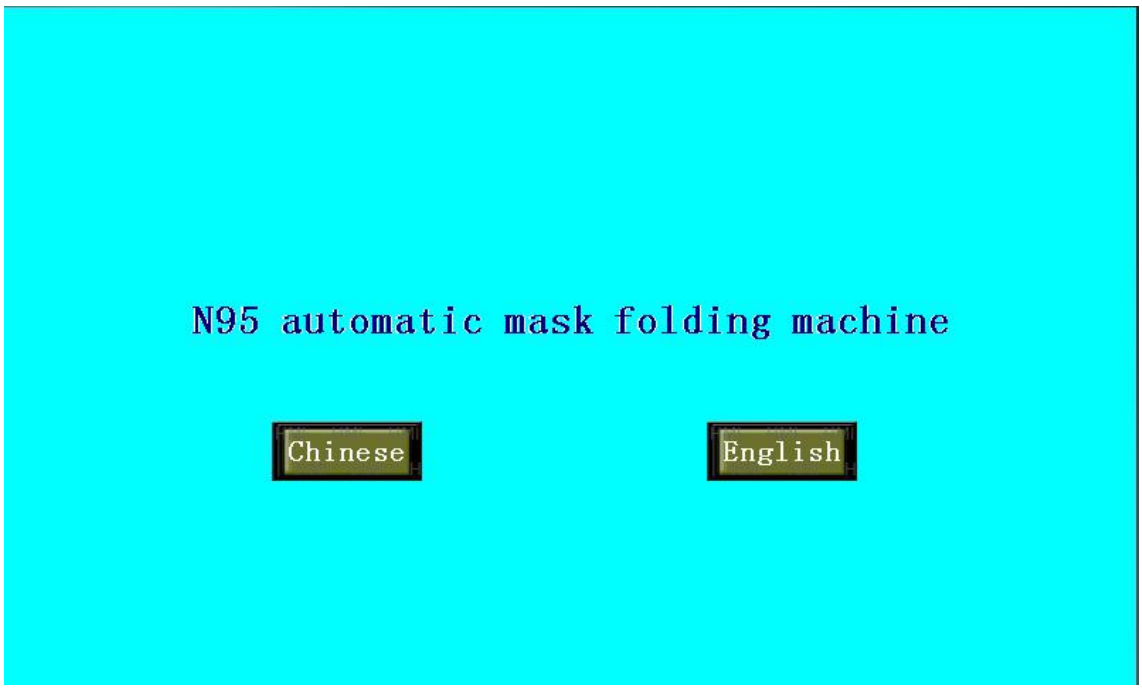
Items	Specifications	Size
1	Power	12KW
2	Operating Power Source	AC220V，1ψ，50/60HZ
3	Driving Force	Servo Motor 750W－2Set Servo Motor 1000W－1 Set
		Ultrasonic 2600W-2 Sets 2000W-2 Sets

3. Touch screen operation

Before powering on, air should be supplied first to check whether each cylinder is damaged. If it is normal, then power on. Open the electric box and turn the circuit breaker to the on position.

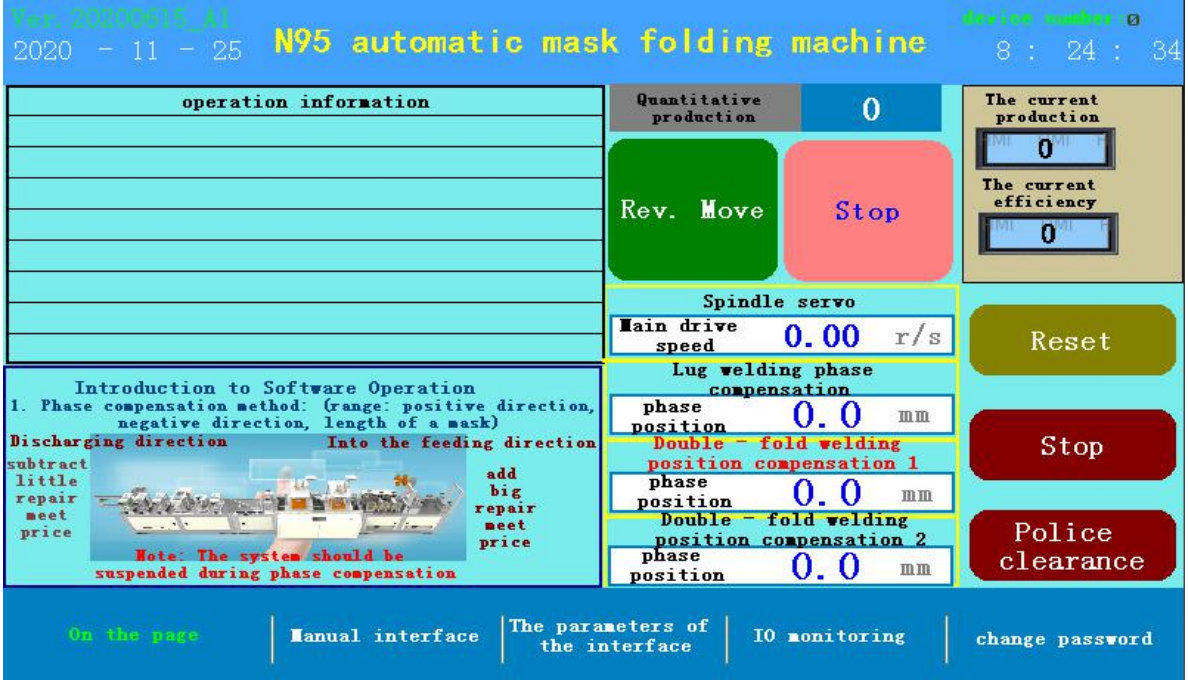
Turn the power switch knob on the operation panel, the system starts to start.

After the system is started, the following interface appears on the touch screen.



Click any area of the touch screen to pop up the power-on password input window, after the input is completed, you will enter the main touch screen page.

3.1 Main interface:



The top level of the main interface is the prompt area, and the upper left corner is the operation information prompt area.

When the machine is turned on and there is no alarm, click "Start" to start the operation of each organization for automatic production;

Click "Pause" to suspend production, and click "Start" again to resume production;

Click "Initialize" and all institutions will return to the original point;

Click "Stop" to stop production;

Click "Main Drive Speed" to set the equipment operating speed;

"Phase compensation" is to set the starting position of the two servo motors for ear straps and half-folding relative to the position of the cloth. When the compensation value of the corresponding mechanism is increased, the starting point of the follow-up shear will move forward, that is, the cloth will move relatively backward;

When reducing the compensation value of the corresponding mechanism, the starting point of the follow-up shear will move backward, that is, the cloth will move forward relatively;

Note: Under normal circumstances, the "Folding Welding Position Compensation 2" parameter should not be adjusted.

3.2 Manual interface:

Click "Manual Interface" to enter the manual debugging interface

The individual actions of each organization can be debugged under this interface, non-professionals should not operate!

Ear melting cylinder: Click to start the action of the corresponding cylinder;
Claw opening cylinder: Click to start the action of the corresponding cylinder;
Claw cylinder: Click to start the action of the corresponding cylinder;
Scissor cylinder: Click to start the action of the corresponding cylinder;
Next station: Click to complete a cycle of the corresponding rotary pay-off mechanism;
Ultrasonic start: click to start the corresponding ultrasonic;
Current location: display the location information of the corresponding organization;
Manual speed: click to set the speed when the corresponding mechanism is manually debugged
Return to zero: Click to return to the origin of the corresponding organization;
JOG-: Press and hold the corresponding mechanism or fabric to move backward (right), release to stop;
JOG+: Press and hold the corresponding mechanism or fabric to move forward (left), release to stop;
In the function selection item, click the corresponding button to enable/disable the corresponding function.

3.3 Parameter interface:

Click "Parameter Interface" to enter the parameter setting interface

The detailed actions of each organization can be set under this interface, non-professionals should not operate!

Ear melt cylinder arrival delay: click to set the arrival delay of ear melt cylinder;

Scissor cylinder arrival delay: click to set the arrival delay of the scissors cylinder;

Pressure holding time: click to set the pressure time of the cylinder of the corresponding mechanism;

Welding time: click to set the ultrasonic welding time of the corresponding mechanism;

Protection time: Click to set the protection time when the ultrasonic is turned on;

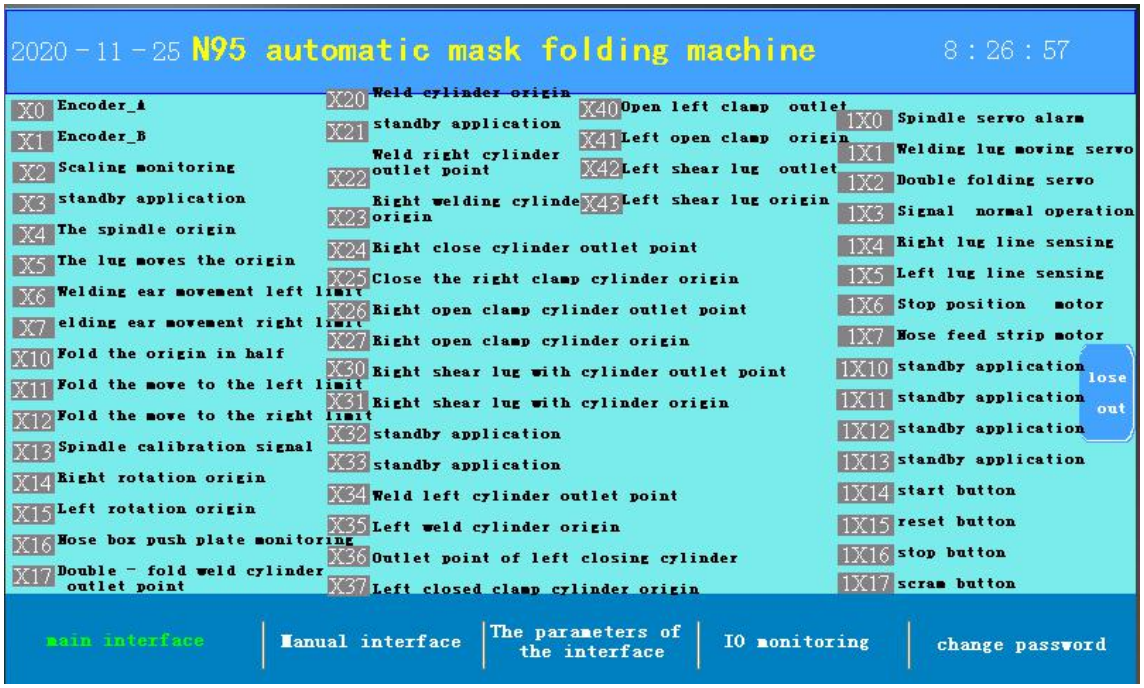
Manual speed: click to set the speed of manual debugging of the corresponding mechanism;

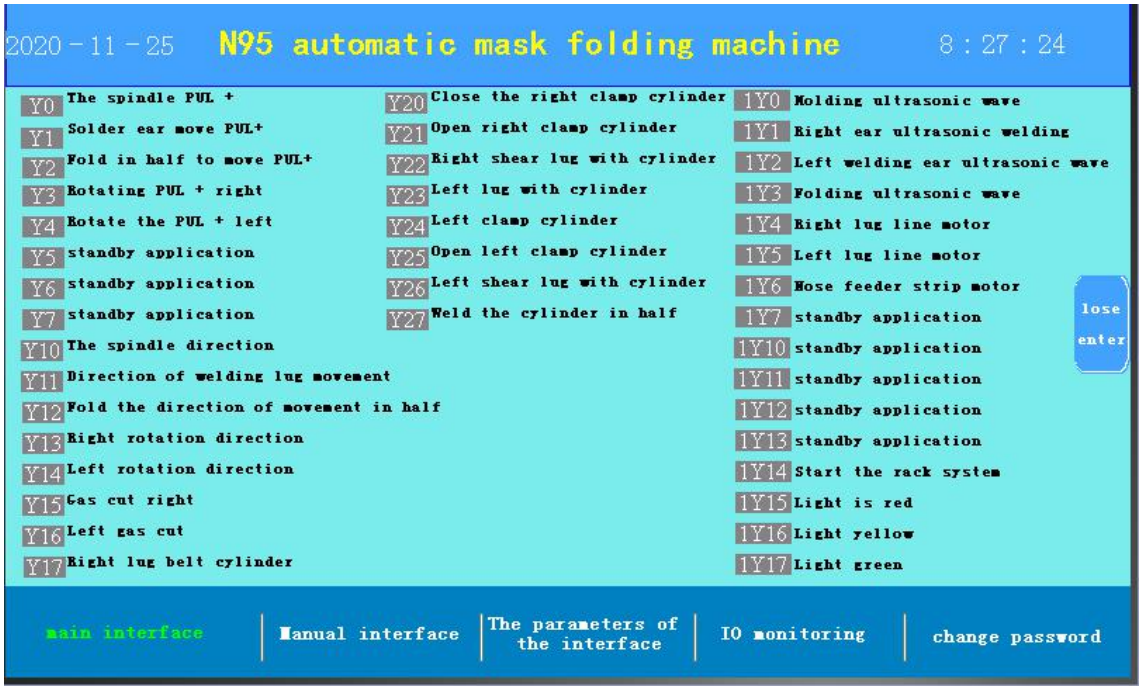
Automatic speed: click to set the speed under the automatic production state of the corresponding organization;

Station pulse: Click to set the number of pulses that the corresponding motor travels once, that is, the distance.

3.4 IO detection:

Click "IO detection" to enter the IO detection interface

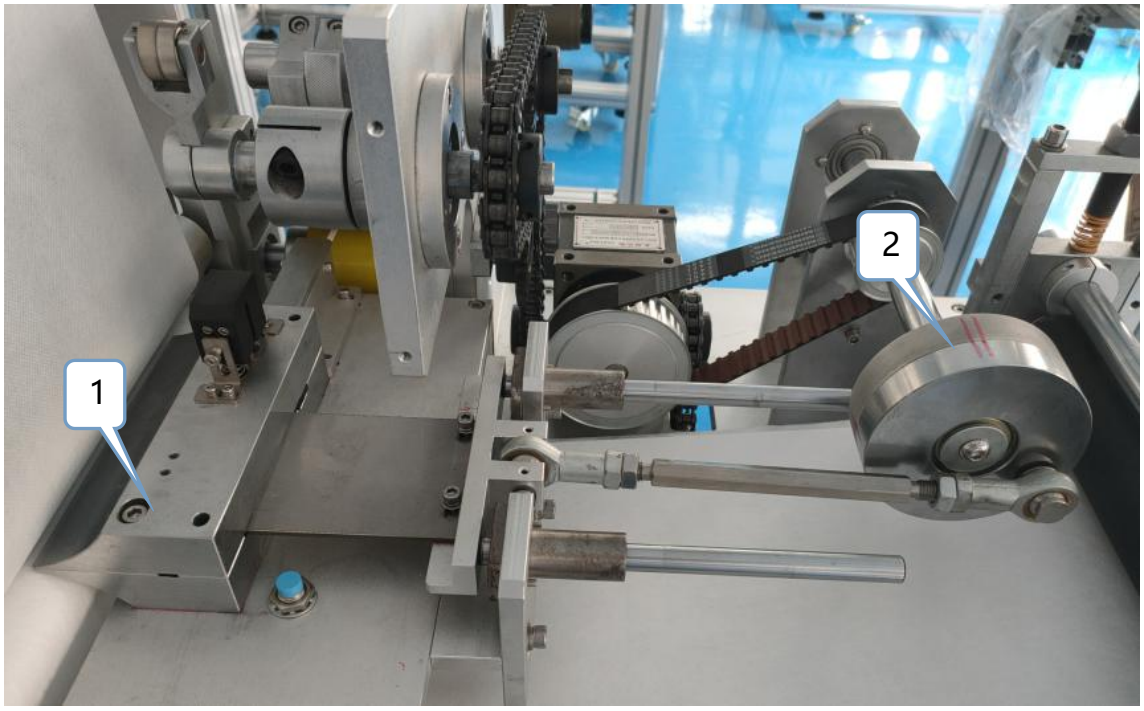




Under this interface, the input and output status of each sensor can be monitored for troubleshooting.

IV. Common troubleshooting

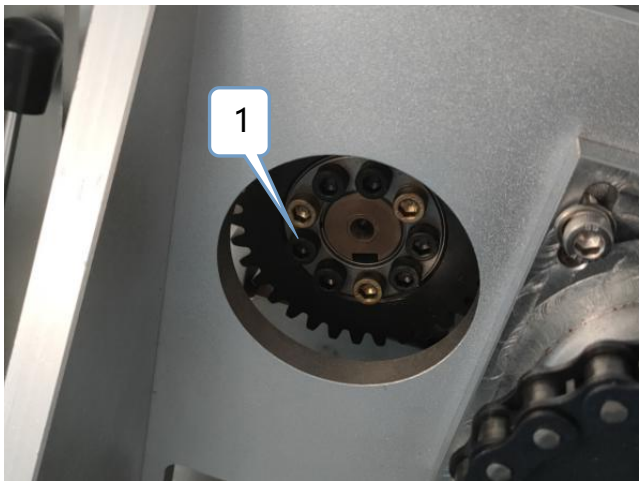
4.1 Nose bridge box jam, connecting shaft does not rotate:



Check whether the nose bridge is not cut off and stuck in the nose bridge box. If it is to rotate the 2 soft connection, loosen the 1 fixing screw, remove the entire nose bridge box, after cleaning it, fix it according to the drawing position, and turn the scale on the 2 soft connection back to the same.

The connecting shaft does not rotate: check whether the divider is damaged.

4.2The bridge of the nose is not right:



Open the protective cover, loosen the screws at the 1 expansion sleeve, turn the welding gear mold to a suitable position and lock the screws to complete the alignment. If there is a slight error, the screw of the push plate mechanism can be adjusted to complete the alignment.

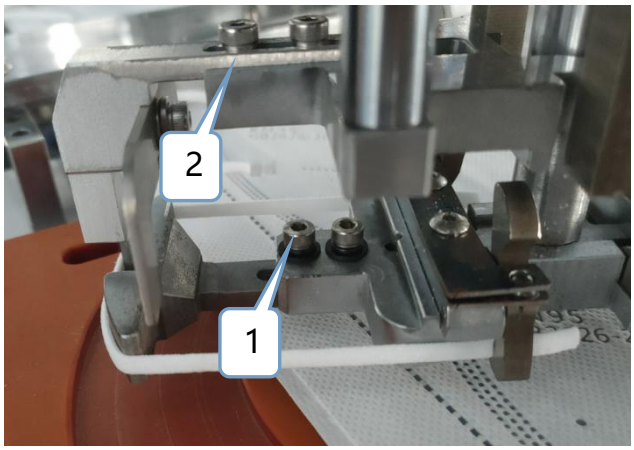
4.3 Tooth mold welding effect is not good:

Pay attention to check the height of the vibrator die, whether it is higher than the mold or in direct contact with the welding gear mold, if there is contact, you need to reduce the height of the vibrator. Under normal circumstances, the height gap between the vibrator die and the welding tooth die is about 0.05-0.7mm. If the gap is too small, it is easy to cause direct contact between the vibrator and the mold, and cause ultrasonic and vibrator damage. If the gap is too large, the welding effect will be unsatisfactory, and the machine speed will not be effective if the machine speed is too fast.

4.4 Servo motor alarm:

Check and confirm the alarm servo motor, check whether the alarm motor connection unit is obstructed by hard objects, etc. After the obstacle is removed, power off and restart, and the motor resumes normal operation.

4.5 Ear strap length:

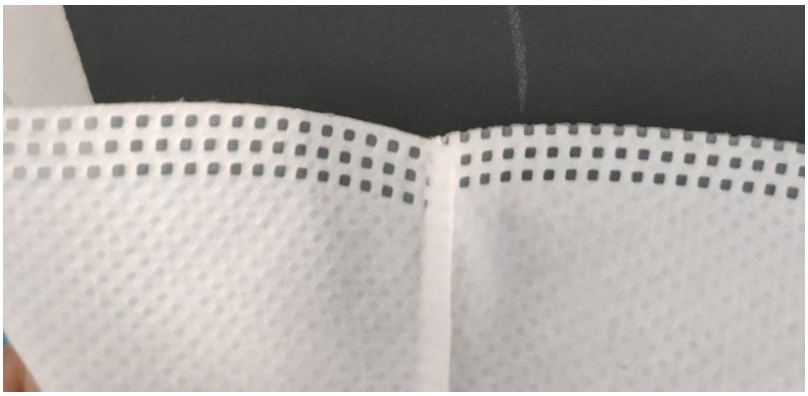


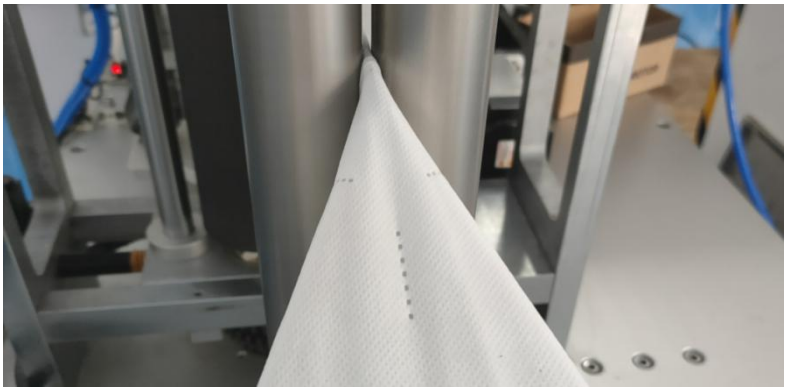
Loosen the screws of 1 winding block and 2 off-line pressing block, adjust to a suitable distance, and fix the screws

4.6 Ear band welding is not good:

Check the distance between the welding head and the vibrator, adjust the welding time and holding pressure time.

4.7 Asymmetrical cut edges of the mask:





Check whether the double fold line of the fabric folded in half at the triangle board coincides with the center positioning point, and the center position after double folding can be controlled by adjusting the hand wheel.

4.8 The roller cutter is not in position:

Loosen the cutter and press the hand wheel, turn the roller cutter to the proper position, and lock the hand wheel. If there is any deviation, turn the hand wheel at the fabric adjustment mechanism. When the batching edge is too large, rotate it counterclockwise, otherwise clockwise Spin. After the cutter position is aligned, the welding compensation is set through the touch screen to complete the edge banding.

4.9 Ultrasonic non-wave fault:

Check whether the ultrasonic host cabinet has current output. If there is a current output, it means that the vibrator is faulty and needs to be reinstalled or replaced, or increase the output current for testing, and further check the problem. If there is no change in the ammeter of the main cabinet, and there is a light flashing in the cabinet, it proves that the fuse of the main cabinet is burned out and the fuse needs to be replaced. If the above problems are eliminated, the ultrasonic or vibrator needs to be replaced.

V. Maintenance and wearing parts

5.1 Daily maintenance

Chains and gears should be checked 1-2 times a week for looseness. To ensure the smooth progress of each action.

A. The drive chain and the injection belt should be tight and not loose. If there is any change, the movable position should be adjusted immediately

B. The surfaces of chains and gears should be greased.

C. Whether the sprocket is loose and shifted

D. The relays in the electric control box should not be loose and in good contact

E. Ultrasonic wave should have no abnormal sound (such as screams, etc.)

F. The cooling fan at the rear of the ultrasonic box should operate normally, and the fans at both ends of the vibrator should operate normally.

G. The adjusting bolts for longitudinal welding and transverse welding should be tightened without looseness.

If any abnormality is found in the machine, the operator should immediately stop production and inform the relevant person in charge for correct handling.

5.2 Fragile parts

All electrical and mechanical components have their own life span.

This machine is designed according to the working standard of 8 hours a day and 5 days a week, and its normal service life is more than one year.

If the working hours per day exceed 8 hours, the life of electrical appliances and some mechanical parts will be shortened. At this time, parts must be replaced to maintain the normal operation of the machine.

VI. other

6.1 Ultrasonic Check

Only when the ultrasonic frequency reaches "resonance" can the best welding effect be achieved and the service life extended

▲ "Resonance" refers to the consistency and uniformity of the sound wave from the electronic box to the vibrator to the welding head.

▲Ultrasonic detection must be carried out under "no load" conditions. "No load" means that nothing is placed on the welding head.

Checking Procedures:

6.1.1 Turn on the power switch.

6.1.2 Open the small door on the right side of the electronic box (there are band switches and frequency adjustment screws inside).

6.1.3 Loosen the butterfly nut of the "frequency adjustment screw" for rotation.

6.1.4 Press the "CHECK" button of the electronic box with the left hand, and rotate the frequency adjustment screw clockwise with the right hand at the same time, observe the "current meter", the pointer:

Case 1: If the pointer moves down, continue to slowly rotate clockwise, the pointer will drop to the lowest point and then suddenly rise, this lowest point is the "resonance point".

Case 2: If the pointer moves up, turn the "frequency adjustment screw" counterclockwise to move it down, and then continue to slowly rotate counterclockwise. After the pointer drops to the lowest point, it will suddenly rise. This lowest point is the "resonance point".

5.3.5 After finding the "resonance point", then "frequency adjustment screw" to tighten the butterfly screw cap.

6.2 Regular Check of the Horn：

If there are wear dents on the surface of HORN, which results in poor processing of the workpiece, the surface must be disassembled and ground.

Every time HORN is removed and ground, its amplitude output and hardness will decrease, which is a normal characteristic.

The surface of the newly produced HORN can be polished cumulatively by 0.5mm. After that, the life span is reached due to changes in frequency and hardened layer That is, a new HORN needs to be replaced.

When the electronic box vibrates, touch the surface of HORN with your hand to find that no vibration waves are emitted (note: do not press hard, please touch)

Or when there is a special abnormal sound, or overheating, it means that the steel HORN is abnormal and cannot work normally. Please notify our company to check, otherwise the vibration system will be damaged due to the abnormal output of the ultrasonic wave.