YZDQ-D95 High Speed Nail Making Machine Operating Instruction

Nail length: 25-95mm

Straight diameter: 1.8-3.8mm

Maximum nail making speed: 860 pieces/min

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Contents

1. Safety Warning

The machine is equipped with some safety devices to prevent the operator and equipment from injury and damage. The operator should thoroughly understand the contents of various safety signs and the following provisions before working on the machine.

1.1 Requirements for machine operation and maintenance personnel

• The operator of the machine should be trained and qualified to operate the machine.
The operator should read this manual carefully and fully understand the manual before operating the machine
Have the ability to operate the machine before operation.
• Before operation, please wear overalls according to safety Instructions.
•Maintenance personnel should be undertaken by qualified or professional maintenance personnel to avoid accidents.

1.2 Basic Operations

Danger:
• Please do not touch transformers, motors and high-voltage terminals to avoid the risk of electric shock.
• Never touch the switch with wet hands, otherwise it may cause electric shock.
Warning:
Be sure not to make mistakes before using the switch.
Note:
• Have enough work space to avoid creating hazards.
• Separate grounding cables should be used and the length should be as short as possible.
•The operator should be very familiar with the location of the emergency stop button switch, so that when needed, it will be pressed without looking for it
• When the machine fails or is in a crisis state, press the emergency stop button first, and then turn off the main power supply
Switch; No power until the fault is rectified.
• Turn off the main power switch immediately in case of power failure.
• Water or oil can cause the ground to slip and become dangerous. To prevent accidents, the working surface should be kept clean Dry.
• Do not stain, scratch or remove the warning sign. If the writing on the sign has become blurred or blurred
If the sign is damaged or illegible, you should order a new sign from the manufacturer. Mark the piece number of the label when ordering.
• Do not touch the switch.

• Use recommended lubricants and oils or approved oils of equivalent properties.

1.3 Requirements before Power Supply

Danger:
Any cable, cord or conductor with damaged insulation will produce current leakage and electric shock. So, inspect before switching on the power supply.
Note:
• The cable used for the power supply switch and the main line switch for the machine tool must meet the power requirements
• Ensure that the protective connector is securely connected to the PE terminal of the machine tool, not smaller than the cross section of the phase conductor.
• Before connecting the power supply, carefully check whether the electrical system is in good condition and pay attention to whether the motor is damp.
• Fill the tank to the oil mark level. It should be inspected and refilled if necessary.
• Each switch and operating handle should be flexible, smooth and easy to use. Check their movements.
• For lubrication point, type of oil and corresponding oil level, see lubrication label.

1.4 Requirements after power supply is switched on

Note:
• When the machine is used for the first time after unpacking or after a long shutdown, use a new lubricant for each sliding part and lubricate it with lubricating oil.
• Verify whether the rotation direction of the motor is the same as the specified rotation direction.

1.5 Routine Inspection

Danger:
When checking the tightness of the belt, never insert your finger between the belt and the pulley.
Note:
• Check motor, gears and other components for abnormal noise.
• Check the lubrication of each sliding part. When the machine is working, check the working state of the oil pump at the same time
Ensure its normal and effective operation.
• Check that shields and safety protection devices are in good condition.
• Check the tightness of the belt, if the belt wear is too serious should be adjusted and replaced in time.
• Do not place any tools on the flat surface of the machine.
• Handle the iron filings at the belt chip board under the scissors and the dust between the guide rails at the nail die in time.

1.6 Preparations before startup

Warning:
• The cutter should fit the size of the die.
• Excessive tool/die wear can cause damage, so check frequently and replace all severely worn tools/dies in advance.
Replace worn tools/dies.
• Workspaces should be sufficiently bright to facilitate security checks.
• Tools and other objects around the machine tool or equipment should be stored in an orderly manner, with clear spacing and unobstructed access.
• Tools or any other items are not allowed to be placed on feed racks, around transmission bars, on shields or similar items
Position.
• The length of processed nails should be limited to the specified length to prevent interference.
• Carefully check that the electrical system is in good condition before starting to use the machine. Are wiring and plug connections correct?
During transportation, there is no vibration or loose connection. After connecting, check whether the rotation direction of the motor meets the requirements.
• Check the function of all safety protection devices. Such as limit stop, interlocking mechanism.
• Check for foreign objects around the transmission system before starting.
• Evacuate non-operational personnel around the work area.

1.7 operating

Danger:
• Disengage the manual wheel to start;
• When the machine is in operation, do not contact the transmission device.
Warning:
• It is strictly forbidden to clean the nail chips when the machine is running.
• The installation and removal of the tool should be carried out in a stopped state.
• The manual wheel must be disengaged, and the machine is in standby state.
• Please do not allow others to stay in the working area while the machine is in operation.
• Check nail specifications for timely adjustment.

1.8 After completing the work for the day

Note:
• No cleaning before shutdown.
• Reposition all parts of the machine tool.
• Check the belt for damage and tightness, and replace or repair it timely.
• Check the wear of the tool and die. If the wear is serious, please replace it in

time.
• Check the amount of lubricating oil and its pollution level, and add or replace the oil if necessary.
• Remove debris from line mouth to avoid clogging.
• Before going off work or leaving the machine, turn off the main power switch and clean the machine to remove iron filings.
• Blow the inside of the nail die base with an air pump every two to three days to clean up the dust and iron filings.

1.9 Safety Equipment

• Nail chip baffle
The belt covers,
• Emergency stop button switch

1.10 Maintenance Operations

Danger:
• It is dangerous to carry out maintenance on machine tools with live power. In principle, the mainline switch should be in the closed state during maintenance.
Warning:
Electrical maintenance work should be undertaken by personnel familiar with the business. They should keep close contact with the responsible personnel and do not act without authorization
Note:
• Manual wheel, proximity switch and other locking mechanisms should not be removed or modified.
• Cables and other electrical components from qualified manufacturers should be used.
• After the maintenance work is completed, the working environment should be cleaned and arranged, and wipe off water and oil from all components to provide a good production environment.
• All removed parts and waste oil from cleaning should be placed away from the machine to ensure safety, especially
Do not leave wrenches or tools on the machine during operation.

1.11 Ban

• Please do not load and unload parts, troubleshoot, clean up nail chips and other non-standard operations when the machine is running.
• Please do not wear loose clothing, wear accessories that hinder operation, and tie back long hair
Only authorized personnel is allowed to start, operate or repair the machine tool, open the electric box door or touch the internal circuit.

2. overview

2.1 Main uses and scope of application

• This machine is a high speed energy saving nail making equipment, mainly used for the production and processing of high quality pneumatic nail, cement steel nail, paper collated nail and common round nail.
• It is especially suitable for the production and processing of small wire diameter, Clout-Nail and high standard screws in the current market.

2.2 Introduction to performance and structure

The main characteristics of this machine is simple structure, good rigidity, easy to use, low maintenance cost.
• The main shaft of the machine tool is connected with the straight shaft by the synchronous belt which is easy to maintain, easy to adjust and low maintenance cost.
• Scissors and nail die are cam-lever mechanism, swing around the fixed axis, simple and reliable, precision control is stable.
• The nail die is double punch structure, to ensure that the nail cap is concentric, the nail rod and the nail cap diameter ratio is large (the shank diameter is one-third of the head diameter)

2.3 The operating environment of the machine tool

The machine is suitable for use in the actual environment and operating conditions specified below.
• Ambient temperature: -5°C to 40°C , and the average temperature within 24 hours should not exceed 35 ° C.
• Relative humidity: in the range of 30% to 95%, and the principle is that humidity changes should not cause condensation.
• Altitude: below 1000m
• Atmosphere: No excessive dust, acid gas, corrosive gas and salt.
• Avoid direct sunlight or thermal radiation from the machine tool to cause changes in ambient temperature.
• Keep the installation position away from flammable and explosive objects.

2.4 Impact of machine tools on environment

The machine has no adverse impact on the environment, no harmful gas or liquid emissions.

3. Lifting, installation and debugging of machine tools

3.1 Hoisting of machine tools

• Use a crane to lift the machine tool wrapped with stretch film, when pulling and unloading,Avoid impacting the machine's base/sides or causing violent vibration, under no circumstances should excessive tilt the machine, Do not place the machine on conveyor belts or uneven surfaces.

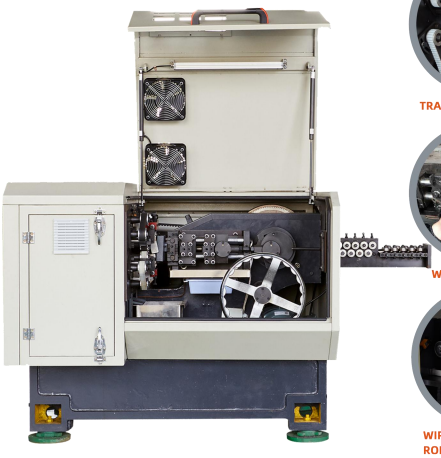
• Check the external condition of the machine before installation, and check whether accessories and tools are complete according to the packing list.
• Machine tools should be lifted to avoid collision, reasonable use of rope, rope is not allowed to be tied to the mechanical part of the extension
Components (especially slider), lifting machine, in order to prevent cable and paint surface direct contact damage machine,
It can be lifted with scraps of cloth or wood blocks.
• The supplied rubber pad iron is used for installation and adjustment on uneven ground. Adjust the pad before use
Keep the iron level before starting the machine.
Note:
• Keep the machine tool in vertical and horizontal balance, so as soon as the machine tool is lifted from the ground
Keep the machine in balance.
• The hoisting Angle of the wire rope shall not be greater than 60°
• Whenever a machine tool is being lifted, as long as it is not performed by one person, signals should be given to each other to work together.

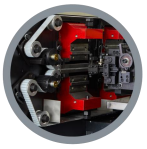
3.2 Installation of machine tools

The installation and commissioning of machine tools need professional personnel to operate. After the completion of installation and commissioning, the following preparations should be made before the commissioning:
• Install the protective covers removed for convenient transportation in place.
• Clean foreign objects from machine tools.
• To prevent rust, the sliding surface of the machine tool and some metal parts have been coated with anti-rust oil. In the transport
Dirt, dust, grit and dirt are likely to enter the rust-proof layer during the process, so before starting the machine
Do some cleaning up.
Check:
• Are there any damaged parts of the machine?
• Are there missing parts or accessories?
• Are machine lubrication parts lubricated?
Commissioning:
After the machine has been installed and the above preparations have been made for the test run, the test run must be conducted with great caution. The trial run is about 1 hour at low speed, and the heavy load test should not be used during the whole trial run

3.3 Appearance picture

HOST MACHINE

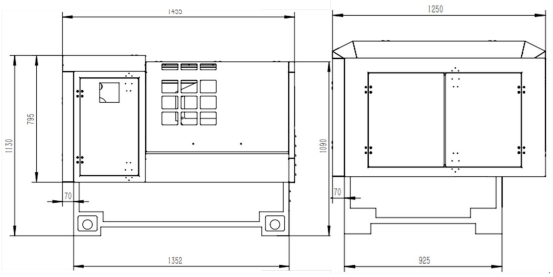




TRANSMISSION BELT

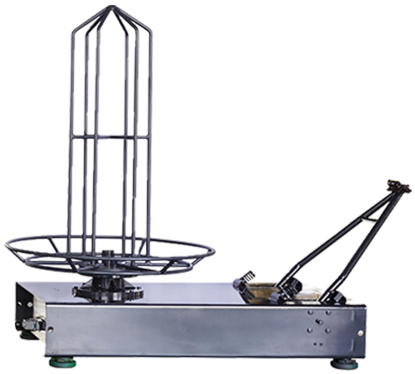
WIRE FEED CLAMP

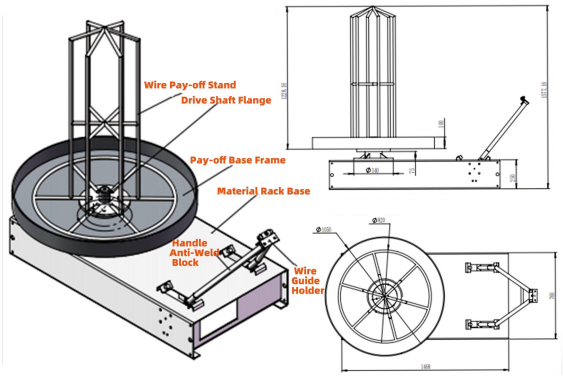
WIRE STRAIGHTENING ROLLER



DIMENSION DRAWING

WIRE PAY-OFF STAND





DETAILED DESCRIPTION

DIMENSION DRAWING

4.Technical specifications and parameters of machine tools

4.1 Main specifications and parameters

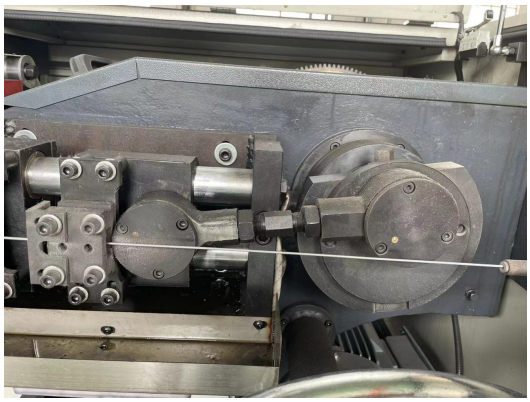
• Nail length range: 25mm-95mm

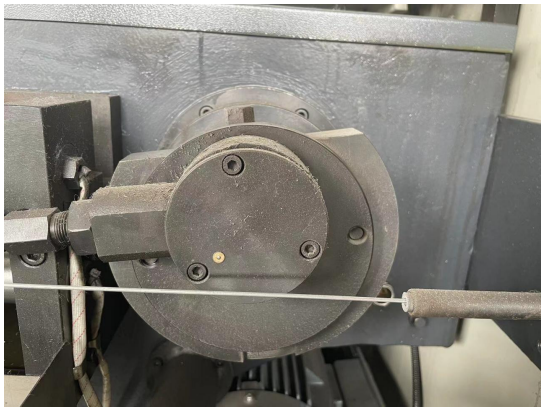
• Maximum nail making speed: 860 pieces/min

• Nail diameter range: 1.8mm to 3.8mm
• Host power: 5.5KW
Wire frame motor power: 1.5KW
Measured total power: less than 4KW
• Machine profile size
Main body size: 1520x1380x1580mm
Machine housing shield size: 1700x1600*1650mm
Wire rack size: 1580x1020x1700mm
Electric box size: 420x700x1050mm
• Driveline belt parameters
Main synchronous belt: HTD14-2562
Nail feeder timing belt: AT5-2000
Splitter timing belt: HTD8-736

5. Maintenance and debugging of machine tools

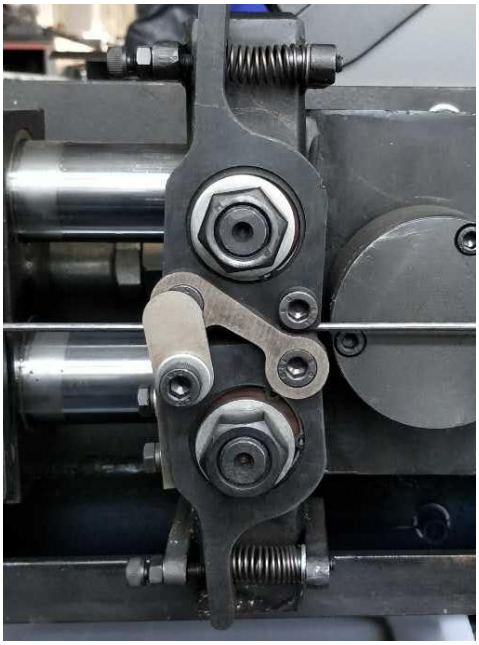
5.1 Adjust the straightening of the wire of the frame





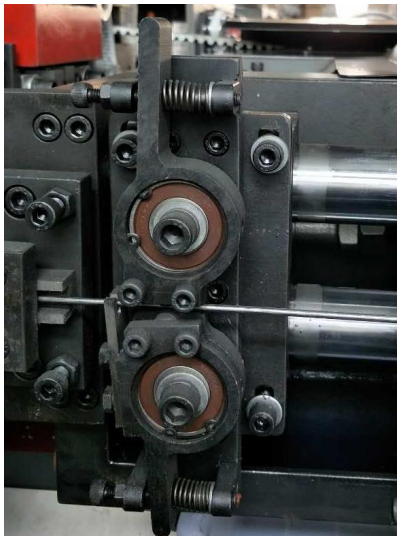
The wire must be straightened before entering the feeding clamp

5.2 Function and adjustment of wire feed clamp



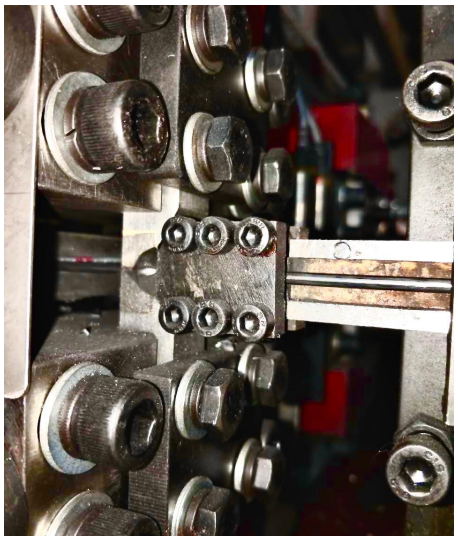
A. Wire feeding clamp mainly plays a role of stabilizing wire feeding;
B. When replacing the specifications, check whether the wire feed clamp can clamp the wire, When it cannot be clamped, adjust the eccentric adjustment sleeves on the two clamping shafts: loosen the screw and rotate until the wire can be firmly clamped;
C. When the length of the nail is lengthened, pay attention to whether the two ends of the slider will touch.

5.3 Function and adjustment of wire withdrawal clamp



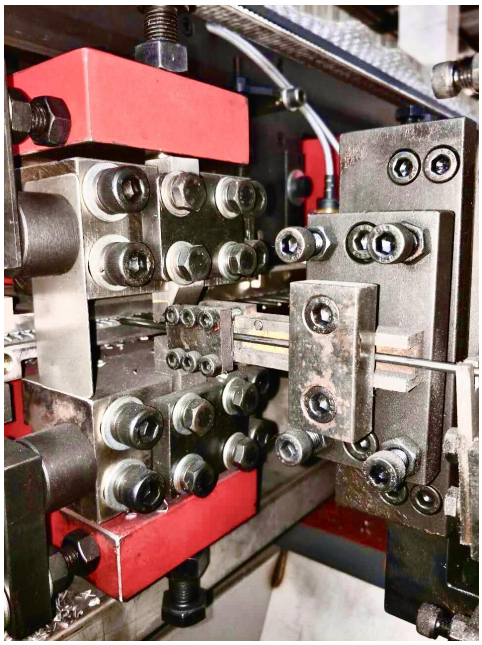
A. The withdrawal clamp can stabilize the length of wire feeding and keep the length
Consistent;
B. Wire withdrawal clamp can remove iron filings from nail tip;
C. Adjust the diameter of the new cable in the same way as that of the wire feed clamp.

5.4 Function and adjustment of wire feed nozzle



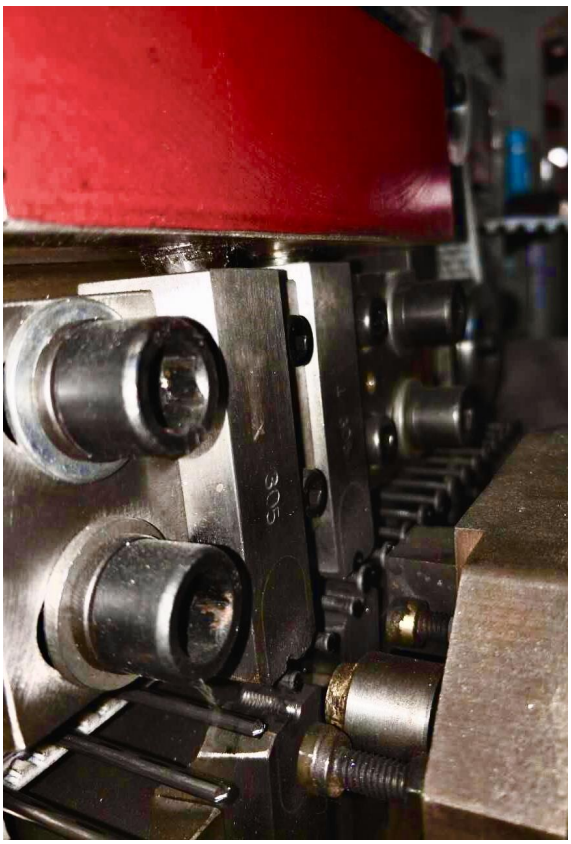
A. Wire feed nozzle is mainly used to stabilize wire feeding and ensure wire
Direction does not deviate;
B. There are six screws in the base of the feed nozzle, the middle two are
Play a tightening role, the outside four main adjust left and right
The role of direction;
C. Adjust the upper, lower, left and right of the inlet nozzle to straighten the wire
When passing through the wire inlet, it is locked at the position of the belt hole

5.5 Scissors and Scissors holder



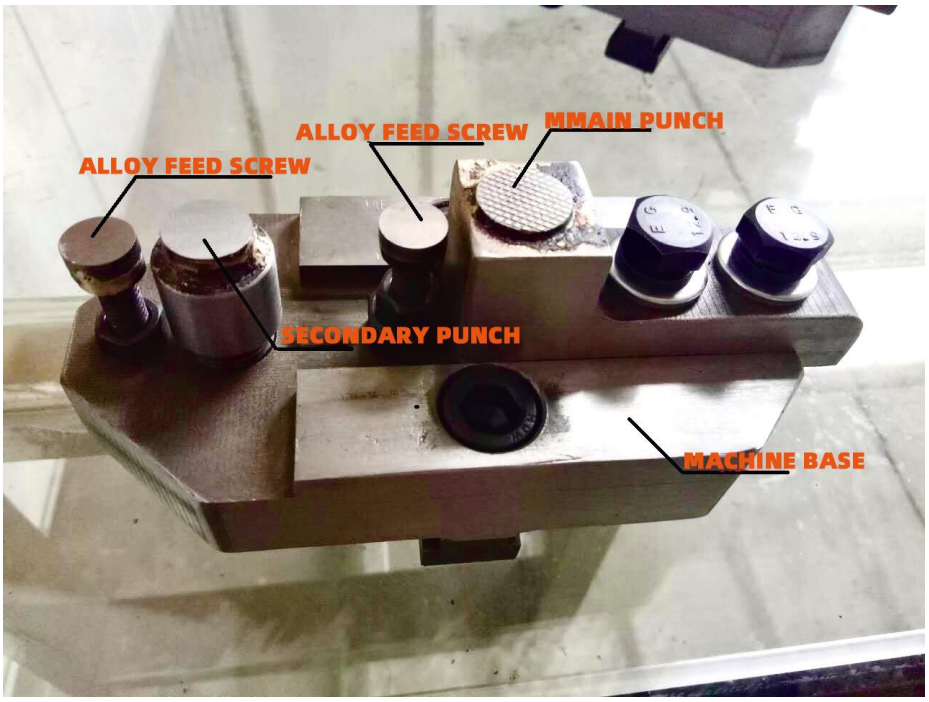
A. the center of the scissors must be aligned with the center of the wire;
B. There must be a gap between the upper edge and the lower edge when the scissors bite;
C, The gap when the scissors bite must be aligned with the upper and lower centers of the wire;
D. All screws on the scissor base must be locked tightly.

5.6 Nail die and nail die base



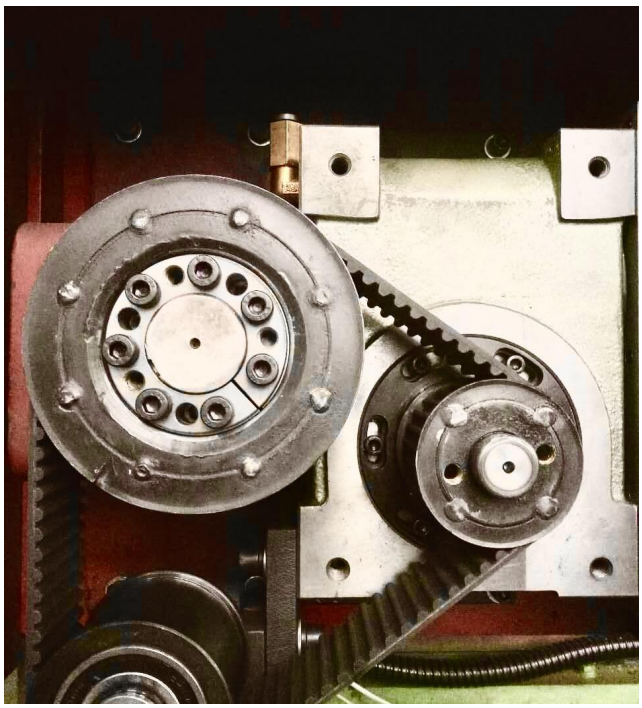
A. The upper and lower heights of the nail die should be adjusted to the middle position of the nail when the nail die opens;
B. The nail die base must not be upside down or replaced;
C. Adjust the nail die left and right to the center position of the nail;
D. All bolts on the nail die base must be locked.

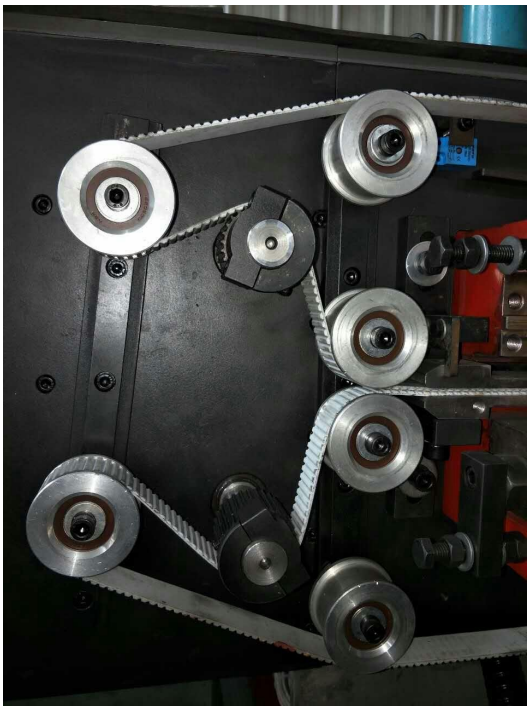
5.7 Punch and Central Guide Pillar



A. the punch is composed of base, main punch, secondary punch and two adjusting alloy screw;
B. The thickness of the main flush cap is adjusted by connecting rod joint nut;
C. The adjustment of the secondary punch is to first raise the main punch to the highest point, then tighten the secondary punch to the highest point and turn it back half a turn to lock it;
D. The role of alloy screw is to adjust the stamping size of nail head.

5.8 Splitter and belt





A. the separator conveyor belt;
B. Replace the synchronous belt to ensure the correct position of the main synchronous belt;
C.Turn the handwheel to engage the scissors. When separating by 2.5 millimeters, keep it stable. Then, turn the input shaft of the divider counterclockwise. Just as the nail feeding belt starts to move, hang the synchronous belt and lock the tensioning wheel on the lower left side of the divider

5.9 Precautions for machine adjustment

A. When we replace the nail die, we should pay attention to that the hole of the main die should be in the middle of the alloy of the punch
The lock;
B. When adjusting the timing belt, send the central guide pillar to the front end (because the action of the timing belt is stopped at this time);
C. To regulate synchronous belt auxiliary axis synchronous wheel nail until die and belt hole alignment (note that we should let the machine run laps after

adjusted the look have misplaced);
D. Ensure that all the preceding steps are correct before adjusting the wire inlet nozzle. The wire inlet nozzle can be adjusted according to the wire diameter Section, the center hole of the wire feed nozzle should be adjusted slowly in the belt hole 360 mm away from the hole of the main die To the wire without deviation into the belt;
E. Adjust the scissors with the position of the wire inlet nozzle. The scissors can move up and down from left to right until the nail tip is aligned;
F. The fork between the scissors and the belt must be installed properly. The method is to send the wire into the belt after the nail tip is adjusted and cut
Knife clamp does not let the wire move, then put the fork to nail rod on a lock can be;
G. When the nail die is changed without replacing the belt, only the nail die hole and the belt hole need to be aligned, as long as the nail head is in
The punch alloy can be properly adjusted around;
H. If the nails between the two nail dies are bent: (1) The left and right deviation is that the nail dies are not aligned with the synchronous belt,
Adjustment method is: left and right adjustment nail die base; (2) The upper and lower deviation is not in the center of the nail die, the adjustment method is:
The nail upward deviation will be two clamping die overall upward, downward deviation will be overall downward, until the nail rod is not
Lock adjusting screw until bending.

6. Lubrication system

• The service life of the machine tool is greatly related to the timely and correct lubrication of each mechanism, Therefore, it is very important to check whether the oil pump is working correctly and effectively in time..
• The oil used for lubrication should be clean, free of acid, water and hard particles. Refined mineral oil is recommended.
• • The lubrication of the slider and CAM is fixed and fixed by the automatic oil pump.
• 6-8L of 46# oil should be added to the crankcase of the machine tool, the oil level is determined when it exceeds the oil level gauge.

7.Electrical system

The power supply of the electrical system of the machine is 380V, 50HZ three-phase power supply (allowable voltage 10%, frequency 2%Hz change). The power cord of the machine tool must have grounding wire. connect the three-phase power input cable to the wiring terminals L1, L2, L3, PE.
Inspection and maintenance of machine tools

8.Inspection and maintenance of machine tools

The maintenance of machine tools is the daily work that must be carried out to keep machine tools in good condition, prolong service life and improve production efficiency.

8.1 Routine Inspection

Routine inspection and maintenance should be carried out after 500 hours of operation. generally, it should be mainly carried out by the operators, with the cooperation of maintenance personnel,The power supply must be cut off before checking.

NO.	Inspection area	Check the project
1	Electrical system	Emergency stop button is sensitive and reliable; Whether the motor runs normally, there is abnormal heating phenomenon; Whether wires and cables are damaged; Limit switch, button function is normal, reliable action;
2	Control system	Pull out the manual wheel before normal startup;
3	Lubrication system	Whether the oil pump works properly Whether the liquid level of the oil pump meets the requirements; Each lubrication point is reasonable lubrication; The quality of lubricating oil is qualified;
4	transmission system	Belt tension is appropriate; Whether there are cracks on the surface; Whether the pulley is running normally;

8.2 Periodic Check

After the machine tool has been running for a certain period of time, wear occurs due to the parts in contact with each other. Its working performance is gradually affected. At this time, the machine tool should be inspected and adjusted regularly. Regular inspections should generally be carried out by the operators under the guidance of maintenance personnel

The maintenance cycle can be carried out by referring to this table, or centralized inspection and maintenance can be carried out after 500 hours of machine operation.

NO.	Inspection area	Inspection and maintenance	Check interval
1	Nail die base	Check whether all the screws on the nail die base are loose	Each class to check
2	Electrical devices	Check and tighten the wiring screws Checking grounding Device Interlocking of moving parts	3 months
3	Lubrication system	Check the oil pump Check whether the oil line is smooth and the oil hole is clean Check the oil	Every week
4	The belt	Appearance check, tightness check Clean the pulley and see if there are cracks	timely
Note: The interval is determined on the premise of two shifts unless otherwise noted			

9.Common faults and solutions

Fault Phenomenon	Cause Analysis	Solutions
1. Nails of inconsistent lengths	① Nail knife is dull, with serious burrs	① Replace the nail knife
	② The gap on the tooth surface of the wire - feeding clamp, the 6mm adjusting bolt is tightened	② Adjust the 6mm screw on the upper side
	③ The slope of the retracting clamp is too large; the square alloy is worn	③ Check and replace
	④ The material rack is not smooth	④ Organize the material rack

	⑤ The inlet nozzle is blocked with dust	⑤ Clean the inlet nozzle
	⑥ The secondary punch has pits and is uneven	⑥ Remove the punch and grind it
2. Flattened nail shanks	① The belt is misaligned	① Adjust the belt slider
	② The groove of the nail die ring is not chamfered	② Check frequently and adjust in time
	③ The wire is bent and not corrected	③ -
	④ The upper guide pin is too tight, pressing the belt	④ Loosen the screw, move the guide rail upward to leave a gap for the belt
3. Nail heads of different sizes	① Thermal expansion and contraction	① -
	② The auxiliary punch has pits and is uneven	② Remove the punch and grind it
	③ The scissor edge is dull, with serious burrs	③ Replace the scissors
4. Non - round nail heads	① The nail die is damaged	① Replace the nail die
	② The clamping gap of the nail die is large	② Repair the nail die
	③ The mesh angle is incorrect	③ Re - repair the mesh
	④ The nail head is smooth, file and trim the nail die	④ -

5. Nail heads with steps	① Non - round nail heads →	① -
	② Moderate (unclear what this specifically refers to, seems incomplete in context) →	② -
	④ Double nail heads →	④ Adjust the secondary punch to make the nail head of the sub - die round and full
6. Obvious bending at the clamping point of the nail shank	The belt is not aligned with the center of the nail die	Adjust in time and check frequently
7. Machine stops	① Lack of wire →	① Re - thread the wire
	② Wire knotting →	② Organize the wire
	③ Lack of nails →	③ Check the wire - feeding clamp, jog the probe and then press the start button
	④ Blocked nails →	④ Check the nail bucket
	⑤ Inverter protection →	⑤ Press the STOP key at the lower right corner of the inverter
	⑥ Overheat protection of the wire - feeding slider →	⑥ The oil pump lacks oil, add oil in time
	⑦ The light in the electrical cabinet is on but the motor doesn't rotate →	⑦ The punch is against the nail, turn the handwheel to rotate the punch over the highest point
8. Machine fails to start	The handwheel is not pulled out, electrical protection	Pull out the handwheel

10. The attachment

1. One set of hexagon socket wrenches, and one 6mm special-purpose wrench and one 8mm special-purpose wrench respectively.
2. One open-end wrench each of the specifications 8-10, 16-18, and 22-24.
3. One Phillips screwdriver, one flathead screwdriver, and one ordinary screwdriver respectively.
4. One pair of pointed-nose pliers.
5. One nail receiving and trimming bucket (used for the nail making machine).

SPEEDNAIL

HIGH SPEED NAIL MACHINE MANUFACTURER