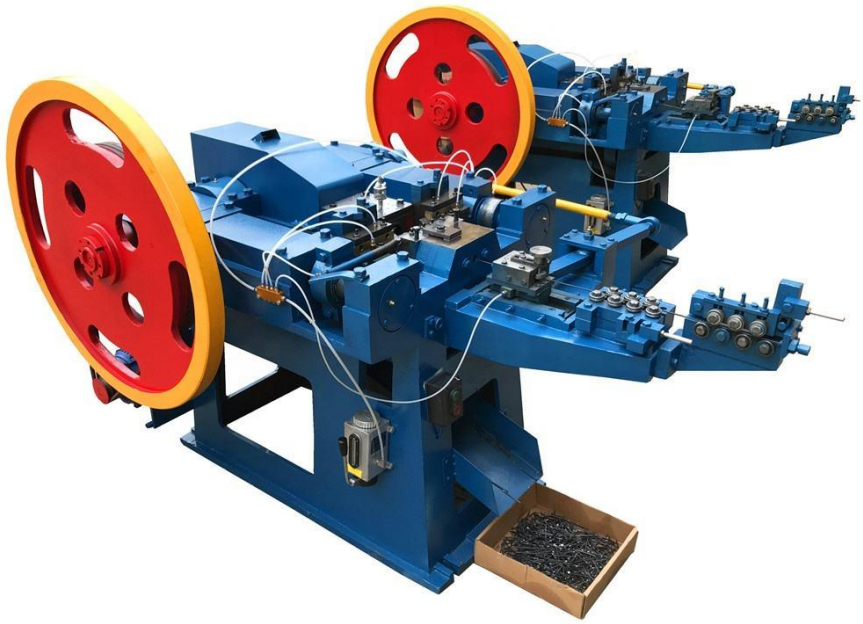
# Z94 Series Nail Making Machine Introduction



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# Operating Instruction of Z94 Series Nail Making Machine

1、Main Applications：

Used in the manufacture of general purpose steel nails, special steel nails, flooring nails,wooden raft nails, masonry nail and other metal rod nails.If will be part of the organization changed slightly, also can make roofing nail, C-iron, special metal products.

2、Features：

Its main shaft and wing shaft adopt rolling bearings, so the product rotational relaxed and flexible, high precision operation, prolong the working life.

(1)Wire feeding Mechanism

Pin roller and hard alloy, providing tightening force to the wire line, the wire feeding precision is improved.

(2) Lubrication Mechanism.

In addition to the lubrication oil bath,Sliding friction surface adopts manual oil pump centralized oil supply, easy to operate.

(3) The flywheel with bigger rim, reducing the volatility in the stable operation speed and make the running more smoothly.

(4) main components adopt special high-quality steel or nodular cast iron, through special processing, enhance the resistance to fatigue strength and reliability of the machine.

3-Machine Option

According to the shape, or according to length, or by purpose,there are many kinds of nails products, but its main parameters is nail wire diameter and length.This series product is divided into four models according to the diameter and length, for the user to choose from:

| Models | Max. Nail Diameter (mm) | Engineer’s Recommends Nail Length (mm) |
|---|---|---|
| Z94-1C | 1.8 | 9-30 |
| Z94-2C | 2.8 | 25-50 |
| Z94-3C | 3.7 | 50-80 |
| Z94-4C | 4.5 | 50-110 |

| Items | Z94-1C | Z94-2C | Z94-3C | Z94-4C |
|---|---|---|---|---|
| Capacity | 400-450Pcs/Min | 300-350Pcs/Min | 260-300Pcs/Min | 220-260Pcs/Min |
| Power | 1.5Kw | 2.2Kw | 3Kw | 5.5Kw |
| Net Weight | 750Kg | 1050Kg | 1350Kg | 1900Kg |
| Dimensions | 1350*950*1000mm | 1650*1150*1100mm | 1990*1200*1250mm | 2330*1390*1345 |

4.Main Parts of the machine

Pay-off stand,Electrical system,Lubrication system,Drive system,Stamping institutions,Shearing mechanism,Straightening institutions,Into the line organization,Clamping mechanism.

5. Machine movement and composition

Process is in cycle motion
Stamping, wire feeding, shearing, clamping, stamping

Main drive
Motor drive flywheel and crankshaft, drive wing shaft synchronous movement, thus to transfer torque to the moving parts.

Stamping movement
crankshaft's rotation drive the connecting rod into a reciprocating motion, the implementation of stamping movement.

Wire feeding movement
Crankshaft eccentric disc, hinged rod rotary motion into reciprocating motion clip wire skateboard, the wire feeder act wire feeding movement.

Clamping movement
The cam rotation of wing shaft make pressure on the clamping lever again and again, make the clamping lever swinging, clamping the moving nail mold, completing a cycle of wire clamping movement.

Shear movement
The left and right side shaft eccentric movement and the link rotary motion turn into two slider reciprocating motion of the blade,knife on the slider, realize the shear movement.

6.Adjustment of machine
Wire straightening
Under normal circumstances, the rolls of wire rod put on pay-off stand, the wire enters the straightening wheel on the horizontal direction and vertical direction. There are seven straightening roller, each group of four wheel positioning, three adjustable wheel, adjusting screw can straightening the degree of curvature of the vertical direction and horizontal direction of bending.

Wire feeding control

Turn the declutchable handwheel to make the thread clamp can't clamping wire, even if the machine cannot feed wire in the running,wire feeding will stop.

Nail length adjustment

Adjust the wire feeding wheel , make the eccentricity becomes large or small, thus to obtain the required length.

Adjustment of wire feeding time

Loosen the nut in the kidney slot at two sides, turn the eccentric disc, change the eccentric disc and the relative position of eccentric disc seat, to change the wire feeding time.

Adjustment of sliding seat in the chute.

Loosen the nut on both end s of the pull rod, turn pull rod, will change the sliding area of sliding seat in the sliding chute.Sliding seat should slide in the center of the chute.It is not allow that sliding seat touch the front or back end of the chute, so as not to damage parts.

Adjustment of shear

Shear up, down, left, right, front and back position can be adjusted, properly adjust the shear cut position, not only can ensure the smooth production of qualified products, can also extend the service life of the sheer.

No matter in the commissioning of the machine or in the normal operation, two shears parts should avoid a direct collision. Two blades must overlap, and in the same level with the center of wire mold.

Position adjustment of shears

Rotary screw can make oblique wedge iron move up and down, which can adjust the shears out of position, the adjustment should be left and right sides repeatedly, pay attention to avoid hitting the blade.When necessary,a piece of paper can be placed in the center of the shears, turn the hand-wheel by hand, make the shears to cut paper, until shears left notch on the paper, and did not wear the paper, Tighten the loose fasteners, fine-tune again when the formal trial, after the adjustment, then tighten the fasteners

7.Adjustment of the clamping of wire

Purpose:to make the wire displace when wire rod in rush pressure

The adjustment the purpose is to make two pieces of nail molds fully clamping wire, to prevent wire displacement.

Installation of nail molds

Loosen the nut,then remove nail molds base from machine, put the new molds in the guide rail (The machine with one installed molds before shipping), if it's difficult to put the molds in the guide rail,we can loosen the four screws and guide rail bolt to make the dovetail slot amplification. Inspect if the upper is parallel and level,if the the closing

molding opening meets your requirement,if not,we should repair the molds or change new one.

Fixed mold decides the wire centering position in clamping.(The wire to be shear is in the pre-clamping state).After fixing mold, with the help of two screws(upper) and two hex head screws behind the guide to fully fix the fixed mold, lateral adjustment can temporarily relaxed, after commissioning we should tighten them.

The activities of movable mold in the guide rail loosen and clamping wire, after load movable mold,using lifting bolt to fix guide rail so that the movable mold sliding in the slot without shaking up and down, and then tighten the upper bolt, after guide rail positioning then fully tighten lock screw .

Install the tuned nail mold to the main machine and fix initial,then turn the flywheel ,check whether the nail mold opening align at the punch.If not, nail mold base can be adjusted up and down, lock nut after setting.
Loosen the screw nut of nail mold clamping lever , screw manually flywheel of wire adjustment to adjust mold clamping force to the wire. different materials, different specifications of the products, the clamping force is different.With proper clamping force can not only reduce the load of machine, at the same time also can prolong the service life of mold
Tension spring make movable mold cling to clamp lever.At the same time also can prolong the service life of mold.

Adjusting lead screw and jackscrew to control the moving space of movable mold to the right side, when nail mold loosen spacing is bigger than the wire diameter, wire rod falling phenomenon appears,adjust the jackscrew to limit the displacement spacing of movable mold.

Relative position of the shaft and cam will change the nail mold clamping time in one work cycle, which changes the normal work of the machine.the factory has adjusted the relative position, please do not arbitrarily change.

Punching adjustment
The punch moving forward limiting position directly affects the shape and thickness of the head of nail.Punch impact pressure is the biggest load of the machine, therefore, reasonably adjust the punch limit position is to ensure that the important link of the products quality and extend the life of the machine

Installation of the punch
Loosen bolts on slip column,remove the punch holder to replace the punch and clean the punch.
Put the punch cushion and punch in the hole of punch holder, and then put the punch holder in the slide column.

Adjustment of limiting position of punch

Manual operate the flywheel to check the punch forward limiting position, if discover the punch will collide with nail mold,we should immediately stop, so as not to damage the punch and mold.

Adjust the clearance of the punch and nail mold

Twist locking wire and stop plate, adjust the punch holder adjustment nut (positive rotation to reduce the gap, the sinistral to increase the clearance), according to the end position, shape and thickness of fine-tuning punch until end meets the requirements.And then fully tighten all bolts and nuts.

Baiting plate adjustment

Loosen the nut and screw, the length of the adjusting plate blanking out (blanking plate can also take out)

According to the products under the appropriate adjustments to the length of the plate out of long, make the blanking plate upper just press down products when column slide forward.

The lubrication system.

This series of machines on the overall design, according to the characteristics of the friction pair of different parts, adopt various methods of lubrication, making the whole machine lubrication is reasonable and reliable.

Stamping movement is the main machine movement, maximum load, so the connecting rod, sliding column lubrication with oil bath, splash lubrication, and add two needle valve oil cup which is visible so that oil the cup in time.

Inside the groove of the crankshaft connecting rod rotation, adding suitable amount of lubricating oil (# 32), oil is spilled on both sides of the shaft hole and not splash out shield advisable, and add in time according to the oil consumption.(work 2000 hours continuously, tank cleaning, changing the oil)

Lubrication should be a suitable amount of filling for many times, press the manual oil pump handle several times for one hour, oil has a small amount of overflow is advisable.

Wire feeding slot with oil.In the process of wire feeding is not overflow is advisable。

Besides the above system of lubrication, operators should often use of lubrication oil gun on the leakage of surface adopted 32 # oil lubrication to supplement.

Friction surfaces of machine should be oil a lots for each 15 days to remove residual dirt, and change the new oil.

when used for a long time or the machine don’t work for a long time, we restart the machine sufficient lubrication of the friction surfaces.Lubrication work is an important in

ensure smooth running of the machine, the operator should according to the actual motion state of the machine, pay attention to the temperature rise of the friction pair of each part, at any time to master all lubricating points in different periods and filling amount, the frictions in a good lubrication condition, and also extend the maintenance cycle and service life.

**Double button only control the start and stop, so anyway, when you connect power by motor according to the requirements of the machine in the direction of the turn,reversal is banned.**

8.Machine operation and maintenance

1 operators should be trained, can operate the machine skillfully.

2 operators should first read the instructions before using the machine, to understand the structure of the machine, performance and the adjustment method;Be familiar with the use, maintenance, and maintenance of relevant knowledge.

3 Clean all the stuff , oil lubrication parts, manual turn the flywheel a circle, make sure machine without interruption.

4 After starting the machine and it runs properly,we can handle the inlet wire handle.We should stop wire feeding before shut down.

5 When the machine is working,we should pay attention to the changes of temperature of the friction parts and operation state, found that the friction part overheating or when machines have abnormal sound, should stop the machine in a time.

6 Don't adjust the machine when the machine is running.

7 Power off first,when we repair the machine,especially the electric appliance

8 Change the equipment with the original specifications.

9 Keep the machine clean, nail molds should be clean very often, do not use the rusty wire.

10 keep the cutter sharp.

11 oil lubrication on regular, to ensure good lubrication performance of the lubrication parts.

12 don't make the machine working without protective cover.