

AUTOMATIC TRAY FORMER

USER MANUAL



PREFACE

Thank you for purchasing the automatic tray former.

The manual will show you the machine basic structure, using method and points for attention to use the machine safely and correctly. Please read the manual carefully before operating the machine. Be sure that the manual is hand to the final users. The manual content change, without prior notice.

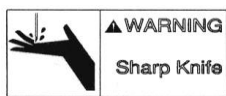
The machine is operated and maintained easily with the simple structure and high quality, for which it is widely applied in the various industries. For example, electrical appliances, toys, food, online products, and clothing. , Automotive supplies, the new e-commerce packaging industry and other industries.

This is the new design tray former machine that it is automatically form and lock the box panels without hot melt glue or adhesive taper---it helps save a lot of packing material. What an environmental protection and economic choice for the users.

The machine's max packing speed can reach to 12~14 trays/min. With its higher efficiency, the machine can help the companies save a lot of labor costing and constantly Improve Enterprise Image.

SAFETY INFORMATION

- 1.The operator should read the operating manual carefully before operating this machine.
- 2.The operator can not touch any driving parts before running this machine.
- 3.The maintenance personnel should read the operating manual carefully before maintaining this machine.
- 4.The power and gas must be closed when installing the tape and doing the daily maintenance.
- 5.Only the trained personnel can operate the machine.
- 6.The power supply used by this machine is 3-phase 380V, 50/HZ 1500V.
- 7.The electrical connectors must be connected strictly according to the number, otherwise it will burn the components and cause personal injury or death.
- 8.The fluctuation of the 380V power supply to this machine should be within 380V plus or minus 10%. If the power fluctuation is too large,The user must additionally connect a regulated power supply with a power of more than 1500W, otherwise the machine will not work normally, and the machine shell should be effectively grounded to ensure personal safety.
- 9.The air pressure and air supply volume of the machine must meet the requirements, otherwise the machine cannot operate normally.



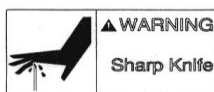
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1.Overview and applicable areas

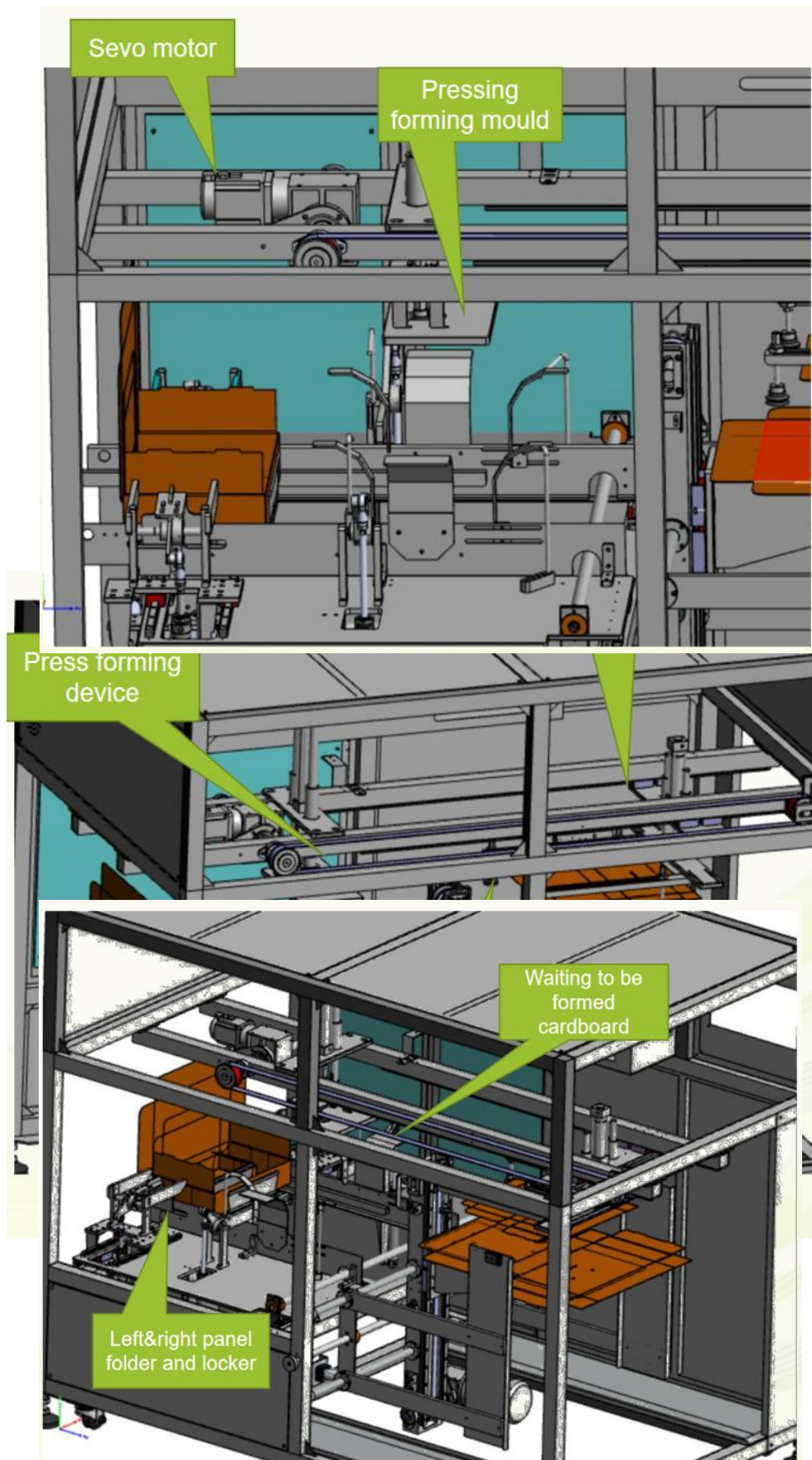
Machine: Automatic tray former

Description of equipment:

The automatic tray former machine adopts pneumatic control, and automatically folds the cardboard into shape through the adjustable size stamping mold, and automatically locks the cardboard, so that the cardboard does not need adhesive tape or hot melt glue to form the cardboard. Each step is set up to automatically fold the cardboard into The shape of the tray box.

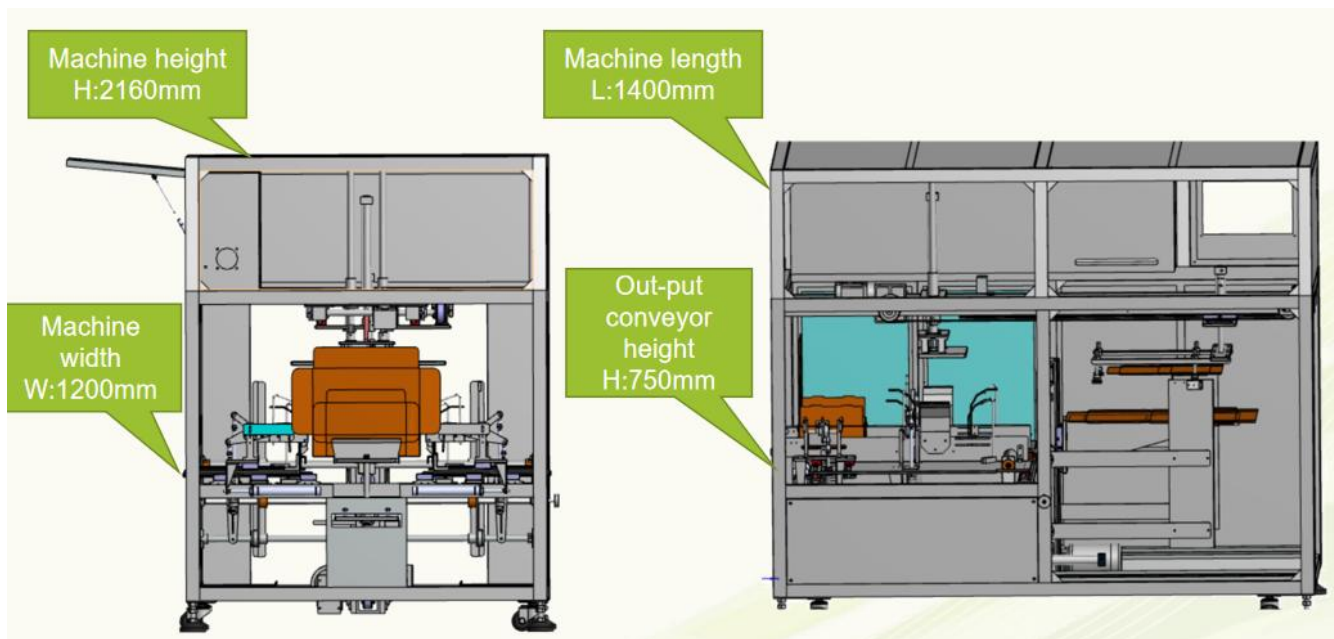
The automatic Tray former consists of three parts: adjustable cardboard magazine, take/send/discharge, and adjustable folding and forming.

The automatic Tray former uses the suction cup to take up the cardboard by electric lifting, and the servo motor feeding mechanism sends the cardboard to the



reserved folding position, and the cardboard centering pressing mechanism positions the cardboard to the precise position. And pressing the cardboard from the upper side of the tray to form a pre-formed, stopping the cylinder release and pushing the mechanism cylinder to send the cardboard cassette to the lower working box folding forming mechanism, so that the tray box is fully engaged and firmly connected. All the mechanisms of the folding tray machine are reset, and the finished tray discharging mechanism sucks the finished tray onto the assembly line, and the above actions are automatically cycled.

It is widely used in electrical appliances, toys, food, online products, and



clothing. , Automotive supplies and other industries.

2.Machine technical information

2.1Machine dimension:

Length:1800mm;Width:1100mm;Height:1800mm.(Table height:750);

2.2Weight:450kg;

2.3Speed:8-12tray/min;

2.4Magazine storage QTY: 300PCE(according to cardboard thickness:2mm);

2.5 Power supply: 3 phase, 380V, 50/60HZ, 1500W;

2.6 Voltage: DC24V;

2.7 Air-pressure: 0.6MPa;

2.8 Air consumption: 250NL/min;

2.9 Box size requirement: The same box size error range: $\pm 0.2\%$

2.10 Box thickness: 1 layer corrugated box $\geq 2\text{mm}$

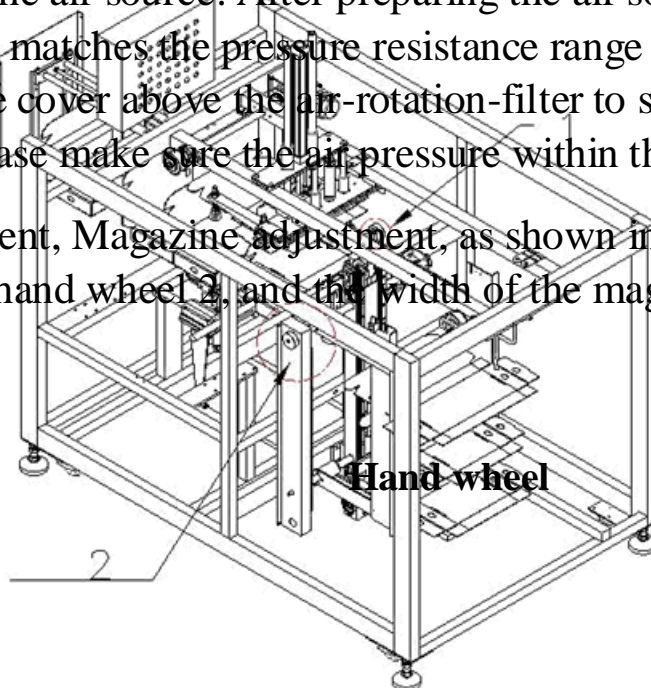
2.11 Box bursting strength: 1370KPa

3. Installation and commissioning

3.1 Adjust and prepare before starting up, the 3-phase 380V power supply is connected, and the grounding wire must be reliably grounded;

3.2 Connecting the air source: After preparing the air source (air compressor), use the hose that matches the pressure resistance range to connect to the machine, and adjusting the cover above the air-rotation-filter to set the air pressure to 0.5-0.7MPa (please make sure the air pressure within this range);

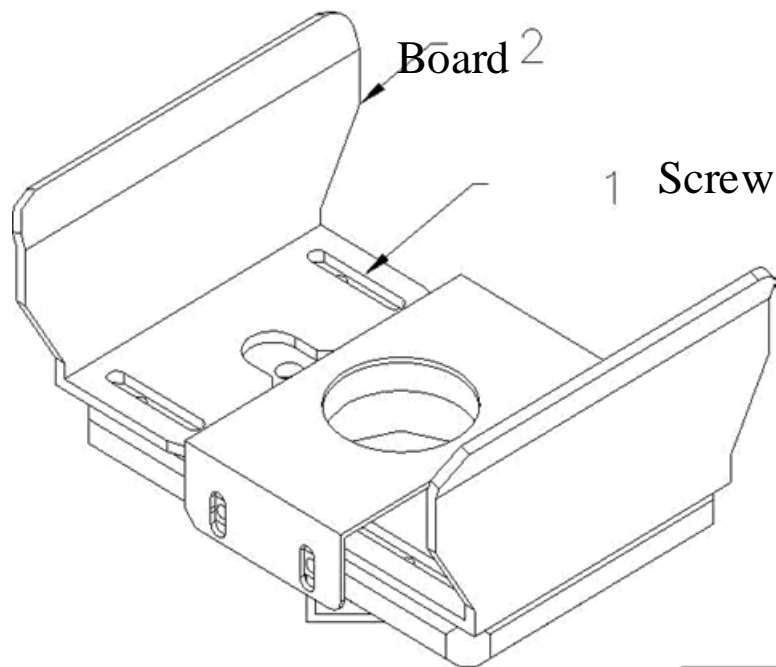
3.3 Box adjustment, Magazine adjustment, as shown in the figure below, select a box size, adjust hand wheel 2, and the width of the magazine matches the size of the box.



Hand wheel

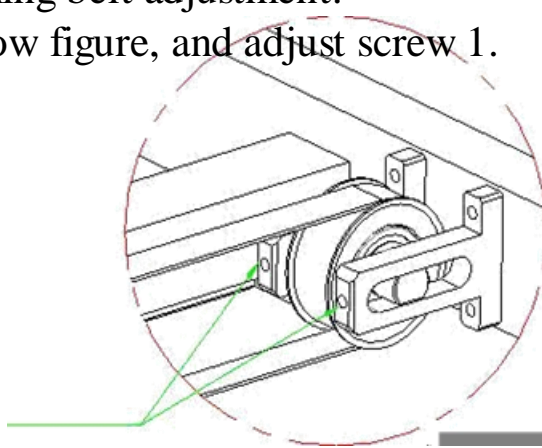
3.4 Forming magazine adjustment. Adjust the hand wheel 1 on the figure above, the forming magazine below will become wider or narrower;

3.5 Select the pressure plate that matches the box size and adjust the size of the forming magazine: as shown in the figure below, loosen the screw 1 and adjust the plate 2 to make the magazine width matches the box size.

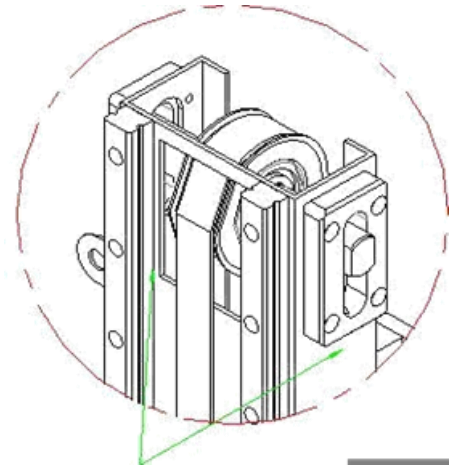


Forming magazine

3.6 Timing belt adjustment:
see below figure, and adjust screw 1.



Adjust screw



Adjust screw

4.Operation and adjustment

4.1 Machine startup workflow: first check whether there is cardboard in the magazine and whether the cardboard size matches the mold. Turn on the power switch, turn on the start or pause switch to start, first select the manual switch, and open a box in manual order to ensure that each station is automatically adjusted in place.

4.2 How to set the machine run automatically:

4.2.1 Start the machine: Turn on the power switch, the power indicator light is on. Select the switch to "Auto" and press "Start". Then the machine starts to run automatically.

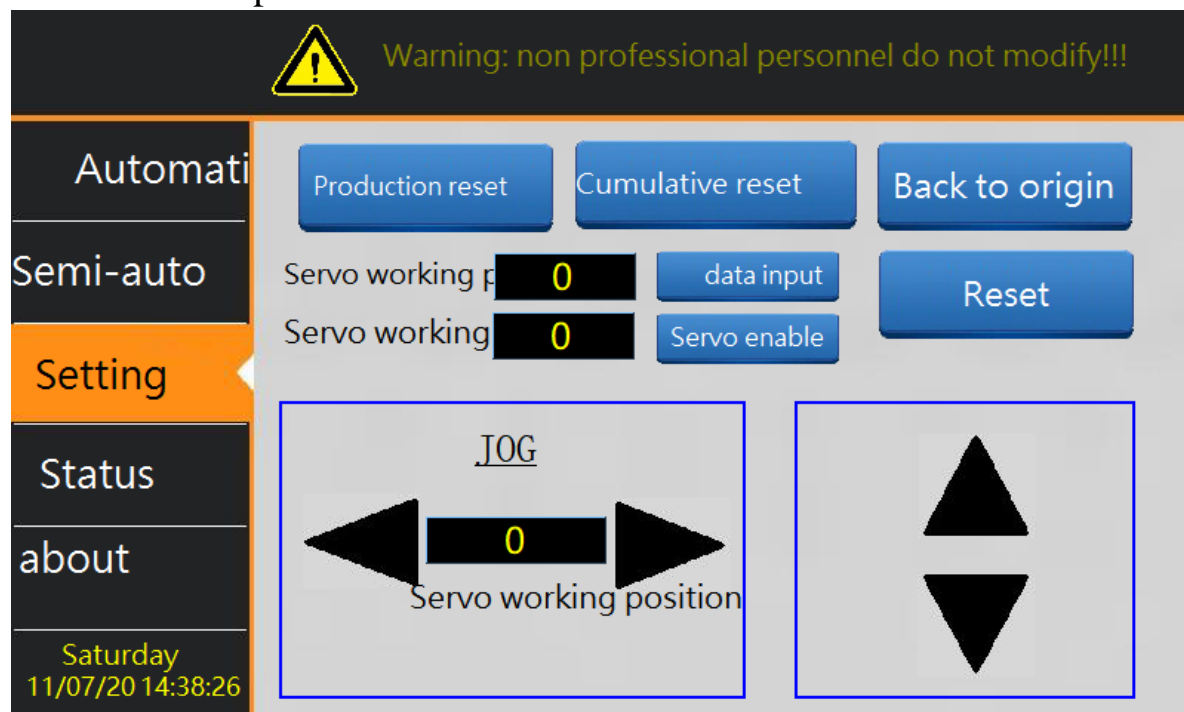
4.2.2 Stop the machine: Press "Stop" or "Pause" to stop the machine. And Turn off the power switch.

4.2.3 E-stop: "Emergency stop" button is used in emergency or in case of malfunction.

4.2.4 Note: "Detection of box sensor" "Or lack of material sensor" must detect the box to work normally. When the cardboard is almost used up in the magazine, or has been used up, the sensor will not detect the box and stop working. You need to add new cardboards to make the machine run normally again.

4.2.5 When the full-material sensor detects that the formed box has not been removed, the machine will automatically stop working. When the box is removed, the machine will run automatically.

4.3 HMI description:



Set up the production:

Production reset: set the output production to zero.

Calculative reset: set the calculative production to zero.

Back to origin: reset the setting to origin.

Reset: reset the information to zero.

Jog: Can make the motor move step by step, can be used as testing machine.



Auto: Run the machine automatically.

Single run: to pack one box only

Continuous run: to pack the boxes continually

Start:start the machine.

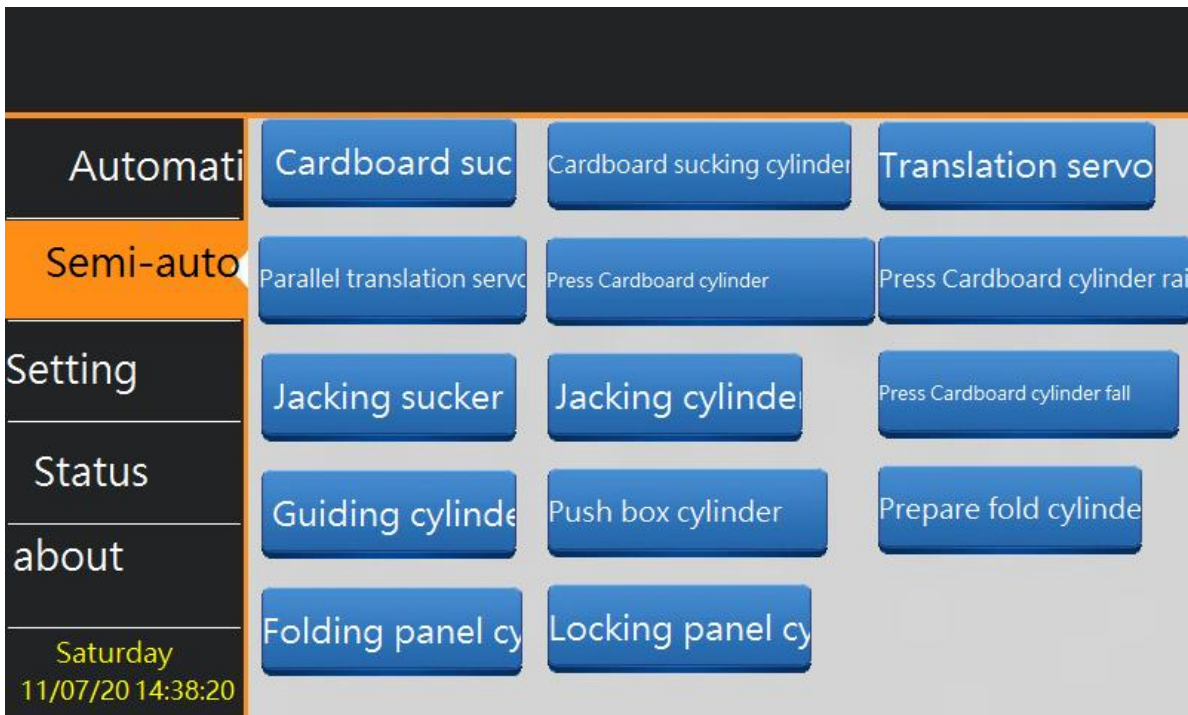
Stop:stop the machine.The machine will stop after finish to pack a box.

Reset:Reset the setting to origin.

Security door alarm: to stop the safety door detection.

Detect if material is full: detect if the cardboard is full filled in the magazine.

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Semi-auto: Run the machine manually.

Cardboard sucker: the sucker that will pick up the cardboard from magazine.

Paperboard taking cylinder: the cylinder that controls to take the cardboard.

Translation servo:servo's parallel translation movement.

Press cardboard cylinder raise: the cylinder that controls to press the cardboard raise.

Press cardboard cylinder fall: the cylinder that controls to press the cardboard fall.

Jacking sucker: jack up the vacuum sucker.

Jacking cylinder : the cylinder to lift up.

The pressboard cylinder descends: the press board cylinder falls

Guiding cylinder: the cylinder for guiding the box forming.

Push box cylinder: the cylinder for pushing the box.

Prepare fold cylinder: the cylinder for preparing to fold the box.

Folding panel cylinder: the cylinder for folding the box panels.

Locking panel cylinder: the cylinder for locking the box panels.

5. Trouble shooting

When there is a problem with the machine, please check if the following items are normal:

- a) Whether the input power of the electric control box is AC380V;
- b) Whether all air switches NFB tripped or damaged;
- c) Whether the PLC input and output lights are on, please refer to the touch screen I/O TABLE for comparison;

5.1、 The motor does not rotate, please check the following steps:

- a) Inverter parameters are checked according to the instructions;
- b) Whether the input voltage of the inverter (S310-210) is normal (AC220V);
- c) Make sure that the air switch that controls the inverter is ON;
- d) The disc inverter has frequency output, check whether U, V, W have voltage: there is voltage, and then check whether the motor wire is loose. If the wiring is not loose, please change the motor. If the wiring is loose, please change the inverter.

e) Check whether the PLC has output. Touch screen output screen

5.2、 The conveyor does not run:

a) Check whether the motor and drive shaft are connected properly;

b) Check whether the drive shaft and the rollers that connecting to the belt is disconnected;

5.3、 The cylinder does not work:

a) Check whether the gas supply is normal;

B) Check whether the PLC has an output signal;

C) Check whether there is looseness at the line joint.

Trouble shooting solutions:

5.4 The material in the magazine is insufficient, or lack of material, or the material is in the magazine, but it is not detected by the sensor. Reason: the sensor switch is broken or the position is wrong. Solving solution: replacement the sensor or adjustment the sensor's position.

5.2 If there is a box in the discharge port that has not been removed, the machine is still working. It means the sensor on the discharge port is broken. The solving solution is to replace the sensor.

5.5 Startup normally, but the machine doesnot work.

5.5.1 Check whether the air source is turned on and whether there is an air source. Solving solution is to turn on the air source and restart

the machine.

5.5.2 There is no box in the discharge port, but the detection sensor is on. It means there is an unknown object blocking the sensor switch, or the sensor switch is blocked by dust. the solving solution is to remove the unknown object and clean the dust.

5.5.3 The cardboard picking cylinder is working, but it fails to pick up the material. Solution: Check whether the picking sucker is broken. If it is broken, replace the suction cup. Check whether the vacuum generator is blocked by the unknown objects. If it is blocked, please clean the vacuum generator immediately.

6. Machine maintenance

Thank you for choosing our automatic tray former machine. In order to better serve your company and let our machine work the best for you , please let the operators must adhere to daily and monthly maintenance to extend the service life of the machine, to make the machine more convenient to use. See the followings are the relevant details about our machine maintenance:

6.1 Air source and air compressor are maintained according to their mechanical maintenance methods.

6.2 Check whether the bolts of each part are loose or worn off.

6.3 Cleaning of the air suction nozzle. Clean the parts everyday after it ends its job.

6.4 Lubricate all moving parts in time.

7.Warranty and rights

7.1 The machine has a one-year warranty (except for consuming parts) under correct operation and normal use from the date of delivery, and thereafter it will be paid service and lifetime maintenance.

7.2 If the content described in this manual does not match your machine, please refer to the actual product.

7.3 We have the final interpretation right of this manual.

7.4 We reserve the right to modify the technical rules without prior notice.

7.5 We reserve the right to modify this manual without notice.

7.6 Without our agreement, no one can copy the manual, and offenders shall be held liable in accordance with the national law of rights and interests.