

MODEL: MT-200
AUTOMATIC VERTICAL LABELLING
MACHINE

Operation Instruction
Manual

1、 Introduction

This machine adopts DELTA-DVP14SS11T2 (Delta) as the core control part for good working: reasonable electrical design and human-computer software design, providing high performance and easy operation.

1.1 System component:

Human-computer interface

Programmable Logic Controller (PLC): DELTA-DVP14SS11T2 (Delta)

Optical fiber sensors: keyence (Japan)

1.2 System parameter:

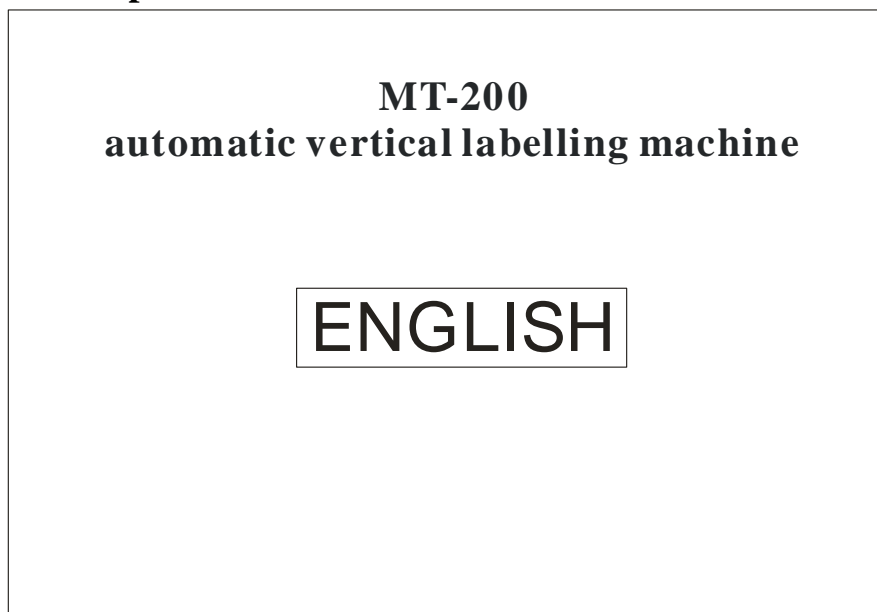
Environment: Temperature 5°C-50°C Humidity 20%-90%

Power supply: Input AC 220V \pm 10%(50Hz) Output DC 24V \pm 2V

PLC: Input AC 220V 8 Transistors Output DC no contact 6 Transistors

1.3 Human-computer interface:

1.3.1 Human-computer interface: 4.2 " FSTNLCD Touch screen



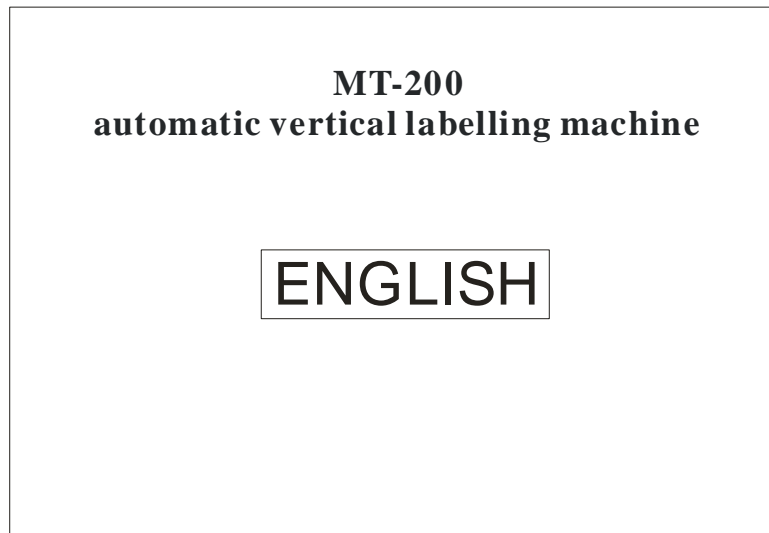
1.3.2 Operation system start:

Step1 Link the machine to power supply 220V.

Step2 Put the Emergency Stop Button in the normal position. (When the machine is out of work, it can cut off the power immediately by pressing this button.)

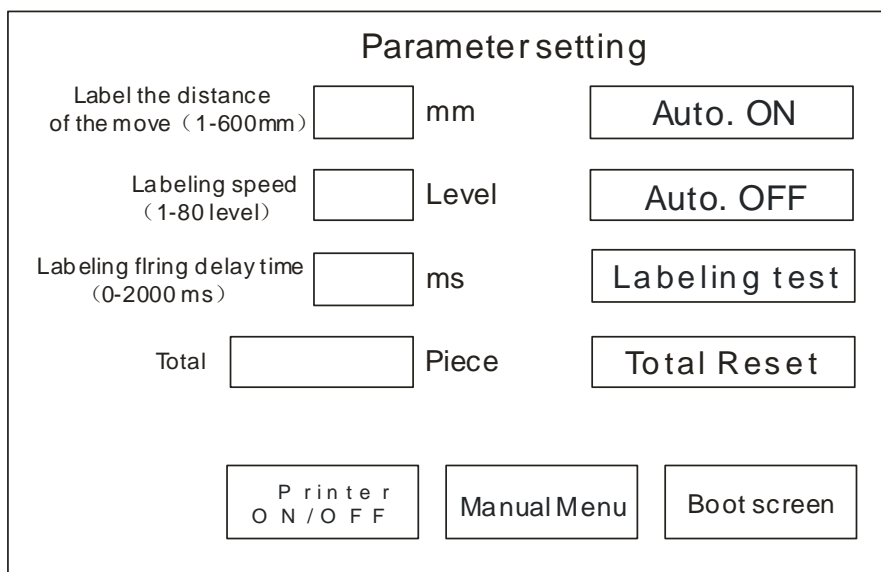
Step3 The machine will enter into [Boot Screen] 2 s latter.

1.3.3 Boot screen:



By "ENGLISH" button to enter the English interface

1.3.4 Operation running interface:



【Label the distance of the move (1-600mm)】: The main functions are protective of the role of label, when magic eye failure or machine failure, label stripping cannot be stopped. Set the function, when magic eye failure or machine failure situation, can only is the length of the set. "Label the distance of the move" = The length of the a label. Set range of 1-600 mm. Press numeric box set according to defined digital again after the can.

【Labeling speed (1-80 level)】: Set the speed of supply label every time. Set a range of 1-80 level.

【Labeling firing delay time (0-2000 ms)】: Set up time delay label. Set limits for 0-2000 ms. 1000 ms = 1 seconds.

【Total】: Each start machine throughput of display.

【Auto. ON】: Equipment into the operation state, equipment can be automatically labeling

work.

【Auto. OFF】: In operating condition can stop.

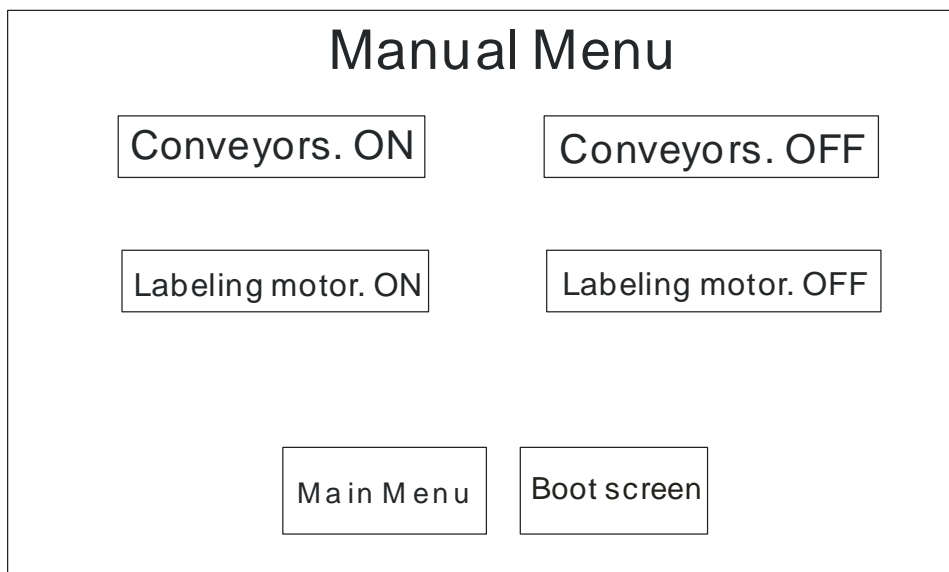
【Labeling test】: Equipment into the test condition, each as a out a label, test not counting.

【Total Reset】: Press can be adjusted after total to 0.

【Printer ON/OFF】: If machine installation ribbon typewriter, can control the ribbon typewriter switch. Ribbon typewriter need to purchase another, ordinary labeling machines not equipped with cold printer.

【Manual Menu】: Press showed manual menu.

【Boot screen】: Press showed boot screen.



【Conveyors. ON】: Press conveyor belt is executed.

【Conveyors. OFF】: Press conveyor belt stop.

【Labeling motor. ON】: Press motor begins to turn.

【Labeling motor. OFF】: Press motor begins to stop.

【Main Menu】: Press showed parameter setting picture.

【Boot screen】: Press showed boot screen.

■ Maintenance

- Because of this control system consists of microelectronics components, good grounding is safeguard equipment and reliable operation of the foundation, so before using equipment electrify must ensure effective and reliable grounding;
- The man-machine interface of face film belongs to sensitive components, use shall not be used to stab contact, when a surface accumulate dirt, can cotton ash touches a few water wipe, cannot use alcohol, elaborate use will prolong service life;
- PLC controller is equipment control core, equipment of charged cases, not on the top of the switch and connectors for change, lest damage caused by controller damage to equipment,
- Due to the controller USES independent power supply, in equipment for long periods of

time without use case, please pull the plug equipment.

2、 Overview

MT - 200 type vertical plane non-dry tape marking machine to achieve rationalization production target and design. Labeling process are automation homework, simple operation, the production and speed, labeling position unity, beautiful, neat, Applicable pharmaceutical, chemical and foodstuff trades etc containers labeling.

3、 Principle and Structure

3.1 Principle and Structure

Will different objects into labeling machines, the conveyor belt conveyor belt drive objects into labeling area, conveying institutions continuing movement, the analyte optical testing to objects, will photoelectric signal transmission to PLC, by PLC output signal processing after losing to **servo** motor, by **servo** motor out mark, through rolling organizations will tags posted article, labeling after objects by labeling machines conveyer belt into the next process. Host used **servo** motor drive, Taiwan amounted to (Taiwan) PLC control system, sets of (Taiwan) touch people interface, keyence fiber (Japan) device such as the original import parts, gathers numerous leading technology, make it become the industry with technological advantage of one of the products. Microcomputer automatic control, touch human-machine interface friendly interface, ingenious mechanical structure, the operation is simple, powerful, Can realize tag number setting, counting, words printed under control, labeling control, broken label, lack of standard, colorless belt of abnormal situation automatic detection and alarm functions, Random capacity display and label quantity management, Tag tightness regulation; Tag length and the clearance, Host height and position before and after regulation; Optional ribbon typewriter one, Labeling and labeling detection phototubes sense degree adjustment. The machine adopts high-quality T6 aluminum and stainless steel SUS304, works excellent, in conformity with the requirements of GMP. Planar non-dry tape marking machine is in a very excellent cost-performance product.

3.2 Parameter

Power supply: AC110V/220V 50/60Hz

Power: 500W

Production capacity: 30-150 pcs/min

Label size: (height: 10-140mm, length: 20-200mm)

Labeling accuracy: ± 1 mm

Maximum diameter volume label: $\Phi 200$ mm

Coil diameter: $\Phi 76$ mm

Applicable scope of the bottle: (Outside diameter: $\phi 20$ - $\phi 100$ mm, height: 30-300 mm)

machine weight: 150 kg

machine size: L2000 x W1100 x H1350 mm

(The bottle and label of special specifications, can make to order.)

4、 Operation procedure and adjustment

4.1 Procedure flow

Step1 Fix the label roll and adjust the height.

Step2 Adjusting the height of the bottle-bar, top-pressing device, bottle space and correct device.

Step3 Turn on the power and photoelectric switch; for printing, it need preheat about 15min.

Step4 Turn on the motors and sensor switch, testing labeling.

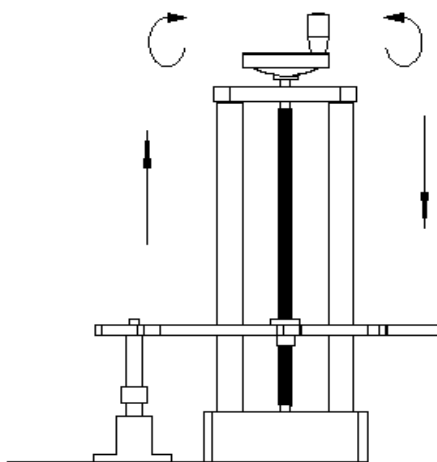
Step5 Ensuring no fault, production begins.

Step6 Turn off the machine.

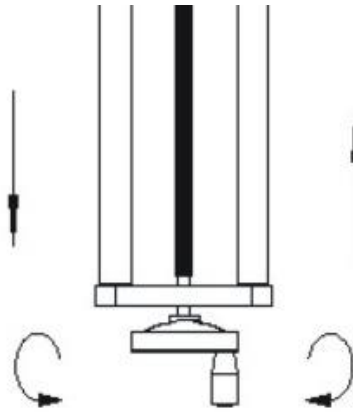
4.2 Adjustment of the labeling machine

Compose in reply altitude , adjust respectively according to the width the object is stuck: label system , peel off degree of mouth of equal rank , be allotted the bottle device , lined bottle device , strengthening the body resistance device , be stroked the bid device , the guardrail lightly , be measured opto-electronic location of bottle , installation label , opto-electronic location of measuring mark , frequency transformer frequency.

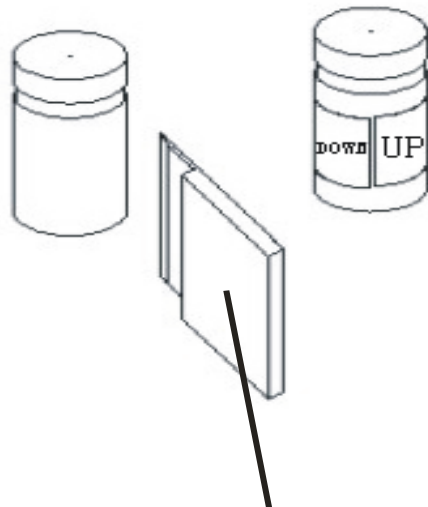
Labeling system: What be needed to carry out adjustment closely to bid location being based on a bottle labeling system. Tag height adjustment, adjust the poster head down regulator, rotate handwheel lifting labeling system height, until a suitable location.



Being objects, adjust the size poster head, adjust rotation handwheel before moving labeling system, and until a suitable location.



Stripper plate parallelism adjustment: Its purpose is to make strip panels and be posted objects and parallel, in order to angled belt can correctly label parallel labeling.



Stripper plate

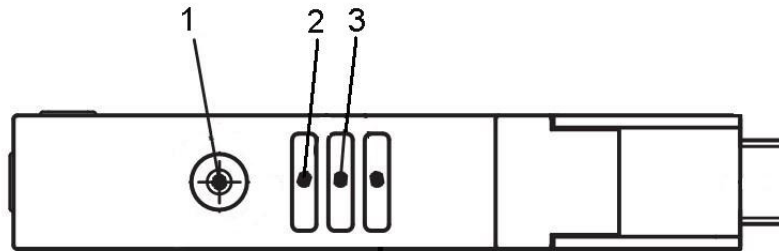
- a. Adjust poster head tilt regulator, until a suitable location. After the adjustment should be fixed screw lock.
- b. Adjust poster head parallel regulator, until a suitable location. After the adjustment should be fixed screw lock.

Guardrail: Main adjustment was smooth conveying, but objects, and adjust.

Photoelectric measuring label: (Model: Germany LEUZE GS61 forked photoelectric

sensor, Can download instructions on website, www.leuze.com)

Groove type label magic eye shape as shown in the figure below:



(1) Set button (2) the green light (3) the yellow light

Stick label through the trough type label magic eye, mark the center on the tag on the electric eye indicates points, when the power is on, green light will light up, hold down the set button, after a few seconds, green and yellow lights flashing at the same time, loosen the set button, and then away, make the center indicates gaps between points on the two labels, label or tear will center indicates a dot on the bottom, press set button again, the green and yellow light is lit at the same time, lugged label again, in the position of the label, will only green light, yellow light is not bright. When the detection to the gaps between the labels and tags, yellow lit up.

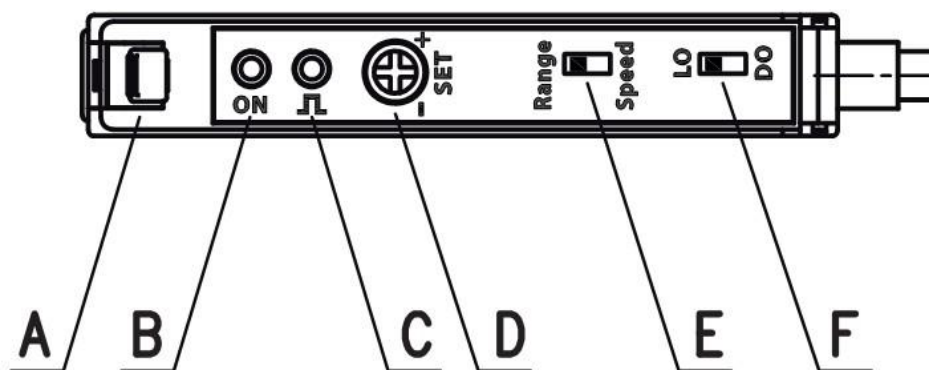
According to the above steps adjustment can be used.

Photoelectric measuring bottle: (Model: Germany LEUZE LV461 amplifier for fiber

optics, Can download instructions on website, www.leuze.com)

label magic eye into two parts: Fiber optics amplifier and photoelectric switch fiber unit.

Fiber optics amplifier shape as below:

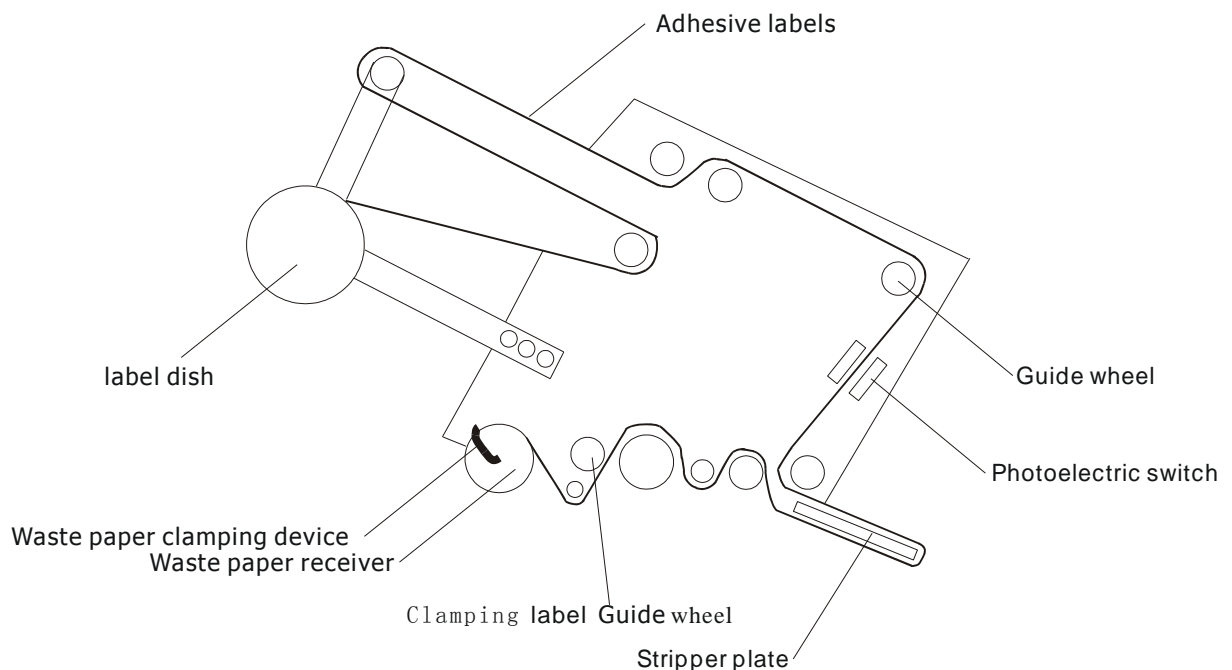


- A Lever for fiber optic clamp
- B Green indicator diode - readiness for operation
- C Red indicator diode - switching output
- D Potentiometer for sensitivity adjustment
- E Switch operating mode 'Range' / 'Speed'
- F Switch light (LO)/dark (DO) switching

The key is to adjust the sensitivity of range.

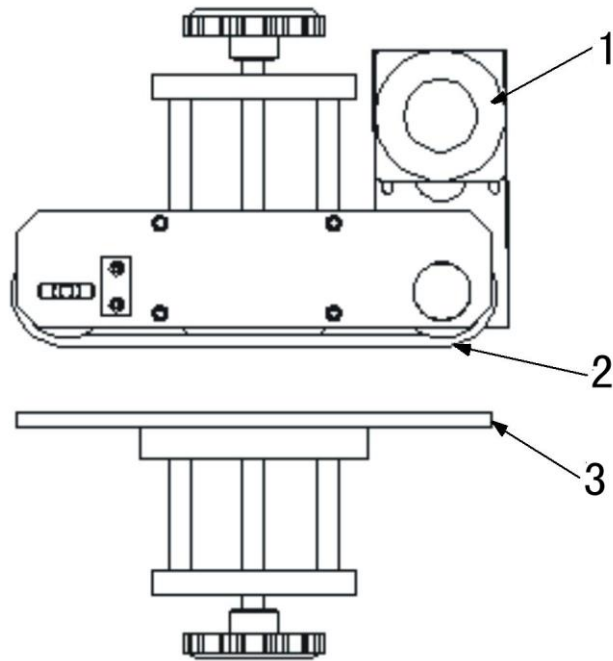
Note: The optical fiber head position, determines the labeling in what position.

Install label: According to the label before and after mark through the graph, before and after the installation, the subject labels on the label of core clamping device, marking out on label on later. When the tags around the clamping Guide wheel, loosen clamping Guide wheel, labels, tighten bypass the handwheel clamping Guide wheel lock, this place is very important, because if no lock, marking a quick moment when a slow, stick out of the tag or a bit not smooth, or will not stick bottle, will break. Tag from among the tag. Check the label on the route through all of the wheel is flexible, if not flexible, have to adjust to a flexible.



Conveyor speed switch: Main adjust conveyor line speed, in relation to the transport of the bottle, labeling the stability of the position. According to the practical process of bottle label size, weight, to adjust the speed of suitable location.

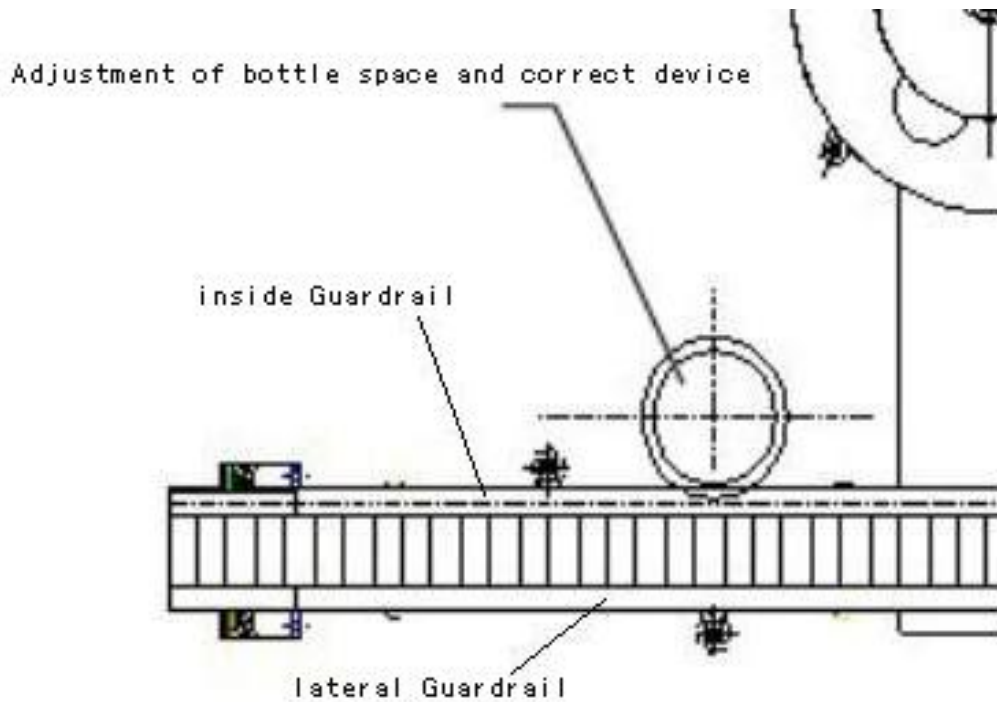
Adjustment of pressing wheel: Was posted to and two sponge body size, with slightly clearance fit for the ideal clamping, as shown in figure hair rotating the handwheel clockwise make forward; conversely, adjust back after the completion of the content to a locking.



(1) pressing whee – motor (2) Operation of the sponge (3) Fixed sponge

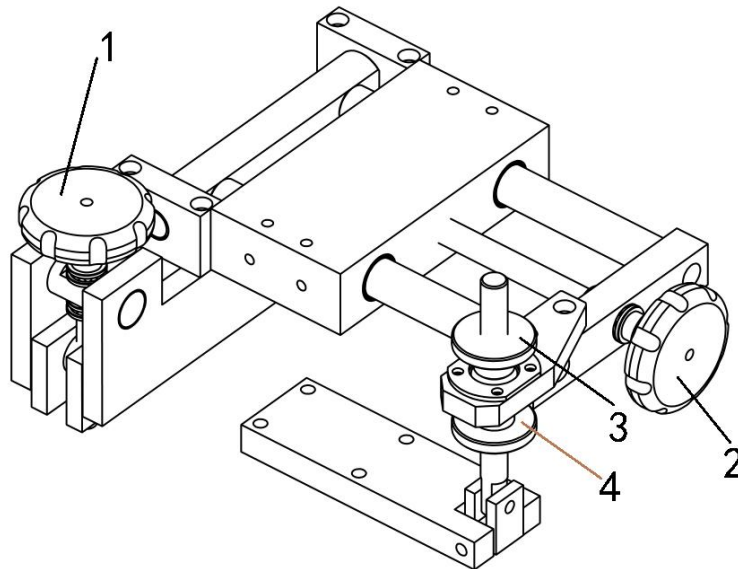
Adjustment of bottle space and correct device:

The diagram below, move inside guardrail as a benchmark, was posted to sponge round object size, and then you adjust the lateral clearance fit guardrail, a slightly clamping for ideal, not everyone can now stick out objects get together conveying, each was posted objects distance for an object body.



Adjustment Labeling structure - Universal balance:

The diagram below, can be adjusted respectively before and after the labeling structure balance and position. This function, Mainly for some is not very round bottle, need to adjust the label out of the target location.



- 1、 Labeling structure left and right balance adjustment: nut to loose 3 and 4, and then turn the handwheel 1.
- 2、 Before and after the position adjustment: Turn the handwheel 2.
- 3 and 4、 Balance before and after the adjusting nut: Loosen the two nut first, after the adjustment, then two locking nut.

Note: the above steps are needed to work with each other.

5、 Attentions

- a. The power is AC220V. Ensure to use ground wire. Before start the machine, be sure good installation.
- b. There are two directions of the labeling machine: from left to right and from right to left.
- c. Make sure the guide rings below the guide wheel at the same level. The upper guide ring sits besides the label.
- d. Make sure the position of the sensor, otherwise it will wrinkle when labeling.
- e. Make sure the correct label passing patch.

6、 Common faults analyses

Faults	Reasons	Solutions
a. Label broken	Over-pressure of Synchronous belt drives pulleys	Loosen the regulating nut
	Stuck of Synchronous belt drives pulley	Add a pad on the Synchronous belt drives pulleys
	Label brakes too much	Loosen brake
	Label over-pressure	Loosen the clamping screw
	Printer over-pressure	Adjust the printer
	Wearing of label bottom	Change the label or adjust guide rail
	Stripper out of position	Adjusting
b.No label feeding	Check the sensor	Adjusting the sensor sensitivity
	Broken of fiber amplifier	Change new one
c. Label wrinkle	Hard brush	Change soft one
	Label too quick	Let speed slow
	Bottle too irregular	Change bottles
d.Label inclined	Label not at the same level	Adjust the label disk
	Too quicker speed	Slower
	Labeling head inclined	Adjust it

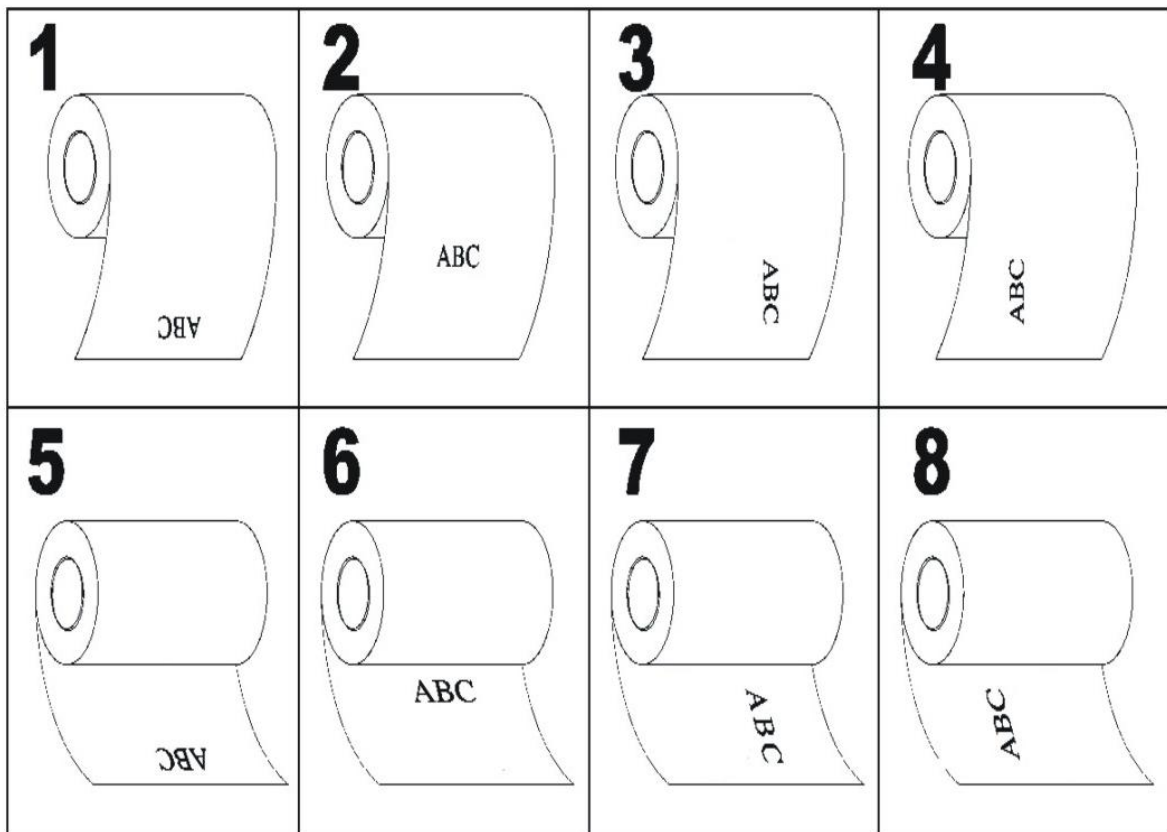
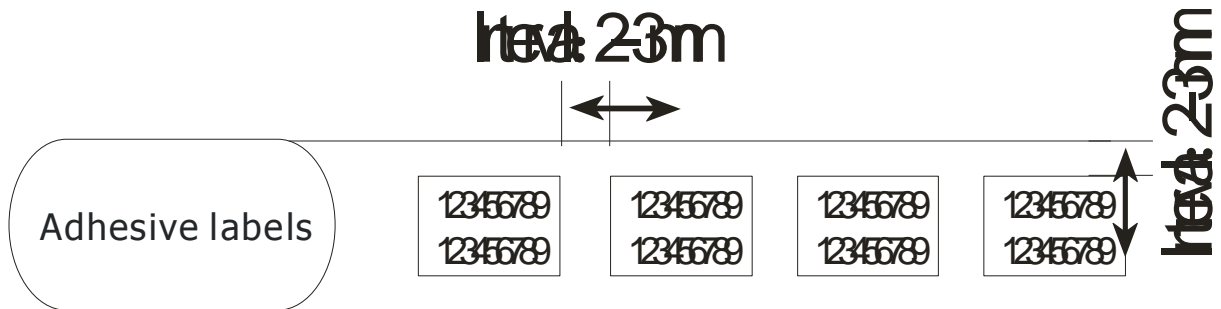
7、 Maintenance

- a. Ensure good connection with the ground wire and install anti-creeping protection switch.
- b. For the human-computer interface, no sharp touch and alcohol washing. When dusty, wipe with cotton.
- c. When the PLC is electrified, do not change the switches and connectors to avoid damaging the electric control parts.

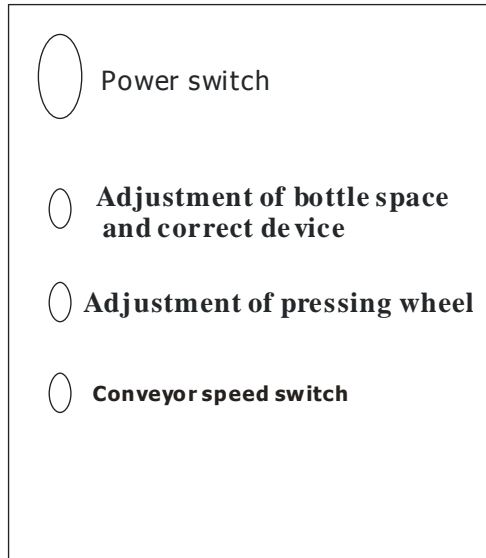
d. If the machine is long time no using, unplug the power plug.

8、 Appendix

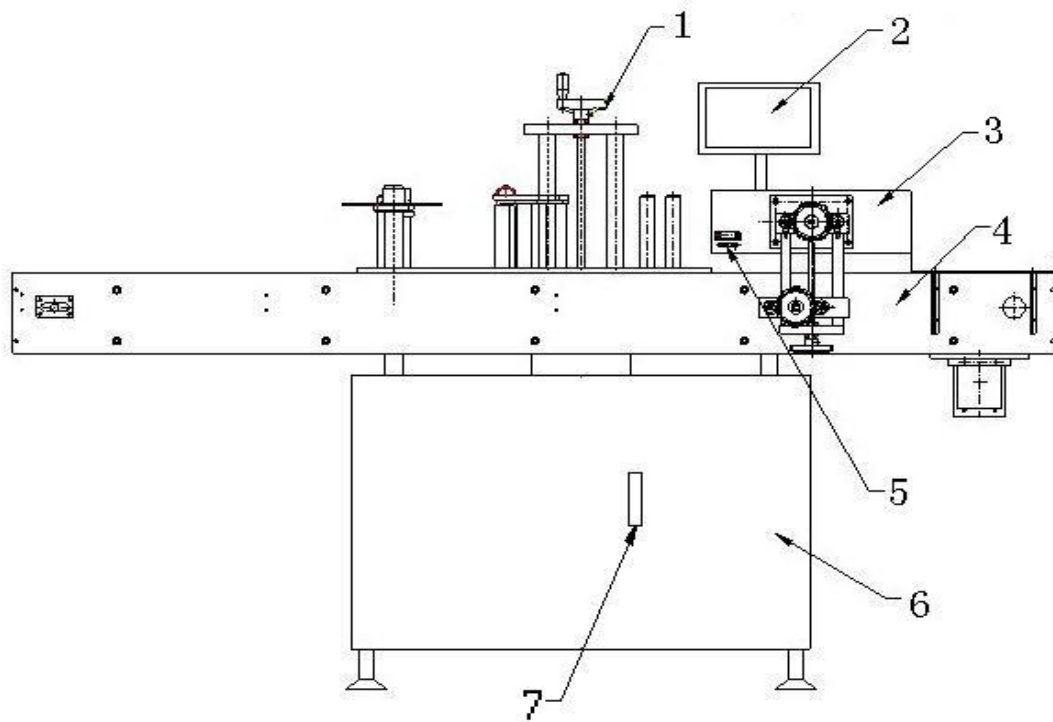
Label print rule:



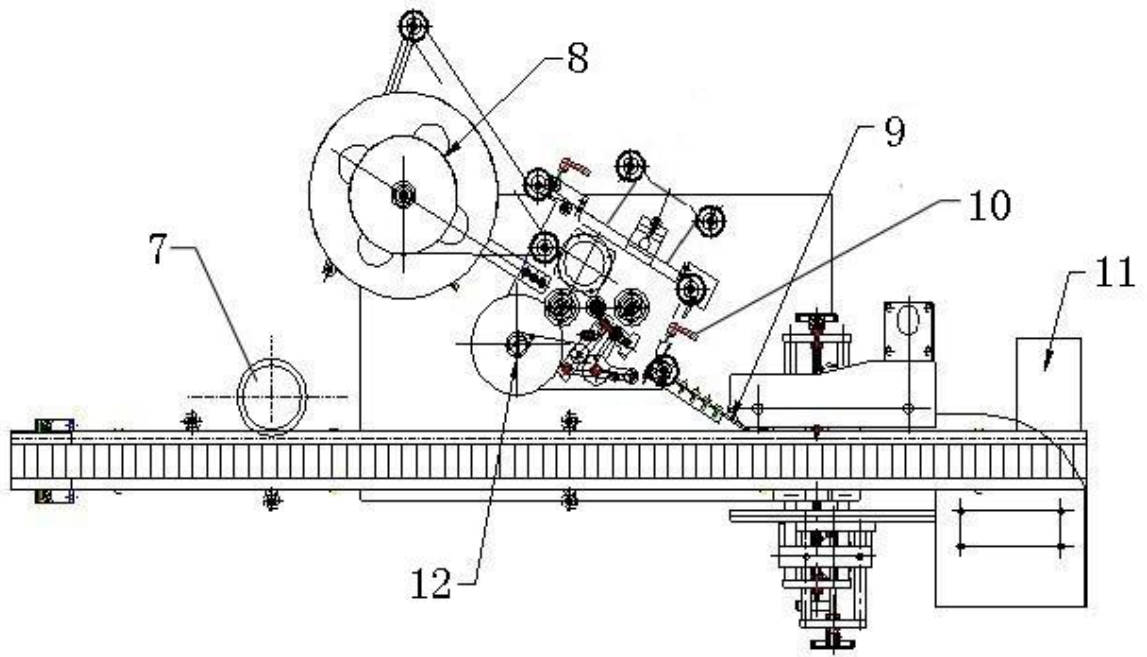
9、 Labeling machine right control part drawing:



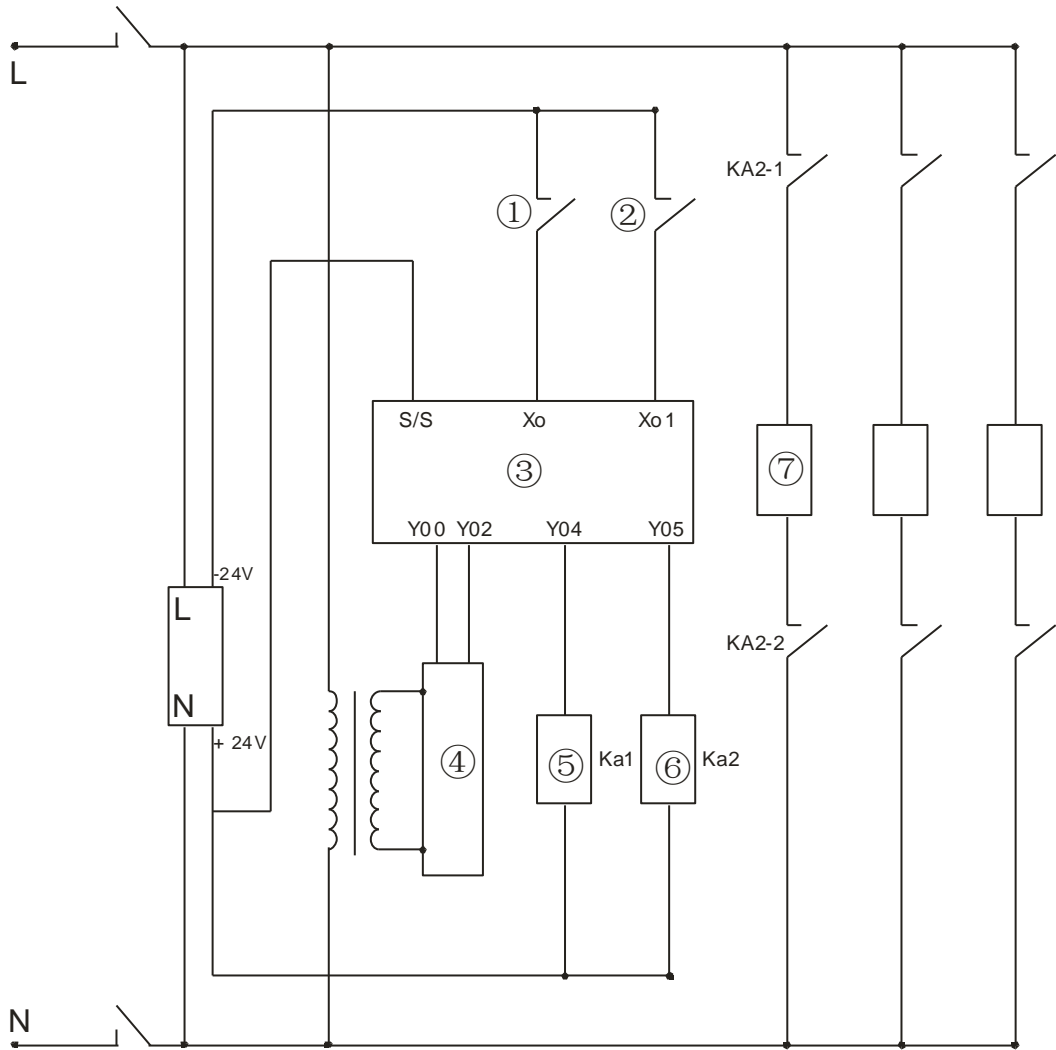
10、 Machine Sketch map:



- (1) handwheel (2) Touch screen (3) pressing wheel (4) Conveyor
 (5) Photoelectric measuring bottle (6) electrical cabinet (7) Optical Fiber amplifiers



- (7) bottle space and correct device (8) label dish (9) Stripper plate
(10) Photoelectric measuring label (11) Conveyors motor (12) Waste paper receiver



- ① Photoelectric measuring bottle
- ② Photoelectric measuring label
- ③ programming unit ④ Drive
- ⑤ Printer signal ⑥ Conveyor motor
- ⑦ speed controller

AUTOMATIC VERTICAL LABELLING MACHINE Circuit diagram