Operation Manual

Model IMCGX-200 Capper
With Cap Elevator

CONTENTS

I. Precautions

- Remove all temporary fixture in machine before connecting to power supply.
- Please check and make sure the machine is place at a level surface.
- The serial number of the machine cannot be zero as this will indicate the total number of the packing you want.
- Make sure all the connection points are ideally fixed and no part is loosen.
- Do not leave anything on the top of this machine especially like packet drinks or liquid item.
- Avoid putting your hand into the machine during the operation as this will cut off your hands.
- Closed the side doors of the machine properly to avoid winds.
- Set the speed and the range of flowing according to the type of materials you want to pack.

II. Introduction of the machine:

GX-200 Capping Machine is equipped with microcomputer, the control system adopts SLSI system, and display working information by digital numbers, which is easy to read and input. It can link with other packaging line or work individually.

Compare with traditional intermittent working capper, it works faster and the capping performance is better. The innovation design such as automatic cap elevator feeding system, straightway bottle feeding and continual capping also raise the production capacity.

III. Relevant Technical Data and working ambient

1. Cap size(Round)：Customized according to the requirement

2. The height of bottle：Customized according to the requirement

3. Working Speed：50 ～ 200 BPM

4. Feeding direction：Right to left

5. Machine Size：2400mm×900mm×1600mm

6. Total Weight：850kg

7. Power：800W； Voltage：220V；50HZ

8. Compressed air: 0.6MPa

Working ambient

1. Working temperature：5～35℃
2. Working humidity：≤85%, No clotted dew
3. Working environment：NO flammable and explosive gas & dust

IV. Main parts of the machine

GX-200 Capper include conveyor, cap sorting (Vibrator) and dropping system, bottle space adjusting wheel, bottle fix structure, cap rotating part, electrical system and frame.

1. Conveyor system：It was driven by a 60W stepless adjustable motor. The conveyor adopts chain-plank, which is stable and easy to clean.

2. Cap arranging (Elevator) and dropping system: The system consists of ladder-type elevator, dropping system(chute) and cap pressing part.

(1) Cap arranging (Elevator) consists of motor, ladder-type chain, tank and cap chute. There are two cap inspection sensor which connect with electrical control system. The sensor on the cap entrance will send signal to the control system when full of cap supply and the elevator will stop feeding cap. The sensor on the cap chute system will send signal to the control system when lack of cap supply and the bottle convey will stop feeding bottle. The speed of elevator can be adjusted by the knob on the control panel and cap feeding speed up to 200 piece/minutes.

Gas adapter

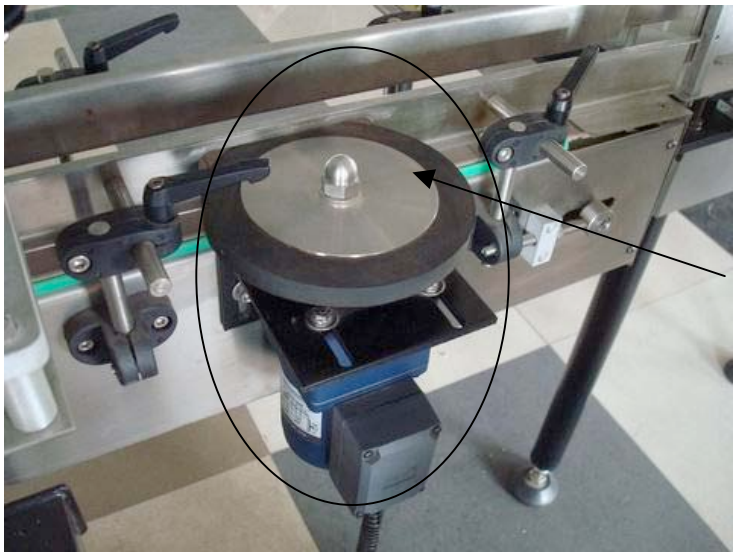
(2) Cap dropping system (chute): The cap will cover on the bottle mouth automatically when cap pass by the exit of chute.

Cap dropping system (chute)

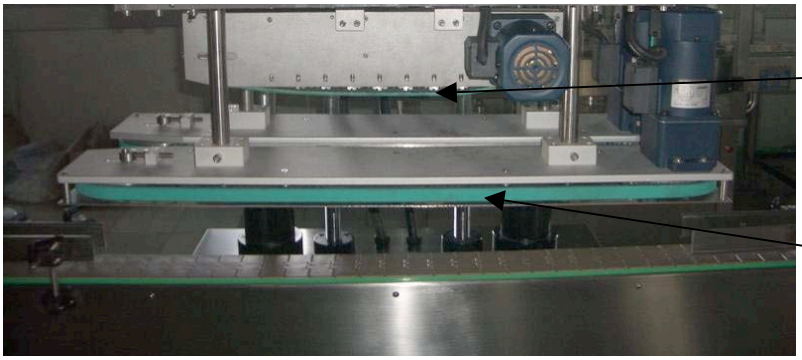
(3) Cap pressing part: The cap pressing part will bring pressure on the top of cap when the cap was fed into beltl.

Cap pressing part

3. The space adjusting wheel can adjust tandem space of the bottle when it is passing by. The speed of bottle space adjusting wheel can be controlled by knob on the control panel.



4. Bottle fix structure：During the capping process, the bottle must be fixed tightly. There is rubber belt with flexibility on the structure, to ensure the bottle is fixed tightly but can also pass by the structure.



5. Electrical system：The electrical system is inside the frame, the control panel is at the front of the machine for easy operation. All the motors on the machine can be adjusted stepless by adjust the digital setting on the control panel. The machine elevator switches are on the right side of control panel. The power switch of machine is on the left side of control panel.

6. Frame：The feet are adjustable, the height of machine can be adjusted when the machine is link with other machine. (Please be sure to lock the screw on the feet after adjustment)

V. Working method:

Put bottles to be capped on the conveyor (or link the conveyor with other machines). Please be sure there is certain space between tandem bottles. The cap will be pressed on the bottle tightly while they pass pressing belt. All the parts touch cap and bottle are metalloid materials that will not damage bottles and caps.

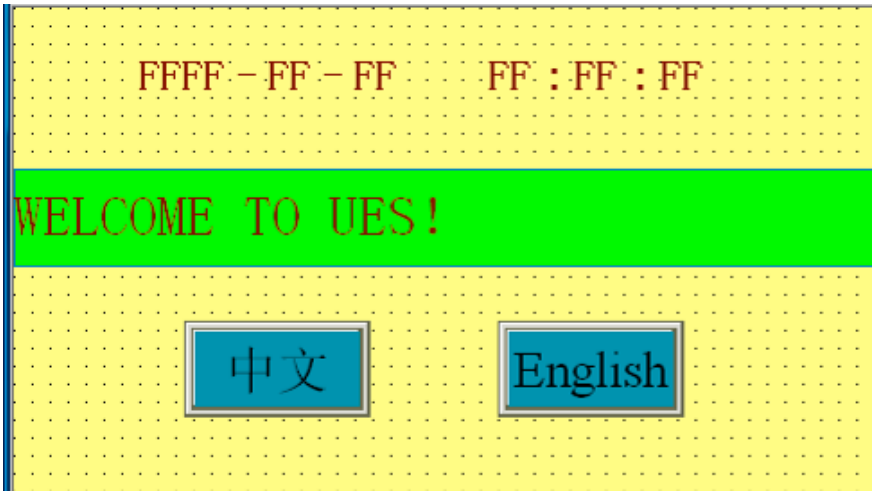
VI. Operating the machine

VI. Operating the machine

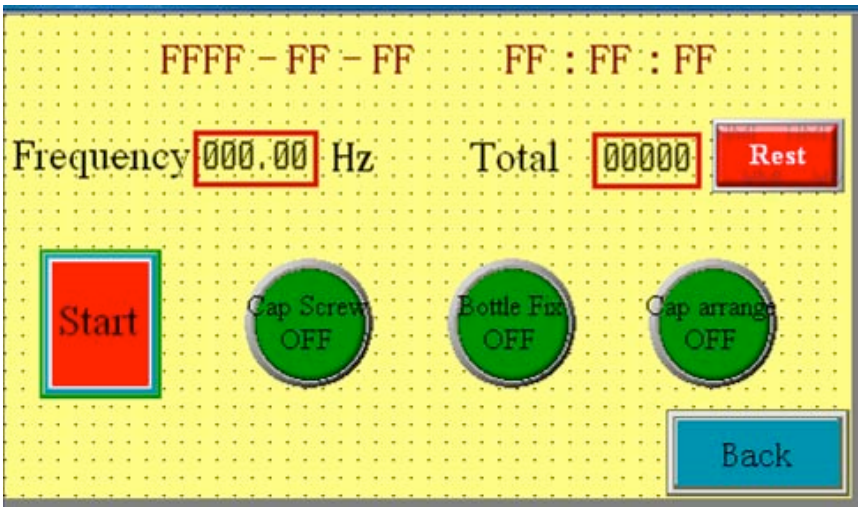
1. Control Panel

2. Operation Menu

Touching screen display as following after turning on the machine:



Pressing ‘English’ button to following page:



Press ‘Start’ button to run machine
The ‘cap screw’, ‘Bottle Holder’ and ‘Cap Feeder’ button will indicate the state of relevant part of machine.
The ‘Total’ button can indicate the quantity of capping
The ‘Frequency’ button can indicate the speed of capping wheel
Press ‘Back’ button to come back first page.

3. Other control on control box

Conveyor, Bottle fix, Cap Arrange, Bottle Space knob—— is to adjust the speed of all relevant motors. Clockwise for fast, anticlockwise for slow.

VII. Operation procedure

1. Before operation

(1) Check the gearing, chain wheel, conveyor and railing. Please fasten the screw if there is any loosen.

(2) Check the power supply is 220V.

2. Operation the machine

(1) Put some bottle on the conveyor.

(2) Install the cap arranging (Elevator) and dropping system.

(3) Adjust the size of chute based on the specification of cap.

(4) Adjust the position of railing and bottle space adjusting wheel according to the diameter of bottle.

(5) Adjust the height of bottle fixed belt based on the height of bottle.

(6) Adjust the space between two sides of bottle fixed belt in order to fix the bottle tightly.

(7) Adjust the height of cap pressing belt to match the position of cap.

(8) Press the power switch then press 'ON ' button in 'Operation menu' page to start running machine.

3. Stop the machine.

(1) Please press the "OFF" button in 'Operation menu' page to pause the machine.

(2) Please press emergency button or power switch to shut off the machine in case of accident.

Caution: Don't touch the control panel and switch except the operator and maintenance man.

VIII. Installation and operation and preparation

◆ **Unload**

Please pay attention to following items during hoist of goods：

1. Don't stand under the machine during hoist
2. Be sure there's enough safe distance during hoist
3. Be sure to use qualified hoist equipment
4. Adjust swing equipment to maintain a flatly hoist
5. Be sure to protect the outsider shipper during swing

◆ **Take out and check**

1. Check if all the parts are complete after taking out goods, and if there's any missing. If there's any missing or damage, please make recorder and contact with manufactory.
2. Make sure all the connection points are ideally fixed and no part is loosen.
3. Please check the encasement list to see if there's any missing of spare parts. If there's any missing, please contact with manufacturer

◆ **On site installation**

1. Preparation

Space for installation: Height of room should be no less than 2.6 m, and easy for drain.

- ◆ The distance between machine and wall should be no less than 0.8m, so that operator is easy to change the label. For link on line, the machine can be linked with other machine or turntable directly, also it can work individually.
- ◆ Ground：Ground should be solid, flat. If the machine is on the floors, please consider about if necessary to reinforce the floor according to actual situation.

2. Power：The machine require for one phase 3 wires
3. Power supply: 220V±5V ; 1300W.
4. Notice of installation：

1) Be sure to avoid installing the machine in a heavy dust, corrosive atmosphere or combustible gas etc.
2) Be sure to avoid installing the machine in the place that is easy to get electric shock or vibration.
3) Be sure to avoid installing the machine in the place which is under high temperature, high humidity or easy to get shower.

4) Be sure to avoid installing the machine in the place with strong magnetic field.

4. Machine ready and position adjustment

a) Move the machine to installation site, open the case and take out all accessories and check if there's any missing. If there's any missing, please contact the manufactory.

b) Adjust the level

When the machine is settled down, if it works individually, just adjust the machine to level off. If it needs to link with other machines, need to adjust the height of machine to make the conveyor of machine on the same level with other machines, and fix the screw on feet. Install bridge between conveyors of different machines.

Note: While install the bridge between conveyors, the height discrepancy of each conveyor should be less than ±0.1mm, otherwise the bottles cannot go through smoothly, and easy to get fallen.

◆ **Mechanical adjustments:**

GX-200 capping machine can fit for many specifications of bottles. The adjustable range on diameter of bottles start from Φ30mm to Φ120mm.

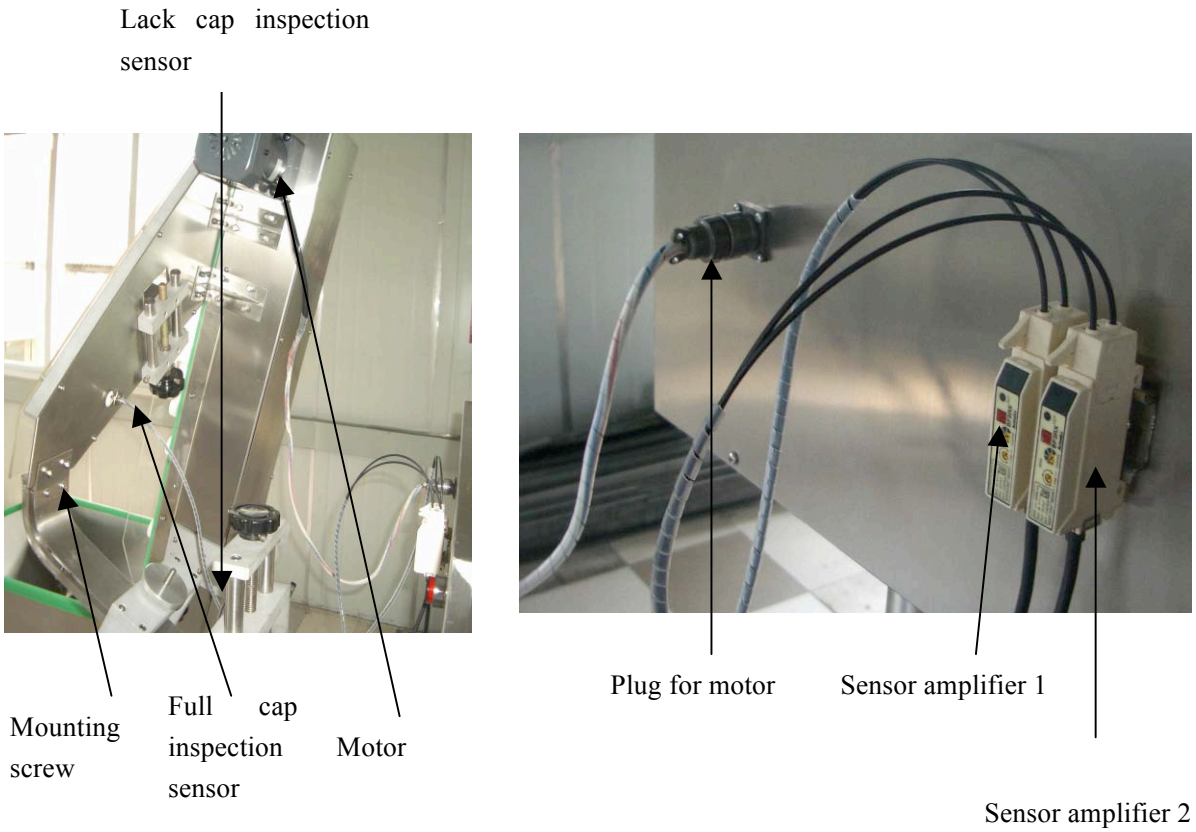
The cap will cover the bottle mouth from the chute automatically when the bottle is feeding into the area of cap pressing part. The cap pressing belt can also be adjusted due to the height of bottles and caps. It will affect the capping performance if the pressure on the cap is not suitable. If the position of cap press part is too high, the pressing performance will be influenced. And if the position is too low, the cap or bottle will be damaged.

Method of adjustment for mainly parts

1. 1. Installation of cap arranging (Elevator) and dropping system.

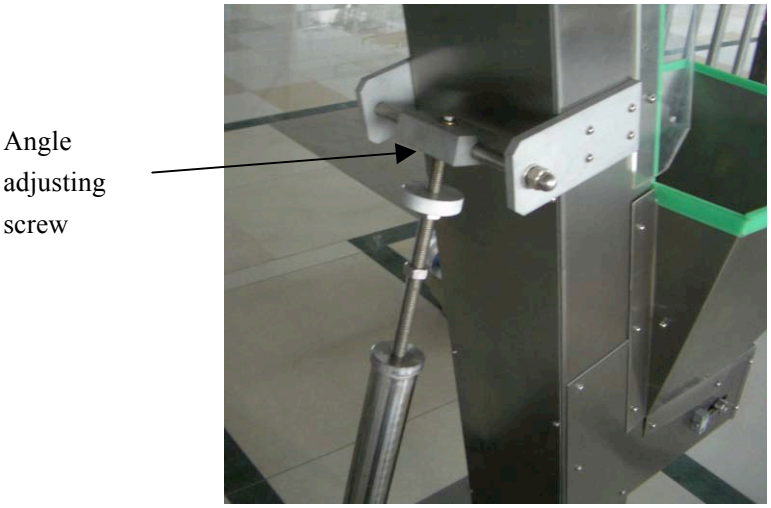
(1) Installation of cap elevator and inspection sensor.

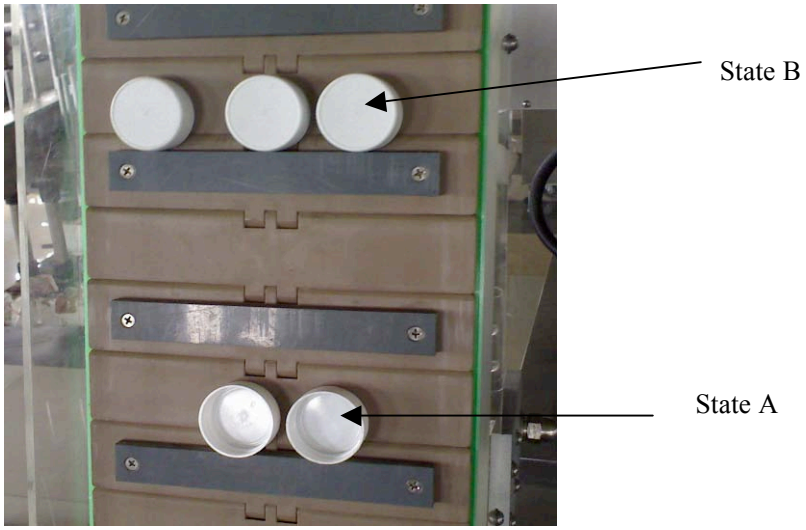
The cap arranging and dropping system is taken down before shipment, so user should install the system before running the machine. Please connect the system as following indication:



a. Connect the cap dropping orbit and chute by mounting screw.
b. Connect the motor wire to plug on the right side of control panel.
c. Connect the full cap inspection sensor to the sensor amplifier 1.
d. Connect the lack cap inspection sensor to the sensor amplifier 2.

Adjust the angle of ladder-type chain: The angle of ladder-type chain has been adjusted according to the sample cap provided before shipment. If change the specifications of cap (just change the size, unchanged the type of cap), user have to adjust the angle of ladder-type by angle adjusting screw till the chain only can feed the cap which the top of cap lean on the chain. Indication as following:

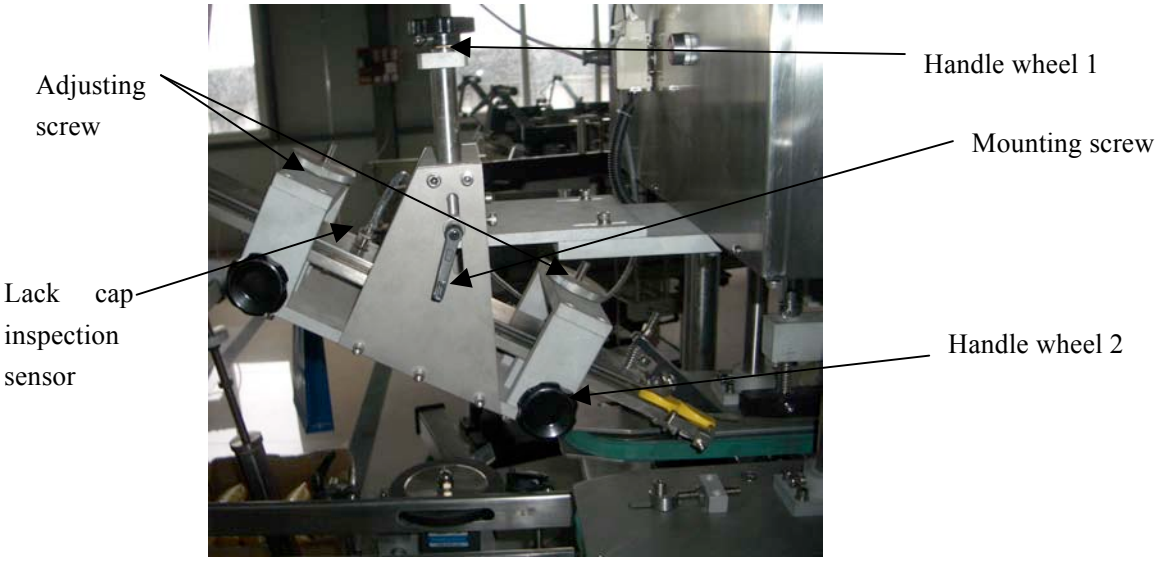




The cap in state A is right state when the ladder-type chain feed the cap. The cap in state B will drop into tank automatically if the chain is in a proper angle.

(2) Adjust the cap dropping system (chute)

The angle of dropping chute and space has been set already according to sample provided. Normally if there's no other new specification of bottle or cap, the setting need not to be adjusted. And if there are more specifications than 1 specification of bottle or cap, client need to list the item on contract or its attachment to ensure manufactory leave enough space for further modifications. The method of adjustment is as following:



Adjusting the height of cap dropping system: Please loose the mounting screw before turn the handle wheel 1.

The adjusting screw can adjust the height of space of chute.

The handle wheel 2 (on two sides) can adjust the width of space of chute.

2. Adjusting the height of main parts as a whole.

The height of main parts such as bottle fix structure, gum-elastic spin wheel, cap pressing part can be adjusted as a whole by machine elevator. The control button of machine elevator is on the right side of control panel. User should loose the mounting screw on the two support pillar before start the machine elevator.

◯, ＼ means down and ◯,/ means up. To make sure the position of spin wheels is match with caps. Please shut off the elevator power and fasten the mounting screw after adjustment.

Mounting screw

Power switch

Switch for machine elevator

Switch for up or down

Remark: Please press the lift switch (green) all the time until getting the right position. The speed of elevator is very slowly, please be waiting for patiently.

4. Adjusting the bottle fix structure.

The fix position of the bottle can be adjusted by adjusting the position of fixing belt. If the fix position is too low on the bottle, the bottle easy to lay down during feeding or capping. On the contrary if the fix position is too high on the bottle, it will disturb the proper working of pressing belt. Be sure that the centerline of conveyor and bottle fix structures are on the same line after adjustment.

Handle wheel A

Turning handle wheel **A** (to turn the handle by 2 hands together) to adjust the distance between bottle fix belt. So the structure could fix the bottle well during pressing process.

The height of bottle fix belt is usually adjusted by the machine elevator.

5. Adjusting the bottle space adjusting wheel and railing.

Operator should change the position of bottle space adjusting wheel and railing when replacing the specification of bottle. The space between the space adjusting wheel and railing should 2-3mm less then the diameter of bottle. Please be sure that the centerline of conveyor and bottle fix structures are on the same line after adjustment.

Loose adjusting screw can adjust the position of bottle space adjusting wheel.

Loose adjusting handle can adjust the width of railing on the both sides of conveyor.

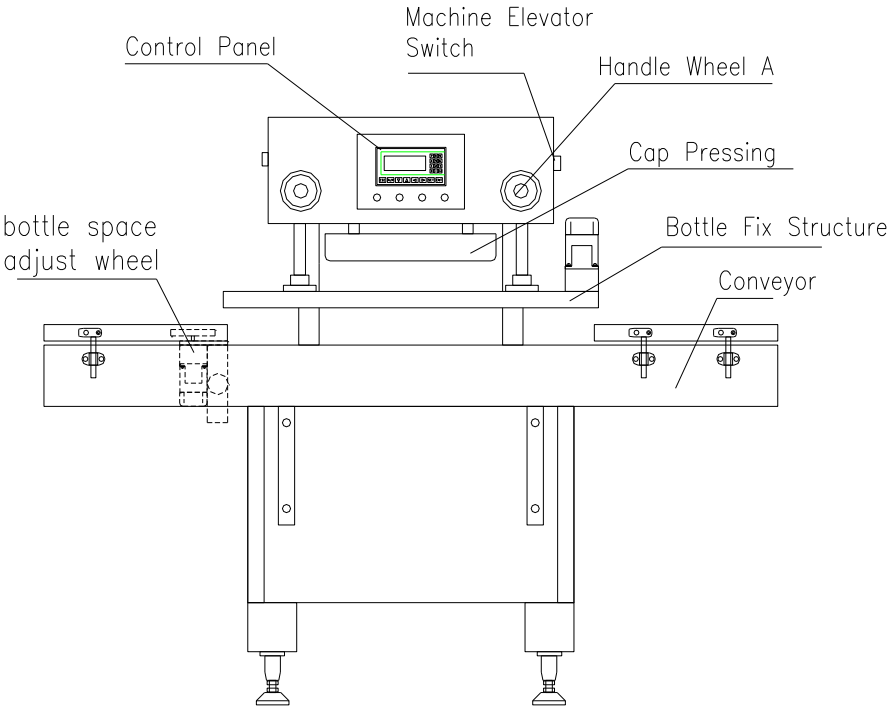
IX. Safety Guide

1. The machine should be settle smooth
2. The power should be earth dependence. When change, plug, pull off the pin should cut off power supply firstly. The voltage of power is **220V**, please ensure supply the stable voltage to avoid damaging the machine.
3. Caution: During maintain and clean the machine should cut off the power. Don't let the liquid (oil, alcohol, chemical solvent) spay to electric parts.

X. Trouble shooting

Problem	Reason	Solution
space between bottle is too small	1. Bottle space adjusting wheel not work； 2. Bottle space adjusting wheel too fast	1. Move the bottle space adjusting wheel to the centerline of the conveyor. 2. Slow down speed of bottle space adjusting wheel.
Caps have not put on bottle properly	The position of cap drop system is not proper.	Adjust the position of the cap drop system.
Bottles getting fall down	1. Pressure of bottle fix not strong enough； 2. The position of bottle fix not good.	1. Operate handle A adjust the distance between bottle fix structure. 2. Raise position of bottle fix belt.
Sudden death or machine does not work	1. Fuse damaged 2. Press the emergency button unwarily.	1. Displace fuse 2. Reset the emergency button.

XIII. Illustration Indicate front view



Equipment List

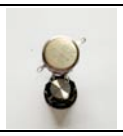
Linear Cap Pressing Machine

Device No.	Origional Supplier	(discription)	Model	Usage
1	TOUCHWIN	Touch Screen	TH465-MT DC24V 4W	Control input and output signal
2	DELTA	Inverter	VFD-L 0.2KW	
3	DELTA	**PLC**	DVP-14SS2	PLC
4	JSCC	Conveyor Motor	90YT60GV22 60W 1:20	Control conveyor
5	JSCC	Bottle support motor	90YT90GV22 90W 1:20 (With Ear)	Control bottle support belt
6	JSCC	Cap Press motor	90YS60GY22 60W 1:1 3 Phase	Control cap pressing belt speed
7	JSCC	Raise and down motor	90YS90GV22 90W 1:180(Fixed Speed)	Adust the height of cap pressing system
8	JSCC	Spacing motor	70YT15GV22F331 15W 1:30	Ajust space between bottles
9	JSCC	Elevator motor	90YT60GV22 60W 1:50	Control elevator
10	JSCC	Speed Adjustor	SPC1000E	Adjust motor speed
11	AUTONICS	Fiber amplifier	BF3RX	Control fiber
12	OMRON	Fiber	Reflect	Detect bottle
13	OMRON	Switch Power Supply	S8JC-Z03524C	24V Power supply
14	OMRON	Relay	MY4N-J	Relay circuit close
15	OMRON	Delay Relay	H3Y-2	Delay Relay circuit close

16	SHAMAN	Contactor	CJX2-0910	Control circuit
17	JSCC	Capacitance	1.2UF	Accumulating Electricity
18	JSCC	Capacitance	4UF	Accumulating Electricity
19	JSCC	Capacitance	5UF	Accumulating Electricity
20	Fraaton	Air Switch	FBB8	Protect total power supply
21	SIEMENS	Light Switch	Red	Machine turn on switch
22	SIEMENS	Emergency Switch	Red	Stop machine
23	SHYD	Small green button	Green	Control motor On and Off
24	SIEMENS	Knob button	Black Knob	Control raise and down
25		Potentiomete	22K	Adjust the voltage and current
26	GNBER	Limit Switch	RZ-15GN22S-B3	Limit raise and down
27	MRO	Fuse seat	RT18-32 (X)	To install fuse
28	HUFENG	Fuse	2A	Protect circuit

Spare parts List

Nos.	Touch screen	Pic	Note
1	Touch screen TH465-MT DC24V 4W		
2	Inverter VFD-L 0.2KW		
3	PLC DVP-14SS2		
4	Conveyor motor 90YT60GV22 60W 1:20		
5	Bottle support motor 90YT90GV22 90W 1:20（With ear）		
6	Cap press motor 90YS60GY22 60W 1:10 3 Phase		
7	Raise and down motor 90YS90GV22 90W 1:180(Fixed speed)		
8	Spacing motor 70YT15GV22F331 15W 1:30		
9	Elevator motor 90YT60GV22 60W 1:50		
10	Speed adjsutor SPC1000E		
11	Sensor BF3RX		
12	Reflect Fiber		
13	Switch Power Supply S8JC-Z03524C		
14	Relay MY4N-J		

15	Delay Relay H3Y-2		
16	Contactor CJX2-0910		
17	Capacitance 1.2UF		
	Capacitance 4UF		
	Capacitance 5UF		
18	Air switch FBB8		
19	Light switch Red		
20	Emergency switch Red		
21	Small green button Green		
22	Knob switch Black knob switch		
23	Potentiomete22K		
24	Limit switch RZ-15GW22S-B3		
25	Fuse seat RT18-32（X）		
26	Fuse 2A		
27	Bottle support belt 3*18*208 teetch		
28	Cap press belt 770*46（6*4）		

29	Spacing wheel 130*55*12		
30	Chain 82．6mm		
31	Chain 190．5mm		
32	Terminal block J1550		
33	Long bracket		
34	Small Knob M8		
35	Handle M6 6mmx50mmx16mm		
36	Handwheel 12*100		
37	Drive wheel of bottle support belt 3M*44Z*36		
38	Driven wheel of bottle support belt.		

XIV. Diagram of electrical principle